

# INTRODUCTION

Finance is the lifeblood of a business. Financial management is a managerial activity concerning the finances of the firm. It deals with planning, control, and management of the financial resources of the firm. It is not only enough to raise the finance for industrial activity; it is necessary to manage it properly as well. Financial management is assuming increased importance in the modern context because some of the most crucial decisions of a firm are those that relate to finance. An enterprise has to undertake five important management functions as a part of its business: (1) finance, (2) operations and production, (3) human resource management, (4) marketing, and (5) strategy.

Chapter 12 explains financial management in business enterprises. Chapter 13 explains operations and human resource management in business enterprises. Chapter 14 explains marketing and strategic management in business enterprises. There exists an inseparable relationship between the finance function and the production, marketing, and human resource management functions. Finance is at the root of any business activity. Therefore, there is a need to properly manage it. Financial management is the process of the procurement and judicious use of financial resources with a view to maximizing the value of the enterprise.

# FUNCTIONS OF FINANCIAL MANAGEMENT

Financial management involves two types of functions<sup>1</sup>: (1) managerial finance functions and (2) routine finance functions. Managerial finance functions require skilful planning, control, and execution of financial activities. Routine finance functions, on the other hand, do not require any great managerial ability to be carried out. They are clerical in nature and incidental to the effective handling of the managerial finance functions. Managerial finance functions are mainly: (1) estimating financial

requirements; (2) identifying sources of finance; (3) raising of finance; (4) proper use of finance; and (5) control of finance.

1. **Estimating financial requirements:** Before starting an industrial unit, it is necessary that an entrepreneur estimate its financial requirements. There is a need to scientifically calculate the fixed capital and working capital requirements. The project report must be prepared with the help of a finance expert or a consultant.
2. **Identifying sources of finance:** Once the total financial requirement is known, the entrepreneur should identify the sources from which finance can be raised. There are many sources open to a small industrial unit. These are: (1) personal funds, (2) funds from friends, (3) banks, (4) financial institutions, and (5) public deposits. After a careful analysis, the entrepreneur should decide from which source he can raise funds.
3. **Raising of finance:** Raising of finance does not mean the mere collection of funds. It has four important dimensions: (1) right source, (2) time schedule, (3) cost, and (4) adequacy. The raising of finance should be adequate, at the right time, from a powerful source, and at the right price or cost. The finance raised should be adequate and sufficient. This helps in the smooth running of business.

An entrepreneur should select the right type of source to raise finance. This requires a lot of thought. The projection of time, that is, when the finance is needed, at what stage, and so on should also be given consideration. All the finance is not required on the first day. One can phase out the time for collecting funds. Funds should be collected as and when required. This will reduce the cost (interest charges). Finance should be so arranged that it becomes available at the proper time, neither too early nor too late. The cost aspect should also be considered while raising funds.

4. **Proper use of finance:** Finance raised for the purpose of any business activity should be carefully used. The project report prepared by the entrepreneur with the help of experts indicates clearly how the finance collected should be used. Financial discipline has to be observed to keep the enterprise in good health. Money should not be used for any purpose other than purely business activity. Many units become sick due to a lack of proper use of finance.
5. **Control of finance:** Control relates to establishing proper procedures and systems to check the financial activity of the business enterprise. A business should be carried out as planned in the project report. Income and expenditure should be kept under control. A review should be made periodically to know whether the business is being carried out along the proper lines or not.

Routine finance is incidental to the effective execution of the managerial finance functions. They involve a lot of paperwork and time. They deal with procedural aspects. The most important routine finance functions are: (1) supervision of cash receipts and payments; (2) safeguarding cash balances; (3) record keeping (accounting); (4) custody and safeguarding of securities, insurance policies, and other important documents; (5) taking care of the mechanical details of outside finances; and (6) regular return of borrowed funds.

Financial management at the firm level also requires proper management of fixed assets, working capital, and costs. Fixed assets themselves cannot generate profits. Idle fixed assets do not generate profits. They should be properly used and managed. Repairs, maintenance, replacement, and revaluation of assets need skilful management.

## TIME VALUE OF MONEY

The object of this section is to illustrate the basics of the mathematics of finance, that is, the time value of money. Recognition of the time value of money in financial decision-making is extremely important. It was observed in Chapter 1 that wealth maximisation, as an objective of financial management, is superior to profit maximisation because, among other things, the former incorporates the timing of benefits received while the latter ignores it. Given the objective of wealth maximisation, much of the subject-matter of financial management is future oriented. A financial decision taken today has implications for a number of years, that is, it spreads into the future. For example, firms have to acquire fixed assets for which they have to pay a certain sum of money to the vendors. The benefits arising out of the acquisition of such assets will be spread over a number of years in the future, till the working life of the assets. On the other hand, funds have to be procured from different sources such as raising of capital through new issues, bank borrowings, term loans from financial institutions, sale of debentures and so on. These involve a cash inflow at the time of raising funds as well as an obligation to pay interest/dividend and return the principal in future. It is on the basis of a comparison of the cash outflows (outlays) and the benefits (cash inflows) that financial decisions are made. For a meaningful comparison the two variables must be strictly comparable. One basic requirement of comparability is the incorporation of the time element in the calculations. In other words, in order to have a logical and meaningful comparison between cash flows that accrue in different time periods, it is necessary to convert the sums of money to a common point of time. This section is devoted to a discussion of the techniques for doing so. We first explain the meaning of, and rationale underlying, the time value of money. The technique employed in adjusting the timing aspect of financial decision making through compounding is explained subsequently. The discounting techniques are illustrated thereafter. The important applications of these techniques are also demonstrated.

## Rationale

Conceptually, 'time value of money' means that the value of a unit of money is different in different time periods. The value of a sum of money received today is more than its value received after some time. Conversely, the sum of money received in future is less valuable than it is today. In other words, the present worth of a rupee received after some time will be less than a rupee received today. Since a rupee received today has more value, rational investors would prefer current receipt to future receipts. The time value of money can also be referred to as *time preference for money*.

The main reason for time preference for money is to be found in the reinvestment opportunities for funds which are received early. The funds so invested will earn a rate of return; this would not be possible if the funds are received at a later time. The time preference for money is, therefore, expressed generally in terms of a rate of return or more popularly as a discount rate. The expected rate of return as also the time value of money will vary from individual to individual depending, *inter alia*, on his perception. We illustrate the time value of money using a simple example.

Suppose, Mr X is given the choice of receiving Rs 1,000 either now or one year later. His choice would obviously be for the first alternative as he can deposit the amount in his saving bank account and earn a nominal rate of interest, say, five per cent. At the end of the year, the amount will accumulate to Rs 1,050. In other words, the choice before Mr X is between Rs 1,050 and Rs 1,000 at the end of the year. As a rational person, Mr X should be expected to prefer the larger amount (i.e. Rs 1,050 here). Here we say that the time value of money, that is, the rate of interest is five per cent. It may, thus, be seen that future cash flows are less valuable because of the investment opportunities of the present cash flows.

What applies to an individual applies equally, if not in greater measure, to a business firm. It is because business firms make decisions which have ramifications extending beyond the period in which they were taken. For instance, the capital budgeting decision generally involves the current cash outflows in terms of the amount required for purchasing a new machine or launching a new project and the execution of the scheme generates future cash inflows during its useful life. Let us assume that the project cost (current cash outflows) is Rs 10,00,000. To keep the illustration simple, it is assumed that the project has a useful life of only one year in which it is estimated to have cash inflows of Rs 10,80,000 (at the end of the first year). The project appears to be *prima facie* acceptable as it adds Rs 80,000 as profit. However, when we take into account a rate of interest, say, of 10 per cent, the earlier conclusion will have to be revised as, without the project, the sum could have amounted to Rs 11,00,000. Likewise, when the decision is made to raise a loan of Rs 10,00,000 from a financial institution or by issuing debentures, for a period of 10 years, the firm is not only under obligation to meet interest payment as and when it becomes due on the debt at fixed intervals but also must make provisions so that it can repay Rs 10,00,000 when the loan or debentures become due. Thus time value of money is of crucial significance. This requires the development of procedures and techniques for evaluating future incomes in terms of the present.

## Techniques

The preceding discussion has revealed that in order to have logical and meaningful comparisons between cash flows that result in different time periods it is necessary to convert the sums of money to a common point in time. There are two techniques for doing this: (1) Compounding, and (2) Discounting.

**Compounding Technique** Interest is compounded when the amount earned on an initial deposit (the initial principal) becomes part of the principal at the end of the first compounding period. The term principal refers to the amount of money on which interest is received. Consider Example 2.1.

**Example 2.1**

If Mr X invests in a saving bank account Rs 1,000 at 5 per cent interest compounded annually, at the end of the first year, he will have Rs 1,050 in his account. This amount constitutes the principal for earning interest for the next year. At the end of the next year, there would be Rs 1,102.50 in the account. This would represent the principal for the third year. The amount of interest earned would be Rs 55.125. The total amount appearing in his account would be Rs 1,157.625. Table 2.1 shows this compounding procedure:

**TABLE 2.1 Annual Compounding**

Year	1	2	3
Beginning amount	Rs 1,000	Rs 1,050	Rs 1,102.50
Interest rate	0.05	0.05	0.05
Amount of interest	50	52.50	55.125
Beginning principal	1,000	1,050	1,102.50
Ending principal	1,050	1,102.50	1,157.625

This compounding procedure will continue for an indefinite number of years. The compounding of interest can be calculated by the following equation:

$$A = P (1 + i)^n \quad (2.1)$$

in which

*A* = amount at the end of the period

*P* = principal at the beginning of the period

*i* = rate of interest

*n* = number of years

The amount of money in the account at the end of various years is calculated by using Eq. 2.1.

$$\text{Amount at the end of year } 1 = \text{Rs } 1,000 \quad (1 + .05) = \text{Rs } 1,050$$

$$2 = \text{Rs } 1,050 \quad (1 + .05) = \text{Rs } 1,102.50$$

$$3 = \text{Rs } 1,102.50 \quad (1 + .05) = \text{Rs } 1,157.625$$

The amount at the end of year 2 can be ascertained by substituting Rs 1,000  $(1 + .05)$  for Rs 1,050, that is,  $\text{Rs } 1,000 (1 + .05) (1 + .05) = \text{Rs } 1,102.50$ .

Similarly, the amount at the end of year 3 can be determined in the following way:  $\text{Rs } 1,000 (1 + .05) (1 + .05) (1 + .05) = \text{Rs } 1,157.625$ .

Thus, after substituting the actual figures for the investment of Rs 1,000 in the formula  $A = P (1 + i)^n$ , we arrive at the same result as in Table 2.1. This is the fundamental equation of compound interest. The formula is useful as it can be applied quite readily for wide ranges of *i* and *n*. However, the calculations involved will be tedious and time-consuming if the number of years involved is large, say, 15 years or 20 years. To find the compound value of Rs 1,000, assuming the rate of interest to be 5 per cent, the compounding factor 1.05 is to be raised to fifteenth power or twentieth power. In order to simplify the compound interest calculations, compound interest tables for values  $(1 + i)^n$  for wide ranges of *i* and *n* have been compiled. Table A-1 given in Appendix I at the end of the book gives compound value interest factor of one rupee at different rates of interest for different time periods. The compounded values can be readily calculated with the help of Table A-1. For instance, if Mr X wishes to find out how much his savings, Rs 1,000, will accumulate to in 15 years at 5 per cent rate of interest, application of the formula will require solving 1.05 raised to the power of fifteen:  $\text{Rs } 1,000 (1.05)^{15} = A$

# **FINANCIAL STATEMENTS**

Financial statements are the most important part of financial reporting. They are recorded in the company's annual report for the benefit of all the stakeholders of an enterprise. Based on this financial information, a business formulates its strategies for revenue enhancement, cost economies, efficiency, and improvements. It may be used for corporate restructuring and further expansion/diversification for creating and enhancing the wealth of its stakeholders. A complete set of financial statements normally consists of:

## **Profit and Loss Account**

This is also known as income statement, statement of earnings, statement of operations, and profit and loss statement. The profit and loss account of an enterprise reports the results of operations in terms of income/net profit in a year. The statement of profit and loss depicts the total income of the company, the expenditure incurred in deriving that income, the income tax payable to the government, the net profit earned, the dividend paid to the shareholders, and the profit retained and ploughed back into the company. The salient features of a profit and loss account are:

- Prepared for a given period.
- Comparative position.
- Vertically drawn.
- Grouping on income and expenditure.
- Details in schedules and notes to the accounts.
- Appropriation of profit and transfer to the balance sheet.
- Signed by person who prepared it and the auditors.

The profit and loss account represents the scoreboard of the performance of the enterprise in terms of the profitability of operations. The main contents of a profit and loss account are revenues, sales income, and net income/profit/loss. Revenue is the income the enterprise generates by sale of goods/services/assets or by supply of the firm's resources to others. The revenue is also the value that an enterprise receives from its customers. The sales income equals net sales. The difference between the revenues and expenses is net profit. The gross profit is the difference between the cost of goods that have been sold and the proceeds of their sales, without any deduction for distribution expenses and general establishment charges. Gross profit less operating expenses will give the net profit. A company's total revenues less total expenses for a set period are its net profits. The consolidated profit and loss account of Tata Consultancy Services Ltd for 2011–2012 is given in Table 12.3.

## **Cash Flow Statements**

The cash generated and utilized by a company is depicted in the cash flow statement. This statement completes the set of financial statements. The cash flow statement is derived from the balance sheet, profit and loss account, and cash equivalents of an enterprise by classifying cash flows during the period from operating, investing, and financing activities. Cash has been defined as comprising cash on hand and demand deposits with banks. Cash equivalents refer to short term, highly liquid investments that are readily convertible into known amounts of cash. These investments are subject to an insignificant risk of change in value. Cash flows refer to inflows and outflows of cash and cash equivalents. The cash flow statement of HPCL for the year 2015–2017 is given in Table 12.4. The salient features of a cash flow statement are:

- Prepared for a given period.
- A derived statement.
- Comparative position.
- Vertically drawn.
- Cash flows from operating, investing, and financing activities.
- Reconciliation with the opening and closing balances of cash and cash equivalents.
- Indirect method for cash flows from operating activities.
- Signed by the person who prepared it and the auditors.

When a cash flow statement is used in relation with other financial statements, it provides the following benefits:

- It enables users to analyse the changes in the net assets of an enterprise, its financial structure including its liquidity and solvency, and its ability to affect the amount and timing of cash flows in order to adapt to changing circumstances and opportunities.

**Table 12.3**  
**Profit and Loss**  
**Account of**  
**HPCL for the**  
**year 2015–2017**  
**(INR. in Crore)**  
**Industry:**  
**Refineries<sup>7</sup>**

<b>Year</b>	<b>March 17 (12)</b>	<b>March 16 (12)</b>	<b>March 15 (12)</b>
<b>INCOME :</b>			
Sales Turnover +	213,802.99	197,743.83	217,306.92
Excise Duty	26,779.28	20,043.20	10,680.74
Net Sales	187,023.71	177,700.63	206,626.18
Other Income +	1,514.72	1,144.16	1,706.15
Stock Adjustments +	4,454.06	-90.86	-3,749.44
<b>Total Income</b>	<b>192,992.49</b>	<b>178,753.93</b>	<b>204,582.89</b>
<b>EXPENDITURE :</b>			
Raw Materials +	167,611.16	156,472.26	185,436.80
Power & Fuel Cost+	870.56	1,008.09	848.41
Employee Cost +	2,946.08	2,321.32	2,414.66
Other Manufacturing Expenses +	1,779.66	1,656.18	2,584.81
Selling and Administration Expenses +	6,992.46	6,934.65	6,275.91
Miscellaneous Expenses +	700.8	1,277.98	182.83
Less: Pre-operative Expenses Capitalised +	0	0	0
<b>Total Expenditure</b>	<b>180,900.72</b>	<b>169,670.48</b>	<b>197,743.42</b>
<b>Operating Profit</b>	<b>12,091.77</b>	<b>9,083.45</b>	<b>6,839.47</b>
Interest +	535.65	653.6	706.59
<b>Gross Profit</b>	<b>11,556.12</b>	<b>8,429.85</b>	<b>6,132.88</b>
Depreciation +	2,535.28	2,653.21	1,978.76
<b>Profit Before Tax</b>	<b>9,020.84</b>	<b>5,776.64</b>	<b>4,154.12</b>
Tax +	2,183.76	1,313.18	988.09
Fringe Benefit tax +	0	0	0
Deferred Tax +	628.28	737.3	432.77
<b>Reported Net Profit</b>	<b>6,208.80</b>	<b>3,726.16</b>	<b>2,733.26</b>
Extraordinary Items +	17.62	-34.52	24.55
<b>Adjusted Net Profit</b>	<b>6,191.18</b>	<b>3,760.68</b>	<b>2,708.71</b>
Adjst. below Net Profit +	-4,201.17	-1,756.17	-499.52
P & L Balance brought forward	14,740.12	12,621.96	11,269.70
Statutory Appropriations	0	0	0
Appropriations +	0	-148.17	1,136.30
<b>P &amp; L Balance carried down</b>	<b>16,747.75</b>	<b>14,740.12</b>	<b>12,367.14</b>
Dividend	0	0	829.64
Preference Dividend	0	0	0
Equity Dividend %	300	345	245
Dividend Per Share (Rs)	30	34.5	24.5
Earnings Per Share-Unit Curr	61.09	109.91	75.64
Earnings Per Share(Adj)-Unit Curr	40.73	24.42	16.81
Book Value-Unit Curr	200.22	530.07	472.61
Book Value(Adj)-Unit Curr	133.48	117.8	105.03

**Table 12.4.**  
**Cash Flow**  
**Statement of**  
**HPCL for the**  
**year 2015–2017**  
**(INR. in Crore)**  
**Industry:**  
**Refineries<sup>8</sup>**

Year	March 17	March 16	March 15
<b>Cash Flow Summary</b>			
Cash and Cash Equivalents at Beginning of the year	-2,390.49	-1,100.65	27.66
Net Cash from Operating Activities	9,982.73	6,783.05	17,841.09
Net Cash Used in Investing Activities	-5,309.84	-4,354.32	-3,291.33
Net Cash Used in Financing Activities	-4,015.28	-3,718.57	-14,568.26
Net Inc./Dec in Cash and Cash Equivalent	657.61	-1,289.84	-18.5
Cash and Cash Equivalents at End of the year	-1,732.88	-2,390.49	9.16

- The information can be used to assess the ability of an enterprise to generate cash and cash equivalents and enables users to develop models to evaluate and compare the present value of the future cash flows of different enterprises.
- It enhances the comparability of the reporting of operating performance by different enterprises because it eliminates the effects of using different accounting treatments for the same transactions.
- Historical cash flow information is often used as an indicator of the amount, timing, and certainty of future cash flows.
- It is useful in checking the accuracy of the past assessments of future cash flows.
- It helps in examining the relationship between profitability and net cash flow.



- Financial statements are the most important part of financial reporting. They are recorded in the company's annual report for the benefit of all the stakeholders of an enterprise.
- A complete set of financial statements normally consists of balance sheet, profit and loss account or income statement, and cash flow statement.
- The balance sheet contains information in respect of assets, liabilities, and shareholder's equity.
- The profit and loss account of an enterprise reports the results of operations in terms of income/net profit in a year.
- A cash flow statement depicts the cash generated and utilized by a company.

## WORKING CAPITAL MANAGEMENT

Working capital refers to the funds that a company must possess to finance its day-to-day operations. It is a short-term fund needed to meet operating expenses. The management of working capital is important for the smooth functioning of enterprises. Working capital is the net of current assets minus current liabilities. It is equal to the value of raw materials, work in progress, finished goods inventories, and accounts receivable less accounts payable.

There are two concepts of working capital. These are gross working capital and net working capital. Gross working capital is the sum of all current assets that appear in the balance sheet. Net working capital is the excess of current assets over current liabilities. It can be positive or negative. Net working capital helps decide the extent of long-term capital in financing current assets. Current assets are the short-term assets, which can be converted into cash within the normal financial year without much loss. These include: cash and bank balances, receivables, inventory, prepaid expenses, short-term advances, and temporary investments. Current liabilities are the debts of the enterprise intended to be paid in the current accounting period or within a year out of the current assets. These

include creditors for goods purchased, outstanding expenses, short-term borrowings, advances received against sales, taxes and dividends payable, and other liabilities maturing within a year.

Working capital can be classified into permanent and temporary working capital taking the time period as the basis of classification. Assets that are required on a continuing basis over the entire year comprise permanent working capital. Temporary working capital represents additional assets required at different times during the year.

The requirement of working capital differs depending on the nature of the industry that a company operates in. The company's operating cycle (working capital cycle) also determines the level of working capital. The working capital cycle is the length of time between the company's outflow on raw materials, wages, and other expenditures and the inflow of cash from the sale of goods. The working capital cycle refers to the time it takes to purchase inventory or components to making the sale and receiving the cash and is shown in Figure 12.1. Working capital is made up of the following three core components in the cycle:

- Inventory and work in progress (work in progress generally applies to manufacturers)
- Accounts payable (payments due to suppliers; creditor payments)
- Accounts receivable (cash due from customers; debtor collection)

## Calculation of Working Capital Cycle

The working capital cycle can be calculated by using the following formula:

$$\text{Working capital cycle} = \text{Inventory days} + \text{Receivable days} - \text{Payable days}$$

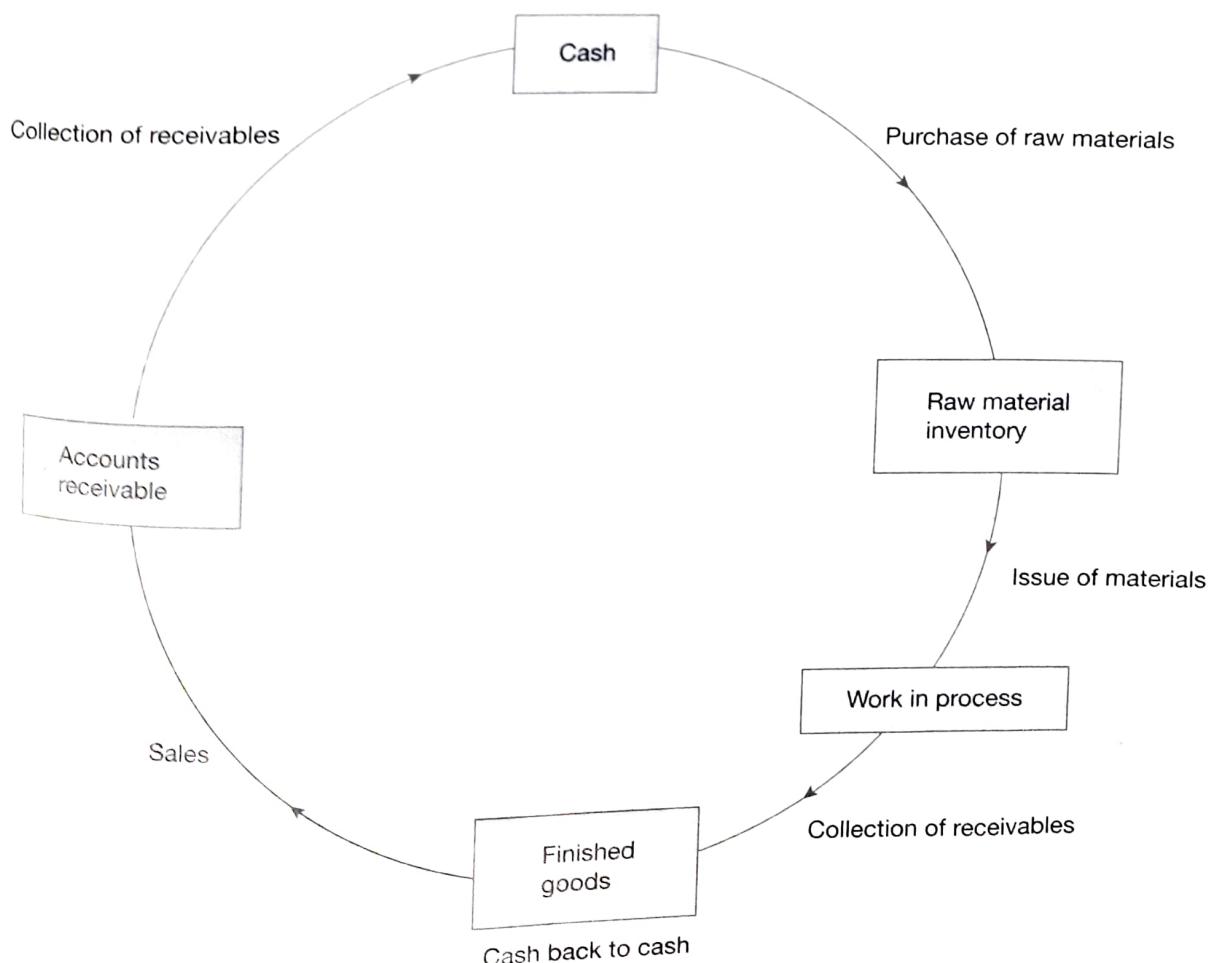
where,

$$\text{Inventory days} = \text{Inventory/Cost of sales} \times 360 \text{ days}$$

$$\text{Receivable days} = \text{Receivables/Sales} \times 360 \text{ days}$$

$$\text{Payable days} = \text{Payables/Cost of sales} \times 360 \text{ days}$$

**Figure 12.1  
Working Capital Cycle**



## DISCUSSION FORUM

- Write a note on the various types of financial statements of an enterprise.
- Discuss the working capital cycle.
- Explain the sources of working capital financing.
- Name the various ratios used for measuring the efficiency of management of the working capital.

## BREAK-EVEN ANALYSIS

Break-even analysis<sup>4</sup> is a technique widely used by accountants. The break-even analysis is a calculation that forecasts the point at which a company's total revenues are equal to its total expenses. The break-even point is the point of business operations when the business neither earns any profit nor incurs any loss. If the sales volume exceeds this point, profit starts picking up. It is important to estimate for what volume of sales the business will be earning a profit. Break-even analysis focuses on the relationship between fixed cost, variable cost, and selling price.

A break-even chart is a strategic tool used to plot the financial revenue of a business unit against time or sales to determine the break-even point when sales output is equal to revenue generated. In its simplest form, the break-even chart is a graphical representation of costs at various levels of activity shown on the same chart as the variation of income with the same variation in activity. The point at which neither profit nor loss is made is known as the "break-even point" and is represented on the chart shown in Figure 12.2 by the interaction of the two lines. The break-even point is calculated by using the following formula:

$$\text{Break-even point} = \frac{\text{Fixed costs}}{\text{Selling price per unit} - \text{Variable costs}}$$

Fixed costs are costs that do not vary in relation to the level of sales output, for example, rent and rates, depreciation, research and development, marketing costs, and administration costs. Variable costs are costs that vary in proportion to the level of sales output, for example, raw materials, direct labour, fuel, and revenue-related costs such as commission. The price that a unit is sold for is referred to as the selling price per unit.

### EXAMPLE

The data regarding the fixed costs and variable costs of a company are given below. If the company has to break even, how many units should it sell?

#### Fixed costs:

Monthly rent: INR. 1,000

Insurance: INR. 500

Total monthly fixed costs: INR. 1,500

**Variable costs:**

Materials: INR. 30

Labour: INR. 40

Total variable cost: INR. 70

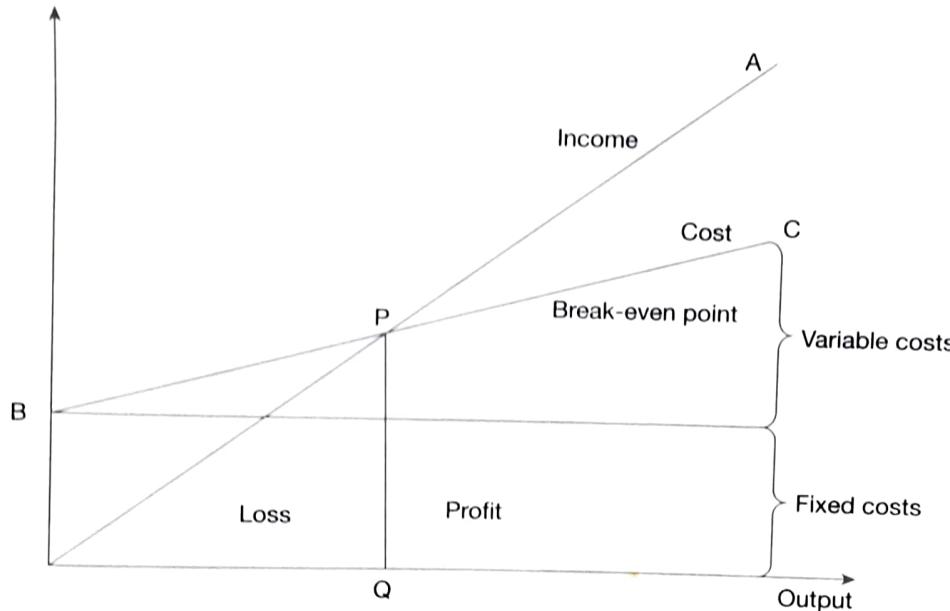
Selling price: INR. 100

**Solution:**

$$\text{Break-even point} = \frac{\text{Fixed costs}}{\text{Selling price per unit} - \text{Variable costs}}$$

$$\text{Break-even point} = \frac{1,500}{100-70} = \frac{1,500}{30} = 50$$

The company should sell 50 units per month to break even.



**Figure 12.2**  
**The Break-even**  
**Chart**

- Break-even analysis is used to forecast the point at which a company's total revenues are equal to its total expenses.
- Break-even point is the point of business operation when the business neither earns any profit nor incurs any loss.



# FINANCIAL RATIO ANALYSIS

Ratio analysis seeks to measure and establish cause-and-effect relationships between either two items of a balance sheet or of a profit and loss account, or both the balance sheet and the profit and loss account. Thus, ratio analysis is a more focused analysis of financial statements. It involves methods of calculating and interpreting financial ratios to analyse and monitor the firm's performance. The firm's balance sheet and income statement are the basic inputs needed for ratio analysis. Ratio analysis does not merely involve the calculation of a given ratio. The interpretation of results for decision making is the most critical part of ratio analysis. Two types of ratio comparisons can be made: time-series analysis and cross-sectional analysis. Ratio analysis is of particular significance in the following cases:

- Comparison against industry benchmarks.
- Inter-firm comparison because absolute figure comparison will not be conclusive.

- Intra-firm comparison.
- Analysis of chronological performance over a long period.

Financial ratios can be divided for convenience into five basic categories: liquidity, activity, debt, profitability, and market ratios. Liquidity, activity, and debt ratios measure risk. Profitability ratios measure return. Market ratios capture both risk and return. The DuPont system of analysis is used to dissect the firm's financial statements and to assess its financial condition. Financial analysts wish to take an overall look at the firm's financial performance and status.

The two popular approaches to a complete ratio analysis are summarizing all the five basic categories of ratios and the DuPont system of analysis. The summary analysis approach tends to view all aspects of the firm's financial activities to isolate key areas of responsibility. The DuPont system acts as a search technique aimed at finding the key areas responsible for the firms' financial condition. Ratios are classified<sup>5</sup> according to their functions and objectives as given below:

- Liquidity ratios
- Activity/turnover ratios
- Debt/solvency ratios
- Profitability ratios
- Capital market ratios
- DuPont analysis

## Liquidity Ratios

The liquidity of a firm is measured by its ability to satisfy its short-term obligations as they come due. The capacity of an enterprise to discharge its suppliers and service providers and to meet its day-to-day expenses indicates its liquidity and ensures the smooth continuity of operations, which in turn, has a strong bearing on the long-term survival of the company. These are particularly useful for the suppliers, employees, providers of services, and lenders to assess the short-term financial default risk attached to a company. The two basic measures of liquidity are the current ratio and the quick (acid-test) ratio. The five major ratios here are:

- Current ratio = Current assets/Current liabilities
- Quick ratio (acid-test) ratio = Current assets – (Inventory/Current liabilities)
- Collection period to customers (days) = Receivables × (365/Credit sales)
- Suppliers' credit (days) = Payables × (365/Credit purchases)
- Inventory-holding period = Inventory × (365/Cost of goods sold)

## Activity/Turnover Ratios

Activity ratios measure the speed with which various accounts are converted into sales or cash inflows or outflows. The efficiency with which the assets and resources of a company are utilized in generating operational revenue has a direct bearing on the top line. It is, therefore, important to study the turnover ratios. The four major ratios are:

- **Inventory turnover ratio:** The inventory turnover measures the activity or liquidity of a firm's inventory. It can be calculated using the following formula:

$$\text{Inventory turnover} = \text{Cost of goods sold}/\text{Inventory}$$

- **Average collection period:** The average collection period measures the average amount of time needed to collect accounts receivable. It can be calculated using the following formula:

$$\text{Average collection period} = \text{Accounts receivable}/\text{Average sales per day}$$

- **Average payment period:** The average payment period measures the amount of time needed to pay the accounts payable. It can be calculated using the following formula:

$$\text{Average payment period} = \text{Accounts payable}/\text{Average purchases per day}$$

- **Total asset turnover:** The total asset turnover indicates the efficiency with which the firm uses its assets to generate sales. It can be calculated using the following formula:

$$\text{Total asset turnover} = \text{Sales}/\text{Total assets}$$

## Debt/Solvency Ratios

The capacity of an enterprise to discharge its obligations towards long-term lenders indicates its financial strength and ensures its long-term survival. The debt position of a firm indicates the amount of other people's money being used to generate profits. It is important to analyse the capacity of an enterprise to raise further capital borrowings. These are particularly useful for financial institutions, banks, and other lenders to assess the creditworthiness of a company and the attendant financial default risk. The various solvency ratios are:

- **Debt ratio:** The debt ratio measures the proportion of total assets financed by the firm's creditors. It can be calculated by using the formula:

$$\text{Debt ratio} = \text{Total liabilities}/\text{Total assets}$$

- **Net asset value (NAV):** This ratio measures the net worth or net asset value per equity share. It seeks to assess to what extent the value of an equity share of a company contributed at par or at a premium has grown or the value/wealth that has been created for the shareholders. It can be calculated by using the formula:

$$\text{NAV} = \text{Equity shareholders' funds}/\text{No. of equity shares}$$

- **Debt equity (D/E) ratio:** This ratio measures the proportion of debt and capital. It can be calculated by using the formula:

$$\text{Debt equity ratio} = \text{Long-term debt}/\text{Total net worth}$$

- **Interest cover ratio:** This ratio measures the capacity of a company to pay the interest liability it has incurred on its long-term borrowings out of its cash profits. It can be calculated by using the formula:

$$\text{Interest cover} = \text{PAT interest on long-term debt} + (\text{Non-cash charges}/\text{Interest on long-term debt})$$

- **Debt-coverage service (DSCR) ratio:** The ratio measures the capacity of a company to pay the installments of the principal due and the interest liability it has incurred on its long-term borrowings out of its cash profits. It can be calculated by using the formula:

$$\text{DSCR ratio} = \text{PAT} + \text{Interest on long-term debt} + (\text{Non-cash charges}/\text{Interest on long-term debt}) + \text{Installments of principal due}$$

## Profitability Ratios

Profitability ratios enable the analyst to evaluate the firm's profits with respect to a given level of sales, a certain level of assets, or the owner's investment. These ratios analyse the profitability of an enterprise at different steps or at intermediate levels of business activities. The major profit margin ratios are:

- **Gross profit margin:** The gross profit margin measures the percentage of sales rupees remaining after the firm has paid for its goods. It can be calculated using the formula:

$$\text{Gross profit margin} = \text{Gross profits}/\text{sales}$$

- **Operating profit margin:** The operating profit margin measures the percentage of sales rupees remaining after all costs and expenses, other than interest, taxes, and preferred stock dividends, are deducted. It represents the "pure profits" earned on each sales rupee. It can be calculated using the formula:

$$\text{Operating profit margin} = \text{Operating profits}/\text{sales}$$

- **Net profit margin:** The net profit margin measures the percentage of sales rupees remaining after all costs and expenses, including interest, taxes, and preferred stock dividends, have been deducted.

Net profit margin = Earnings available for common stockholders/Sales

- **Earnings per share (EPS):** The earnings per share represent the amount in rupees earned on behalf of each share, not the amount of earnings actually distributed to shareholders.

$$\text{Earnings per share (EPS)} = \frac{\text{Earnings available for common stockholders}}{\text{Number of shares of common stock outstanding}}$$

- **Return on total assets (RoA):** The return on total assets measures the overall effectiveness of the management in generating profits with its available assets; also called return on investment (RoI).

$$\text{Return on total assets (RoA)} = \frac{\text{Earnings available for common stockholders}}{\text{Total assets}}$$

- **Return on common equity (RoE):** The return on common equity (RoE) measures the return earned on the common stockholders' investment in the firm.

$$\text{Return on common equity (RoE)} = \frac{\text{Earnings available for common stockholders}}{\text{Common stock equity}}$$

The maximization of RoI is the ultimate objective of an enterprise and it is the ultimate measure of the efficiency of performance of a management. It is the expectation of a high return that motivates equity shareholders to continue with the company and new investors to put in their money in the company's equity. The three major RoI ratios are:

- **Return on net worth (RoNW):** This ratio measures the net profit earned on the equity shareholders' funds. It is the measure of the overall profitability of a company after discharging the cost of borrowed capital and the income tax payable to the government. It can be calculated using the formula:

$$\text{RoNW} = (\text{PAT} - \text{Preference dividend}/\text{Equity shareholder's funds or net worth}) \times 100$$

- **Earnings per share (EPS):** This ratio measures the overall profitability in terms of per equity share of capital contributed by the owners. It can be calculated using the formula:

$$\text{EPS} = \text{PAT} - \text{Preferences dividend}/\text{Weighted average no. of equity shares outstanding}$$

- **Cash earnings per share (CEPS):** This ratio measures the overall cash profitability in terms of per equity share of capital contributed by the owners. It is a refinement of EPS in that it takes into account the cash earning, and not accrual-based earnings. It can be calculated using the formula:

$$\text{CEPS} = \text{PAT} - \text{Preference dividend} + (\text{Non-cash charges}/\text{Weighted average no. of equity shares})$$

## Capital Market Ratios

The capital market has become a major source of capital, both for equity as well as bonds and debentures for the industry. Market ratios relate a firm's market value, as measured by its current share price, to certain accounting values. It is necessary for the entrepreneur to have a knowledge of these ratios. The two important market ratios are:

- **Price-earnings (P/E) ratio:** The P/E ratio measures the amount that investors are willing to pay for each rupee of a firm's earnings; the higher the P/E ratio, the greater is investor confidence. This ratio can be calculated by using the following formula:

$$\text{Price/earnings (P/E) ratio} = \frac{\text{Market price per share of common stock}}{\text{Earnings per share}}$$

- **Market-book (M/B) ratio:** The M/B ratio provides an assessment of how investors view the firms' performance. Firms are expected to earn high returns relative to their risk typically to sell at higher M/B multiples. This ratio can be calculated using the formula:

$$\text{Market/book (M/B) ratio} = \frac{\text{Market price per share of common stock}}{\text{Common stock equity}}$$

# CAPITAL BUDGETING

Capital budgeting is the process of evaluating and selecting long-term investments that are consistent with the goal of shareholders' wealth maximization. The capital budgeting process deals with identifying and selecting investment projects whose returns are expected to extend beyond one year. Capital budgeting decisions are of paramount importance in financial decision making because such decisions are long term, not easily reversible, involve cost, and affect the profitability of an enterprise. The decisions are made at three levels: operating decisions, administrative decisions, and strategic decisions. Capital budgeting relates to fixed assets and enables the enterprise to generate finished goods that can ultimately be sold for profit. Capital budgeting involves:

- Generating investment project proposals consistent with the firm's strategic objectives.
- Project analysis or project feasibility study.
- Evaluating and selecting projects based on a value maximizing acceptance criteria.
- Project financing.
- Implementing investment projects continually.

## GENERATING AN INVESTMENT PROJECT PROPOSAL

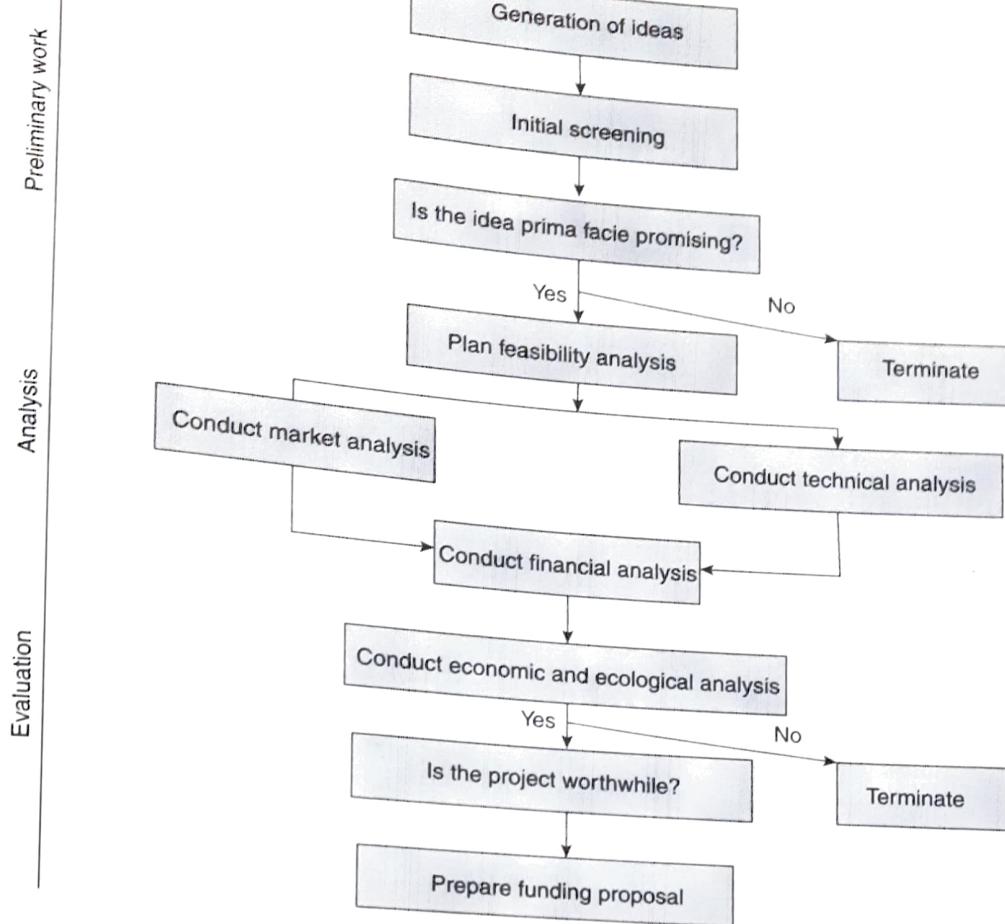
The enterprise may allocate budget to new products/services or expansion of existing products/services, replacement of equipment or buildings, and research and development. The enterprise may be confronted with three types of capital budgeting decisions: (i) the accept-reject decision, (ii) the mutually exclusive choice decision, and (iii) the capital rationing decision.

The accept-reject decision is the evaluation of the capital expenditure proposal to determine whether it meets the minimum acceptance criteria. If the proposal is accepted, the firm would invest in it; if the proposal is rejected, the firm does not invest in it. In general, proposals which yield a rate of return greater than the cost of capital are accepted and the rest are rejected. Mutually exclusive projects are projects that compete with one another; the acceptance of one eliminates the others from further consideration. The alternatives are mutually exclusive and only one may be chosen. Capital rationing decision is a situation where the firm has unlimited funds. All the independent investment proposals yielding return greater than some predetermined level are accepted. Capital rationing is the financial situation in which a firm has only a fixed amount to allocate among competing capital expenditures. The benefits received from the project are expressed in terms of cash flows and cash flows should be measured on an incremental, after-tax basis.

## PROJECT ANALYSIS

This is also known as project feasibility study. Once a project proposal is identified and if the project seems worthwhile, detailed analysis of the marketing, technical, economic, and ecological aspects are undertaken. Based on the information developed in the analysis, the stream of costs and benefits associated with the project can be defined. The important facets of project analysis are market analysis, technical analysis, financial analysis, economic analysis, and ecological analysis. A schematic diagram of the project feasibility study is shown in Figure 8.4.

**Figure 8.4**  
**Project**  
**Feasibility**  
**Study: A**  
**Schematic**  
**Diagram**



*Source:* Chandra, Prasanna (2010). *Projects: Planning, Analysis, Selection, Financing, Implementation and Review*. New Delhi: Tata McGraw-Hill. Reproduced with permission.

## MARKET ANALYSIS

This mainly deals with determining the potential market and the market share for the proposed project. Market analysis is concerned with forecasting the demand for the product/service under consideration. It requires finding a variety of information on consumption trends, cost structures, structures of the competition, the elasticity of demand, consumer behaviour, and exports and imports.

## TECHNICAL ANALYSIS

This principally deals with determining the technical viability for successful commissioning of the proposed project and for ascertaining whether sensible choices have been made with respect to location, size, process, etc. Technical analysis requires finding a variety of information on the availability of raw material and various other inputs; the type of technology to be adopted; choosing a suitable layout for the site, building and plant; and choosing the appropriate plant, machinery, and process.

## FINANCIAL ANALYSIS

This mainly deals with determining the risk and return for the proposed project. Financial analysis seeks to ascertain whether the proposed project will be financially viable. It requires finding a variety

of information on the cost of the project and the means of finance; the cost of capital; the projected profitability; cash flows of the project; the break-even point; the level of risk; the investment outlay and worthiness; and projected financial position.

## ECONOMIC ANALYSIS

This is also called social-cost benefit analysis and is mainly concerned with judging a project from the social point of view. The focus is on the social costs and benefits of the proposed project. It deals with determining benefits and costs in terms of shadow prices and other social impacts. Economic analysis requires finding a variety of information on economic costs and benefits measured in terms of the efficiency (shadow) prices; employment to be generated by the project; impact of the project on the distribution of income in society; and the impact of the project on the level of savings and investment in society.

## ECOLOGICAL ANALYSIS

This mainly deals with determining the quantum of damage likely to be caused by the proposed project to the environment, and the cost of restoration measures required to be undertaken to ensure that the damage to the environment is within acceptable limits.

## PROJECT EVALUATION AND SELECTION

There are various appraisal criteria available to evaluate projects. These are broadly divided into two categories: non-discounting criteria and discounting criteria. The various types of non-discounting criteria are payback period (PBP) and accounting rate of return (ARR). The various types of discounting criteria are net present value (NPV), the internal rate of return (IRR), and benefit-cost ratio (BCR). The rules for selection of these criteria are given in Table 8.2.

### The Payback Period

The payback period represents the amount of time that it takes to recover the cost of investment made in a project. All other things remaining equal, the better investment is the one with the shorter payback period. This method ignores the time value of money. Benefits occur after the payback period and do not measure profitability. The method of calculating the payback period is shown below:

$$\text{Payback period (PBP)} = \text{Cost of project}/\text{Annual cash inflows}$$

For example, If a project costs INR. 100,000 and is expected to return INR. 20,000 annually, the payback period is 5 years.

$$\text{Payback period} = 100,000/20,000 = 5 \text{ years}$$

### Accounting Rate of Return (ARR)

This is also referred to as the average rate of return on investment. It is a measure of profitability which relates income to investment, both measured in accounting terms. It is an accounting method used for purposes of comparison. It provides a quick estimate of a project's worth over its useful

**Table 8.2**  
**The Appraisal Criteria**

Criteria	Accept	Reject
Payback period (PBP)	PBP < Target period	PBP > Target period
Accounting rate of return (ARR)	ARR > Target rate	ARR < Target rate
Net present value (NPV)	NPV > 0	NPV < 0
Internal rate of return (IRR)	IRR > Cost of capital	IRR < Cost of capital
Benefit-cost ratio (BCR)	BCR > 1	BCR < 1

life. ARR is used internally when selecting projects and can be associated with the simple concept of return on investments. It can also be used to measure the performance of projects and subsidiaries within an organization. The higher the accounting rate of return, the better the project. The ARR can be calculated using the formula:

$$\text{ARR} = \frac{\text{Average annual profit after taxes}}{\text{Average investment over the life of the project}}$$

The ARR ratio is primarily used in capital budgeting where a lot of planning is done to determine whether long-term investments made in the project are worth pursuing or not. ARR is derived by finding profits before taxes and interest. The limitation of the ARR method is that it uses profit rather than cash flows and it does not account for the time value of money.

## EXAMPLE

Shakti Construction Company has an option of two projects, A and B, with the same initial capital investment of INR. 100,000. The profits for both the projects are given below. The estimated resale value of both projects at the end of the third year is INR. 22,000. Calculate the ARR for each project and advise the company.

Project	Year 1	Year 2	Year 3
A	INR. 10,000	INR. 5,000	INR. 15,000
B	INR. 12,000	INR. 11,000	INR. 4,000

**Solution:**

### ARR for Project A

$$\text{Average profit} = (10,000 + 5,000 + 15,000)/3 = \text{INR. 10,000}$$

$$\text{Average investment} = (100,000 + 22,000)/2 = \text{INR. 61,000}$$

$$\text{Accounting rate of return} = 10,000/61,000 = 16.39\%$$

### ARR for Project B

$$\text{Average profit} = (12,000 + 11,000 + 4,000)/3 = \text{INR. 9,000}$$

$$\text{Average investment} = (100,000 + 22,000)/2 = \text{INR. 61,000}$$

$$\text{Accounting rate of return} = 9,000/61,000 = 14.75\%$$

Since Project A has higher ARR, it should be chosen.

## Net Present Value (NPV)

The difference between the discounted value of the cash flows and the initial outlay is taken as the net present value of the project. Every project involves initial outlay irrespective of the means of financing. NPV is one of the two discounted cash flow techniques (the other one is the internal rate of return) used in comparative appraisal of investment proposals where the flow of income varies over time.

For example, an investment of INR. 10,000 today at 10 per cent will yield INR. 10,100 at the end of the year; therefore, the present value of 10,100 at the desired rate of return is 10,000. The amount of investment of INR. 10,000 is deducted from this figure to arrive at the net present value, which is zero. A zero net present value signifies that the project repays the original investment plus the required rate of return. For a project to be viable, the net present value of the project has to be positive. A negative net present value indicates that the project is not viable. When choosing among mutually exclusive projects, the project with the largest (positive) NPV should be selected. The NPV is calculated as the present value of the project's cash inflows minus the present value of the project's cash outflows. This relationship is expressed by the following formula:

$$\text{NPV} = \sum_{t=0}^n \frac{\text{CF}_t}{(1+r)^t} = \frac{\text{CF}_0}{(1+r)^0} + \frac{\text{CF}_1}{(1+r)^1} + \dots + \frac{\text{CF}_n}{(1+r)^n}$$

where  $\text{CF}_t$  is the cash flow at time  $t$  ( $t = 0 \dots n$ ),  $n$  is the life of the project, and  $r$  the cost of capital.

## EXAMPLE

Consider capital budgeting projects A and B, which yield the following cash flows over a period of five years. Calculate the NPV of A and B and suggest which of the two projects should be accepted. The cost of capital for the project is 10 per cent.

Year	Project A: Cash Flow in INR.	Project B: Cash Flow in INR.
0	-1,000	-1,000
1	500	100
2	400	200
3	200	200
4	200	400
5	100	700

**Solution:**

### NPV for Project A

$$NPV = -1,000 + 500/(1+0.10)^1 + 400/(1+0.10)^2 + 200/(1+0.10)^3 + 200/(1+0.10)^4 + 100/(1+0.10)^5 = INR. 134.08$$

### NPV for Project B

$$NPV = -1,000 + 100/(1+0.10)^1 + 200/(1+0.10)^2 + 200/(1+0.10)^3 + 400/(1+0.10)^4 + 700/(1+0.10)^5 = INR. 114.31$$

Thus, if Projects A and B are independent projects, then both the projects should be accepted. On the other hand, if they are mutually exclusive projects then Project A should be chosen since it has a larger NPV.

## Internal Rate of Return (IRR)

IRR is sometimes referred to as the “economic rate of return.” IRR is the rate of return on an investment. It finds the discount rate that makes the NPV equal to zero. IRR is the rate of growth that a project is expected to generate. The higher a project’s internal rate of return, the more desirable it is to undertake that project. Therefore, IRR can be used to rank several prospective projects that a firm is considering. It can be used to compare one investment with another.

The internal rate of return by definition is the rate of return at which the net present value of a stream of payments/incomes is equal to zero. It is the discount rate which equates the present value of future cash flows with the initial investment. It is the value of  $r$  in the following equation:

$$\text{Investment} = \sum_{t=1}^n \frac{C_t}{(1+r)^t}$$

where  $C_t$  is the cash flow at the end of year  $t$ ,  $r$  is the internal rate of return, and  $n$  is the life of the project. However, when using the IRR, you should make sure that the calculated IRR is not very different from a realistic reinvestment rate.

In NPV calculation, it is assumed that the cost of capital is known to determine the NPV. In IRR calculation, the NPV is set equal to zero and then the value of the discount rate that satisfies this condition is determined. For example, consider the cash flows of a project being considered by Techno-Systems Private Limited.

Year	0	1	2	3	4
Cash Flow	100,000	30,000	30,000	40,000	45,000

The IRR is the value of  $r$  that satisfies the following equation:

$$100,000 = 30,000/(1+r)^1 + 30,000/(1+r)^2 + 40,000/(1+r)^3 + 45,000/(1+r)^4$$

The calculation of  $r$  involves a process of trial and error and  $r = 15.37\%$  in this case. The project can be accepted if the IRR is greater than the cost of capital.

## EXAMPLE

Find the IRR of the following investment proposals. The initial investment is INR. 70,000 and the expected annual cash inflow is INR. 24,000. The economic life of the project is four years. The present value of INR. 1 for 4 years at 10% is 3.17, at 12% is 3.037, and at 14% is 2.914.

**Solution:**

At 12%,

$$PV \text{ of total cash inflow} = 3.037 \times 24,000 = 72,880$$

At 14%,

$$PV \text{ of total cash inflow} = 2.914 \times 24,000 = 69,936$$

$$\begin{aligned} IRR &= 12 + \left( \frac{72,880 - 70,000}{72,880 - 69,936} \right) \times 2 \\ &= 13.6 \% \end{aligned}$$

## Benefit–Cost Ratio (BCR)

The BCR is also referred to as the “profitability index.” It is an investment appraisal technique. Profitability index is actually a modification of the net present value method. While NPV is an absolute measure as it gives the total value in Indian rupees for a project, the profitability index is a relative measure as it gives the value in the form of a ratio. It defines the value of a project versus the money that will be spent in doing the project in the overall assessment of a cost–benefit analysis. This ratio provides a value of benefits and costs that is represented by actual Indian rupees spent and gained. The benefit–cost ratio is an important formula to be used in the decision-making process for selecting a project. A project is accepted for investment if the benefit–cost ratio is greater than or equal to one, and rejected otherwise. There are two ways of defining the relationship between benefits and costs.

$$BCR = BCR = PVB/I$$

$$\text{Net Benefit–Cost Ratio (NBCR)} = BCR - 1$$

where PVB is the present value of benefits and I is the initial investment.

The following decision rules are associated with them:

When BCR	or	NBCR	Rule is
>1		> 0	Accept
=1		= 0	Indifferent
<1		< 0	Reject

If the profitability index is equal to or more than one, the proposal is accepted. If there are more than one investment proposals, the one with the highest profitability index will be preferred. As the value of the profitability index increases, so does the financial attractiveness of the proposed project. This method is more useful in comparing projects with different cash outlays. Hence, it is superior to the NPV method. The profitability index is the ratio of the PV of the future cash inflow to the PV of cash outflow, i.e. initial cost of the project. Therefore, profitability index = PV of cash inflow/PV of cash outflow.

$$\text{Profitability index} = 1 + (\text{NPV}/\text{Initial investment required})$$

## EXAMPLE

Alliance Solar Company is undertaking a project at a cost of INR. 50 crore, which is expected to generate future net cash flows with a present value of INR. 65 crore. Calculate the profitability index.

# PROJECT FINANCING

Funds can be raised from a variety of sources for financing a project. The two broad sources of finance available to a firm are equity financing and debt financing. The key factors in determining the debt-equity ratio for a project are the cost, nature of assets, business risk, norms of lenders, control considerations, and market conditions. Equity and debt come in a variety of forms and are raised in different ways.<sup>3</sup>

## Equity Financing

This is a shareholder's fund and it may be in the form of equity capital, preference, internal accrual venture capital, and angel investing. Equity financing means exchanging partial ownership in a firm for funding. Equity shareholders enjoy the rewards as well as bear the risk of ownership. However, their liability, unlike the liability of the owner in a proprietary firm and the partners in a partnership concern, is limited to their capital contributions. The rights of equity shareholders consist of the right to residual income; the right to control; the pre-emptive right to purchase additional equity shares issued by the firm; and the residual claim over assets in the event of liquidation.

**Equity Capital** This represents ownership capital as equity shareholders collectively own the firm. When a company is formed, it first issues equity shares to promoters and also, in most cases, raises loans from banks, financial institutions, and other sources. As the need for financing increases, the company may issue shares and debentures privately to promoters' relatives, friends, business partners, employees, financial institutions, banks, mutual funds, venture capital funds, and others. Venture capital funds are likely to be an important source of finance for a nascent venture. Such investors are specific and small in number. As the company grows, it may raise capital from the public. The first issue of equity shares to the public by an unlisted company is called the initial public offering (IPO). Subsequent offerings are called seasoned offerings. Apart from equity shares, a firm may issue preference shares and debentures to the general investing public through a public issue.

**Preference Capital** This represents a hybrid form of financing. It has some characteristics of equity and some attributes of debentures. It is a special class of a company's shares, on which dividends are paid before the dividends on ordinary shares, and whose holders are repaid before others if the company goes bankrupt.

**Internal Accruals** The internal accruals of a firm consist of depreciation charges and retained earnings. Depreciation represents the allocation of capital expenditure to various periods over which the capital expenditure is expected to benefit the firm. Even though the amount that may be available by way of internal accruals may be limited and the opportunity cost of retained earnings quite high, internal accruals are viewed favourably by most corporate management because internal accruals are readily available; the use of internal accruals in contrast to external equity eliminates issue costs and losses on account of under pricing; there is no dilution of control when a firm relies on internal accruals; and the stock market views internal accruals with a pessimistic approach.

**Venture Capital (VC)** It is finance invested by professionals, called venture capitalists, in start-ups with growth potential. A venture capitalist provides guidance to the company and is a business partner sharing both risk and rewards. Venture capital is an important source of equity for start-up companies. Venture capital injects equity finance with a solid capital base for future growth. Venture capital firms provide equity for business and expect 20 to 40 per cent equity stake in a company and high returns on their investments within three to five years.

Venture capital firms in India invest the shareholders' money in start-ups. The Indian Venture Capital and Private Equity Association (IVCA) is the national-level organization for venture capital firms in India. The organization promotes and encourages the venture capital industry in the country and encourages members to invest in high-growth companies. A few well-known venture capital firms in India are Sequoia Capital India, Ventureast, Intel Capital, Helion Venture Partners, DFL

India, Nexus India Capital, IndoUS Ventures, DG India Ventures, Kleiner Perkins, Norwest Venture Partners, Canaan Partners, and Inventus Capital Partners.

**Stages of Venture Capital Financing** The requirements of funds vary with the life cycle stage of the enterprise. Depending upon the stage they finance, venture capitalists are called angel investors, venture capitalists, or private equity suppliers/investors. The venture capital investment process is different from normal project financing. In 1984, A. V. Bruno and T. T. Tyebjee of the School of Business, University of Santa Clara, California, formulated a model of venture capital investment activity which with some variations is commonly used today.<sup>4</sup> As per this model, this activity is a five-step process as follows:

1. Deal organization.
2. Screening.
3. Evaluation or due diligence.
4. Deal structuring.
5. Post-investment activity and exit.

Tyebjee and Bruno identified six stages of venture capital financing, which are given below:

1. **The seed money stage:** A small sum of money required to prove a concept or develop a product.
2. **Start-up:** Financing of firms that are less than one year old. The funds are primarily meant for marketing and product development.
3. **First-round financing:** Additional money needed to begin sales and manufacturing after the start-up funds are exhausted.
4. **Second-round financing:** Funds required for working capital for a firm that is selling its product but still losing money.
5. **Third-round financing:** Financing of a firm that has broken even and is planning an expansion. This is also called mezzanine financing.
6. **Fourth-round financing:** Financing of a firm that is expected to go public within six months. This is also called bridge financing.

## Angel Investing

Angel investors are wealthy individuals who invest in entrepreneurial firms, usually during start-up. They provide cash to young investors and take equity in return. Angels are usually entrepreneurs who have successfully built companies, or have spent a part of their professional career in mentoring start-ups. Angels invest their own money and actively mentor the company. Angels usually expect a lower return on investment than venture capital firms.

Business angels are high-net-worth individuals, usually successful people or professionals, who provide early stage capital to start up businesses in the form of either debt, equity capital, or both. They are often self-made millionaires and are accustomed to taking calculated risks with their own money. They provide financing for start-up and early-stage firms that are too small to get the attention of VC firms, often too limited in their revenue potential at maturity to interest VC firms, and too risky for bank loans and for most VC appetites.

An angel network is a unique concept, which brings together highly successful CEOs and entrepreneurs from India and around the world interested in investing in start-ups and have a potential of creating high-growth companies. The network provides equity finance along with high-quality mentoring. Some of the well-known angel investing networks in India are Chennai Funds, the Indian Angel Network, the Mumbai Angels, and the TiE Entrepreneurship Acceleration Programme.

## Debt Financing

Debt financing is basically money that is borrowed to run the business. Debt financing refers to borrowing money from a source outside the company under certain terms and conditions relating to interest rates and the period of return of the principal amount. Most entrepreneurs prefer to start their

operations with money borrowed from banks and financial institutions. When a firm raises money for working capital or capital expenditures by selling bonds, bills, or notes to individual and/or institutional investors, this money is called a debt fund. In return for lending the money, the individuals or institutions become creditors and receive a promise that the principal and interest on the debt will be repaid. Term loans and debentures are two important ways of raising long-term debt.

**Term Loans** Financial institutions and banks have traditionally been the primary source of long-term debt for public and private firms. Term loans represent a source of debt finance, which is generally repayable in less than ten years. They are typically employed to finance the acquisition of fixed assets. Financial institutions give Indian rupee term loans as well as foreign currency term loans. Term loans represent secured borrowing. Usually assets, which are financed with the term loan, provide the prime security. In order to protect their interests, financial institutions impose restrictive covenants on the borrowers. Financial institutions such as SIDBI, IDBI, and ICICI fund entrepreneurial ventures.

**Debentures** For large firms, debentures are a viable alternative to term loans. Debentures are instruments for raising debt finance. Debentures often provide more flexibility than term loans as they offer greater choice with respect to maturity, interest rate, security, repayment, and special features.

## Miscellaneous Sources

Working capital advance by commercial banks represents the most important source for financing current assets. Apart from principal sources like equity, internal accruals, venture capital, term loans, debentures, and working capital advance, there are several other ways in which finance may be obtained. These include deferred credit, lease finance, hire purchase, unsecured loans and deposits, special schemes of institutions, subsidies, sales tax deferments and exemptions, commercial paper, factoring, and securitization.

## PROJECT IMPLEMENTATION PHASE

The implementation phase for a project involves the setting up of facilities. For project planning and control, two basic network techniques are available: program evaluation and review technique (PERT) and critical path method (CPM). These techniques help in monitoring the project. Once the project is commissioned, performance review is done periodically to compare the actual performance with projected performance.