NCFM

NSE's CERTIFICATION IN FINANCIAL MARKETS

Financial Markets (Advanced) Module

NATIONAL STOCK EXCHANGE OF INDIA LIMITED

Test Details:

Sr. No.	Name of Module	Fees (Rs.)	Test Duration (in minutes)	No. of Questions	Maximum Marks	Pass Marks (%)	Certificate Validity
1	Financial Markets: A Beginners' Module *	1686	120	60	100	50	5
2	Mutual Funds : A Beginners' Module	1686	120	60	100	50	5
3	Currency Derivatives: A Beginner's Module	1686	120	60	100	50	5
4	Equity Derivatives: A Beginner's Module	1686	120	60	100	50	5
5	Interest Rate Derivatives: A Beginner's Module	1686	120	60	100	50	5
6	Commercial Banking in India: A Beginner's Module	1686	120	60	100	50	5
7	Securities Market (Basic) Module	1686	120	60	100	60	5
8	Capital Market (Dealers) Module *	1686	105	60	100	50	5
9	Derivatives Market (Dealers) Module *	1686	120	60	100	60	3
10	FIMMDA-NSE Debt Market (Basic) Module	1686	120	60	100	60	5
11	Investment Analysis and Portfolio Management Module	1686	120	60	100	60	5
12	Fundamental Analysis Module	1686	120	60	100	60	5
13	Financial Markets (Advanced) Module	1686	120	60	100	60	5
14	Securities Markets (Advanced) Module	1686	120	60	100	60	5
15	Mutual Funds (Advanced) Module	1686	120	60	100	60	5
16	Banking Sector Module	1686	120	60	100	60	5
17	Insurance Module	1686	120	60	100	60	5
18	Macroeconomics for Financial Markets Module	1686	120	60	100	60	5
19	NISM-Series-I: Currency Derivatives Certification Examination	1000	120	100	100	60	3
20	NISM-Series-II-A: Registrars to an Issue and Share Transfer Agents – Corporate Certification Examination	1000	120	100	100	50	3
21	NISM-Series-II-B: Registrars to an Issue and Share Transfer Agents – Mutual Fund Certification Examination	1000	120	100	100	50	3
22	NISM-Series-IV: Interest Rate Derivatives Certification Examination	1000	120	100	100	60	3
23	NISM-Series-V-A: Mutual Fund Distributors Certification Examination *	1000	120	100	100	50	3
24	NISM-Series-VI: Depository Operations Certification Examination	1000	120	100	100	60	3
25	NISM Series VII: Securities Operations and Risk Management Certification Examination	1000	120	100	100	50	3
26	Certified Personal Financial Advisor (CPFA) Examination	4495	120	80	100	60	3
27	NSDL–Depository Operations Module	1686	75	60	100	60 #	5
28	Commodities Market Module	2022	120	60	100	50	3
29	Surveillance in Stock Exchanges Module	1686	120	50	100	60	5
30	Corporate Governance Module	1686	90	100	100	60	5
31	Compliance Officers (Brokers) Module	1686	120	60	100	60	5
32	Compliance Officers (Corporates) Module	1686	120	60	100	60	5
33	Information Security Auditors Module (Part-1)	2528	120	90	100	60	2
	Information Security Auditors Module (Part-2)	2528	120	90	100	60	
34	Options Trading Strategies Module	1686	120	60	100	60	5
35	FPSB India Exam 1 to 4**	2247 per exam	120	75	140	60	NA
36	Examination 5/Advanced Financial Planning **	5618	240	30	100	50	NA
37	Equity Research Module ##	1686	120	65	100	55	2
38	Issue Management Module ##	1686	120	80	100	55	2
39	Market Risk Module ##	1686	120	50	100	55	2
40	Financial Modeling Module ###	1123	150	50	75	50	NA

* Candidates have the option to take the tests in English, Gujarati or Hindi languages.

\# Candidates securing 80% or more marks in NSDL-Depository Operations Module ONLY will be certified as 'Trainers'.

** Following are the modules of Financial Planning Standards Board India (Certified Financial Planner Certification)

- FPSB India Exam 1 to 4 i.e. (i) Risk Analysis & Insurance Planning (ii) Retirement Planning & Employee Benefits (iii) Investment Planning and (iv) Tax Planning & Estate Planning
- Examination 5/Advanced Financial Planning

Modules of Finitiatives Learning India Pvt. Ltd. (FLIP)

Module of IMS Proschool

The curriculum for each of the modules (except Financial Planning Standards Board India, Finitiatives Learning India Pvt. Ltd. and IMS Proschool) is available on our website: www.nseindia.com > Education > Certifications.

Taxes if any, as applicable from time to time, shall be charged on the above fees.

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Distribution of weights of the Financial Markets (Advanced) Module Curriculum

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Note: Candidates are advised to refer to NSE's website: www.nseindia.com, click on'Education' link and then go to 'Updates & Announcements' link, regarding revisions/updations in NCFM modules or launch of new modules, if any.

This book has been deveoped for NSE by Mr. Sundar Sankaran, Director, Finberry Academy Pvt. Ltd.

Acronyms

AD	Authorised Dealer
ADR	American Depository Receipt
AIF	Alternate Investment Funds
CAPM	Capital Assets Pricing Model
CD	Certificate of Deposit
CDS	Credit Default Swap
CIS	Collective Investment Schemes
CISA	Certified Information System Auditors
CP	Commercial Paper
CRA	Credit Rating Agency
DP	Depository Participant
DPS	Dividend per Share
DR	Depository Receipt
EPS	Earnings per Share
ETF	Exchange Traded Funds
FATF	Financial Action Task Force
FII	Foreign Institutional Investor
FIMMDA	Fixed Income Money Market and Derivatives Association of India
GDR	Global Depository Receipt
ICAI	Institute of Chartered Accountants of India
IDR	Indian Depository Receipt
IOSCO	International Organization of Securities Commission
IPV	In Person Verification
IRDA	Insurance Regulatory & Development Authority
KRA	KYC Registration Agency
KYC	Know Your Client
MMOU	Multilateral Memorandum of Understanding
MTM	Marked to Market
NBFC	Non-Banking Finance Company
NCD	Non-Convertible Debenture
NEAT	National Exchange for Automated Trading
NOW	NEAT on Web
NSE	National Stock Exchange
NSCCL	National Securities Clearing Corporation Limited

PD	Primary Dealer
PE	Private Equity
PIPE	Private Investment in Public Equity
PML	Prevention of Money Laundering
QFI	Qualified Foreign Investor
RBI	Reserve Bank of India
SEBI	Securities & Exchange Board of India
SME	Small & Medium Enterprise
SPAN	Standard Portfolio Analysis of Risk
SRO	Self Regulatory Organisation
VCF	Venture Capital Funds
WACC	Weighted Average Cost of Capital
YTM	Yield to Maturity

Chapter 1 : Financial Markets, Products & Institutions

1.1 Financial Markets

Financial markets are an important constituent of any economy. They include money market viz. the market for short term debt funds of upto 1 year; and capital market viz. the market for equity and long term debt funds for more than a year.

Financial markets meet various needs of different entities:

- Government
  - Financial markets help governments meet their borrowing requirements.
  - Taxes collected from the enhanced economic activity promoted by markets help boost the finances of the government.
  - Financial markets can force companies to operate under transparent corporate governance standards.
- Issuing companies
  - Financial markets make it possible for companies to mobilise money for the projects they want to implement.
  - The yield curve in the debt market sets the tone for the borrowing cost of issuing companies.
  - The markets give companies a benchmark for their valuation and top management to assess their performance.
  - The financial markets provide companies a currency with which they can reward employees
  - The valuation effect of financial markets helps companies to acquire other businesses without having to pay from the bank account.
  - The stock exchange gives companies visibility and raises their profile with investors, customers, government and general public.
- Investors
  - The market helps investors benefit from the performance of the economy and companies.
  - Price discovery in the markets provide messages to investors on where various companies stand.
  - Markets provide a platform for investors to punish poor management.

- Economy
  - Financial markets are a barometer of the economy.
  - Financial markets help in channelling resources from those who have them to those who need them.
  - New projects and higher activity promoted by financial markets boost the growth of the economy.

1.2 Financial Products and Market Entities

Governments issue treasury bills and government securities in the debt market. They also offer shares of public sector undertakings in the equity market.

Financial products issued by companies include equity shares, preference shares, convertible debentures, non-convertible debentures, commercial paper, certificates of deposit etc.

Companies can either mobilise moneys from retail investors through a public issue, or target institutional investors through a private placement. Venture Capital Funds, Private Equity Funds, Foreign Institutional investors and high net worth individuals are leading investors in the private placement market.

Investment bankers help companies to mobilise the resources from investors. They also help businesses acquire other businesses and re-structure themselves.

Broking houses have research teams that cover different sectors and companies. Their research reports are an important source of information about companies for investors.

Credit rating agencies rate the debt instruments issued to the public. They also provide a rating for public issues of equity.

Investors can take exposure to companies, either directly or through mutual funds or other funds. Brokers, distributers and investment advisers are in touch with investors and part of the chain of distribution of financial products.

The registrar and transfer agent maintains records of investors in companies.

Financial products issued by governments and companies in the primary market are traded in the secondary market. An active and liquid secondary market is important for investors to be interested in the primary market.

Futures and options are popular derivative instruments. A convertible debenture, where the conversion is not compulsory, is like a debenture with an attached option. The exchange too creates derivatives on underlying financial instruments. A liquid cash market for the underlying is important for an efficient market for derivatives on that

underlying. Trading in derivatives and their underlying provide vibrancy to the financial markets.

1.3 Market Infrastructure Institutions

Stock exchanges provide the platform for secondary market trades. They also perform certain regulatory functions over companies whose shares are listed in the exchange.

Transactions executed in the stock market are settled through the clearing corporations. Through a process of novation, they become counter parties for all trades executed in the exchange. Thus, they give confidence to various parties to trade in the exchange.

The depositories make it possible for the market to trade securities in dematerialised form. The elimination of physical securities has made it possible for large volumes of trades to be executed and settled through the exchange.

Depositories appoint Depository Participants (DPs) to enable investors to dematerialise and rematerialize their securities.

Stock exchanges, depositories and clearing corporations are collectively referred to as securities Market Infrastructure Institutions (MIIs).

1.4 Conflicts of Interest

Specialist organisations perform various roles in the financial markets. However, there are several potential conflicts of interest in the market. For example:

- Issuers have an interest in issuing complex financial products that are difficult to assess for many investors. This can lead to gullible investors investing in products they should not invest in.
- Broking companies come out with research reports on companies. Issue of capital by a company may be managed by an investment bank that is part of the same group as the broking company. In such a situation, the independence of the research report can get compromised by a desire to help the investment bank make a success of the issue.
- Asset management companies earn fees that are linked to assets under management. They have an interest in maximising the assets under management by presenting a bullish view of the market and holding back bearish views. This can hurt the interest of investors who take investment decisions based on biased information.
- Credit rating companies issue ratings to protect investors. However, they earn rating fees from the companies whose instruments they are expected to rate. In the competitive context in which rating companies operate, the desire to boost income can affect the objectivity of the rating.

- Investment advisers position themselves as protecters of investor interest. But they may earn a commission from the manufacturer of the financial product (mutual fund or insurance company). The manufacturer's commission can incentivise the adviser to suggest a product to investors for whom it is not suitable.

The securities market regulater, SEBI has introduced various regulations to ensure transparency and protect investors' interests.

Markets are dynamic, market structures evolve and accordingly, SEBI keeps refining its regulations. The emerging paradigm of regulation is detailed in Chapter 10.

Chapter 2 : Quantitative Background to Debt

2.1 The Nature of Debt

The most important promise underlying debt is its servicing. The servicing may be at a fixed rate of interest (say, 11%) or a floating rate of interest (say, T-Bill + 1%). The debt may or may not be repayable. When it is repayable, it would have a maturity date. Perpetual debt is not repayable, though it would need to be serviced (through interest payments).

Thus, normal debt is serviced through three kinds of payments –

- Interest
- Repayment of principal
- Premium on repayment of principal (rarely, the redemption of the debt instrument may be at a discount).

Perpetual debt is serviced through interest payments only.

How much is likely to be receivable on a debt instrument, and the timing of those cash flows, is frozen when the debt instrument is issued.

2.2 The Price of a Debt Security

Although the servicing obligation viz. cash flow receivable by investors in future may be frozen when the debt instrument is issued, today's value of those cash flows depends on the market today. Let us consider the following examples of different forms of debt.

2.2.1 Perpetual Debt

Suppose an investor invested Rs. 10,000 with the Government of India on the basis that interest at 6% p.a. would be receivable on the principal amount forever. Being a perpetual instrument, the principal is not repayable. What should be its value today?

The only aspect that is firm about the instrument is the Rs. 10,000 X 6% i.e. Rs. 600 annuity that is receivable every year. So long as the economic conditions remain stable, it can be expected that the perpetual debt will maintain its value of Rs. 10,000. This is defined by the following formula:

$P = A \div y$

Where,

'P' is the price

'A' is the annuity, Rs. 600

'y' is the yield, 6%.

Thus, the price would be Rs. 600 ÷ 6% i.e. Rs. 10,000.

What if the Government were to come out with another perpetual instrument, which promises interest at 6.25% p.a.?

In the revised context, it would be possible to earn the same Rs. 600 annuity, by investing a lesser amount. The intrinsic worth of the earlier debt security is therefore only this lesser amount. What would that amount be? It is given by the same formula:

P = A ÷ y

However, 'y' is no longer 6%. It is 6.25%. Therefore, the revised price of the earlier instrument would be Rs. 600 ÷ 6.25% i.e. Rs. 9,600.

Thus, as 'y' increases, the price goes down. If 'y' were to reduce, the price of the security would increase.

The 'y' in this illustration came out of a new issue of securities by the Government. Even if there is no fresh issue, in the market, investors have their expectations of yield. The yield expectations go up, as rate of inflation rises or overall interest rates in the economy go up or the financial strength of the government goes down. Conversely, lower rate of inflation, lower interest rates in the economy and stronger government finances will lower the yield expectations of investors.

2.2.2 Discount Instrument

A discount instrument is one that does not yield any regular interest. Amount invested by the investor would however be lower than the redemption amount on maturity i.e. the investor invests at a discount, which effectively represents interest.

Suppose the Government issued a debt security for Rs. 7,472.58 that will mature at a value of Rs. 10,000 in 5 years. During these 5 years, the investor will not receive any interest.

Any investor would like to know what return this represents. The investor will gain Rs. 10,000 *minus* Rs. 7,472.58 i.e. Rs. 2,527.42 in 5 years. The gain is Rs. 2,527.42 ÷ Rs. 7,472.58 i.e. 33.82% of the amount invested. Since this is the return over 5 years, the annual return amounts to 33.82% ÷ 5 i.e. 6.76%.

This calculation of annual return ignores the impact of compounding. The real return on compounded basis can be calculated to be 6% using the XIRR (internal rate of return) functionin MS Excel as follows:

Table 2.1

P28 | =XIRR(O25:O26,N25:N26)

	M	N	O	P	Q
23					
24		**Date**	**Cash Flow**		
25		01-Mar-12	-7,472.58		
26		28-Feb-17	10,000.00		
27					
28		**Internal Rate of Return**		**6.000%**	
29					

XIRR function is useful in determining the yield on debt securities of all kinds, especially when cash flows do not follow a fixed periodicity.

(Precision of calculations increases, as the number of decimals is increased. In this illustration, Rs. 7,472.582 instead of Rs. 7,472.58 would give better results)

An investor investing Rs. 7,472.58 on March 1, 2012 and getting Rs. 10,000 back on February 28, 2017 would have a yield to maturity (YTM) of 6%.

What would be the value of the instrument after 1 year? Applying 6% on the principal invested, the value after 1 year can be calculated to be Rs. 7,472.58 X (1 + 6%) i.e. Rs. 7,920.93. Similar calculations can be done for the subsequent years, as shown below:

Table 2.2

O37 | =O32*(1+6%)^5

	M	N	O	P	Q
30					
31		**Date**	**Value**	**Formula**	
32		01-Mar-12	7,472.58		
33		28-Feb-13	7,920.93	O32*(1+6%)	
34		28-Feb-14	8,396.19	O32*(1+6%)^2	
35		28-Feb-15	8,899.96	O32*(1+6%)^3	
36		28-Feb-16	9,433.96	O32*(1+6%)^4	
37		28-Feb-17	10,000.00	O32*(1+6%)^5	
38					

The above table essentially shows compounding of interest for an investment of Rs. 7,472.58. Will the value of the security in the market at the end of Year 1 really be Rs. 7,920.93?

An investor buying a debt security from a seller is not interested in knowing how much the seller paid at the time the original investment was made. The investor is interested in knowing how much will be received in future.

At the end of 1 year, the instrument has a balance tenor of 4 years, at the end of which Rs. 10,000 is receivable on the instrument. The investor will be prepared to purchase the instrument at the present value of Rs. 10,000 to be received 4 years down the line. This present value is calculated with the following discounting formula:

$P = MV \div (1 + y)^n$

Where,

'P' is the price

'MV' is the maturity value

'y' is the yield

'n' is the balance tenor.

Assuming yield to be 6%, the price can be calculated to be Rs. 10,000 ÷ $(1+6\%)^4$ i.e. Rs. 7,920.93.

Thus, the value calculated by compounding for the elapsed tenor of 1 year, is the same as the value calculated by discounting for the balance tenor of 4 years. This is because the yield was held at 6%.

Suppose, at the end of Year 1, yield expectations have changed. The market expects an yield of 5.75% for the balance tenor of 4 years. In that case, the price can be calculated as Rs. 10,000 ÷ $(1 + 5.75\%)^4$ i.e. Rs. 7,996.11. The decline in yield expectation has pushed up the value of the debt security.

In that case, what would have been the return for the original buyer in 1 year? It can be calculated as (Rs. 7,996.11 *minus* Rs. 7,472.58) ÷ Rs. 7,472.58 i.e. 7.01%.

Although the original buyer invested on the basis of a 6% return, the decline in yield expectations helped him lock into a higher return of 7.01%.

How much would an investor buying the security at the end of Year 1 from the original buyer, earn over the balance tenor of 4 years? 5.75%, as seen below:

Table 2.3

U28 f_x =XIRR(T25:T26,S25:S26)

	R	S	T	U	V	W
23						
24		**Date**	**Cash Flow**			
25		28-Feb-13	-7,996.11			
26		28-Feb-17	10,000.00			
27						
28		**Internal Rate of Return**		**5.75%**		
29						

Treasury Bills are short term debt instruments (less than 1 year to maturity) issued at a discount. These are issued through the Reserve Bank of India for 91 days, 182 days and 364 days maturities. Being short term instruments, there is no question of compounding.

Suppose a 91-day T-Bill with 7 days to maturity is available at Rs. 99.9589. Two concepts of returns need to be understood here:

- Money Market Yield

  The gain on maturity will be (Rs. 100 – Rs. 99.9589) i.e. Rs. 0.0411.

  The gain is over 7 days on an investment of Rs. 99.9589. The annualised return therefore can be calculated as

  (Rs. 04.11 ÷ Rs. 99.9589) X (365 / 7)

  i.e. 2.14%.

- Discount Yield

  Discount yield is calculated taking the base as the maturity value (instead of the initial value in the case of YTM). Further, the year is taken as 360 days instead of 365 days. Accordingly, the discount yield is calculated as

  (Rs. 04.11 ÷ Rs. 100) X (360 / 7)

  i.e. 2.11%.

  The application of the concept can be seen in Chapter 7.

2.2.3 Coupon Instrument

A normal coupon bearing instrument can be viewed as an instrument giving a series of cash flows, some representing interest, some others being principal repayment. The price of a debt security in the market today, is the sum of the present values of each such cash flow.

For this calculation, the discounting formula used earlier can be tweaked to read as follows:

$P = CF \div (1 + y)^n$

Where,

'P' is the price

'CF' is the cash flow

'y' is the yield

'n' is the balance tenor.

Suppose a debt security of face value Rs. 10,000 offered coupon of 7% p.a., payable semi-annually, for 2 years. What would be its price after 6 months, assuming the yield expectation has changed to 7.20%?

In general, one needs to work with 'interest per period' and 'number of periods', the period being defined by the frequency of the coupon viz. 6 months in this illustration.

After 6 months, the debt security has 3 more periods of 6 months each to go. Of this, for the first 2 periods only interest of Rs. 10,000 X 7%/2 i.e. Rs. 350 is payable. The payment for the last period would include interest of Rs. 350 and principal repayment of Rs. 10,000.

The yield expectation is 7.20% p.a. i.e. 3.60% per period.

The calculation of price is shown below:

Table 2.4

U34 f_x =T34/(1+3.6%)^3

	R	S	T	U	V
30					
31		**Period**	**Cash Flow**	**Present Value of Cash flow**	**Formula**
32		1	350	337.84	=T32/(1+3.6%)
33		2	350	326.10	=T33/(1+3.6%)^2
34		3	10350	9,308.10	=T34/(1+3.6%)^3
35					
36		***Price***	(Total)	***9,972.04***	=SUM(U32:U34)
37					

The increase in yield from 7% to 7.20% has pushed down the price of the security to Rs. 9,972.04.

The above cash flow based explanation is meant to enhance the conceptual clarity of readers. Professionals use various MS Excel functions. For instance, one can use the 'Price' function in MS Excel to arrive at the same value.

Syntax for the price function is Price (settlement, maturity, rate, yield, redemption, frequency)

Where,

'Settlement' is the date on which the transaction is proposed

'Maturity' is the date the security is expected to mature

'Rate' is the annual coupon

'Yield' is the YTM (annual) prevailing in the market for similar securities on the settlement date

'Redemption' is 100, if the security is to be redeemed at par. A premium of 5% would be entered as 105; discount of 2% would be entered as 98

'Frequency' is the frequency of coupon payment viz. Annual = 1; half-yearly = 2, quarterly = 4.

Applying the function, price can be calculated as follows:

Table 2.5

U38 =PRICE(T38,R34,7%,7.2%,100,2)

	R	S	T	U	V
30					
31	**Date**	**Period**	**Cash Flow**		
32	15-Sep-12	1	350		
33	15-Mar-13	2	350		
34	15-Sep-13	3	10350		
35					
38	Price per Rs. 100 on		15-Mar-12	99.7204	
39					
40	***Price for face value of Rs10,000***			***9972.04***	
41					

2.3 Price-Yield Relationship of a Debt Security

In the previous illustration, an increase of 0.2% in the yield reduced the price by Rs. 10,000 *minus* Rs. 9,972.04 i.e. Rs. 27.96.

How much would you expect the price to change, if the yield were to reduce by 0.2% (from 7% to 6.8%)? Rs. 27.96?

The calculated price at 6.8% yield is shown below:

Table 2.6

U38 =PRICE(T38,R34,7%,6.8%,100,2)

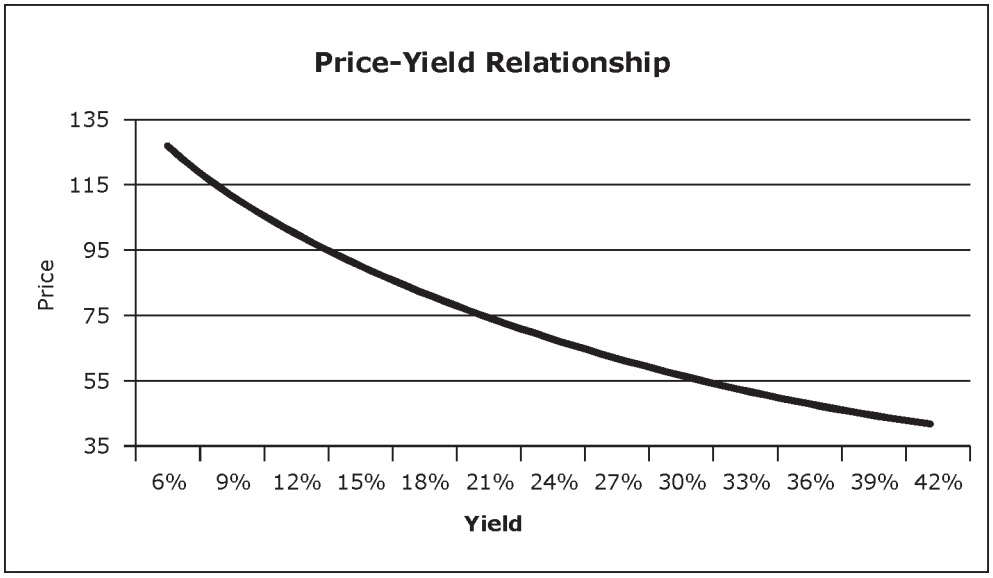
	R	S	T	U	V
31	**Date**	**Period**	**Cash Flow**		
32	15-Sep-12	1	350		
33	15-Mar-13	2	350		
34	15-Sep-13	3	10350		
35					
38	Price per Rs. 100 on		15-Mar-12	100.2807	
39					
40	***Price for face value of Rs10,000***			***10,028.07***	
41					

As is evident, the reduction in yield by 0.2% boosted the price of the security, not by Rs. 27.96, but by Rs. 28.07.

An important corollary is that the price of a debt security goes up faster than it goes down, for the same change in yields (down or up, respectively) in the market.

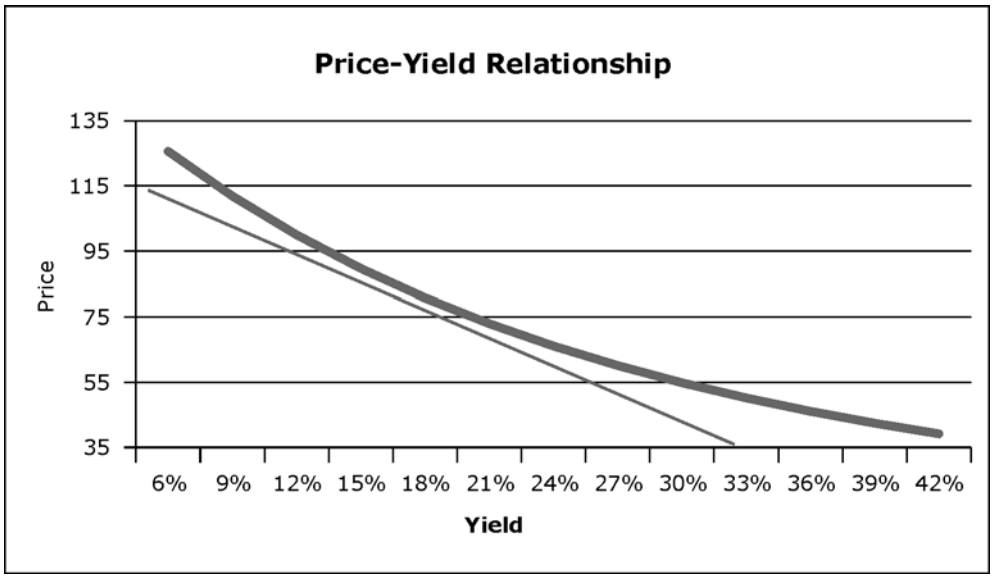
A plot of the price of a debt security at different yields is shown below in Chart 2.1.

Chart 2.1



The inverse relationship between yield and price is evident. But the relationship does not follow a straight line. It is a curved line. The addition of a thin line in Chart 2.2 below emphasises the curvature. As the yield change increases, the gap between the two lines increases too.

Chart 2.2



The price-yield relationship is curvi-linear, with "positive convexity". The significance of this would be clear from the discussion on duration that follows.

2.4 Modified Duration of a Debt Security

Modified duration is an estimate of the sensitivity of debt values to changes in yield. It answers the question – if yields in the market were to change by 1%, how much would the debt security change in value?

Suppose a debt security issued on January 1, 2012 at par (Rs. 10,000) is to mature at par on December 31, 2013. Coupon of 12% is payable annually. Modified duration of the security can be calculated, as shown in the following illustration:

Table 2.7

D52 f_x =C52/(1+12%)^B52

	A	B	C	D	E
47					
48	**Date**	**Period**	**Cashflow**	**PV of CF**	**Product**
49	(1)	(2)	(3)	(4)	(2) X (4)
50	01-Jan-12	0.0	-10,000		0
51	31-Dec-12	1.0	1,200	1,071	1,071
52	31-Dec-13	2.0	11,200	8,929	17,857
53	***Total***			***10,000***	***18,929***
54				(a)	(b)
55					
56	**Duration**		(b ÷ a)		**1.89**
57					
58	**Modified Duration**		[Duration ÷ (1+12%)]		**1.69**
59					

This implies that if yield in the market were to go down by 1% to 11%, the security would gain value by 1.69%; if yield were to go up by 1% to 13%, the security would lose value by 1.69%.

Modified duration can be calculated using the 'mduration' function in MS Excel, as follows:

Tables 2.8

E60 f_x =MDURATION(A50,A52,12%,12%,1)

	A	B	C	D	E	F
47						
48	**Date**	**Period**	**Cashflow**			
50	01-Jan-12	0.0	-10,000			
51	31-Dec-12	1.0	1,200			
52	31-Dec-13	2.0	11,200			
59						
60	**Modified Duration**		(using mduration)		**1.69**	
61						

Using the Price function in MS Excel, the calculated value of price is Rs. 10,170.87 at yield of 11%. The price is thus up by (10,170.87 – 10,000) ÷ 10,000 i.e. 1.71% (as compared to the modified duration of 1.69%).

Using the Price function in MS Excel, the calculated value of price is Rs. 9,833. 20 at yield of 13%. The price is thus down by (10,000 – 9,833.20) ÷ 10,000 i.e. 1.67% (as compared to the modified duration of 1.69%).

The gap between the expected change in value based on modified duration, and the actual price change using Price function is because modified duration does not capture the convexity in the curvi-linear relationship. It presumes that the relationship is linear. This does not pose too much of problem, when the change in yield is low. Therefore, the market uses modified duration despite its weakness of not capturing the convexity.

Chapter 3 : Debt – Investment Drivers & Approaches

3.1 Interest Risk

The measurement of impact of changes in interest rates on the value of debt securities was discussed in the previous chapter. An understanding of forward rates and yield curves is important to appreciate interest risk dynamics.

3.1.1 Forward Rates

Suppose 1-year zero coupon debt security offers yield (Y_{01}) of 7%, and 2-year zero coupon debt security offers yield (Y_{02}) of 8%. What does this imply in terms of forward yield for the 2nd year (Y_{12})?

At the given yield of 8%, the 2-year security of Rs. 10,000 will grow to Rs. 10,000 X $(1 + 8\%)^1$ i.e. Rs. 10,800 at the end of Year 1; and further to Rs. 10,000 X $(1 + 8\%)^2$ i.e. Rs. 11,664 at the end of Year 2.

The 1-Year security of Rs. 10,000 will grow to Rs. 10,000 X $(1 + 7\%)^1$ i.e. Rs. 10,700 at the end of Year 1.

The forward yield for the 2nd year (Y_{12}) is the yield at which the investor who invested for 1 year and received Rs. 10,700 would need to invest for the 2nd year to receive Rs. 11,664. This can be calculated to be 9.01%, as shown in Table 3.1 below:

Table 3.1

Calculation of Forward Rate

D7 f_x =IRR(D4:D5)

	A	B	C	D
1		**Yield (Y_{01})**	**Yield (Y_{02})**	**Forward Yield (Y_{12})**
2	**Year**	*7%*	*8%*	
3	*0*	10,000.00	10,000.00	
4	*1*	**10,700.00**	10,800.00	-10,700.00
5	*2*		**11,664.00**	11,664.00
6				
7		**IRR**		**9.01%**
8				

This can be cross-checked using Rs. 10,700 X $(1+9.01\%)^1$ to arrive at Rs. 11,664.

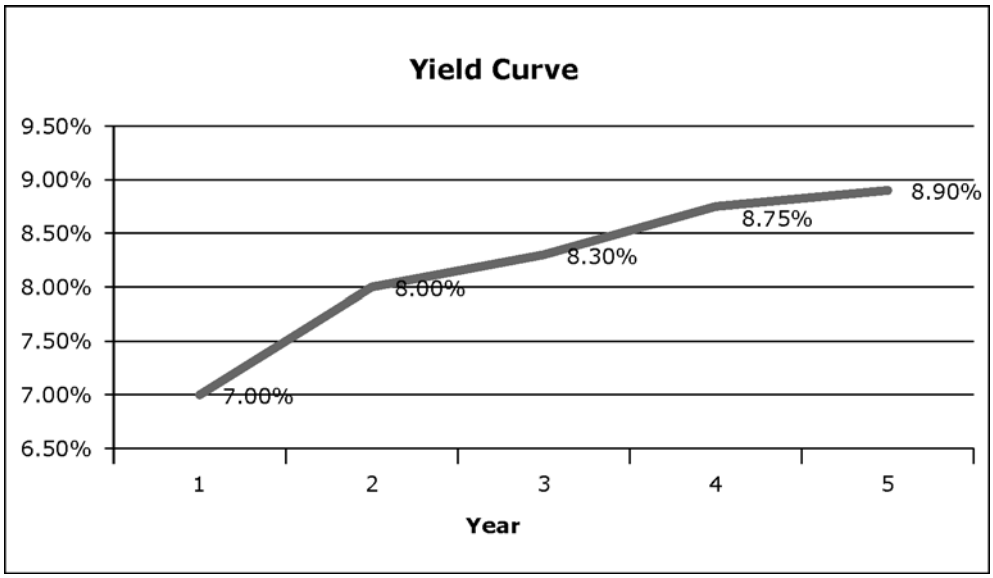
The higher forward rate could reflect any of a number of factors, such as:

- Market expects yields to go up in future
- Investor is looking for higher compensation to commit money for longer time period.

3.1.2 Yield Curve Estimation

Yield curve is a plot of interest rate for various maturities, as shown in the following Graph 3.1.

Graph 3.1



The tax regime of countries may differentiate between taxation of interest and capital gains. Such differentiation exists in the Indian tax laws. Beneficial tax treatment of capital gains can lead investors to lower their yield expectation in instruments that offer a greater portion of the return in the form of capital gains (i.e. quoted at a steeper discount to the maturity value). This affects the comparability of debt securities of the same issuer having the same maturity, but issued at different points of time with various coupon.

A way to get out of this problem is to use yields only of debt securities that are traded at par. Since such securities do not entail a capital gain or loss on redemption, the entire return is captured in the coupon. However, such "at par" securities are so few that it becomes difficult to get data points to populate the yield curve.

In any case,coupon-bearing securitieshave an element of re-investment risk viz. the uncertainty on rates at which the future interest receipts can be invested. The re-investment risk is eliminated by working with yields on Zero Coupon securities.

Zero coupon yields are also called "spot rates". Zeroes also address the earlier problem of tax arbitrage affecting the yield expectation of investors. The entire return is taxed as interest or capital gains, thus making debt securities comparable.

Developed markets have an active mechanism for STRIPS (Separately Traded Interest and Principal Securities). For example, a 2-year 8% debt security of face value

Rs. 10,000 paying semi-annual interest would be split into the following 5 securities in a STRIP:

Maturity	Maturity Value (Rs.)
6 months	Rs. 400
12 months	Rs. 400
18 months	Rs. 400
24 months	Rs. 400
24 months	Rs. 10,000

When these 5 securities are separately traded in the market, each becomes effectively a zero-coupon security. Based on the price at which they are traded in the market, yield for 4 maturities can be determined, as shown in Table 3.2.

Table 3.2

STRIP Yields / Spot Rates

E23 f_x =YIELDDISC($B$22,B23,D23,C23)

	A	B	C	D	E
20					
21	**Months**	**Date**	**Maturity Value (Rs)**	**Price (Rs.)**	**Yield**
22	0	01-Apr-12			
23	6	30-Sep-12	400	390	5.16%
24	12	31-Mar-13	400	380	5.26%
25	18	30-Sep-13	400	370	5.42%
26	24	31-Mar-14	400	360	5.56%
27	24	31-Mar-14	10,000	9,000	5.56%
28					

Note the use of the YIELDDISC function in the table. It is useful in calculating yield on zero coupon instruments.

Under-developed debt markets do not have an active STRIP market. This leads to the challenge of zero coupon securities not being available for all maturities. Researchers get over such problems using intrapolation. For instance, if yield is available from the market for maturities of 12 weeks and 14 weeks, the yield for 13 week maturity would be taken as an intermediate value.

The yield curve shown in Graph 3.1 was jagged. Researchers smoothen the yield curve and arrive at stable forward rate structures using statistical models based on "polynomial splines" and "exponential splines".

At times, the zero coupon yield has to be derived from a coupon bearing security. For example, if a zero coupon is available in the market for 6 months ($Y_{0\text{-}0.5}$ = 6%), but not for 1 year; however a coupon bond of 1 year that pays half-yearly interest (say 7%), is

available at par. The zero coupon rate for 1 year, Y_{01} can be determined by solving the following price equation of the 1 year coupon-paying bond:

Rs100 = Rs. 3.50 ÷ $(1+3\%)^1$ + Rs. 103.50 ÷ $(1+Y_{01})^2$

The process of determining the zero coupon yields in this manner is called "bootstrapping".

A liquid debt market is an important pre-requisite for credible yield curves. Generally, the market for sovereign debt is the most liquid in any country. Therefore, the yield curve for the Government viz. the Sovereign Yield Curve is the most robust.

3.1.3 Shape of Yield Curve

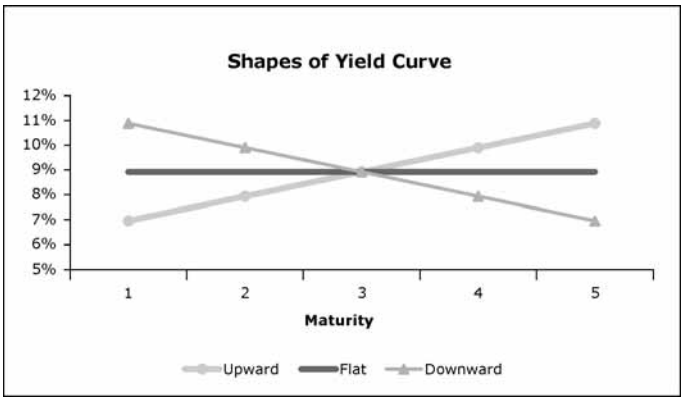
Yield curves can have different shapes, as shown in Graph 3.2.

- An upward sloping yield curve is the normal slope in most countries. It is normal for investors to expect higher return for longer maturities not only on account of the compromise of not having the funds, but also because risks increase with time. A steeply rising yield curve indicates either an expectation of rise in interest rates or a preference for people to invest only for shorter terms.
- Downward sloping yield curve can come up in exceptional times of liquidity squeeze. In such situations, short term rates rise without a corresponding rise in the long term rates, thus making the shape downward sloping. Persistent downward sloping yield curve can be a signal of weakening economic growth.

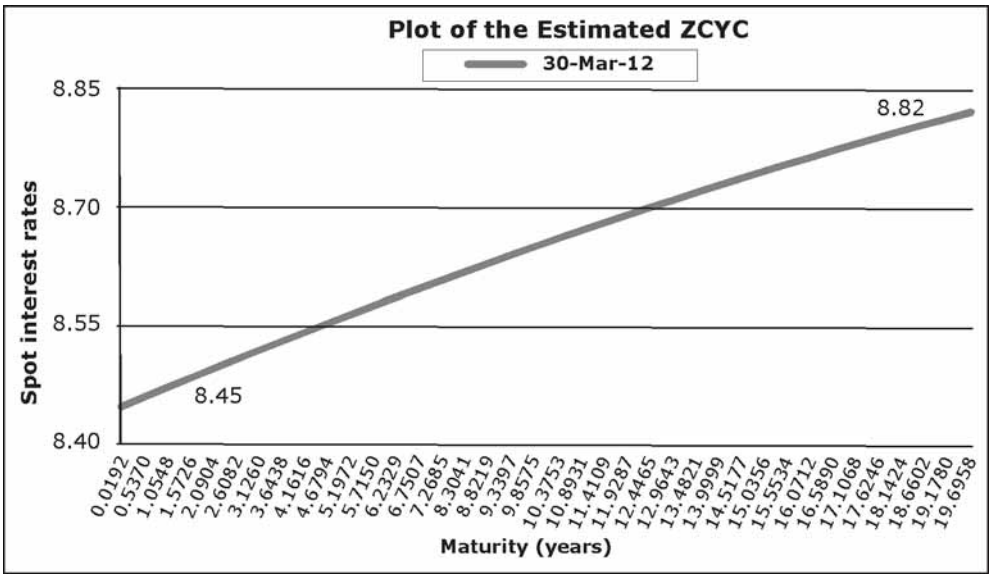
  Downward sloping curves also come up when governments administer long term rates by keeping them artificially low. Before liberalisation commenced in India, yield curve was often downward sloping.
- Flat yield curve implies the same rate for all maturities – a rare phenomenon.

India's Sovereign Yield curve for March 30, 2012 is shown in Graph 3.3. The upward slope can be seen.

Graph 3.2



Graph 3.3



Source: www.nseindia.com

3.1.4 Debt Portfolio Structures

The previous chapter explained the concept of duration of securities. A portfolio will comprise several securities. Duration of a portfolio is calculated as the weighted average of the duration of the securities that are part of that portfolio. For example, consider the following portfolio structure:

Security	Duration	Weightage in Portfolio
A	5 years	30%
B	10 years	70%

The duration of the portfolio can be calculated as (5 X 30%) + (10 X 70%) i.e. 8.5. The implication is that if yield changes by 1%, the value of the portfolio is likely to change by 8.5%. This will hold true (subject to convexity issues discussed in the previous chapter) if the change in yield in the market is 1% for both securities. What would be the change in portfolio value if only the yield for the 5 year security changes by 1%? Portfolio duration cannot provide the answer for such situations.

Table 3.3 features three alternate portfolio structures. Each portfolio has the same duration of about 4.86 years.

Table 3.3

Alternate Portfolio Structures of Same Duration

G53 =SUMPRODUCT($F$42:$F$52,G42:G52)

	Duration	Portfolio Weightage		
		Portfolio 1	*Portfolio 2*	*Portfolio 3*
	0.08333	14%	2%	6%
	0.25000	13%	2%	
	0.50000	11%	2%	
	1.00000	11%	2%	
	2.00000	15%	25%	
	3.00000		25%	65%
	5.00000		14%	
	7.00000		10%	
	10.00000	14%	7%	29%
	12.00000	12%	6%	
	15.00000	10%	5%	
Portfolio Duration		**4.85**	**4.86**	**4.86**

(Note the use of the SUMPRODUCT function to calculate portfolio duration)

Theoretically, each of the portfolios will change by 4.85% if yields in the market change by 1% across all the maturities i.e. the yield curve takes a parallel shift. [Technically, the change will be to the extent of "modified duration" and not "duration". In the absence of information on yield, "duration" is used here]

In reality, yield changes may be different for various maturities i.e. the yield curve may shift with a change in slope (not a parallel shift). Every instance of duration in the table can be multiplied by its weightage in the portfolio, in order to assess the impact on the portfolio arising out of a change of 1% in the security of that duration. The total of this product column will give the Portfolio Duration (Table 3.4).

Table 3.4

Impact of Change in Yield for Specific Maturities

J53 =SUM(J42:J52)

	Duration	Portfolio Weightage			Weightage X Duration		
		Portfolio 1	*Portfolio 2*	*Portfolio 3*	*Portfolio 1*	*Portfolio 2*	*Portfolio 3*
	0.08333	14%	2%	6%	0.01	0.00	0.01
	0.25000	13%	2%		0.03	0.01	0.00
	0.50000	11%	2%		0.06	0.01	0.00
	1.00000	11%	2%		0.11	0.02	0.00
	2.00000	15%	25%		0.30	0.50	0.00
	3.00000		25%	65%	0.00	0.75	1.95
	5.00000		14%		0.00	0.70	0.00
	7.00000		10%		0.00	0.70	0.00
	10.00000	14%	7%	29%	1.40	0.70	2.90
	12.00000	12%	6%		1.44	0.72	0.00
	15.00000	10%	5%		1.50	0.75	0.00
Portfolio Duration		**4.85**	**4.86**	**4.86**	**4.85**	**4.86**	**4.86**

The circled figure of 0.30 is calculated as Duration of 2 multiplied by its 15% weightage in Portfolio 1. It means that if the yield on the 2-year security were to change by 1%, with all other yields constant, Portfolio 1 will change by 0.3%. On the same basis, other cells in the table have been filled and columnwise total taken.

If yield on the 2-year security changes by 1% and 10 year security changes by 0.5%, then what would be the change in Portfolio 1 value if all other yields remain constant? It can be calculated as 0.3 + (1.4÷2) i.e. 1%.

If the yield changes by 1% for all maturities, then the portfolio value will change by 4.85%.

Glancing through the 'Weightage X Duration' column throws interesting results:

- In the case of Portfolio 1, the big impact is only if long term yields (maturity of 10, 12 and 15 years) change. Such portfolios that are biased towards one range of portfolio maturities (long term, short term or intermediate term) are called 'bullet' structures.
- In the case of Portfolio 2, the impact is more or less the same across all maturities beyond 1 year. This is a 'ladder' structure.
- In Portfolio 3, the risk is focussed on two maturities in the short and long term – 3 years and 10 years. This is a "barbell" structure.

Debt portfolio managers anticipate the likely change in yield curve structures. Based on the view – steepening, flattening or parallel shift of yield curve, a debt portfolio manager will choose between bullet (short-term bias), bullet (long-term bias) or ladder. The barbell comes in if a weakening is expected in yields in two specific maturities.

3.2 Credit Risk & Yield Spreads

3.2.1 Assessment of Sovereign Debt Servicing Ability

On paper, a country can print its local currency to repay its local debt. Therefore, credit risk is zero for sovereign debt. However, extensive printing of currency notes can create purchasing power without a matching output of goods and services. This leads to high inflation.

Therefore, mature countries have institutional mechanisms in place to control printing of currency notes. This is where the role of monetary authorities like the Reserve Bank of India comes in. Independence of the monetary authority is a measure of the strength of a country's currency management.

Economic strength of a country can be seen through parameters such as:

- Gross Domestic Product (GDP), a measure of economic activity in the country
- Income distribution, a measure of social stability of the country
- Political stability, an indicator of the ability of the government to take tough decisions
- Economic stability and Stability of Law, affect the confidence that local and international investors have in the country
- Budget Deficit, a measure of the extent to which the government depends on borrowings. The deficit, as a percentage of the GDP, is more meaningful than the absolute number
- Balance of Payments, the extent the country relies on external borrowings to meet foreign currency requirements
- Current Account Deficit, a measure of the extent to which the country's exports of goods and services fall short of its imports. This again is seen as a percentage of GDP. Persistent large current account deficits can lead to balance of payments problem
- Foreign currency reserve, a resource to face external shocks. It's linkage to imports is relevant viz. how many months of imports are covered by the foreign currency reserves.
- Demographics – A country dominated by youngsters who can actively contribute to output generation in the economy (e.g. India) is considered more robust than a country dominated by elders who are well beyond the normal working age (e.g. Japan).

3.2.2 Assessment of Private Debt Servicing Ability

The financial statements of a company have information that helps judge the ability or otherwise of a company to service its debts. Let us examine the financials of a companyover 2 years in Tables 3.5 and 3.6.

Table 3.5

Financials of XYZ Company

	A	G	H
1	**Profit & Loss of XYZ Ltd**		
2		*Year 1*	*Year 2*
3	Sales	1,000	1,500
4			
5	Material Cost	500	800
6	Labour Cost	100	125
7	Other Expenses	50	110
8		650	1,035
9			
10	EBIDTA	350	465
11			
12	Interest	10	16
13	Depreciation	40	45
14	Amortisation	5	9
15		55	70
16			
17	Profit before Tax	295	395
18	Tax	150	275
19	Profit after Tax	145	120
20	Dividend	100	100
21	Retained Earnings	45	20

Table 3.6

Financials of XYZ Company

	A	G	H
24	**Balance Sheet of XYZ Ltd**		
25		*Year 1*	*Year 2*
26	Assets		
27	Net Fixed Assets	300	325
28			
29	Current Assets		
30	Debtors	300	550
31	Inventory	200	350
32	Pre-paid Expenses	10	5
33	Others	50	40
34		560	945
35			
36	**Total Assets**	**860**	**1,270**
37			
38	Liabilities		
39	Share Capital	100	100
40	Reserves	300	320
41	Net Worth	400	420
42			
43	Loans	125	150
44			
45	Current Liabilities	335	700
46			
47	**Total Liabilities**	**860**	**1,270**

Debt servicing can be reviewed through 3 parameters – Solvency, Coverage and Financial Structure.

- *Solvency*

The ability of a company to meet its short term obligations can be understood through its Current Ratio (Table 3.7) & Acid Test Ratio (Table 3.8).

Traditionally, Current Ratio of 1.33 is considered optimal, the implication being that even if 25% of the current assets are not recovered, the company can still meet its current liabilities. The company meets this norm in both years.

Table 3.7

Current Ratio

B53 f_x Current Ratio

	A	B	C	D	E	F	G	H
52								
53	1	*Current Ratio*				(a) ÷(b)	1.67	1.35
54								
55		a	Current Assets				560	945
56		b	Current Liabilities				335	700

Some current assets are not as liquid as the others. Inventory, needs to be sold before it can be converted into cash. Pre-paid expenses will never be converted into cash – they only represent an advance payment towards a future liability that is already committed. Excluding these items, the core current assets can be compared with the current liabilities, to give the Acid Test Ratio.

Optimal Acid Test ratio is considered to be 1. The company just about made it in Year 1. In the second year, it has already gone below 1, indicating pressure on its solvency.

Table 3.8

Acid Test Ratio

B58 f_x Acid Test Ratio

	A	B	C	D	E	F	G	H
57								
58	2	*Acid Test Ratio*				(a) ÷(d)	1.04	0.84
59								
60		a	Core Current Assets			(b) - (c)	350	590
61		b	Current Assets				560	945
62		c	Inventory & Pre-paid Exp				210	355
63								
64		d	Current Liabilities				335	700

- Coverage

There are two aspects to debt servicing – interest payments and loan repayments. Interest repayments are compared with Earnings before Interest & Tax (EBIT) to arrive at the Interest Coverage Ratio, as shown in Table 3.9. The figure is well above the norm of 1.5 to 2 times.

Table 3.9

Interest Coverage Ratio

B85 — Interest Coverage Ratio

	A	B	C	D	E	F	G	H
84								
85	1	*Interest Coverage Ratio*				(a) ÷(e)	30.50	25.69
86								
87		a	EBIT			(b)-(c)-(d)	305	411
88								
89		b	EBIDTA				350	465
90		c	Depreciation				40	45
91		d	Amortisation				5	9
92								
93		e	Interest				10	16

Debt Servicing Coverage Ratio (Table 3.10) assesses the ability of the company's cash flows to meet interest and principal repayment obligations.

Earnings before Interest, Depreciation, Tax & Amortisation (EBIDTA) is used in the numerator because Depreciation and Amortisation reduce the profits, but do not entail any cash outflow.

In the absence of information on repayments, the ratio has been calculated using only interest. The ratio is well above the norm of 1.

Table 3.10

Debt Servicing Coverage Ratio

B95 — Debt Servicing Coverage Ratio

	A	B	C	D	E	F	G	H
94								
95	2	*Debt Servicing Coverage Ratio*					35.00	29.06
96								
97		a	EBIDTA				350	465
98								
99		b	Debt Servicing				10	16
100			(Interest + Repayment) *					
101			* In the absence of info on repayment, only interest is used					

Thus, on the coverage ratio, the company is extremely comfortable.

- Financial Structure

The financial structure can be seen through two dimensions – Debt-Equity Ratio (Table 3.11) and Total Debt to Capitalisation (Table 3.12).

Table 3.11

Debt-Equity Ratio

B68 — Debt-Equity Ratio

	A	B	C	D	E	F	G	H
67								
68	1	*Debt-Equity Ratio*				(a) ÷(b)	0.31	0.36
69								
70		a	Loans				125	150
71		b	Net Worth				400	420

Optimal debt-equity ratio varies with industry. Normally 1.5 to 2 times is fine. Capital intensive industries tend to have a higher ratio. Finance companies tend to have an even higher ratio, going upto 10 times.

XYZ Company is comfortably placed on this count.

Table 3.12

Total Debt to Capitalisation

B73 — Total Debt to Capitalisation

	A	B	C	D	E	F	G	H
72								
73	2	*Total Debt to Capitalisation*				(a) ÷(d)	1.88	2.49
74								
75		a	Total Debt			(b) + (c)	985	1,420
76		b	Loans				125	150
77		c	Current Liabilities				860	1,270
78								
79		d	Capitalisation			(e) + (f)	525	570
80		e	Loans				125	150
81		f	Net Worth				400	420

Total Debt to Capitalisation should ideally not go beyond 1, other than the exceptional situations mentioned in the context of Debt-Equity Ratio. XYZ Limited is clearly stretching its Total Debt. Since Debt-Equity Ratio is comfortable, the stretch is coming out of current liabilities, a concern that was thrown up by the Acid Test Ratio too.

Investing in the company's short term debt instruments like Commercial Paper is clearly risky, although long term debt instruments of the company appear to be safe.

Ratio Analysis of any company needs to consider industry realities. The operating funds cycle often provides useful insights. This has 4 dimensions – Debtors' collection period (Table 3.13), Inventory Holding Period (Table 3.14), Creditors' Collection Period (Table 3.15) and the Operating Cycle Period (Table 3.16).

Debtors' collection period shows at what speed the company is able to convert its sales to cash. This period has to be compared with the normal credit period offered in the industry. The ratio has deteriorated from 110 days to 134 days. This is indicative of weakening of position of the company vis a vis its customers.

Table 3.13

Debtors' Collection Period

B105 — Debtors Collection Period(days)

	A	B	C	D	E	F	G	H
104								
105	1	*Debtors Collection Period(days)*				(a) ÷ (b)	110	134
106								
107		a	Debtors				300	550
108								
109		b	Average Sales			(c) ÷ 365)	2.74	4.11
110								
111		c	Sales				1,000	1,500

Inventory holding period, which shows how long it takes for the inventory to be converted into a sale has deteriorated too, from 104 days to 117 days.

Creditors' Payment period, which shows how long the company takes to pay its dues, has extended from 188 days to 247 days. The interpretation of this depends on the ground realities:

- Credit from suppliers is "free money", unlike loans where there is an interest cost. If the company has been able to pass on the longer debtor's collection period and inventory holding period to the suppliers by extending the credit terms, then it is indicative of a strong competitive position vis a vis suppliers.
- If pressures on the company's fund flows on account of debtors and inventory forced the company to delay its suppliers' payments beyond the regular credit period, then it is a danger signal. This can lead suppliers to increase prices to compensate for expected delays.

Table 3.14

Inventory Holding Period

B113 — Inventory Holding Period (days)

	A	B	C	D	E	F	G	H
112								
113	2	*Inventory Holding Period (days)*				(a) ÷ (b)	104	117
114								
115		a	Inventory				200	350
116								
117		b	Average Cost of Sales			(c) ÷ 365	1.92	3.00
118								
119		c	Cost of Sales			d+e+f+g+h	700	1,096
120								
121		d	Material				500	800
122		e	Labour				100	125
123		f	Other Expenses				50	110
124		g	Depreciation				40	45
125		h	Interest				10	16

Table 3.15

Creditors' Collection Period

B127 — Creditor Payment Period(days)

	A	B	C	D	E	F	G	H
126								
127	3	*Creditor Payment Period(days)*				(a) ÷ (b)	188	247
128								
129		a	Current Liabilities				335	700
130								
131		b	Average Expenses			(c) ÷ 365	1.78	2.84
132								
133		c	Expenses			(d)+(e)+(f)	650	1,035
134								
135		d	Material				500	800
136		e	Labour				100	125
137		f	Other Expenses				50	110

The combined impact of the previous 3 ratios is captured by the Operating Cycle Period Ratio. Shorter the ratio, more efficient is the working capital management. The ratio has reduced from 26 days to 4 days. This needs to be interpreted in the context of the ground realities, as discussed under Creditors' Collection Period.

Table 3.16

Operating Cycle Period

B139 | Operating Cycle (days)

	A	B	C	D	E	F	G	H
138								
139	4	*Operating Cycle (days)*				(a)+(b)-(c)	26	4
140								
141		Debtors' Holding Period				a	110	134
142		Inventory Holding Period				b	104	117
143		Creditors' Holding Period				c	188	247

Shrewd debt investors look at the interplay of various ratios and other information about the issuer in various unconventional ways. For instance, Company XYZ is paying off most of its profit to share-holders. The payout ratio viz. Dividend ÷ Profit before tax was 69% in year 1. It went up to 83% in the second year. Lower re-investment within the company is a concern. It minimises the cushion that gets built in the company for the benefit of debt investors.

3.2.3 Credit Rating

Besides financial ratios, several other factors go into assessment of debt servicing ability. For example, quality of management, competitive position in industry, general economic situation, changes in business environment etc.

International credit rating agencies like Moodys and Standard & Poor's assess the general creditworthiness of countries and international debt securities on an ongoing basis. Domestic debt in India is rated by credit rating agencies like Crisil, ICRA, CARE, FITCH and Duff & Phelps.

A point to note is that the rating is of the borrowing program. Thus, various borrowing programs of the same company can have different credit rating.

The credit rating awarded by the rating agency is initially confidential between the company and the agency. The company has the liberty to use or ignore the rating. However, once the company chooses to use the rating, the information ceases to be confidential. Once the company has chosen to make the rating public (through use in the borrowing program), the agency is at liberty to make subsequent rating upgrades or downgrades public, without the permission of the company.

Companies do seek rating from multiple rating agencies. At times, companies only make public the most favourable rating. Hence there is a need for caution.

Credit rating is meant to be a forward-looking opinion. However, it is often seen that credit ratings are revised much after the financial position of the rated entity has changed. Further, at times, the ratings do not fully capture the credit risk properly, especially in the case of complex instruments. Therefore, blind reliance on ratings is dangerous.

3.2.4 Structured Obligations

The regular credit rating of a borrowing program is based on the issuing company's own strength or weakness. The credit risk can be reduced through some other collateral arrangements, such as:

- Collections from blue chip clients can go into an escrow bank account out of which debt investor gets paid off. Thus, a balance sheet risk can be translated into a risk on the operations of the company and the strength of its customers.
- Some other company in the group may offer a corporate guarantee.

Such credit enhancement structures are called 'Structured Obligations'. Credit rating based on such structures is denoted with the 'SO' suffix. For example, 'AAA(SO)' means top credit rating that is not based on the issuer's balance sheet but a structured obligation.

3.2.5 Yield Spread & Changes in Credit Risk

Sovereign borrowings tend to be at the lowest yields in the market with the stronger countries paying lesser than the weaker ones.

Non-sovereign borrowers need to pay higher than the country where they are incorporated (unless credit is enhanced through a structured obligation). The premium that non-sovereigns pay over sovereign is called 'yield spread'. Poorer the credit risk, more an issuing company needs to pay investors to get them to invest i.e. the yield spread will be higher.

During weak economic situations or other anticipated problems, yield spreads in the market go up, especially for weaker borrowers. This pushes up the yield and pulls down bond prices. Therefore, investors seek a flight to safety viz. safer debt securities in such situations. On the other hand, debt investors can benefit from shrinking yield spreads, by investing in anticipation of a recovery.

Even in stable economic situations, specific companies' credit rating can go up or down. Debt investors can benefit from such changes by investing in anticipation of credit improvement, or disinvesting in anticipation of credit deterioration.

Several structures exist to soften or magnify the impact on investors, arising out changes in the market or the company. These are discussed in Chapter 6 (Derivatives) and Chapter 7 (Structured Products).

Chapter 4 : Financial Statements: Analysis & Projections for Equity

4.1 Financial Statement Analysis

Financial Statement Analysis is a key aspect of security evaluation.

With debt, an investor is looking for comfort that the money invested will be returned as promised. The financial statement analysis for debt investors, discussed in the previous chapter, focussed on this aspect.

Let us now evaluate from an equity investor's perspective, the same financial statements given in Tables 3.5 & 3.6 in the previous chapter.

4.1.1 Revenue, Cost & Margin Structure

The numbers are given in Table 4.1. Sales have gone up by 50% to Rs. 1,500. This should be compared with the industry trend. If industry grew at a slower pace, then it is indicative of strengthening of XYZ's position in its product market.

The rise in material cost and other expenses is a concern. EBIDTA margin has gone down from 35% to 31%. Is this a temporary phenomenon? If not, then the stock market is likely to view the development unfavourably.

Net profit margin is down from 14.5% to 8% - another factor that is weak for the stock markets.

Despite lower profits, the company has maintained its dividend. This has led to a higher payout ratio. Lower retained earnings means the company is re-investing less in itself. This can affect the long term growth of the company.

Tax as a percentage of profit before tax is quite high at 51% and 70% for the two years. The marginal tax rate is only 30% for domestic companies and 40% for foreign companies, plus surcharge (if applicable).

4.1.2 Capital Efficiency

Return on Capital Employed (ROCE) in Table 4.2 shows a significant improvement from 58.1% to 72.1%. Based on the earlier analysis, it is clear that this efficiency has come out of longer creditors' payment period. The interpretation of higher creditors was discussed in the previous chapter.

The ROCE shown in Table 4.2 is based on EBIT i.e. it is pre-tax. It can be multiplied by (1 – tax rate) to arrive at the post-tax ROCE. This will re-confirm the healthy growth in ROCE.

Table 4.1

Revenue, Cost & Margin Structure

	A	B	C	D	E	G	H	J	K
1	**Profit & Loss of XYZ Ltd**							***(% of Sales)***	
2						*Year 1*	*Year 2*	*Year 1*	*Year 2*
3	Sales					1,000	1,500		
4									
5	Material Cost					500	800	50.0%	53.3%
6	Labour Cost					100	125	10.0%	8.3%
7	Other Expenses					50	110	5.0%	7.3%
8						650	1,035	65.0%	69.0%
9									
10	EBIDTA					350	465	35.0%	31.0%
11									
12	Interest					10	16	1.0%	1.1%
13	Depreciation					40	45	4.0%	3.0%
14	Amortisation					5	9	0.5%	0.6%
15						55	70	5.5%	4.7%
16									
17	Profit before Tax					295	395	29.5%	26.3%
18	Tax					150	275	15.0%	18.3%
19	Profit after Tax					145	120	14.5%	8.0%
20	Dividend					100	100		
21	Retained Earnings					45	20		

Table 4.2

Return on Capital Employed

	A	B	C	D	E	F	G	H
146								
147	1	*Return on Capital Employed*				(a) ÷ (e)	58.1%	72.1%
148								
149		a	EBIT			(b)-(c)-(d)	305	411
150								
151		b	EBIDTA				350	465
152		c	Depreciation				40	45
153		d	Amortisation				5	9
154								
155		e	Capitalisation			(f) + (g)	525	570
156		f	Loans				125	150
157		g	Net Worth				400	420

The ROE shown in Table 4.3 is a measure of efficiency in using share-holders' funds. This critical ratio shows deterioration by almost 8% - a worry for equity investors. The poor margin structure has affected the return earned by the company on share-holders' funds.

Table 4.3

Return on Equity

B159 — Return on Equity

	A	B	C	D	E	F	G	H
158								
159	2	*Return on Equity*				(a) ÷ (b)	36.3%	28.6%
160								
161		a	Profit after Tax				145	120
162								
163		b	Net Worth				400	420

4.1.3 Dividend Yield

When investors earn a high dividend yield, then their dependence on capital gains from the market is minimised. Therefore, high dividend yield stocks are considered to be less risky.

Assume that the cum-dividend price of the share in the market was Rs. 120 in Year 1. In line with the poor margins, the price declined to Rs. 110 in Year 2.

As seen in Table 4.4, the dividend yield was 8.3% in Year 1. It went up to 9.1% in Year 2. Dividend yield higher than 5% is quite attractive for equity investors.

Dividend-yield here is closer to the interest-yield which might be available in the market. A point to note is that the dividend is tax-free in the hands of investors, unlike interest which is taxable. If the investor is in 30% tax bracket, then 9.1% post-tax return is equivalent to 9.1% ÷ (1 – 30%) i.e. 13% in pre-tax terms.

The risk factor in earning the dividend is the decline in profitability. If profits decline further, then the company may not be able to maintain the dividend.

4.1.4 Price – Earnings Ratio

As seen in Table 4.5 the P/E Ratio is prevailing at about 9 times. A fundamental analyst will compare this with other firms in the industry. If other firms of similar size are not faced with similar margin issues or are growing at a faster rate than XYZ, then they are likely to be quoting in the market at a higher P/E Ratio. If they too are closer to 9, then XYZ's shares might be over-valued. This will trigger a "sell" call on the share.

Table 4.4

Dividend Yield

B165 fx Dividend Yield

	A	B	C	D	E	F	G	H
164								
165	3	*Dividend Yield*				(a) ÷ (d)	8.3%	9.1%
166								
167		a	Dividend per Share			(b) ÷ (c)	10	10
168								
169		b	Dividend Distributed				100	100
170		c	Number of Shares			(d) ÷ (e)	10	10
171		d	Share Capital				100	100
172		e	Face Value of Share				10	10
173								
174		d	Market Price				120	110

Table 4.5

Price-Earnings Ratio

B176 fx Price - Earnings Ratio

	A	B	C	D	E	F	G	H
175								
176	4	*Price - Earnings Ratio*				(a) ÷ (b)	8.3	9.2
177								
178		a	Market Price				120	110
179								
180		b	Earnings per Share (EPS)			(c) ÷ (d)	14.5	12
181								
182		c	Profit after Tax				145	120
183								
184		d	Number of Shares				10	10

4.2 Financial Projections

Improvement in a company's ability to repay debt will affect the debt investor only to the extent of change in credit rating and the resultant impact on the debt security's value in the market. The amount receivable from the company during the tenor of a debt security and on maturity remains the same. Credit rating assesses the risk of default in making such payments.

Unlike in the case of debt, an improvement (or deterioration) in a company's financial position directly affects the dividends on equity shares of the company, as well as the book value of the equity shares. Purchase of equity shares of a company represents

ownership of the company. Ups and downs of a company have a significant impact on the valuation of its equity shares. Therefore, fundamental analysis of equity uses historical numbers to gauge the direction in which the company is going; but it goes further to projecting the company's future.

Projecting the future entails analysis of the economy, industry, company and the company's strategies. This is discussed in Chapter 6. Based on such analyses, the analyst makes financial projections. Table 4.6 makes financial projections for the same XYZ Company Ltd.

Use of these projections in equity valuation and investment decisions is discussed in Chapter 5.

Table 4.6

Financial Projections of XYZ Ltd.

	A	B	C	D	E	G	H	J	K	O	P	Q	R	S
1	**Profit & Loss of XYZ Ltd**					**Historical Numbers**		**(% of Sales)**		**Projections**		**% of Sales**		**Comments / Assumptions**
2						*Year 1*	*Year 2*	*Year 1*	*Year 2*	*Year 3*	*Year 4*	*Year 3*	*Year 4*	
3	Sales					1,000	1,500			2,100	2,940			Growth will taper to 40% p.a.
4														
5	Material Cost					500	800	50.0%	53.3%	1,134	1,602	54.0%	54.5%	Material cost will go up marginally
6	Labour Cost					100	125	10.0%	8.3%	200	273	9.5%	9.3%	3-year contract renewal will raise labour cos
7	Other Expenses					50	110	5.0%	7.3%	126	176	6.0%	6.0%	Company can manage some efficiencies
8						650	1,035	65.0%	69.0%	1,460	2,052	69.5%	69.8%	
9														
10	EBIDTA					350	465	35.0%	31.0%	641	888	30.5%	30.2%	
11														
12	Interest					10	16	1.0%	1.1%	30	50	1.4%	1.7%	Will go up on account of better capitalisation and capacity expansion
13	Depreciation					40	45	4.0%	3.0%	55	60	2.6%	2.0%	Will go up because of capacity added
14	Amortisation					5	9	0.5%	0.6%	10	10	0.5%	0.3%	
15						55	70	5.5%	4.7%	95	120	4.5%	4.1%	
16														
17	Profit before Tax					295	395	29.5%	26.3%	546	768	26.0%	26.1%	
18	Tax					150	275	15.0%	18.3%	218	307	10.4%	10.4%	Tax % to Profit before tax will reduce on account of settlement of old issues
19	Profit after Tax					145	120	14.5%	8.0%	327	461	15.6%	15.7%	
20	Dividend					100	100			250	400			Company will maintain high dividend payout
21	Retained Earnings					45	20			77	61			

Chapter 5 : Equity – Valuation & Investment Decisions (Part 1)

5.1 Required Rate of Return on Equity

Many approaches to valuation of equity shares use this parameter. The Capital Assets Pricing Model (CAPM) offers a theoretical construct for determining this.

According to CAPM, investment in equities entails two kinds of risk – Systematic Risks and Non-systematic Risks.

- *Non-systematic risks* are specific to the company in which the investment is being made. This can be diversified away by investing in a range of equities. The NIFTY portfolio is an example of such a diversified portfolio.
- *Systematic risks* are unique to investing in equities. This cannot be diversified away. Beta (β) is a measure of systematic risk.

As per the CAPM Model, the required rate of return on equity can be calculated as follows:

Risk-free Return + (Beta X Equity Market Risk Premium)

- *Risk-free return* is the return that can be earned from the government. Treasury bills, being short term instruments, fluctuate less. Therefore, T-Bill yields can be used as the risk-free return. Based on data in Graph 3.3, let us take it to be 8.45%.
- *Beta* is calculated based on the past price-behaviour of the stock that is being evaluated, over a long period of time; and the movement of a diversified index over the same periods. For the academic purpose of understanding the calculations, the data over a short period is considered in Table 5.1.

Periodic return has been calculated as the change in value between two successive dates in percentage terms. For instance, between days 1 and 2, the share price changed from Rs. 125 to Rs. 135. Periodic return is calculated as (Rs. 135 – Rs. 125) ÷ Rs. 125 to get the value of 8%.

There are various ways to calculate Beta. The simplest is to use the 'SLOPE' function in MS Excel, as illustrated in Table 5.1.

Beta of the company's shares is 0.56. (It is less risky than the NIFTY whose Beta is 1).

Table 5.1

Calculation of Beta

B11 =SLOPE(E4:E9,D4:D9)

	A	B	C	D	E
1	**Day**	**Historical Values**		**Periodic Return**	
2		Share Price (Rs.)	NIFTY	Share Price (Rs.)	NIFTY
3	1	125	5500		
4	2	135	6000	8.0%	9.1%
5	3	140	6050	3.7%	0.8%
6	4	142	6150	1.4%	1.7%
7	5	150	6250	5.6%	1.6%
8	6	145	6200	-3.3%	-0.8%
9	7	132	6000	-9.0%	-3.2%
10					
11	**Beta**	**0.56**			

While working with Beta, it is advisable to check on the strength of the relation between the two series of data. This is shown in Table 5.2.

Table 5.2

Calculation of R-squared

D15 =CORREL(D4:D9,E4:E9)

	A	B	C	D	E
1	**Day**	**Historical Values**		**Periodic Return**	
2		Share Price (Rs.)	NIFTY	Share Price (Rs.)	NIFTY
3	1	125	5500		
4	2	135	6000	8.0%	9.1%
5	3	140	6050	3.7%	0.8%
6	4	142	6150	1.4%	1.7%
7	5	150	6250	5.6%	1.6%
8	6	145	6200	-3.3%	-0.8%
9	7	132	6000	-9.0%	-3.2%
14					
15	**Correlation Co-Efficient (R)**			**0.84**	
16					
17	**R-squared**			**0.71**	

Using the 'CORREL' function in MS Excel, the correlation-coefficient is calculated to be 0.84. R-square is the square of the correlation-coefficient. It is calculated as 'R^2' in MS Excel.

The R-squared value can be interpreted to mean that 71% of the returns in the stock are related to the NIFTY returns. R-square value below 0.5 would indicate that the relationship between the Share Price and Nifty is suspect. Therefore, the calculated Beta is not reliable.

- *Equity market risk premium* is the third element that goes into the calculation of CAPM-based Required rate of return on equity. This can be viewed as the historical difference between returns on equity and risk-free debt. If we take the historical equity returns to be 15%, then equity market risk premium would be 15% - 8.45% i.e. 6.55%.

Thus, we get Required Rate of Return on equity as 8.45% + (0.56 X 6.55%) i.e. 12.1%. The company needs to ensure that equity investors earn at least this return. Else, the investors will be dissatisfied. Therefore, this can be viewed as the Cost of Equity for the company.

5.2 Weighted Average Cost of Capital (WACC)

Equity is only one form of funding for any company. We know the Cost of Equity. As seen in Chapter 3, the capitalization of a company includes debt and equity. We need to understand the Cost of Debt too, to determine WACC.

Consider the two scenarios in Table 5.3. EBIT is the same for both. However, in Scenario 2, the company has availed of debt of Rs. 5,000 on which interest at 10% is payable. What would be the cost of debt?

On the face of it, the cost of debt is 10%. However, on closer evaluation of the numbers, it is clear than the debt did not pull down the Profit after Tax by Rs. 5,000 X 10% i.e. Rs. 500. The decline was only Rs. 350. Thereason for this is that the interest payments reduced the profit on which tax is payable. The saving in tax (tax shield) is Rs. 3,000 minus Rs. 2,850 i.e. Rs. 150 The real cost of debt, as measured by the decline in profit after tax is Rs. 350 ÷ Rs. 5,000 i.e. 7%. This can also be measured as the Interest cost X (1 – Tax Rate) i.e. 10% X (1 – 30%) i.e. 7%.

Table 5.3

Cost of Debt

E48 f_x

	B	C	D	E
37				
38			*Scenario 1*	*Scenario 2*
39	EBIT		10,000	10,000
40	Interest		0	500
41	Profit before Tax		10,000	9,500
42	Tax	30%	3,000	2,850
43	Profit after Tax		**7,000**	**6,650**
44				
45	Debt		0	5,000
46	Interest Rate			10%

As per Table 3.6, XYZ Ltd paid interest of Rs. 16 in Year 2. The loans were Rs. 125 at the end of Year 1 and Rs. 150 at the end of Year 2. Average loan during the year was thus (Rs. 125 + Rs. 150) ÷ 2 i.e. Rs. 137.50. The average interest rate is Rs. 16 ÷ Rs. 137.50 i.e. 11.64%.

From the projections in Table 4.6, it appears that the marginal tax rate of XYZ Ltd is 40% (Rs. 218 ÷ Rs. 546).

Cost of Debt for XYZ Ltd is thus 11.64% X (1 – 40%) i.e. 6.98%

We already know the Cost of Equity to be 12.1%. WACC is the weighted average of these two costs. The weighting to be used is the market value of debt and equity.

In Chapter 3, the price of each equity share of XYZ Ltd was taken to be Rs. 110. The company has issued 10 equity shares. Thus, the market value of the company's equity share capital is Rs. 110 X 10 i.e. Rs. 1,100. This is called "market capitalization".

Suppose the Rs. 150 debt of XYZ Ltd is valued in the market at Rs. 175.The total market value of debt and equity of the company is thus Rs. 1,100 + Rs. 175 i.e. Rs. 1,275.

WACC can now be calculated as follows:

12.1% X (1,100 ÷ 1,275) + 6.98% X (175 ÷ 1,275)

i.e. 11.4%

This is the amount that the company should earn on its operating assets in order to deliver the return expected by its debt and equity investors.

WACC is used in some approaches to valuation, as will be discussed later in this chapter.

5.3 Fundamental Valuation Approaches

5.3.1 Dividend Discounting

An investor buying equity shares of a company and holding them forever will keep receiving dividends. The price he should be prepared to pay, therefore, would be the present value of all those dividends. This is similar to the value of a debt security being equal to the present value of all the future interest and principal repayments. However, unlike debt where an interest is promised, the dividend in equity is uncertain and subject to profits. Further, unlike debt, there is no concept of repayment in equity.

Valuation using the Dividend Discounting approach therefore entails estimating a dividend, and the rate at which it is expected to grow upto infinity.

According to the Tables in 3.5 and 3.6 XYZ Co. Ltd distributed a dividend of Rs. 100 in both the years, indicating that the growth is zero. The share capital was Rs. 100. Taking

Rs. 10 to be the face value, the number of shares issued is 10. The Rs. 100 dividend payment on 10 shares amounts to Dividend per Share (DPS) of Rs. 10.

If the same dividend is to be maintained to infinity, then the valuation is similar to that of a perpetual debt security. It can be calculated as DPS ÷ Cost of Equity i.e. Rs. 10 ÷ 12.1%. This gives a share value of Rs. 82.65.

As is evident Rs. 82.65 X 12.1% translates into the DPS of Rs. 10 each year.

In the real world, dividend is unlikely to be the same right upto infinity. Investors expect a growth. Suppose DPS is likely to grow by 5% p.a. This means that dividend in the next year is likely to be Rs. 10 X (1+5%) i.e. Rs. 10.50.

According to the Gordon Growth Model, price of the share will be DPS ÷ (Required Rate of Return on Equity – Dividend growth rate). Using the same numbers, value of the equity share would be:

Rs. 10÷ (12.1% - 5%)

i.e. Rs. 140.85

As expected, the expected price with the dividend growth assumption is higher than in the case of constant dividend assumption.

One encounters situations where over an initial period of time, dividend is expected to be unstable, and thereafter reach a stage of stable growth to infinity.

Here, the price of the equity can be computed as the sum of two values:

- A value for the dividends during the initial period. This can be computed by discounting the annual dividends at the expected rate of return on equity.
- A value for the dividends during the stable period that follows the initial period. This value, called the terminal value, can be calculated using the Dividend Growth Model.

Suppose the expected dividends of XYZ Ltd were as follows:

Year 1: Rs. 12; Year 2: Rs. 15; Year 3: Rs. 20; Thereafter, it is expected to grow by 8% p.a.

The calculation of the value for the initial period dividends is shown in Table 5.4.

Table 5.4

Value for Initial Period Dividends

P28

	B	C	D	E	F	G
25						
26	**Year**	**DPS (Rs.)**	**Present Value***			
27	1	12	10.70			
28	2	15	11.94			
29	3	20	14.20			
30	Total		**36.84**			
31						
32	'*' Present Value is calculated using the Required rate of return on equity of 12.1%					

A stable dividend growth of 8% would mean a dividend of Rs. 20 X (1 + 8%) i.e. Rs. 21.60 in Year 4, going up by 8% p.a. thereafter.

The terminal value at the end of Year 3, using the Gordon Growth Model, would be Rs. 21.60 ÷ (12.1% - 8%) i.e. Rs. 526.83.

The terminal value at the end of Year 3 needs to be discounted to today's value using the Required rate of return on equity i.e. Rs. 526.83 ÷ $(1 + 12.1\%)^3$. This amounts to Rs. 373.98.

Thus, the value of the share today is computed as Rs. 36.84 + Rs. 373.98 i.e. Rs. 410.82.

At the prevailing price of Rs. 110, the share are clearly under-valued.

Two limitations of the Gordon Growth model are:

- The price cannot be computed if the company is not dividend paying.
- The price cannot be computed if the dividend growth rate is higher than the required rate of return on equity.

5.3.2 Free Cash Flow

Companies pay only part of their profits as dividend, the balance being retained. Thus, dividends do not fully capture the value embedded in an equity share.

Dividends come out of the free cash flows of the company. An alternate valuation of equity shares is based on these free cash flows. This approach is particularly used while valuing transactions that are in the nature of mergers or take-overs.

There are two facets to free cash flows:

- "Free Cash Flow to the Firm" (FCFF) is the operational cash flow that is available for servicing debt and equity investors. It is calculated as follows:

  FCFF = PAT + Depreciation & Amortisation + Interest (1 – Tax Rate) – Normal Working Capital Investment – Normal Fixed Capital Investment

  - PAT is final profit figure out of which share-holders are paid (Rs. 327 in Year 3 for XYZ Ltd, as per Table 4.6).
  - Depreciation and amortisation are added back because they do not involve a cash outflow. Similarly, any other item that has no cash flow impact is to be reversed (Rs. 55 + Rs. 10 = Rs. 65 in Year 3, as per Table 4.6).
  - Interest is added back because we want to find out the free cash flow before any financier (debt or equity) is serviced. Interest however has a tax shield. If the interest was not paid, the tax would be higher to the extent of the tax shield. Therefore, the net interest (after adjusting for the tax shield) is added back.

    As per Table 4.6, interest is Rs. 30 in Year 3. The marginal tax rate of the company appears to be 40% (Rs. 218 ÷ Rs. 546). The amount to be added back is Rs. 30 X (1 – 40%) i.e. Rs. 18.
  - Normal working capital investment is the increase in working capital that will come out of the normal growth in operations in future. For example, inventory and debtors will go up; part of this increase will get funded by increase in creditors; the balance amount is the normal working capital investment required. Suppose it is Rs. 50 for Company XYZ for Year 3.
  - Normal fixed capital investment is the increase in fixed assets that will be required to generate the PAT projected. Suppose it is Rs. 100 for Company XYZ for Year 3.

FCFF for XYZ Ltd for Year 3 is thus expected to be Rs. 327 + Rs. 65 + Rs. 18 – Rs. 50 – Rs. 100 i.e. Rs. 260.

As per Table 4.6, XYZ's FCFF for Year 4 is estimated to be Rs. 461 + (Rs. 60 + Rs. 10) + (Rs. 50 X (1 – 40%)) – Rs. 60 (assumed) – Rs. 125 (assumed) i.e. Rs. 376.

Suppose that after Year 4, the FCFF is expected to grow by 6% p.a.

As with the Gordon Growth model, the FCFF is projected for an initial period and value for the firm is calculated for the initial period. The terminal value is separately calculated for the period after the initial period. The discount factor to use for calculating the value of the firm based on FCFF is the WACC, which was calculated to be 11.4% for XYZ Ltd.

In the financials of XYZ Ltd, Years 1 and 2 represent historical figures. Years 3 and 4 are thus the first two years of projections. We need to estimate the value of the firm as at the end of Year 2 / beginning of Year 3.

The Value of the Firm, arising out of FCFF in the initial period of 2 years is as follows:

Rs. 260 ÷ $(1 + 11.4\%)^1$ + Rs. 376 ÷ $(1 + 11.4\%)^2$

i.e. Rs. 536.

The FCFE in Year 5 i.e. the third year of projections would be Rs. 376 X (1 + 6%) i.e. Rs. 398.56. This is to be divided (WACC – growth rate) to arrive at the Terminal Value as at the end of Year 4 / beginning of Year 5. This is Rs. 398.56 ÷ (11.4% - 6%) i.e. Rs. 7,380.

This needs to be further discounted for 2 years, to arrive at the Terminal Value as at the end of Year 2 / beginning of Year 3. This is Rs. 7,380 ÷ $(1 + 11.4\%)^2$ i.e. Rs. 5,947.

Value of the Firm = Value based on initial period + Terminal Value

i.e. Rs. 536 + Rs. 5,947

i.e. Rs. 6,483.

The calculations so far assumed that all the assets of the company were used in the regular operations for which financial projections were made. Suppose the company had also invested in some other companies and the FCFE has not factored any income from those investments. If the market value of those investments were Rs. 200, then that would be added to the previously calculated value to arrive at a revised Value of the Firm of Rs. 6,683.

In the same way, any other non-operating assets, such as land bank of the company not currently used in operations, will be added to determine the Value of the Firm.

- From the Free Cash Flow to the Firm, if the payments towards debt servicing are reduced, the balance belongs to equity investors. This is called "Free Cash Flow to Equity" (FCFE). This has to be discounted at the Cost of Equity to arrive at the Value of Equity of the firm.

FCFE = FCFF – Interest (1-tax rate) – Loan Repayment

From Table 4.6, we know that interest payments in Years 3 and 4 were Rs. 30 and Rs. 50 respectively. After considering the tax shield at 40%, the net interest cost would be Rs. 18 and Rs. 30 respectively.

Suppose the company is also expected to repay debt of Rs. 10 and Rs. 15 in the initial two years.

FCFE (Year 3) = Rs. 260 – Rs. 18 – Rs. 10 i.e. Rs. 232

FCFE (Year 4) = Rs. 376 – Rs. 30 – Rs. 15 i.e. Rs. 331

Value of the Equity of the Firm (as at end of Year 2 / beginning of Year 3), arising out of the initial 2 years (Year 3 and Year 4) is Rs. 232 ÷ $(1 + 12.1\%)^1$ + Rs. 331 ÷ $(1 + 12.1\%)^2$

i.e. Rs. 207 + Rs. 263

i.e. Rs. 470

If the FCFE is expected to grow by 7% p.a. after Year 4, then FCFE (Year 5) would be Rs. 331 X (1+7%) i.e. Rs. 354. Terminal Value of the Equity of the Firm (as at end of Year 4 / beginning of Year 5) can be calculated to be Rs. 354 ÷ (12.1% - 7%) i.e. Rs. 6,941.

This needs to be discounted further for 2 years to arrive at the Terminal Value of the Equity of the Firm as at the end of Year 2 / Beginning of Year 3. Thus, it would be Rs. 6,941 ÷ $(1 + 12.1\%)^2$ i.e. Rs. 5,523.

Value of the Equity of the Firm = Value based on initial period + Terminal Value

i.e. Rs. 470 + Rs. 5,523

i.e. Rs. 5,993.

Since 10 shares are issued, the value of each share would be Rs. 5,993 ÷ 10 i.e. Rs. 599.30

The above is a more precise approach that entails determining the FCFE separately for each year for an initial period and then estimating a growth rate for a subsequent period.

An alternate approach is given by the following formula:

Value of Equity of Firm = Value of Firm – Loan outstanding

i.e. Rs. 6,683 – Rs. 150

i.e. Rs. 6,533.

Dividing by the number of equity shares, the value of each share would be Rs. 653.30.

Using either approach, the shares of the company are under-valued at the prevailing market price of Rs. 110.

Two broad principles to keep in mind while working with Free Cash Flows:

- While arriving at the Value of Firm, use Free Cash Flows to Firm and discount them at the WACC
- While arriving at the Value of Equity of the Firm, use Free Cash Flows to Equity and discount them at the Cost of Equity.

5.3.3 Enterprise Value

This is one of the methods of valuation adopted in merger and acquisition transactions. Enterprise Value is calculated as Market Value of all the Company's Shares + Market Value of Company's Debt – Cash and Investments.

The enterprise value of XYZ Ltd can be calculated as Rs. 1,100 + Rs. 175 – Rs. 20 (assuming it is 50% of other current assets) i.e. Rs. 1,255.

5.3.4 Earnings Multiple

The shares of XYZ Ltd were being traded at Rs. 110. The Price-Earnings multiple at the end of Year 2 was calculated to be 9.2 times in Table 4.5. This was calculated based on the earnings for the previous 12 months. It is called *trailing P/E.*

Share prices in the market are set based on expectations of the future. Trailing P/E does not capture these expectations. Analysts make projections of the earnings and compare them with the current market price. This is called *forward P/E.* The calculation is shown in Table 5.5.

At the prevailing market price of Rs. 110, the forward P/E of 3.4 times is much lower than the trailing P/E of 9.2 times. This is on account of the steep increase in earnings in Year 3.

Table 5.5

Forward P/E

B208 — Forward Price - Earnings Ratio

	A	B	C	D	E	F	G	H
205							**Projections**	
206							*Year 3*	*Year 4*
207								
208	4	*Forward Price - Earnings Ratio*				(a) ÷ (b)	3.4	2.4
209								
210		a	Current Market Price				110	110
211								
212		b	Projected EPS			(c) ÷ (d)	32.73	46.07
213								
214		c	Projected PAT				327	461
215								
216		d	Number of Shares				10	10

The information may be used in several ways:

- An analyst will compare the forward P/E of similar companies. Suppose the forward P/E of other similar companies based on Year 3 earnings is 5 times. The analyst

might conclude that on account of margin considerations, management strength, client diversity or any other factor, the forward P/E of XYZ Ltd ought to be lower at 4.5 times. Based on this, the price ought to be Projected EPS X Realistic P/E Ratio i.e. Rs. 32.73 X 4.5 = Rs. 147.

This represents a profit opportunity of (Rs. 147 – Rs. 110) ÷ Rs. 110 i.e. 34%. Accordingly, the analyst will recommend that the shares be bought.

- At times, the company under consideration will not have a market price. For example, when it plans to make an Initial Public Offer. At that stage, the investment bankers will take a call on an appropriate P/E ratio for the company. This is not simply a question of arriving at an industry average P/E. There can be wide disparity between P/E Ratios of individual companies in the industry. For example, PSU banks v/s Private banks; Slow growing banks v/s Fast growing banks; Small software companies v/s Large software companies; Product software companies v/s Project software companies. The investment banker needs to understand the industry dynamics well, in order to arrive at a suitable IPO price.

Estimation of the value of an equity share using EPS and P/E ratio is called the *earnings capitalisation* approach to valuation.

5.3.5 Price to Book Value Multiple

Earnings capitalisation value is dependent on the market. During periods of extreme optimism in the market, P/E ratios can go unrealistically high. There is also the problem of loss-making companies, where it is not possible to work with P/E ratios.

Book Value is viewed as the intrinsic worth of a company based on its balance sheet. Price to Book Value links the market price to the intrinsic value of the company's share. The calculation is shown in Table 5.6.

Table 5.6

Price to Book Value

B218							
	A	B	C	D	E	F	G	H
217								
218	5	*Price to Book Value Ratio*				(a) ÷ (b)	2.8	2.6
219								
220		a	Current Market Price				110	110
221								
222		b	Book Value per Share			(c) ÷ (d)	40.00	42.00
223								
224		c	Net Worth				400	420
225								
226		d	Number of Shares				10	10

This ratio is particularly useful in evaluating companies in the banking and finance space, where the balance sheet value of the assets is likely to represent their realisable value.

5.4 Margin of Safety

The discussion so far would have highlighted the extent of subjectivity involved in valuation. Although the formulas may be clear, their application can give a range of valuation possibilities. Benjamin Graham conceptualised the margin of safety to address this problem.

Margin of Safety = (Valuation based price – Current market price) ÷ Valuation based price.

Based on earnings capitalisation, XYZ Ltd's shares were valued at Rs. 147. The margin of safety at the current market price of Rs. 110 is (Rs. 147 – Rs. 110) ÷ Rs. 110 i.e. 25%.

This number can be interpreted as a margin for error. Even if the valuation is wrong by 25%, the investment will not lead to losses. 25% of Rs. 147 is Rs. 37. If this is reduced from the valuation-based price of Rs. 147, we arrive at the current market price of Rs. 110.

Higher the margin of safety, greater is the comfort with which investment decision can be taken. In the case of risky industries or companies with an inadequate track record, investment is recommended only if a high margin of safety is available.

Chapter 6 : Equity – Valuation & Investment Decisions (Part 2)

6.1 Economy & Industry Analysis

6.1.1 Economy Analysis

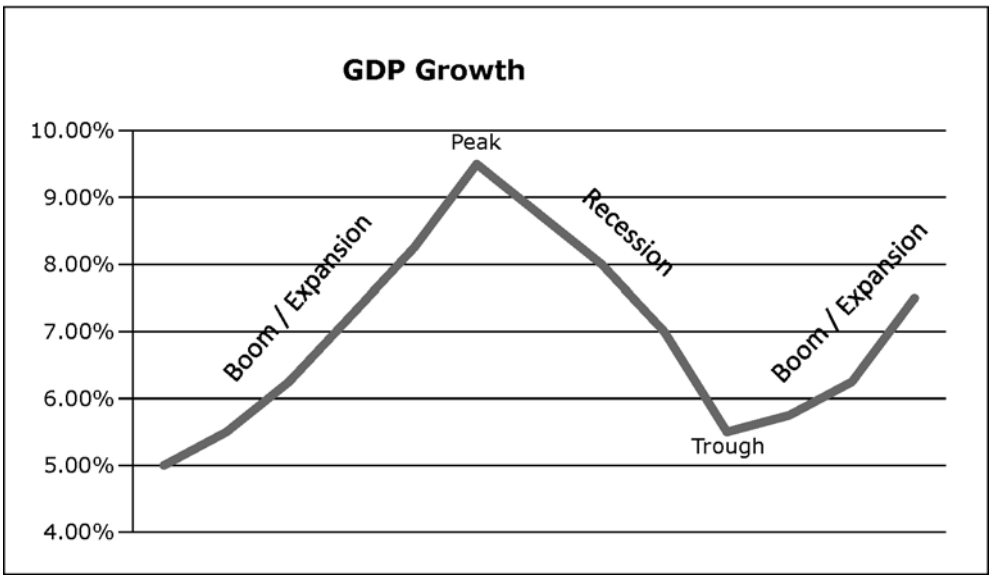
The economy drives the markets. The assessment of a country's economic strength, discussed in the context of debt, in Chapter 3, is equally applicable for equity.

Unlike debt, where the parameters of servicing by the issuer (interest rate, redemption etc.) are clear, there are uncertainties associated with servicing of equity. The dividend, which in any case is a smaller part of an equity investor's returns, is uncertain. The significant part of the return has to come in the form of capital gains from the stock market. Therefore, equity investors give a lot more importance to growth-related economic parameters, than debt investors.

The economy does move in cycles, as shown in Figure 6.1.

Figure 6.1

Economic Cycles



During booms, one finds most sectors (and therefore companies) doing well. As the cycle turns and the economy gets into a recession, several sectors start performing poorly. Capital intensive industries, commodities etc. take a hit. Sectors such as food, fast moving consumer goods, education and healthcare companies suffer less during a recession, because customers cannot easily cut back on expenses on these. A migration from premium to value for money leads some companies in these industries to benefit, while others suffer.

Economic cycles thus affect the financial performance of companies, which in turn determines the fundamental valuation of their stocks. In order to earn better returns, investors try to be ahead of the market. When more people buy before an economic expansion starts, the share markets start going up. Similarly, one finds situations where the share market has already declined by the time a recession sets in.

During stock market booms, the happiness of wealth creation itself can feed more demand in the real economy. The flip side is that a stock market decline can pull down sentiments significantly. Decline in wealth can reduce the demand in the real economy – a phenomenon called "the wealth effect". The low penetration of stock markets in India has resulted in a smaller share market driven wealth effect.

Various economic indicators may point in different directions. Therefore, it is not always easy to take a call on where the economy is headed. Multiple views prevail in the market. For instance, in 2010 when the global recovery started, some economists predicted a boom; others anticipated a double-dip recession – a short recovery followed by a recessionary dip.

Diverse views pull the markets in different directions. This contributes to the ups and downs of the share market. Irrational fear and greed magnify the movements. Therefore, one finds the stock market to be a lot more volatile than the economy. This makes it even more difficult to anticipate the stock market movements, especially over short periods of time.

If a company keeps performing well, it becomes difficult for the stock market to keep its share prices down for long. Similarly, it is difficult for the stock market to keep pushing up the share prices of a poorly performing company. Share prices do track the fundamentals of companies over long periods of time.

Just as it is easier to anticipate seasonal changes than rainfall on a single day, economic cycles are less challenging to anticipate than stock market cycles. A well-grounded economist is therefore an important member of the team in most leading investment institutions.

6.1.2 Industry Analysis

The impact of economic changes on any industry depends on the structure of that industry. The performance of companies within the industry depends on the structure of that industry and the competitive strategies pursued by the companies. One of the most comprehensive frameworks for such an analysis was explained by strategy management guru, Michael Porter in "Competitive Strategy: Techniques for Analysing Industries and Competitors" (The Free Press, 1980) and "Competitive Advantage: Creating & Sustaining Superior Performance" (The Free Press, 1985).

In what has come to be called Five forces model, Porter argues that the attractiveness of any industry and its profitability depends on the interplay of five forces –

- Industry competitors – the rivalry among existing firms. Greater the rivalry, lower the attractiveness of the industry for companies in the industry.

  For instance, Airlines, FMCG, consumer electronics and computer hardware industries are characterised by intense competition. On the other hand, there is little competition in power transmission.

- Bargaining power of buyers – Higher the buyer's bargaining power, lower the margins in the industry.

  Buyers of pharmaceutical products have little bargaining power. They buy what the doctor / pharmacist recommends. This gives flexibility to the manufacturers to price the products high. In India, the price of essential drugs is controlled by the regulators. This protects the buyers to some extent.

- Bargaining power of suppliers – Some of the metal and power companies are heavily dependent on coal, which is characterised by a monopolistic situation in India. Imports come with incidental transportation costs, import duties etc. The margins of these companies therefore tend to be under pressure.

- Threat of substitutes – Higher the threat, lower are likely to be the margins in the industry. Low rail freight rates ensure that road transporters cannot charge very high freight rates.

- Threat of new entrants - Greater the threat, lower is likely to be the margins in the industry. Some industries like photography, consumer electronics and telecom handsets have experienced a blurring of boundaries. The standalone cameras and music players face a threat from handsets. Switch from chemicals to digital in photography caused huge problems for erstwhile leader, Kodak. Threat of new entrants keeps pricing under check to some extent.

According to Porter, three generic strategies are possible for companies:

- Cost leadership – Here, the company decides to become the lowest-cost producer or service provider in the industry. Several broking companies have adopted this strategy in order to gain a larger share of the market. With this approach, the margins will be low in percentage terms. However, higher profits are possible if the company is able to build a business of scale.

- Differentiation – The company tries to be different in the industry, on some aspect that the customer values. Some of the foreign banks and wealth management companies position themselves to offer a more customised service to clients.

- Focus – Companies adopting this strategy choose a narrow competitive scope within an industry. This may limit the customer segment, but the company hopes to earn high margins. In recent times, Bajaj Auto has adopted this strategy. The company decided to close its traditional scooter business to focus on motor cycles (and three-wheelers). Despite the focus, they hope to generate more volumes by serving the global market, rather than limiting to India. The company hopes to be the most profitable two-wheeler company in the world.

Choice of generic strategy depends on the industry structure as well as the strengths and weaknesses of the company concerned.

Another strategy guru, the late CK Prahalad came out with the concept of "bottom of pyramid" in his book "The Fortune at the Bottom of the Pyramid: Eradicating Poverty through Profits" (Wharton School Publishing, 2005). He highlighted how the poor are a large consumer segment, but their buying behaviour is different. Products / services can be re-designed to meet their needs while ensuring that the company earns profits on the business.

The small shampoo sachets introduced in India led to several new consumers buying shampoos. In fact this strategy became a differentiator for several new entrants to build businesses of scale. Later, the larger FMCG companies too started small sachets. This strategy was replicated in several other businesses, such as detergent, instant coffee powder and mobile re-charge.

If a good strategy is adopted, and executed well, the company can have sustainable competitive advantage over a long period of time. Fundamental analysts evaluate the suitability of the company's strategy along these lines, before investing. This approach has helped Warren Buffett, the legendary investor to hold on to his investments for several years – in some cases, decades.

6.2 Top-Down or Bottom-up?

Many international investment institutions adopt an investment approach that allocates investments along the following dimensions:

- Region e.g. US, Europe, Middle East & North Africa (MENA), Asia-Pacific
- Within the region, country allocations are made

The allocations are revised from time to time, generally annually. At times, the allocations are based on the distribution in an index.

This traditional approach to investment started in an era when such geographic spread of investments helped minimise risks. Lately, however, it is seen that markets move

together, especially in times of crises. This phenomenon, called "contagion" was most recently seen in 2008, when the problems in US and Europe spread to the rest of the world.

Despite contagion, there are differences between markets. Even if they move in the same direction during crises, the extent of impact does vary. Therefore, to an extent, spreading the exposure between regions / countries still makes sense.

Within a country again, some investors first decide on an allocation between sectors; within each sector they select the best companies to have in the portfolio. This is called a top-down approach, where the sectoral allocation becomes a key decision.

Other investors go for the best companies to have in the portfolio, independent of the sector. This is called a bottom-up approach or stock-picking approach, where the sectoral allocation is a result, rather than a decision. They may still have prudential sectoral limits, but it is not a sectoral allocation based on their inter se prospects. Investors like Warren Buffett and Peter Lynch are known for their bottom-up approach.

Some analysts reason that while top-down makes more sense in mature markets, bottom-up is likely to yield better results in developing markets.

6.3 Technical Analysis

The discussions on equity so far, starting from Chapter 5 largely focused on factors inside the company, such as its strategy, management and financials. This is called fundamental analysis. Legendary investors like Benjamin Graham, Warren Buffett and Peter Lynch follow this discipline of investment.

An alternative approach to investments is technical analysis, where the analyst takes decisions based on the price-volume behaviour of a stock and / or the index. This discipline believes that market price captures the thought process of all investors in the market. Based on this, views can be taken on future price behaviour – the direction it will take and at what level it is likely to encounter a resistance or a support.

Technical analysis does not call for understanding of the company's business, its financial statements etc. Given a company's technical chart, the technical analyst will have a view that is independent of the industry to which the company belongs, its margin structure etc. This makes it simple for many investors to adopt this approach.

The approach to take to investment decisions should depend on the investment horizon.

For long term investments, fundamental analysis has stood the test of time. However, critical information for fundamental analysis comes with a lag. For example, quarterly

EPS will be available, monthly information on production and sales may be available – but not daily information.

Price-Volume information, on the other hand, is generated every nano-second. This becomes the heart of technical analysis. For an investor involved in day-trading – buying and selling within extremely short horizons – fundamental analysis cannot provide any support. Technical analysis is typically used in such cases.

Even a long term investor may use technical analysis. Fundamental analysis will help in taking a decision on buying or selling. Implementation of the decision – the timing – can be left to technical analysis.

Chapter 7 : Derivatives

7.1 Background

Derivative is a contract that derives its value from the value of an underlying.The underlying may be a financial asset such as currency, stock and market index, an interest bearing security or a physical commodity. Depending on how the pay offs are structured, it could be a forward, future, option or swap.

- Both parties to a forward contract are committed. However, forwards are not traded on the stock exchange.
- In a futures contract too, both parties are committed. However, futures are traded on the stock exchange.
- Options are contracts where only one party (writer / seller) is committed. The other party (buyer) has the option to exercise the contract at an agreed price (strike price), depending on how the price of the underlying moves. The option buyer pays the option writer a premium for entering into the contract.

  Unlike futures, where one party's profit is the counter-party's loss, the pay offs in an option contract are asymmetric. The downside for the option buyer is limited to the premium paid; the option seller has an unlimited downside.

  American options are exercisable any time until expiry of the contract; European options are exercisable only on expiry of the contract.

  Option contracts to buy an underlying are called "call" options; "put" options are contracts to sell an underlying.
- Swaps are contracts where the parties commit to exchange two different streams of payments, based on a notional principal. The payments may cover only interest, or extend to the principal (in different currencies) or even relate to other asset classes like equity.

The same exposure can be taken, either through the underlying cash market (debt, equity etc.) or a derivative (with debt, equity etc. as the underlying). A benefit of derivatives is the leveraging. For the same outgo, it is possible to have a much higher exposure in the derivative market, than in the underlying cash market. This makes it attractive for speculators and hedgers, besides normal investors.

In many derivative contracts, the concept of continuous compounding is used:

$A = P \times e^{rn}$

where,

'A' is the amount

'P' is the principal

'e' is exponential function, which is equal to 2.71828

'r' is the continuously compounded rate of interest per period

'n' is the number of periods.

Rs. 5,000, continuously compounded at 6% for 3 months would be calculated to be Rs. 5,000 X $e^{(6\% \text{ X } 0.25)}$ i.e. Rs. 5,075.57.

(Normal (discrete) compounding would have been calculated as Rs. 5,000 X $(1+6\%)^{0.25}$ i.e. Rs. 5,073.37.

The Black Scholes Merton Model of Option Pricing is defined by the following differential equation

$$\frac{\partial f}{\partial t} + rS\frac{\partial f}{\partial S} + \tfrac{1}{2}\sigma^2 S^2 \frac{\partial^2 f}{\partial S^2} = rf$$

Where, S is stock price, t is term of the option (time to maturity), r the risk free rate, and σ the volatility of stock price.

The Black-Scholes formulas for the prices of European calls and puts with strike price X on a non-dividend paying stock are the roots of the differential equation, as follows:

$$\begin{aligned} C &= SN(d_1) - Xe^{-rT}N^{(d_2)} \\ P &= Xe^{-rT}N^{(-d_2)} - SN(-d_1) \\ where\ d_1 &= \frac{In\ \frac{S}{X} + (r + \sigma^2/2)T}{\sigma\sqrt{T}} \\ and\ d_2 &= d_1 - \sigma\sqrt{T} \end{aligned}$$

Where,

- N(x) is the cumulative distribution function for a standardized normal distribution.
- The expression $N(d_2)$ is the probability that the option will be exercised in a risk neutral world, so that $N(d_2)$ is the strike price times the probability that the strike price will be paid.
- The expression $S_0N(d_1)e^{rt}$ is the expected value of a variable that equals S_T if S_T>X and is 0 otherwise in a risk neutral world. Here S_T is the spot price at time T and X is the strike price.

- σ (sigma), a measure of volatility, is the annualized standard deviation of continuously compounded returns on the underlying. When daily sigma is given, they need to be converted into annualized sigma.
- Sigma $_{annual}$ = sigma $_{daily}$ × √Number of trading days per year. On an 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.
- When S becomes very large a call option is almost certain to be exercised.
- It also becomes similar to a forward contract with a delivery price K. Thus the call option price will be $c = S - Xe^{-r T}$
- As S becomes very large both $N(d_1)$ and $N(d_2)$ are both close to 1.0.
- Similarly the put option price will be 0 as $N(-d_1)$ and $N(-d_2)$ will be close to 0.
- Similarly when σ approaches zero d_1 and d_2 tend to infinity so that $N(d_1)$ and $N(d_2)$ tend to 1.0 and the value of call option is:

  $c = S - X e^{-r T}$

  Thus the call price will always be the $\max(S - X e^{-r T}, 0)$.

The Black Scholes model uses continuous compounding.

Option traders seek to manage the Greeks in order to manage their overall portfolio. There are five Greeks used for hedging portfolios of options with underlying assets (index or individual stocks). These are denoted by delta, theta, gamma, vega and rho each represented by Greek letters Δ, Θ, Γ, ν and ρ.

- **Delta (Δ)**

  In general, delta (Δ) of a portfolio is the change in value of the portfolio with respect to a small change in price of the underlying asset. Delta of an option, on the other hand, is the rate of change of the option price with respect to price of the underlying asset.

  It is the slope of the curve that relates the option price to the price of the underlying asset. Suppose the Δ of a call option on a stock is 0.5. This means that when the stock price changes by one, the option price changes by about 0.5, or 50% of the change in the stock price.

  Figure 7.1 shows the delta of a stock option.

  Expressed differently, it is the change in the price of call option per unit change in the spot price of the underlying asset. $\Delta = \partial C/\partial S$.

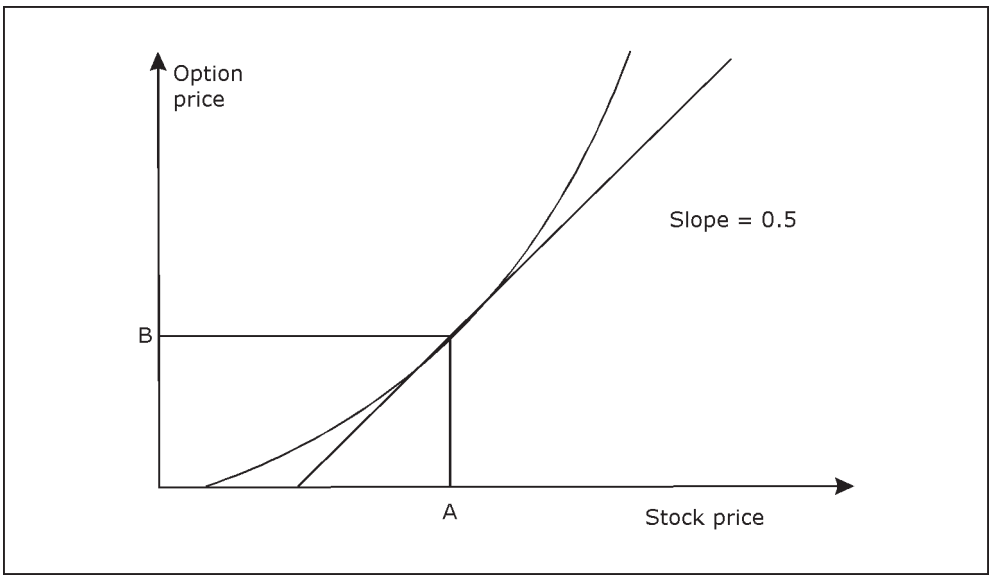
The delta of a European call on a stock paying dividends at rate q, is $N(d_1)e^{-qT}$.

The delta of a European put is $e^{-qT}[N(d_1) - 1]$.

The Δ of a call is always positive and the Δ of a put is always negative.

As the stock price (underlying asset) changes delta of the option also changes. In order to maintain delta at the same level, a given number of stocks (underlying asset) need to be bought or sold in the market. Maintaining delta at the same level is known as *delta neutrality* or *delta hedging*.

Figure 7.1 Δ as slope



- **Gamma (Γ)**

  Γ is the rate of change of the option's Delta Δ with respect to the price of the underlying asset. In other words, it is the second derivative of the option price with respect to price of the underlying asset.

- **Theta (Θ)**

  Θ of a portfolio of options is the rate of change of the value of the portfolio with respect to the passage of time, with all else remaining the same.

  Θ is also referred to as the time decay of the portfolio.

  Θ is the change in the portfolio value when one day passes with all else remaining the same. We can either measure Θ "per calendar day" or "per trading day".

  To obtain the per calendar day, the formula for Theta must be divided by 365; to obtain Theta per trading day, it must be divided by 250.

- **Vega (ν)**

  The vega of a portfolio of derivatives is the rate of change in the value of the portfolio with respect to volatility of the underlying asset.

  - If it is high in absolute terms, the portfolio's value is very sensitive to small changes in volatility.
  - If it is low in absolute terms, volatility changes have relatively little impact on the value of the portfolio.

- **Rho(ρ)**

  The ρ of a portfolio of options is the rate of change of the value of the portfolio with respect to the interest rate. It measures the sensitivity of the value of a portfolio to interest rates.

7.2 Interest Rate Futures

In India, interest rate futures are available with underlying in the short term (91-day T-Bill) or long term (10 year Notional Government of India security bearing coupon of 7%). These are traded in the Currency Derivatives segment on NSE's automated trading systems, NEAT plus and NOW (NEAT on Web). The trades are settled through India's only 'AAA' rated clearing corporation, the National Securities Clearing Corporation Limited (NSCCL), which acts as a central counterparty to all trades and guarantees financial settlement.

Let us consider the operation with the example of **futures on the 91-day T-Bill**. The complete contract specification is given in Table 7.1.

- Each contract represents 2,000 units of the underlying T-Bill. Since T-Bills have a maturity value of Rs. 100, each contract represents T-Bill face value of 2,000 X Rs. 100 i.e. Rs. 200,000.
- Contracts are permitted for every month for the first 3 months, and thereafter every quarter for 3 quarters. The contracts expire at 1 pm on the last Wednesday of the concerned month. In case the last Wednesday of the month is a designated holiday, the expiry day would be the previous working day.

  Thus, in April 2012, the permitted contracts are those expiring on April 25, 2012; May 30, 2012; June 27, 2012; September 26, 2012; December 26, 2012; and March 27, 2013.
- While the futures contract would expire on a Wednesday, it is for an underlying 91-day T-Bill which will mature 91 days after the expiry of the futures contract.

For example, if the settlement date is April 11, 2012. The near month futures contract will expire on April 25, 2012. But the underlying is a T-Bill that will mature 91 days later, on July 25, 2012.

- The period of 14 days from April 11, 2012 to April 25, 2012 is the *balance tenor of the futures contract*
- After the expiry day of the futures contract, the underlying 91-day T-Bill (which is to mature on July 25, 2012) will have a *forward period* of 90 days.
- The summation of the two periods, 14 + 90 i.e. 104 days is *the residual tenor of the exposure.*

Table 7.1

Contract Specification for T-Bill Futures

Symbol	91DTB	
Market Type	N	
Instrument Type	FUTIRT	
Unit of trading	One contract denotes 2000 units (Face Value Rs.2 lacs)	
Underlying	91-day Government of India (GOI) Treasury Bill	
Tick size	0.25 paise i.e. INR 0.0025	
Trading hours	Monday to Friday 9:00 a.m. to 5:00 p.m.	
Contract trading cycle	3 serial monthly contracts followed by 3 quarterly contracts of the cycle March/June/September/December	
Last trading day	Last Wednesday of the expiry month at 1.00 pm In case last Wednesday of the month is a designated holiday, the expiry day would be the previous working day	
Price Quotation	100 minus futures discount yield e.g. for a futures discount yield of 5% p.a. the quote shall be 100 - 5 = Rs 95	
Contract Value	Rs 2000 * (100 - 0.25 * y), where y is the futures discount yield e.g. for a futures discount yield of 5% p.a. contract value shall be 2000 * (100 - 0.25 * 5)= Rs 197500	
Quantity Freeze	7,001 lots or greater	
Base price	Theoretical price of the first day of the contract On all other days, quote price corresponding to the daily settlement price of the contracts	
Price operating range	+/-1 % of the base price	
Position limits	**Clients**	**Trading Members**
	6% of total open interest or Rs.300 crores whichever is higher	15% of the total open interest or Rs.1000 crores whichever is higher

Initial margin	SPAN ® (Standard Portfolio Analysis of Risk) based subject to minimum of 0.1 % of the notional value of the contract on the first day and 0.05 % of the notional value of the contract thereafter
Extreme loss margin	0.03 % of the notional value of the contract for all gross open positions
Settlement	Daily settlement MTM: T + 1 in cash Delivery settlement : Last business day of the expiry month.
Daily settlement	Mark to Mark (MTM) : T + 1 in cash
Daily settlement price & Value	Rs (100 - 0.25 * yw) where yw is weighted average futures yield of trades during the time limit as prescribed by NSCCL. In the absence of trading in prescribed time limit, theoretical futures yield shall be considered
Daily Contract Settlement Value	Rs 2000 * daily settlement price
Final Contract Settlement Value	Rs 2000 * (100 - 0.25 * yf) where yf is weighted average discount yield obtained from weekly auction of 91-day T-Bill conducted by RBI on the day of expiry
Mode of settlement	Settled in cash in Indian Rupees

- Prices are quoted in the market at (100 – Futures Discount Yield). For example, if the discount yield is 4%, the quote price would be Rs. 100 – Rs. 4 i.e. Rs. 96. This is the *quote price.*
- The futures discount yield translates to 4% X 0.25 i.e. 1% for 91 days (which is the duration of the underlying T-Bill). The T-Bill will be valued in the money market at Rs. 100 – Rs. 1 i.e. Rs. 99. This is the *valuation price.*

  At this price, the contract value translates to 2,000 units X Rs. 99 i.e. Rs. 198,000.
- Money market yield is Rs. 1 ÷ 99 X 365 ÷ 91 i.e. 4.05%
- Discount yield is Rs. 1 ÷ 100 X 360 ÷ 90 i.e. 4%
- The user has to input any one of the following in the trading screen:
  - Quote price (Rs. 96)
  - Valuation price (Rs. 99)
  - Money market yield (4.05%).
- In any derivative contract, the clearing house protects itself from client default by recovering initial margin and daily marked to market (MTM) margins.
- Initial margin is based on SPAN (Standard Portfolio Analysis of Risk). It is subject to minimum of 0.1 % of the notional value of the contract on the first day and 0.05 % of the notional value of the contract thereafter

- For the daily MTM margin, settlement price is calculated every day, as Rs. 100 – 0.25 X Weighted Average Futures Yield. The weighted average is calculated on the basis of:
    - Trades in last half hour of trading, if at least 5 trades have been executed.
    - Else, trades in last 1 hour of trading, if at least 5 trades have been executed.
    - Else, trades in last 2 hours of trading, if at least 5 trades have been executed.
    - In the absence of adequate trades, theoretical futures yield is derived using T-Bill benchmark rates as published by Fixed Income Money Market and Derivatives Association of India (FIMMDA).
        - Yields are first intrapolated / extrapolated for balance tenor of the contract and residual tenor of the exposure.
        - Based on this, yield for the forward period of 90 days is computed.
- Suppose futures contract was executed at valuation price of Rs. 99. Subsequently, the daily MTM settlement price came to Rs. 99.25. The buyer of the futures contract has made a MTM profit of Rs. 0.25 per unit. Since each contract represents 2,000 units, the MTM profit on the contract would be 2,000 X Rs. 0.25 i.e. Rs. 500.
- Final settlement is done one day after expiry of the contract. The final settlement price is worked out on the basis of weighted average discount yield obtained from weekly 91 Day T-Bill auction of RBI. Suppose the yield was 4.2%. The final settlement price would be Rs. 100 – 0.25 X 4.2% i.e. Rs. 98.95.
- Since yield has gone up, the final settlement price is lower than the original purchase price for the future. The buyer of the future has made a loss of (Rs. 99 – Rs. 98.95) i.e. Rs. 0.05 per unit. On the contract of 2,000 units, the loss would be 2,000 X Rs. 0.05 i.e. Rs. 100.
- All T-Bill futures are cash settled in this manner.
- As is clear from the example used, anyone who expects yields to go up with sell the future i.e. go short; someone expecting yields to go down will buy the future i.e. go long.

Future on the 10 Year Government Security of 7% p.a. notional coupon, payable semi-annually, broadly operates on similar lines. The contract specifications are given in Table 7.2. A few areas of difference:

- Unlike T-bills, the underlying security has a coupon element. This leads to adjustment for accrued interest.

Accrued interest is the interest amount accrued from the last coupon payment date up to the day prior to the settlement date (i.e. the date the trade will be settled with the counter party). It is calculated using 30/360 day count convention which assumes each month has a period of 30 days; the year has 360 days.

- Four fixed quarterly contracts are available for the entire year i.e. ending March, June, September and December.
- The contracts are physically settled by delivering deliverable grade securities. A list of permitted securities is specified.
- Interest rate futures take 7% with semi-annual compounding as a base. However, the coupon offered varies from security to security. This leads to the concept of conversion factor.

  The conversion factor is the number that would equate the deliverable security (per rupee of principal), to yield 7% with semi-annual compounding.

Table 7.2

Contract Specification for 10-Year Government Security Futures

Symbol	10YGS7	
Market Type	N	
Instrument Type	FUTIRD	
Unit of trading	1 lot - 1 lot is equal to notional bonds of FV Rs.2 lacs	
Underlying	10 Year Notional Coupon bearing Government of India (GOI) security. (Notional Coupon 7% with semi annual compounding.)	
Tick size	Rs.0.0025	
Trading hours	Monday to Friday 9:00 a.m. to 5:00 p.m.	
Contract trading cycle	Four fixed quarterly contracts for entire year ending March, June, September and December.	
Last trading day	Two business days prior to the delivery settlement day.	
Quantity Freeze	1251 lots or greater	
Base price	Theoretical price of the 1st day of the contract. On all other days, DSP of the contract.	
Price operating range	+/-5 % of the base price	
Position limits	**Clients**	**Trading Members**
	15% of the total open interest or Rs.1000 crores whichever is higher	15% of the total open interest or Rs.1000 crores whichever is higher
Initial margin	SPAN Based Margin	
Extreme loss margin	0.3% of the value of the gross open positions of the futures contract.	
Settlement	Daily settlement MTM: T + 1 in cash Delivery settlement : Last business day of the expiry month.	
Daily settlement price	Closing price or Theoretical price.	

Delivery Settlement	
Mode of settlement	Daily Settlement in Cash
Conversion Factor	The conversion factor would be equal to the price of the deliverable security (per rupee of principal) on the first calendar day of the delivery month, to yield 7% with semiannual compounding
Invoice Price	Daily Settlement price times a conversion factor + Accrued Interest
Delivery day	Last business day of the expiry month
Intent to Deliver	Two business days prior to the delivery settlement day.

- Since a range of securities are available for delivery, there is a concept of Cheapest to Deliver Bond.

The bond which can be bought at the cheapest price from the underlying bond market and delivered against an expiring futures contract is called CTD bond.

It is the bond where difference between "Quoted price of Bond – (Futures Settlement Price * Conversion Factor)" is the most beneficial to seller. The concept is illustrated in Table 7.3.

Table 7.3

Cheapest to Deliver Bond

Security	Futures Settlement Price *	Quoted Price of Bond * (A)	Conversion Factor (CF)	Futures Price X CF (B)	Difference (A - B)
7.46 2017	100	102.74	1.0270	102.70	0.04
6.05 2019	100	95.64	0.9360	93.60	2.04
6.35 2020	100	96.09	0.9529	95.29	0.80
7.94 2021	100	104.63	1.0734	107.34	-2.71
8.35 2022	100	107.02	1.1113	111.13	-4.11
6.30 2023	**100**	**89.75**	**0.9395**	**93.95**	**-4.20**

*Assumed

The last mentioned bond is the CTD.

7.3 Credit Default Swaps (CDS)

As discussed in Chapter 3, non-Sovereign bonds involve a credit risk. Having invested in such bonds, it is possible for the investor to seek protection from credit risk by buying a CDS.

A CDS has two parties – buyer and seller. The buyer pays premium to the seller for the protection. In return, the seller promises to compensate the buyer, if the issuer of the underlying bond defaults on the payments.

CDS issues without proper credit risk assessment led several CDS issuers to bankruptcy in the developed markets in the last few years. RBI has therefore imposed a strict regulatory regime for the product. The key regulations are as follows:

- Participants in the market are classified into two:
    - *Users*

      Commercial Banks, Primary Dealers (PDs), Non-Banking Finance Companies (NBFCs), Mutual Funds, Insurance Companies, Housing Finance Companies, Provident Funds, Listed Corporates, Foreign Institutional Investors (FIIs) and any other institution specifically permitted by the Reserve Bank.

      These entities are permitted to buy credit protection (buy CDS contracts) only to hedge their underlying credit risk on corporate bonds.

      Such entities are not permitted to hold credit protection without having eligible underlying as a hedged item.

      Users are also not permitted to sell protection and are not permitted to hold short positions in the CDS contracts. However, they are permitted to exit their bought CDS positions by unwinding them with the original counterparty or by assigning them in favour of buyer of the underlying bond.

    - *Market Makers*

      Commercial Banks, standalone PDs, NBFCs having sound financials and good track record in providing credit facilities and any other institution specifically permitted by the Reserve Bank.

      Insurance companies and Mutual Funds would be permitted as market-makers subject to their having strong financials and risk management capabilities as prescribed by their respective regulators (IRDA and SEBI) and as and when permitted by the respective regulatory authorities.

      These entities are permitted to quote both buy and/or sell CDS spreads. They are permitted to buy protection without having the underlying bond.

- All CDS trades need to have an RBI regulated entity at least on one side of the transaction.
- Detailed eligibility criteria have been specified for every category of market maker. In case a market-maker fails to meet one or more of the eligibility criteria subsequent to commencing the CDS transactions, it would not be eligible to sell new protection. As regards existing contracts, such protection sellers would meet all their obligations as per the contract.

- The party against whose default, protection is bought and sold through a CDS is called the reference entity. It should be a single legal resident entity [the term resident is as defined in Section 2(v) of Foreign Exchange Management Act, 1999] and the direct obligor for the reference asset/obligation and the deliverable asset/ obligation.
- CDS is allowed only on the following reference obligations:
  - Listed corporate bonds
  - Unlisted but rated bonds of infrastructure companies.
  - Unlisted/unrated bonds issued by the SPVs set up by infrastructure companies.

    Such SPVs need to make disclosures on the structure, usage, purpose and performance of SPVs in their financial statements.
- The reference obligations are required to be in dematerialised form only.
- The reference obligation of a specific obligor covered by the CDS contract should be specified a priori in the contract and reviewed periodically for better risk management.
- Protection sellers should ensure not to sell protection on reference entities/obligations on which there are regulatory restrictions on assuming exposures in the cash market such as, the restriction against banks holding unrated bonds, single/group exposure limits and any other restriction imposed by the regulators from time to time.
- Users cannot buy CDS for amounts higher than the face value of corporate bonds held by them and for periods longer than the tenor of corporate bonds held by them. They shall not, at any point of time, maintain naked CDS protection i.e. CDS purchase position without having an eligible underlying.
- Proper caveat has to be included in the agreement that the market-maker, while entering into and unwinding the CDS contract, needs to ensure that the user has exposure in the underlying.

  Further, the users are required to submit an auditor's certificate or custodian's certificate to the protection sellers or novating users (users transferring the CDS), of having the underlying bond while entering into/unwinding the CDS contract.
- Users cannot exit their bought positions by entering into an offsetting sale contract.

  They can exit their bought position by either unwinding the contract with the original counterparty or, in the event of sale of the underlying bond, by assigning (novating) the CDS protection, to the purchaser of the underlying bond (the "transferee") subject to consent of the original protection seller (the "remaining party").

After assigning the contract, the original buyer of protection (the "transferor") will end his involvement in the transaction and credit risk will continue to lie with the original protection seller.

- In case of sale of the underlying, every effort should be made to unwind the CDS position immediately on sale of the underlying. The users are given a maximum grace period of ten business days from the date of sale of the underlying bond to unwind the CDS position.
- In the case of unwinding of the CDS contract, the original counterparty (protection seller) is required to ensure that the protection buyer has the underlying at the time of unwinding.

  The protection seller should also ensure that the transaction is done at a transparent market price and this must be subject to rigorous audit discipline.
- CDS transactions are not permitted to be entered into either between related parties or where the reference entity is a related party to either of the contracting parties.

  Related parties are as defined in 'Accounting Standard 18 – Related Party Disclosures'.

  In the case of foreign banks operating in India, the term 'related parties' includes an entity which is a related party of the foreign bank, its parent, or group entity.
- The user (except FIIs) and market-maker need to be resident entities.
- CDS Contracts
  - The identity of the parties responsible for determining whether a credit event has occurred must be clearly defined a priori in the documentation.
  - The reference asset/obligation and the deliverable asset/obligation should be to a resident and denominated in Indian Rupees.
  - The CDS contract has to be denominated and settled in Indian Rupees.
  - Obligations such as asset-backed securities/mortgage-backed securities, convertible bonds and bonds with call/put options are not permitted as reference and deliverable obligations.
  - CDS cannot be written on interest receivables.
  - CDS cannot be written on securities with original maturity up to one year e.g., Commercial Papers (CPs), Certificate of Deposits (CDs) and Non-Convertible Debentures (NCDs) with original maturity up to one year.
  - The CDS contract must represent a direct claim on the protection seller.

- The CDS contract must be irrevocable; there must be no clause in the contract that would allow the protection seller to unilaterally cancel the contract. However, if protection buyer defaults under the terms of contract, protection seller can cancel/revoke the contract.
- The CDS contract should not have any clause that may prevent the protection seller from making the credit event payment in a timely manner, after occurrence of the credit event and completion of necessary formalities in terms of the contract.
- The protection seller shall have no recourse to the protection buyer for credit-event losses.
- Dealing in any structured financial product with CDS as one of the components is not permitted.
- Dealing in any derivative product where the CDS itself is an underlying is not permissible.

- The CDS contracts need to be standardized. The standardisation of CDS contracts in terms of coupon, coupon payment dates, etc. will be as put in place by FIMMDA in consultation with the market participants.
- The credit events specified in the CDS contract may cover: Bankruptcy, Failure to pay, Repudiation/moratorium, Obligation acceleration, Obligation default, Restructuring approved under Board for Industrial and Financial Reconstruction (BIFR) and Corporate Debt Restructuring (CDR) mechanism and corporate bond restructuring.

  The contracting parties to a CDS may include all or any of the approved credit events.

  Further, the definition of various credit events should be clearly defined in the bilateral Master Agreement.
- A Determination Committee (DC) formed by the market participants and FIMMDA has a key role. The DC, based in India, has to deliberate and resolve CDS related issues such as Credit Events, CDS Auctions, Succession Events, Substitute Reference Obligations, etc.

  At least 25 per cent of the members should be drawn from the users.

  The decisions of the Committee are binding on CDS market participants.
- The parties to the CDS transaction have to determine upfront, the procedure and method of settlement (cash/physical/auction) to be followed in the event of occurrence of a credit event and document the same in the CDS documentation.

- For transactions involving users, physical settlement is mandatory.
- For other transactions, market-makers can opt for any of the three settlement methods (physical, cash and auction), provided the CDS documentation envisages such settlement.

- While the physical settlement would require the protection buyer to transfer any of the deliverable obligations against the receipt of its full notional / face value, in cash settlement, the protection seller would pay to the protection buyer an amount equivalent to the loss resulting from the credit event of the reference entity.
- Auction settlement may be conducted in those cases as deemed fit by the DC. Auction specific terms (e.g. auction date, time, market quotation amount, deliverable obligations, etc.) will be set by the DC on a case by case basis.

  If parties do not select Auction Settlement, they will need to bilaterally settle their trades in accordance with the Settlement Method (unless otherwise freshly negotiated between the parties).
- The accounting norms applicable to CDS contracts are on the lines indicated in the 'Accounting Standard AS-30 – Financial Instruments: Recognition and Measurement', 'AS- 31, Financial Instruments: Presentation' and 'AS-32 on Disclosures' as approved by the Institute of Chartered Accountants of India (ICAI).
- Market participants have to use FIMMDA published daily CDS curve to value their CDS positions. However, if a proprietary model results in a more conservative valuation, the market participant can use that proprietary model.
- For better transparency, market participants using their proprietary model for pricing in accounting statements have to disclose both the proprietary model price and the standard model price in notes to the accounts that should also include an explanation of the rationale behind using a particular model over another.
- The participants need to put in place robust risk management systems.
- Market-makers have to ensure adherence to suitability and appropriateness criteria while dealing with users.

  CDS transactions must be conducted in a transparent manner in relation to prices, market practices etc.

  From the protection buyer's side, it would be appropriate that the senior management is involved in transactions to ensure checks and balances. Protection sellers need to ensure:
  - CDS transactions are undertaken only on obtaining from the counterparty, a copy of a resolution passed by their Board of Directors, authorising the counterparty to transact in CDS.

- The product terms are transparent and clearly explained to the counterparties along with risks involved.

- Market-makers have to report their CDS trades with both users and other market-makers on the reporting platform of the CDS trade repository within 30 minutes from the deal time.
- The users are required to affirm or reject their trade already reported by the market-maker by the end of the day.
- In the event of sale of underlying bond by the user and the user assigning the CDS protection to the purchaser of the bond subject to the consent of the original protection seller, the original protection seller has to report such assignment to the trade reporting platform and the same should be confirmed by both the original user and the new assignee.

7.4 Currency Futures

The National Stock Exchange trades currency futures in USD, Euro, JPY and GBP.

A party that expects a currency to become strong will buy currency futures. If the party has a view that the currency will weaken, it will go short i.e. sell futures.

The contract specifications are listed in Table 7.4.

Table 7.4

Contract Specifications for Currency Futures

Symbol	**USDINR**	**EURINR**	**GBPINR**	**JPYINR**
Market Type	N	N	N	N
Instrument Type	FUTCUR	FUTCUR	FUTCUR	FUTCUR
Unit of trading	1 - 1 unit denotes 1000 USD.	1 - 1 unit denotes 1000 EURO.	1 - 1 unit denotes 1000 POUND STERLING.	1 - 1 unit denotes 100000 JAPANESE YEN.
Underlying / Order Quotation	The exchange rate in Indian Rupees for US Dollars	The exchange rate in Indian Rupees for Euro.	The exchange rate in Indian Rupees for Pound Sterling.	The exchange rate in Indian Rupees for 100 Japanese Yen.
Tick size	0.25 paise or INR 0.0025			
Trading hours	Monday to Friday **9:00 a.m. to 5:00 p.m.**			
Contract trading cycle	12 month trading cycle.			
Last trading day	Two working days prior to the last business day of the expiry month at 12 noon.			

Final settlement day		Last working day (excluding Saturdays) of the expiry month. The last working day will be the same as that for Interbank Settlements in Mumbai.			
Quantity Freeze		10,001 or greater			
Base price		Theoretical price on the 1st day of the contract. On all other days, DSP of the contract.	Theoretical price on the 1st day of the contract. On all other days, DSP of the contract.	Theoretical price on the 1st day of the contract. On all other days, DSP of the contract.	Theoretical price on the 1st day of the contract. On all other days, DSP of the contract.
Price operating range	**Tenure upto 6 months**	+/-3 % of base price.			
	Tenure greater than 6 months	+/- 5% of base price.			
Position limits	**Clients**	higher of 6% of total open interest or USD 10 million	higher of 6% of total open interest or EURO 5 million	higher of 6% of total open interest or GBP 5 million	higher of 6% of total open interest or JPY 200 million
	Trading Members	higher of 15% of the total open interest or USD 50 million	higher of 15% of the total open interest or EURO 25 million	higher of 15% of the total open interest or GBP 25 million	higher of 15% of the total open interest or JPY 1000 million
	Banks	higher of 15% of the total open interest or USD 100 million	higher of 15% of the total open interest or EURO 50 million	higher of 15% of the total open interest or GBP 50 million	higher of 15% of the total open interest or JPY 2000 million
Initial margin		SPAN Based Margin			
Extreme loss margin		1% of MTM value of gross open position	0.3% of MTM value of gross open position	0.5% of MTM value of gross open position	0.7% of MTM value of gross open position

Calendar spreads	Rs.400 for spread of 1 month Rs.500 for spread of 2 months Rs.800 for spread of 3 months Rs.1000 for spread of 4 months and more	Rs.700 for spread of 1 month Rs.1000 for spread of 2 months Rs.1500 for spread of 3 months and more	Rs.1500 for spread of 1 month Rs.1800 for spread of 2 months Rs.2000 for spread of 3 months and more	Rs.600 for spread of 1 month Rs.1000 for spread of 2 months Rs.1500 for spread of 3 months and more
Settlement	**Daily settlement** : T + 1 **Final settlement** : T + 2			
Mode of settlement	Cash settled in Indian Rupees			
Daily settlement price (DSP)	Calculated on the basis of the last half an hour weighted average price.			
Final settlement price (FSP)	RBI reference rate	RBI reference rate	Exchange rate published by RBI in its Press Release captioned RBI reference Rate for US$ and Euro	Exchange rate published by RBI in its Press Release captioned RBI reference Rate for US$ and Euro

- For the Dollar, Euro and Pound Sterling futures, each contract represents 1,000 units of the foreign currency. The Yen future contract represents 100,000 units of the foreign currency.
- Contracts exist for every month of the year for 12 months.
- Each contract expires on the last working day of the expiry month, except Saturdays. The last working day is the same as that for Interbank Settlements in Mumbai.
- As in the case of other futures, there is a daily settlement and final settlement. Daily settlement price is calculated on the basis of the last half-hour weighted average price. Final settlement price is the RBI reference rate for Dollar and Euro; RBI published rate for Pound Sterling and Yen.
- Suppose a party expects the Dollar to become strong. The current rate is Rs. 48 = 1 USD. The party buys 1 Currency Future. At the time of final settlement, if the Dollar strengthens to Rs. 50 = 1 USD, he gains Rs. 5 per dollar. Since each contract represents 1,000 units of the foreign currency, the total gain would be Rs. 5,000. In the interim, SPAN-based initial margin and daily MTM margins would be applicable as in the case of interest rate futures.

7.5 Currency Options

In India, currency options are only available on the Dollar-Rupee. These are structured as European options.The contract specifications are given in Table 7.5.

Each unit of the contract represents 1,000 units of the Dollar.

Three serial monthly contracts are available, followed by one quarterly contract of the cycle March/June/September/December.

The strike price intervals are of Rs. 0.25 i.e. contracts would be available for a strike price of Rs.45.00, Rs. 45.25, Rs. 45.50 etc.

A call option is said to be in the money, if the strike price is less than the prevailing market price; it is near the money, if the strike price is near the prevailing market price; it is out of the money, if the strike price is more than the prevailing market price.

A put option is said to be in the money, if the strike price is more than the prevailing market price; it is near the money, if the strike price is near the prevailing market price; it is out of the money, if the strike price is less than the prevailing market price.

At any time, at least 12 in the money call option contracts, 12 out of the money call option contracts and 1 near the money call option contracts are available i.e. 12 + 1 + 12 = 25. Similarly, at least 25 put option contracts are available.

Since only the option seller (in both call and put options) has a downside, margins (span-based initial and MTM daily) are collected only from the option seller. Option buyer pays only the premium to the option seller. The premium is denominated in rupees.

In a futures contract, the futures price goes up or down depending on the price of the underlying. However, in an options contract, it is the option premium that goes up or down depending on the market conditions.

Contracts expire on the last working day of the expiry month, except Saturdays. The last working day is the same as that for Interbank Settlements in Mumbai.

Final settlement is done at the RBI reference rate on the date of expiry of the contract. The contracts are cash-settled in Indian rupees.

On expiry all in-the-money open long contracts are automatically exercised at the final settlement price and assigned on a random basis to the open short positions of the same strike and series.

Suppose a party buys a call option on the Dollar with a strike price of Rs. 50, paying a premium of Rs. 1.70. The premium is an expense for the option buyer; an income for the option writer.

The option buyer does not pay an initial margin; the option writer needs to pay a margin based on SPAN.

Depending on the movement in the dollar, daily settlement is made. If the dollar strengthens, the option buyer will receive the benefit; the option seller will pay. However, if the dollar weakens, the option buyer has nothing to receive; the option seller does not have to pay anything.

On expiry of the contract, if the Dollar is at Rs. 52, then the option buyer has gained Rs. 2 per dollar. Since each contract represents 1,000 Dollars, the gain amounts to Rs. 2,000 on the contract. However, option premium of Rs. 1.70 per dollar – a total of 1,000 X Rs. 1.70 i.e. Rs. 1,700 was paid. The net gain therefore is Rs. 2,000 – Rs. 1,700 i.e. Rs. 300.

If the Dollar weakens to Rs. 49.00, then the contract expires out of the money. The premium of Rs. 1,700 already paid is a loss for the option buyer.

Table 7.5

Contract Specifications for USD Options

Symbol	USDINR
Market type	N
Instrument type	OPTCUR
Option type	Premium style European Call & Put Options
Premium	Premium quoted in INR.
Unit of trading	1 contract unit denotes USD 1000
Underlying / Order Quotation	The exchange rate in Indian Rupees for US Dollars
Tick size	0.25 paise i.e. INR 0.0025
Trading hours	Monday to Friday **9:00 a.m. to 5:00 p.m.**
Contract trading cycle	3 serial monthly contracts followed by 1 quarterly contracts of the cycle March/June/September/December
Strike price	12 In-the-money, 12 Out-of-the-money and 1 Near-the-money. (25 CE and 25 PE)
Strike price intervals	INR 0.25
Price operating range	+/- 99% of base price
Quantity freeze	10,001 or greater
Base price	Theoretical price on the 1st day of the contract. On all other days, DSP of the contract.
Expiry/Last trading day	Two working days prior to the last business day of the expiry month at 12 noon.
Exercise at expiry	All in-the-money open long contracts shall be automatically exercised at the final settlement price and assigned on a random basis to the open short positions of the same strike and series.

Final settlement day	Last working day (excluding Saturdays) of the expiry month. The last working day will be the same as that for Interbank Settlements in Mumbai.	
Position limits	The gross open positions across all contracts (both futures and options) shall not exceed the following.	
	Clients	Higher of 6% of total open interest or USD 10 million.
	Trading Members	Higher of 15% of the total open interest or USD 50 million
	Banks	Higher of 15% of the total open interest or USD 100 million
Initial margin	SPAN Based Margin	
Extreme loss margin	1.5% of Notional Value of open short position	
Settlement of premium	Premium to be paid by the buyer in cash on T+1 day	
Settlement	**Daily settlement** : T + 1 **Final settlement** : T + 2	
Mode of settlement	Cash settled in Indian Rupees	
Final settlement price(FSP)	RBI reference rate on the date of the expiry of the contact	

7.6 Equity Futures& Options

These are traded in the Futures and Options (F&O) segment of NSE. Four kinds of contracts are traded here – stock futures, index futures, stock options and index options.

The contracts expire on the last Thursday of the same calendar month (near month), the following month (next month) or the month thereafter (far month). If the last Thursday is a holiday, then they expire on the previous trading day.

NSE also offers long term index options. There are contracts that expire on the last Thursday of the following three quarters (out of June, September, December and March) and 8 half-years thereafter (June, December).

Securities and indices are selected for the F&O segment based on the following criteria laid down by SEBI:

- Eligibility criteria of stocks
    - The stock is chosen from amongst the top 500 stocks in terms of average daily market capitalisation and average daily traded value in the previous six months on a rolling basis.
    - The stock's median quarter-sigma order size over the last six months should not be less than Rs. 5 lakhs.

        - A stock's quarter-sigma order size means the order size (in value terms) required to cause a change in the stock price equal to one-quarter of a standard deviation.
    - The market wide position limit in the stock is not less than Rs. 100 crores.
        - The market wide position limit (number of shares) is valued taking the closing prices of stocks in the underlying cash market on the date of expiry of contract in the month.
- The market wide position limit of open position (in terms of the number of underlying stock) on futures and option contracts on a particular underlying stock is 20% of the number of shares held by non-promoters in the relevant underlying security i.e. free-float holding.
- Continued Eligibility
    - For an existing F&O stock, the continued eligibility criteria is that market wide position limit in the stock shall not be less than Rs. 60 crores and stock's median quarter-sigma order size over the last six months shall not be less than Rs. 2 lakhs.
    - If an existing security fails to meet the eligibility criteria for three months consecutively, then no fresh month contract shall be issued on that security. However, the existing unexpired contracts are permitted to trade till expiry and new strikes may also be introduced in the existing contract months.
    - A stock which has remained subject to a ban on new position for a significant part of the month consistently for three monthsis also phased out from trading in the F&O segment.
    - Further, once the stock is excluded from the F&O list, it cannot be considered for re-inclusion for a period of one year.
- Re-introduction of excluded stocks
    - A stock which is excluded from derivatives trading may become eligible once again. In such instances, the stock is required to fulfill the eligibility criteria for three consecutive months to be re-introduced for derivatives trading.
- Eligibility criteria of Indices
    - Futures & Options contracts on an index can be introduced only if **80% of the index constituents** are individually eligible for derivatives trading. Further, no single ineligible stock in the index can have a weightage of more than 5% in the index.

      The index on which futures and options contracts are permitted is required to comply with the eligibility criteria on a continuous basis.

- The Exchange can consider introducing derivative contracts on an index if the stocks contributing to **80% weightage** of the index are individually eligible for derivative trading. However, no single ineligible stocks in the index can have a weightage of more than 5% in the index.
- The above criteria is applied every month, if the index fails to meet the eligibility criteria for three months consecutively, then no fresh month contract can be issued on that index. However, the existing unexpired contacts are permitted to trade till expiry and new strikes may also be introduced in the existing contracts.

- Futures & Options contracts may be introduced on new securities which meet the above mentioned eligibility criteria, subject to approval by SEBI.
- The number of eligible securities may vary from month to month depending upon the changes in quarter sigma order sizes, average daily market capitalisation & average daily traded value calculated every month on a rolling basis for the past six months and the market wide position limit in that security.

The contract specifications are detailed in Table 7.6.

Table 7.6

Contract Specifications for Equity Futures & Options

Equity Derivatives							
Parameter	**Index Futures**	**Index Options**	**Futures on Individual Securities**	**Options on Individual Securities**	**Mini Index Futures**	**Mini Index Options**	**Long Term Index Options**
Underlying	7 indices	7 indices	216 securities	216 securities	S&P CNX Nifty	S&P CNX Nifty	S&P CNX Nifty
Security Descriptor:							
Instrument	FUTIDX	OPTIDX	FUTSTK	OPTSTK	FUTIDX	OPTIDX	OPTIDX
Underlying Symbol	Symbol of Underlying Index	Symbol of Underlying Index	Symbol of Underlying Security	Symbol of Underlying Security	MINIFTY	MINIFTY	NIFTY
Expiry Date	DD-MMM-YYYY	DD-MMM-YYYY	DD-MMM-YYYY	DD-MMM-YYYY	DD-MMM-YYYY	DD-MMM-YYYY	DD-MMM-YYYY
Option Type	-	CE / PE	-	CE / PE	-	CE / PE	CE / PE
Strike Price	-	Strike Price	-	Strike Price	-	Strike Price	Strike Price
Trading Cycle	3 month trading cycle - the near month (one), the next month (two) and the far month (three)						Three quarterly expiries (March, June, Sept & Dec cycle) and next 8 half yearly expiries (Jun, Dec cycle)
Expiry Day	Last Thursday of the expiry month. If the last Thursday is a trading holiday, then the expiry day is the previous trading day.						
Strike Price Intervals	-	Depending on underlying price	-	Depending on underlying price	-	Depending on underlying price	Depending on underlying price
Permitted Lot Size	Underlying specific	Underlying specific	Underlying specific	Underlying specific	20	20	Underlying specific
Price Steps	Rs.0.05	Rs.0.05	Rs.0.05	Rs.0.05	Rs.0.05	Rs.0.05	Rs.0.05
Price Bands	Operating range of 10% of the base price	A contract specific price range based on its delta value is computed and updated on a daily basis	Operating range of 20% of the base price	A contract specific price range based on its delta value is computed and updated on a daily basis	Operating range of 10% of the base price	A contract specific price range based on its delta value is computed and updated on a daily basis	A contract specific price range based on its delta value is computed and updated on a daily basis

The minimum contract value is Rs. 2 lakh for regular derivatives and Rs. 1 lakh for mini derivatives. Accordingly, after the determining the price / value of the stock / index, the lot size is decided by the exchange.

An investor who is bullish about a particular stock or index can buy a future of that stock / index, instead of the stock / index itself. An important benefit of future as compared to direct exposure in the underlying stock / index, as seen earlier, is in the leverage. The difference between futures price and spot price generally reflects cost of carry i.e. funding cost.

The equity option contracts available are European options i.e. exercisable only on the expiry date.

The benefit of an option for the buyer is that there is no downside. With a small premium payment, exposures can be taken without a risk.

Let us consider some illustrations:

- Suppose SBI Futures, with expiry of April 26, 2012 are available at Rs. 2,218.80 on April 12, 2012. If the discrete cost of carry is 8.89%, at what price is the underlying quoting?

  $F = S \times (1 + r)^t$, based on discrete discounting

  F, the futures price is Rs. 2,218.80

  r is 8.89%

  t is (14 ÷ 365) years

  $S = F \div (1 + r)^t$

  i.e. Rs. $2,218.80 \div (1 + 8.89\%)^{(14/365)}$

  i.e. Rs. 2,211.55 per share.

  If dividend of Rs. 1.50 is expected during the tenor of the contract, then that would go to the investor holding the underlying – not to the buyer of the futures contract. Therefore, the present value of the dividend needs to be subtracted from the spot price, to arrive at the futures price (or added to the futures price to arrive at the spot price).

  If the above dividend of Rs. 1.50 is expected on April 25 viz. 13 days from today, its present value is given by

  Rs. $1.50 \div (1 + 8.89\%)^{(13/365)}$

  The resulting value gets rounded off to Rs. 1.50.

  In the example, therefore, the spot price would have been Rs. 2,211.55 – Rs. 1.50 i.e. Rs. 2,210.05 per share.

- Suppose, SBI is quoted at Rs. 2,250 per share on April 20, 2012. What is the value of the long futures position already taken on April 12, 2012?

  On April 20, 2012, the revised value of t is (6 ÷ 365) years

  The present value of the dividend, now receivable on the share in a shorter period of 5 days, continues to be Rs. 1.50

  The long position was taken at a futures price of Rs. 2,218.80. Its value on April 20, 2012 can be discounted to Rs. 2,218.80 ÷ $(1+8.89\%)^{(6 \div 365)}$

  i.e. Rs. 2,215.70

  The value of the position on April 20, 2012 therefore would be Rs. 2,250 – Rs. 1.50 – Rs. 2,215.70

  i.e. Rs. 32.80 per share.

  This is to be multiplied by the contract multiplier (for SBI) to arrive at the value of the contract.

  The share has become more valuable by Rs. 2,250 – Rs. 2,210.05 i.e. Rs. 39.95. The futures position however became more valuable by Rs. 32.80 per share.

  The assumption here was that cost of carry remained at 8.89%. If that had increased, then the value of the futures position would have been higher than Rs. 32.80.

- The S&P CNX Nifty is at 5,276.10 on April 12, 2012. If the continuously compounded risk free rate of return is 5.82%, what would be the price of the future expiring on April 26, 2012?

  $F = S \times e^{rt}$

  S, the spot index is 5,276.10

  e = 2.71828

  r = 5.82% (continuously compounded)

  t = (14 ÷ 365) years

  The Futures price can thus be calculated as

  $5,276.10 \times 2.71828^{(5.82\% \times 14 \div 365)}$

  i.e. 5,378.05

- How would the above change, if the continuous dividend yield is 1.3%?

  The only change is that (r – dividend yield) is to be used, instead of r in the above formula.

  The Futures price can thus be calculated as

  $5,276.10 \times 2.71828^{((5.82\% - 1.3\%) \times (14 \div 365))}$

  i.e. 5,355.10

Chapter 8 : Alternate Assets & Structured Products

8.1 Alternate Assets

The discussions so far covered debt and equity as asset classes. These are the main components of most portfolios. Other asset classes are referred to as alternate assets. This includes real estate and commodities (gold, silver, oil etc.). In the Indian context, gold and real estate are important asset classes.

8.1.1 Gold

Gold exposure can be taken in various forms, such as:

- Physical Gold
- Gold schemes offered by mutual funds
- Gold futures
- E-Gold

The benefits of investment in gold are:

- A standardised asset – provided investment is made in coins or bars – not jewellery.
- A safe haven investment. Gold does well when other asset classes perform poorly.
- Exposure to an international asset – an asset that derives its values from abroad. The international price of gold, translated into Indian rupees, with the addition of transportation costs and import duties gives the value in Indian rupees. Thus, local gold prices go up, not only when international prices go up, but also if the rupee becomes weak.
- Gold is highly liquid in India.
- Exposure to gold through mutual funds offers two tax benefits:
    - Gains are treated as long-term if the holding is for more than 1 year (3 years for physical gold and real estate)
    - Exemption from wealth tax.

Gold exposure in physical form has some other disadvantages, besides the longer holding period required to qualify as long term capital gains:

- Potential loss through theft
- Storage costs

8.1.2 Real Estate

Real estate is a growth asset that is less volatile than equities. In India, it does offer decent returns over long periods of time. Regular returns in the form of rentals can also be attractive. Besides, real estate offers some tax benefits:

- Deduction on interest and principal repayment of loans taken for residential property.
- Exemption of tax from capital gains, in specific situations where the capital gains are re-invested.

Some of the issues with real estate are:

- Not a standardised asset
- Illiquid asset
- Subjectivity in valuation
- Role of black money
- High transaction costs on account of stamp duties and brokerage
- Regulatory risks
- Fear of encroachment if it is vacant land

8.2 Structured Products

Exposure to all the asset classes can be taken either directly or through derivatives or through mutual fund kind of vehicles.

Mutual fund schemes are a "pass through" vehicle for retail investors to take exposure to various asset classes. These are strictly regulated by SEBI in terms of exposure, costs, disclosure, governance etc. Over the last few years, high net worth investors have been offered structured products. These are pass through hybrid products outside the mutual fund structure. The product is sold to investors on the promise of yield linked to performance of risky assets and some kind of protection of downside. For example, it may be offered as principal protection plus X% of the upside in the S&P CNX Nifty.

Suppose it is a 5-year principal protected scheme, offered at a time when sovereign yields for 5 years are in the range of 8%. An investment of Rs. 100 ÷ $(1 + 8\%)^5$ i.e. Rs. 68.06 in a zero coupon issued by the government will mature to a value of Rs. 100. This takes care of the principal protection. The balance amount, Rs. 100 – Rs. 68.04 i.e. Rs. 31.96, is invested in risky assets. Part of the upside on this goes to the investors, subject to tax, expenses etc.

An investor who wants only 80% of the principal protected can have a larger allocation to the risky assets, and thus benefit more from an appreciation in the risky assets. If the

risky assets do not perform, then a loss upto 20% can come up (80% of the principal being protected).

The moneys collected are invested in a mix of risk-free assets (sovereign debt) and risky assets (equity, gold etc.). The mix of risk-free and risky assets is decided based on some portfolio insurance models and the investor's risk profile (extent of principal protection desired).

8.2.1 Portfolio Insurance

Portfolio insurance models seek to limit the losses of investors, while giving them an upside. Many of these models are based on OBPI or CPPI.

- Option Based Portfolio Insurance (OBPI)

  Here the investment in risky assets is backed by purchase of "put" options. So long as the market goes up, the risky assets will gain value. If the market goes down, the "put" option gains value to make up for the loss in the risky assets.

- Constant Portfolio Protection Insurance (CPPI)

  The mix of 68.06: 31.96 is an example of static allocation between the risk-free and risky assets. In a CPPI, the allocation changes dynamically over time, depending on how the asset classes perform.

8.2.2 Risks

- Model Risk

  Models have their inbuilt assumptions – and ranges over which they perform as desired. These are not always intelligible to the lay investor. Often, issuers use proprietary models that are not shared. Thus, it becomes difficult to objectively assess all risks in the investment.

- Marked to Market Risk before Maturity

  Principal protection, if available, is only on maturity. During the tenor of the instrument, its value can fluctuate with the market.

- Issuer Risk

  Even if the investment pool makes money, payment is still subject to credit risk of the issuer.

- Liquidity Risk

  Structured products are sold privately to high net worth investors. Even if these are listed, they may not be traded. Therefore, liquidity can be an issue.

- Transparency Risk

  Although SEBI recently came out with various information requirements, the transparency and disclosure standards are weaker than in the case of mutual funds.

8.2.3 SEBI Regulations

All securities that have an in-built principal component in the form of debt securities and returns that are linked tomarket returns on other underlying securities/ indices have to comply with the following regulations:

- Securities which do not promise to return the principal amount in full at the end of the tenor of the instrument, i.e., 'principal non-protected' cannot be considered as debt securities. Therefore, they cannot take the benefit of easier norms that are applicable for issue and listing of debt securities.
- As such securities expose the issuer to market risk, the issuer should have a minimum net worth of at least Rs. 100crore.
- No invitations for subscription or allotments can be made for an amount less than Rs.10lakh in any issue.
- The instruments require credit rating by any registered Credit Rating Agency. The rating shall bear a prefix 'PP-MLD' denoting Principal Protected Market Linked Debentures followed by the standardized rating symbols for long/ short term debt.
- The offer document has to include a detailed scenario analysis/ valuation matrix showing value of the security under different market conditions such as rising, stable and falling market conditions. The disclosure has to be in the form of a table along with a suitable graphic representation.
- A risk factor is to be prominently displayed that such securities are subject to model risk, i.e., the securities are created on the basis of complex mathematical models involving multiple derivative exposures which may or may not be hedged and the actual behaviour of the securities selected for hedging may significantly differ from the returns predicted by the mathematical models.
- A risk factor has to be prominently displayed stating that in case of Principal/ Capital Protected Market Linked Debentures, the principal amount is subject to the credit risk of the issuer whereby the investor may or may not recover all or part of the funds in case of default by the issuer.
- Where indicative returns/ interest rates are mentioned in the information memorandum in percentage terms, such figures are to be shown only on annualized basis.

- The information memorandum will mention that the latest and historical valuation for such securities will be made available on the websites of the issuer and of the valuer appointed for the purpose.
- All commissions by whatever name called, if any, paid by issuer to the distributor for selling/ distribution of such securities to end investors are to be disclosed in the offer document.
- Conditions for premature redemption of such securities, if any, have to be clearly disclosed in the offer document.
- It is mandatory for the issuer to appoint a third party valuation agency that will be a credit rating agency registered with SEBI.
    - This valuer has to publicly publish on its website and provide to the issuer, the value of the securities at a frequency which is not less than once in a calendar week.

      Also, the issuer has to arrange to provideto an investor the value whenever investor asks for it.
    - The cost incurred for valuation is to be disclosed in the offer document. At no point in time can the issuer charge the investor for such services.
    - The issuer has to make the valuations available on its website.
- Issuer has to ensure that such securities are sold to retail investors with the following safeguards:
    - The intermediary who sells the security to the retail investor has to be a SEBI regulated entity.
    - The intermediary has to ensure that investor understands the risks involved, is capable of taking the risk posed by such securities and satisfy itself, that securities are suitable to the risk profile of the investor.
    - The intermediary has to provide to the investor the offer document, whether or not the investor has made a specific request for the same.
    - The intermediary has to provide the investor guidance on obtaining valuation for the securities, i.e., the locations where such information would be available (issuer or the third party).
    - The intermediary needs to provide the investor with guidance on exit loads/ exit options/ liquidity support, if any, etc., being provided by the issuer or through the secondary market.

The guidelines have introduced an element of safety in this hitherto unregulated field. Yet, investors need to be careful while investing in such products.

Chapter 9 : International Markets

9.1 Depository Receipts

Depository Receipts (DRs) help in attracting international investors. Suppose an Indian company wishes to mobilise money from investors abroad. There are two possible structures:

- Direct issue of shares to the foreign investor – Here, the foreign investor will need to bring in rupees and invest through a broker of an Indian stock exchange (if it is a secondary market purchase) or remit to the company (if it is a primary issue).

  The exit from investment too needs to be done through a broker of an Indian stock exchange. The foreign investor will have to re-convert the sale proceeds from rupees to the foreign currency for repatriation.

  Investment restrictions of the Indian regulators will need to be complied with.

- Depository Receipts issued abroad – Each DR will represent a certain number of underlying shares in the Indian company. The DRs are listed in an international exchange. Thus, investors can trade in those DRs through brokers of the international exchange, without having to convert to Indian rupees.

  The DRs draw their value from the underlying. However, DR prices can be significantly different from their intrinsic worth, derived from the value of the underlying and the exchange rate.

  When the DRs are convertible into the underlying shares, it is called "fungibility". When the converted shares can be re-converted into DRs, it is called "reverse fungibility". Fungibility and reverse-fungibility help in minimising the spread between the price of DR abroad, and the DR's intrinsic worth.

  DRs that are listed in the American exchanges are called ADRs (American Depository Receipts). Those listed in other stock exchanges (London, Luxembourg etc.) are called GDRs (Global Depository Receipts).

DRs issued on the securities of foreign companies, and listed on the Indian exchanges are called IDRs (Indian Depository Receipts).

A typical DR issue goes through the following steps:

- The issuing company receives details of investment interest from foreign investors. Based on this, it decides on the allotments.
- The shares allotted are given to a local custodian.

- The local custodian informs its foreign depository counterparty about the shares received and the investors to whom it belongs.
- The foreign depository issues the DRs to the foreign investors who are entitled to those investments.
- The company makes arrangements to list the DRs in specified foreign stock exchanges. Thus, these DRs become tradable in those exchanges.

9.2 International Stock Indices

Readers are well aware of Indian stock indices like S&P CNX Nifty. Let us now understand some of the leading international stock indices.

- **United States**

1 S&P 500 Index (SPX)

Standard and Poor's 500 Index is a free float capitalization-weighted index of 500 stocks. The index is designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries. The index was introduced in 1956. It was developed with a base level of 10 for the 1941-43 base period.

Although the index focuses on large cap, with approximately 75% coverage of US equities, it is widely considered to be a proxy for the entire market.

2 Dow Jones Industrial Average (INDU)

The Dow Jones Industrial Average is a price-weighted average of 30 blue-chip stocks that are generally the leaders in their industry. It has been a widely followed indicator of the stock market since October 1, 1928.

The Dow represents roughly 28% of the float adjusted market capitalisation of the US stock market. It comprises mainly of blue chip stocks having leadership position in the US market. It is more of a blue-chip index, rather than a representative of the entire US market.

3 NASDAQ Composite Index (CCMP)

The NASDAQ Composite Index is a broad-based capitalization-weighted index of stocks in all three NASDAQ tiers: Global Select, Global Market and Capital Market. The index was developed with a base level of 100 as of February 5, 1971.

- **Europe**

4 EURO STOXX 50 Price Eur (SX5E)

The EURO STOXX 50 (Price) Index is a free-float market capitalization-weighted index of 50 European blue-chip stocks from those countries participating in the EMU. Each

component's weight is capped at 10% of the index's total free float market capitalization. The index was developed with a base value of 1000 as of December 31, 1991.

5 FTSE 100 (UKX)

The FTSE 100 Index is a capitalization-weighted index of the 100 most highly capitalized companies traded on the London Stock Exchange. The equities use an investibility weighting in the index calculation. The index was developed with a base level of 1000 as of January 3, 1984.

6 Deutsche Borse AG German Stock Index DAX (DAX)

The German Stock Index is a total return index of 30 selected German blue chip stocks traded on the Frankfurt Stock Exchange. The equities use free float shares in the index calculation. The DAX has a base value of 1,000 as of December 31, 1987

- **Asia**

7 Nikkei 225 (NKY)

The Nikkei-225 Stock Average is a price-weighted average of 225 top-rated Japanese companies listed in the First Section of the Tokyo Stock Exchange. The Nikkei Stock Average was first published on May 16, 1949,

8 Tokyo Stock Exchange Tokyo Price Index TOPIX (TPX)

The TOPIX, also known as the Tokyo Stock Price Index, is a capitalization weighted index of all companies listed on the First Section of the Tokyo Stock Exchange. The index is supplemented by the sub-indices of the 33 industry sectors. The index calculation excludes temporary issues and preferred stocks, and has a base value of 100 as of January 4, 1968.

9 Hong Kong Hang Seng Index (HSI)

The Hang Seng Index is a free-float capitalization-weighted index of selection of companies from the Stock Exchange of Hong Kong. The components of the index are divided into four sub-indices: Commerce and Industry, Finance, Utilities, andProperties. The index was developed with a base level of 100 as of July 31, 1964

9.3 Feeder Funds

An Indian investor desirous of investing abroad can invest directly in the international shares or mutual funds (subject to regulations of India and the foreign country). This however gets cumbersome because:

- The investor will have to identify a broker or agent operating in the investee country.

- Foreign currency will have to be remitted to that country for executing the transaction.
- The investment will reduce the available international remittance limit as per Indian regulations, which is US$ 200,000 per resident investor per financial year.
- The transaction will be conducted in the foreign country (primary market transaction) or its exchange (secondary market transaction). It will be subject to settlement, tax and other risks of that country.
- While disinvesting, the same processes get reversed. The foreign currency proceeds will need to be converted to Indian rupees and brought back to the country.

Some mutual funds make it convenient for domestic investors to invest abroad, through feeder funds. A feeder fund is a fund floated in India, in which Indian investors invest in rupees (thus, saving their US$ 200,000 limit).

The feeder fund in turn invests in a mutual fund scheme (host scheme) abroad. Thus, the task of foreign currency conversions, compliance with international regulations, taxation etc. is performed by the asset manager of the feeder fund and its international counter party.

This kind of structure has made it possible for Indian investors to take exposure in markets in the US, Europe, Brazil, China etc.

9.4 Trading in Global Markets through NSE

9.4.1 Futures & Options

NSE has made it convenient for investors to take exposure to global markets by trading in derivatives where certain foreign indices are the underlying. The investor does not need foreign currency to take these exposures.

Currently, rupee-denominated futures are available on the S&P 500 and DJIA. Options too are available on the S&P 500. Derivatives on the FTSE 100 index are planned.

The contract specifications are given in Tables 9.1, 9.2 and 9.3. These contracts are traded during Indian trading hours and are subject to Indian regulation.

S&P 500 and DJIA are two of the world's most followed indices, and are a barometer of the US economy. This is the first time in the world that futures contracts on S&P 500 are being listed in an exchange outside the US. This investment avenue serves multiple purposes for investors:

- They can take bullish or bearish views on the US economy and markets.
- They can hedge their Indian portfolio through foreign exposure.

The settlement guarantee fund of the F&O covers these future contracts too.

Table 9.1

S&P Futures

Ticker Symbol	S&P500
Contract Size	250 units
Notional value	Contract size multiplied by the index level (For example: if the current index value is 1000 then the notional value would be 1000 x 250 = Rs. 2,50,000)
Tick Size	0.25
Trading Hours	As in equity derivative segment
Expiry Date	3rd Friday of the respective contract month. In case third Friday is a holiday in USA or in India the contract shall expire on the preceding business day
Contract months	3 serial monthly contracts and 3 Quarterly expiry contracts in the Mar-Jun-Sep-Dec cycle
Daily Settlement Price	Last half hour's weighted average price
Final Settlement Price	All open positions at close of last day of trading shall be settled to the Special Opening Quotation (SOQ) of the S&P 500 Index on the date of expiry. (http://www.cmegroup.com/trading /equity-index/files/SOQ.pdf)
Final Settlement Procedure	Final settlement will be Cash settled in INR based on final settlement price
Final Settlement day	All open positions on expiry date shall be settled on the next working day of the expiry date (T+1)
Position Limits	The Trading Member/Mutual Funds position limits as well as the disclosure requirement for clients is same as applicable in case of domestic stock index derivatives

Table 9.2

S&P Options

Ticker Symbol	S&P500
Contract Size	250 units
Tick Size	0.05
Trading Hours	As in equity derivative segment
No. of strikes/strike intervals	12-1-12 strikes with 5 point interval and further 4-4 strikes of 10 point interval.
Expiry Date	3rd Friday of the respective contract month. In case third Friday is a holiday in USA or in India the contract shall expire on the preceding business day.
Contract months	3 serial monthly contracts and 3 Quarterly expiry contracts in the Mar-Jun-Sep-Dec cycle
Option Type	The options contracts shall be European styled which can be exercised only on the expiration date
Daily Settlement Price	Daily premium settlement

Final Settlement Price	All open positions at close of last day of trading shall be settled to the Special Opening Quotation (SOQ) of the S&P 500 ndex on the date of expiry (http://www.cmegroup.com /trading/equity-index/files/SOQ.pdf)
Final Settlement Procedure	Final settlement will be Cash settled in INR based on final settlement price. long positions of in-the money contracts shall be assigned to open short positions in option contracts.
Final Settlement day	All open positions on expiry date shall be settled on the next working day of the expiry date (T+1)
Position Limits	The Trading Member/Mutual Funds position limits as well as the disclosure requirement for clients is same as applicable in case of domestic stock index derivatives.

Table 9.3

DJIA Futures

Ticker Symbol	DJIA
Contract Size	25 units
Notional value	Contract size multiplied by the index level (For example: if the current index value is 10000 then the notional value would be 10000 x 25 = Rs. 2,50,000)
Tick Size	2.50
Trading Hours	As in equity derivative segment
Expiry Date	3rd Friday of the respective contract month. In case third Friday is a holiday in USA or in India the contract shall expire on the preceding business day
Contract months	3 serial monthly contracts and 3 Quarterly expiry contracts in the Mar-Jun-Sep-Dec cycle
Daily Settlement Price	Last half hour's weighted average price
Final Settlement Price	All open positions at close of last day of trading shall be settled to the Special Opening Quotation (SOQ) of the DJIA Index on the date of expiry. (http://www.cmegroup.com/trading /equity-index/files/SOQ.pdf)
Final Settlement Procedure	Final settlement will be Cash settled in INR based on final settlement price
Final Settlement day	All open positions on expiry date shall be settled on the next working day of the expiry date (T+1)
Position Limits	The Trading Member/Mutual Funds position limits as well as the disclosure requirement for clients is same as applicable in case of domestic stock index derivatives

9.4.2 Exchange Traded Funds (ETFs)

ETFs have as their underlying tracking instrument an index or other financial product focused on a single country. They are usually well diversified and designed to reflect the

overall economic condition of the country itself. The underlying index chosen is often the major index of the principal exchange within the country.

The NSE offers Indian investors, the choice of investing in rupees in two international ETFs – Hang Seng BEES and N100. The details are provided in Table 9.4.

Table 9.4

International ETFs traded on the NSE

Scheme Name	Symbol	Objectives	Managed By
Goldman Sachs Hang Seng Exchange Traded Scheme	HNGSNGBEES	To provide returns that, before expenses, closely corresponds to the total returns of securities as represented by Hang Seng Index by investing in the securities in the same proportion as in the Index.	Goldman Sachs Mutual Fund
Motilal Oswal MOSt Shares NASDAQ-100 ETF	N100	The Scheme seeks investment return that corresponds (before fees and expenses) generally to the performance of the NASDAQ-100 Index.	Motilal Oswal Mutual Fund

As the suite of products offered by NSE widens, Indian investors will have a range of truly international financial products to choose from.

Chapter 10 : New Paradigms in Regulation of Financial Markets

10.1 Market Infrastructure Institutions

Stock exchanges, depositories and clearing corporations are collectively referred to as securities Market Infrastructure Institutions (MIIs). SEBI constituted a Committee under the Chairmanship of Dr. Bimal Jalan, (Former Governor, Reserve Bank of India) to examine issues arising from the ownership and governance of MIIs. The committee was asked to make its recommendations on the following issues:

- Ownership structure of stock exchanges, depositories and clearing corporations
- Board composition of stock exchanges and clearing corporations
- Listing and governance of stock exchanges and clearing corporations
- Balance between regulatory and business functions of stock exchanges and clearing corporations, with reference to their 'for profit' status
- Relationship between stock exchanges and clearing corporations
- Relationship between stock exchanges and technology providers, and
- Competition policy for stock exchanges and clearing corporations

The committee submitted its report in November 2010. It took the view that MIIs constitute the nucleus of capital allocation system and are indispensable for economic growth. They are therefore, 'vital economic infrastructure'. Any failure of such an MII could lead to even bigger cataclysmic collapses that may result in an overall economic downfall that could potentially extend beyond the boundaries of the securities market/ country. Therefore, such MIIs are considered systemically important institutions. The committee also felt that MIIs are in the nature of public utilities.

- *Stock Exchanges*

  Besides providing an electronic platform for investors to trade, the following were mentioned to be the main functions of stock exchanges:

  - Issuer regulation (listing, monitoring listing compliances, dissemination of information)
  - Member regulation (registration of members, inspection and enforcement action)
  - Trading regulation (setting and enforcing trading rules, market surveillance) and

- Investor protection (dispute resolution, grievance redressal, investor protection fund)
- Product design

Support functions performed by the exchange include training and education, technology solutions, data/information services and index services.

- *Clearing Corporation*

  Stock exchanges operate on the basis of multilateral clearing and settlement. Therefore, default by any party cannot be passed to any specific party who may be treated as counter-party for the transaction.

  Through a process of novation, the clearing corporation interposes itself between the buyer and the seller and undertakes to fulfil the obligations on behalf of both counterparties to the transaction. Therefore, clearing corporations are a major factor in risk management in stock exchanges.

  The committee expressed the view that the clearing corporation should be an independent entity whose balance sheet becomes available for settling defaults. On the other hand, if a clearing house within the exchange were to handle the clearing, it would not have an independent balance sheet to support the exchange's transaction.

  NSE, at its very inception, decided to go for a clearing corporation to settle trades conducted on its platform.

- *Depository*

  Depositories facilitate holding securities in electronic form and transfer of securities by book entry. They operate through Depository Participants (banks, brokers etc.) who are the contact point for investors to handle depository transactions. The paperless trading facilitated by depositories enable transfer of large volume of securities fast, while not compromising on security.

  Depositories perform a useful role in preventing fraud through fake share certificates. The committee mentioned the following regulatory roles performed by depositories:

  - Depository participants' regulation (registration, inspection and enforcement action)
  - Admission of securities, dematerialisation, rematerialisation
  - Maintenance of register of beneficial owners, record keeping / book entry of transfers
  - Investor protection (dispute resolution and grievance redressal).

The committee expressed the view that MII's multiple roles create potential conflicts of interest. In its report, it mentions the following models to address the conflicts of interest:

- **Government (Statutory) Model** Examples: UK(FSA), France (AMF)

  A public authority performs the role of regulation. Therefore, stock exchanges are responsible only for supervision of the market. This model is necessary in countries where formal Self Regulatory Organisations (SROs) do not exist or are not strong enough.

- **Limited Exchange SRO Model** Examples: Hong Kong, Singapore, Dubai, Sweden.

  A public authority is the primaryregulator. However, it relies on stock exchange(s) to perform certain regulatory and surveillance functions related to the operation of its market. Members are however not regulated by the stock exchange. only performs surveillance functions.

- **Strong Exchange SRO Model** Examples: US (CME), Australia (ASX),Japan (TSE, OSE), Malaysia (Bursa Malaysia).

  A public authority functions as the primary regulator. However, it relies on exchange(s) to perform extensive regulatory functions that extend beyond its market operations. The exchanges may even be made responsible for regulating their member's business conduct.

- **Independent SRO Model** Examples: US (FINRA& NFA), Canada (IDA & MFDA), Japan (JSDA), Columbia (AMV).

  A public authority is the primary regulator. However, it relies extensively on an independent SRO, which is a member organization that is not a market operator. The SRO performs extensive regulatory functions.

The Strong Exchange SRO model is prevalent in India, with SEBI being the primary regulator. The committee was of the view that it is premature to think of the 'independent SRO model' in the Indian context. The government model was not found to be entirely possible in the Indian context considering the size of the market. Considering the potential conflicts of interest in the Strong Exchange SRO Model, the Committee recommended that SEBI must take a more active role in setting a level playing field with regard to fees, entry, etc. of members of MIIs.

The committee mentioned the following as appropriate features for a well functioning MII:

- Self-financing: It should be capable of financing itself and providing for its sustenance in the near future.

- Make reasonable profits: The MII should try to generate reasonable profits. It should levy reasonable charges on its users without abusing its dominant or regulatory position.
- Regulatory function: It should establish itself as a fair and strong regulator, and earn the trust and goodwill of the market place. Adequate investments would need to be made to perform this role effectively.
- Settlement guarantee fund/investor protection fund: The MII should have a sufficiently capitalized settlement guarantee fund/investor protection fund. This fund should be adequate to address perceived contingencies and "black swan" events.
- Net worth: The MII should be well-capitalized. Its net worth should be available as a last resort to meet exigencies and ensure that it remains a going concern.
- Professional standards and competitive practices: The MII must maintain the same professional standards in all its dealings including dealings with its competitors, its technology providers and related entities. It should maintain its integrity and be unbiased while dealing with all such entities.
- Transparency: The MII should maintain utmost transparency in its operations. Disclosures on its website should at least include thos that are mandated for a listed company.
- Technology: Adequate investment has to be made in technology to increase efficiency, reach and economies of scale.

The following are key recommendations of the committee as regards capital:

- Stock Exchanges – Net worth should be Rs. 100 crores at all times. Investments in MIIs can be included in the computation. However, all other noncore investments in related, unrelated/other business are to be excluded in the net worth computation.
- Depositories – Net worth should be Rs. 100 crores. Investment in unrelated/other business is to be excluded while computing the net worth.
- Clearing Corporation - Net worth requirement of Rs. 300 crores at all times. This is to be maintained in the form of liquid assets at all times. Liquid assets are those assets that are permitted to be deposited by a stockbroker in a stock exchange (clearing corporation) towards margin obligations. Until a clearing corporation achieves the prescribed net worth, it should not be permitted to pay any dividend to its shareholders.

10.2 Alternate Investment Funds

In August 2011, SEBI came out with a concept paper on regulation of Alternate Investment Funds. The background to this is that SEBI has regulations in place for

mutual funds, collective investment schemes (CIS), venture capital funds (VCF) and portfolio managers. However, VCF regulations were being used for other kinds of funds, such as those in the areas of, Private Equity (PE), Private Investment in Public Equity (PIPE) and real estate.

The G-30 too has recommended that managers of private pools of capital should register with a national regulater. "The regulator of such managers should haveauthority to require periodic regulatory reports and public disclosures ofappropriate information regarding the size, investment style, borrowing, andperformance of the funds under management".

SEBI's concept paper has important lessons on the likely direction of regulation of these funds in the years to come. Key highlights of the paper are as follows:

- Regulatory framework is to cover all shades of private pool of capital or investment vehicles so that these are channelized in the desired space in a regulated manner without posing systemic risk.
- Since mutual funds and CIS involve retail investors, the regulations will seek to protect against all kinds of risk. In the case of private pools of capital, regulations will not try to protect against business risks. However, it will provide some minimum ground rules for disclosures, and governance practices to minimize conflict.
- Since portfolio managers are not as closely regulated as mutual funds, the minimum investment limit is set at Rs. 25 lakhs per investor. Portfolio managers are expected to segregate the funds and investments of each investor.
    - Portfolio managers who wish to pool the investments / funds of their clients will need to register separately as alternate investment funds (AIF).
    - Portfolio managers who want to give advice, but not handle funds, have to register as investment advisers.
    - The Fund Managers or Investment Managers of Alternative Investment Funds are to be regulated as investment advisers.
- The following categories of AIF are envisaged:
    - Venture Capital Fund
    - PIPE Funds
    - Private Equity Fund
    - Debt Funds
    - Infrastructure Equity Fund
    - Real Estate Fund
    - Small & Medium Enterprise (SME) Fund

- Social Venture Funds
- Strategy Fund (Residual Category, including all varieties of funds such as hedge funds, if any).

- At the time of application, the fund has to specify the category under which it is seeking registration, the targeted size of the proposed fund and its life cycle and the target investor.
- The funds should be close ended. Mobilisation would be only through private placement. Minimum investment amount should be specified as 0.1% of fund size subject to a minimum floor of Rs.1crore.
- Each category of funds will have separate investment restrictions. For instance:
  - PIPE funds to invest only in shares of small sized listed companies which are not in any of the market indices.
  - PE funds to invest mainly in unlisted companies or companies proposed to be listed.
  - Infrastructure equity funds to invest minimum 2/3rd of the corpus in equity of infrastructure projects/companies.
  - Social Venture Funds are targeted towards social investors who are willing to accept muted returns. Therefore, investments would be made primarily in social enterprises such as micro finance sector.
- Any alteration to the fund strategy shall be made with the consent of at least 75% of unit holders.

10.3 Standardisation of Rating Symbols and Definitions

Different credit rating agencies were following their own rating symbols. This was quite confusing for investors. Therefore, SEBI introduced common rating symbols for the following:

- Long term debt instruments;
- Short term debt instruments;
- Long term structured finance instruments;
- Short term structured finance instruments;
- Long term mutual fund schemes; and
- Short term mutual fund schemes

These are listed in Appendix 10.1.

10.4 Investment Advisers

In September 2011, SEBI came out with a concept paper on regulation of investment advisers, through the SRO route. The paper has huge implications on the likely future direction of distribution of financial products in the country. Some of the comments in this paper are as follows:

- Any industry, in order to achieve scale and high productivity, must be free of internal contradictions and conflicts of interest. The financial product distribution space is particularly fraught with these conflicts between the manufacturers of financial products like banks, mutual funds, and insurance companies, etc. and the distributors which sell these products who call themselves by various names like agents, financial advisors, financial planners, etc.
- It is necessary to resolve or at least mitigate these conflicts, especially in the case of financial products because of their two peculiar characteristics.
    - o The products are intangible and conceptually more difficult to understand.
    - o The pay-offs are in a distant future and can be camouflaged by several factors external to the product.

It is in this context that the distributors occupy a key role; all the more so considering the low levels of financial literacy and awareness in India.

- Two major conflicts of interest in the financial product distribution space are the following:
    - o Dual role played by distributors as an agent of investors as well as of the manufacturers. This is due to the fact that with respect to many financial products, agents receive their payments from two sources: commissions from the manufacturers (either directly or through deductions from the investment amount of investors), and advisory fees or other charges received from the investors. This immediately raises the question: whose interests do they represent: the manufacturers' or the investors'?

      This prevalence of divided loyalties may not be in the best interest of all the stake holders concerned. It often results in a situation where the distributors are loyal to only themselves. They would happily churn investors' portfolio and also squeeze more commission from the manufacturer.
    - o A situation might arise where distributors are likely to be partial to, and would sell more products of the manufacturer who is the best paymaster; and ultimately, other manufacturers would scramble to do the same, thus leading to a race to the bottom.

Thus, there is an inherent conflict in the activities of an agent/distributor distributing similar products of various manufacturers.

- In a country like India where levels of literacy are low and financial literacy even lower, disclosures have a limited effect in solving the problem.
- The SEBI paper attempts to deal with only the first type of conflict of interest. The possible model for tackling this conflict of interests may be the following:
  - The person who interfaces with the customer should declare upfront whether he is a financial advisor or an agent of the manufacturer.
    - If he is an advisor, he would be subject to the Investment Advisors Regulations; and would require a much higher level of qualifications. He would act as an advisor to the investor on all financial products. He would receive all payments from the investor and there would be no limits set on these payments.
    - On the other hand, there will be agents who will be associated with the manufacturer and would receive their remuneration from them. However, they will be prevented from styling themselves as financial advisors and will have to call themselves as agents only.
- The proposed regulatory framework intends to regulate the activity of providing investment advisory services in various forms by a wide range of entities including independent financial advisors, banks, distributors, fund managers etc.

  The investment advice may be provided for investments in various financial products including but not limited to securities, insurance products, pension funds, etc.

  While the activity of giving investment advice will be regulated under the proposed framework through an SRO, issues relating to financial products other than securities shall come under the jurisdiction of the respective sectoral regulators such as action for mis–selling, violation of code of conduct, conflict of interest etc.

  The SRO set up for the regulation of Investment Advisors shall follow the rules/ regulations laid down by respective regulators for products falling in their jurisdiction, including but not limited to suitability and appropriateness of the products.
- The SRO formed to regulate investment advisors will be registered under the SEBI (Self Regulatory Organization) Regulations, 2004. SRO will have sufficient resources to perform its functions.

  Its duties would include registering and setting minimum professional standards, including certification of investment advisors, laying down rules and regulations and enforcing those; informing and educating the investing public; setting up and administering a disputes resolution forum for investors and registered entities etc.

Persons desirous of registration as Investment Advisors shall obtain registration with the SRO established for the purpose. The SRO will be entitled to charge a fee for granting registration and an annual fee.

- Complaints / disputes arising out of investment advisory services will be taken up by the SRO with the respective regulatory authority, while the complaints regarding the financial products and their manufacturers will be handled by the respective regulators.
- Investment Advisors tend to call themselves by varied names viz. wealth managers, private bankers etc. This causes much confusion as to their role and responsibility. Hence the regulations will provide that no person can carry on the activity of offering investment advice unless he is registered as an Investment Advisor under the regulations. On the other hand any person who has obtained the certificate of registration as an Investment Advisor must necessarily use the word "investment advisor" in his name.

  "Investment Advisor" would include any person or entity that provides investment advice directly or indirectly for a consideration, which may be received directly from the investor or who holds himself out as an investment advisor.
- "Investment advice" will be an advice written, oral or through any other means of communication given regarding investment of funds in financial products or products that are traded and settled like financial products purportedly for the benefit of the investor. It shall include:
  - Financial advice; or
  - Financial planning service or
  - Actions which would influence an investment decision and are incidental to making an investment/investment decision.
- The following set of individuals would need to get registered under the regulations to be able to provide Investment Advisory Services:-
  - Independent Investment Advisor– Independent Investment Advisors are professionals who offer independent advice on financial matters to their clients and recommend suitable financial products or products that are traded and settled like financial products.
  - Representatives of investment advisors or intermediaries who on behalf of the investment advisor or intermediary provide investment advice to investors:

    Representative would mean a person, in the direct employment of, or acting for, an investment advisor, who performs on behalf of the investment advisor any

investment advisory service, whether or not he is remunerated, and whether his remuneration, if any, is by way of salary, wages, commission or otherwise, and includes any officer of an investment advisor who performs for the investment advisor any investment advisory service whether or not he is remunerated, and whether his remuneration, if any, is by way of salary, wages, commission or otherwise;

- The following set of non-individuals (corporate entities) would need to get registered under the regulations to be able to provide Investment Advisory Service:
  - Banks providing investment advisory/ wealth management services
  - Any entity, other than an individual person - representing investment advisor, who on behalf of the investment advisor provides investment advice to i nvestors :

    Representative would mean a person, acting for, an investment advisor, who performs on behalf of the investment advisor any investment advisory service, whether or not it is remunerated, and whether its remuneration, if any, is by way of, commission or otherwise, and includes any officer of such an entity who performs for the investment advisor any investment advisory service whether or not he is remunerated, and whether his remuneration, if any, is by way of salary, wages, commission or otherwise;

- A person shall be deemed not to be engaged in the business of providing investment advice, if the advice is solely incidental to some other business or profession and the advice is given only to clients of the person in the course of such other business or profession and the advice does not specify particular securities and is limited to general comments made in good faith in regard to trends in the securities market, the economic situation of the country.

  The following shall be exempt from registration under these regulations:
  - An advocate and solicitor or law firm, whose offer of financial advice is solely incidental to his legal practice.
  - Chartered accountants who are registered under the Institute of Chartered Accountants of India providing of any investment advice is solely incidental to the accounting practice.
  - Any person who publishes magazine/newspaper, where —
    - the newspaper is distributed generally to the public in India;
    - the advice given, or analysis or report issued, is promulgated only through that newspaper;

        - that person receives no commission or other consideration, apart from any fee received from subscription to or purchase of the newspaper, for giving the advice, or for issuing or promulgating the analysis or report; and
        - the advice is given, or the analysis or report is issued or promulgated, solely as incidental to the conduct of that person's business as a newspaper proprietor.
    - Any person who owns, operates or provides an information service through an electronic, or a broadcasting or telecommunications medium, where —
        - the service is generally available to the public in India;
        - the advice given, or analysis or report issued is promulgated only through that service;
        - that person receives no commission or other consideration, apart from any fee received from subscription to the service, for giving the advice, or for issuing or promulgating the analysis or report; and
        - the advice is given, or the analysis or report is issued or promulgated, solely as incidental to that person's ownership, operation or provision of that service.
    - Any stock broker or sub-broker as registered under SEBI(Stock Broker and Sub-Broker) Regulations, 1992, who provides any investment advice as per Regulation 7 read with Schedule II of SEBI (Stock Broker and Sub-broker) Regulation, 1992 and not charging any consideration for such advice.
    - Any person offering exclusively insurance broking services under regulation of Insurance Development and Regulatory Authority.
- The Individuals who wish to get registered under these regulations would need to satisfy the following criteria:
    - Individuals should acquire a Professional Qualification from a recognized institute for e.g. Chartered Accountancy form ICAI, MBA in Finance or similar qualification from a recognized university or should have at least 10 years of relevant experience; and
    - Certification from NISM or such other organization approved by SEBI for this purpose
    - The individuals should conform to the Fit and Proper Criteria as laid down in Schedule II of SEBI (Intermediaries) Regulations, 2008.

- Entities who wish to get registered under these regulations would need to satisfy the following criteria:
  - Capital Adequacy Requirement: Entities would need to maintain a minimum net worth which would be separate from the net worth required for other activities.
  - Key personnel: Entities should have at least 2 key personnel having the relevant experience exclusively for such activity. Such key personnel should also acquire the certification from NISM or such other organization as approved by SEBI for this purpose and have minimum qualification as prescribed.
  - The entity should conform to the Fit and Proper Criteria laid down in Schedule II of SEBI (Intermediaries) Regulations, 2008.
  - The applicant must have adequate infrastructure to enable it to discharge its functions as an Investment Advisor.
- The following are obligations of an Investment Advisor
  - Fiduciary Responsibility to Investors

    All information received and provided by the investment advisor would be in fiduciary capacity. The investment advisor will be responsible to maintain confidentiality of the investment advice provided to the client and information provided by the client. Advice should be given by the advisor in the best interest of the investor.
  - Suitability and Risk Profiling

    The Investment Advisors or their representatives would be required to do adequate risk profiling of the client before any investment service is provided to them. Based upon the risk profiling performed by the investment advisor or their representative suitable investment advice should be provided. The records of such risk profiling and investment advice should be maintained by the Investment Advisor.
  - Advertising and Marketing Material

    Investment Advisors should not use any advertisement that contains any un true statement of material fact or that is otherwise misleading.

    They should not use or refer to testimonials (which include any statement of a client's experience or endorsement).

    They should not refer to past, specific recommendations made by the advisor that were profitable, unless the advertisement sets out a list of all recommendations made by the advisor within the preceding period of not less than one year and complies with other specified conditions.

- Conflict of Interest

  No financial incentives/ consideration would be received from any person other than investors seeking advice. In case of advice regarding investment in entities related to the investment advisor, adequate disclosures shall be made to investor regarding the relationship.

- Maintaining Records

  Records in support of every investment recommendation /transaction made which indicates the data, facts and opinion leading to that investment decision would be maintained by the Investment Advisor. Records should be retained for at least 5 years.

  Systematic record of all advises provided would be kept including audio recording of any oral advice given.

- The Investment Advisor would clearly indicate to its clients the fees and charges that are required to be paid by them. An investment advisor shall disclose to a prospective clients all material information about itself, its businesses, its disciplinary history, the terms and conditions on which it offers advisory services, its affiliations with other intermediaries and such other information as is necessary him to take an informed decision whether to avail of its services.
- Investment advisors shall not accept funds / securities from investors, except the fee for investment advice.
- If Non-individual investment advisors (corporate entities) offer assistance in execution services such as broking, custody services, DP services, accounting etc., they must make appropriate disclosures, clarify that the investor is under no obligation to use their services and maintain arms-length relationship through creation of Chinese walls. The choice of opting for execution services offered by investment advisor should be left to the investors. Fees and charges paid to service providers should be paid directly to them and not through investment advisors.
- Other than sourcing of research reports, no other part of investment advisory activity can be outsourced.
- The investment advisors shall not be liable for civil or criminal liability in respect of advice given unless the advice is negligent or mala-fide in nature. Any dispute between the investment advisor and his client would be resolved through grievance redressal mechanism or arbitration created by SEBI.
- Portfolio Managers who provide only investment advice would need to be registered only as investment advisors after their present registration expires.

10.5 Commission on Public Issues of Debt

In respect of public issues of debt securities, no person connected with the issue (including person connected with the distribution of the issue) can offer any incentive, whether direct or indirect, in any manner, whether in cash or kind or services or otherwise to any person for making an application for allotment of specified securities.

10.6 Merchant Bankers' Track Record

Merchant bankers are required to disclose the track record of the performance of the public issues managed by them. If more than one merchant banker was involved with an issue, then disclosure has to be made by the one who signed the due diligence certificate, as disclosed in the offer document.

Disclosure is required for a period of three financial years from the date of listing for each public issue managed by the merchant banker. The following information has to be made available in the website of the merchant banker for every issue handled in the previous three years:

- Holding by Qualified Institutional Buyers (QIBs) in the capital of the issuer at the stage of allotment, 1 quarter thereafter and at the end of each of the following three financial years.
- Change in composition of the board of directors of the issuer at the end of each of the three financial years following the issue
- Project implementation and use of issue proceeds – comparision of actual with the plans mentioned in the offer document
- The share price trend as compared to the index movement and movement of the sectoral index
- EPS, P/E Ratio, Return on Net Worth and Net Asset Value per share as per balance sheet – as per offer document and actuals for three following financial years. Details are to be given for the issuer, the peer group and industry average.

A reference to this information has to be made in the Offer Document of public issues that the merchant banker is associated with.

10.7 Algorithmic Trading

Any order that is generated using automated execution logic is known as algorithmic trading. The following are the responsibilities of the stock exchanges:

- Have arrangements, procedures and system capability to manage the load on their systems in such a manner so as to achieve consistent response time to all stock brokers.

- Put in place effective economic disincentives with regard to high daily order-to-trade ratio of algo orders of the stock broker.
- Put in place monitoring systems to identify and initiate measures to impede any possible instances of order flooding by algos.
- Ensure that all algorithmic orders are necessarily routed through broker servers located in India
- Have appropriate risk controls mechanism including price check and quantity limit check.
- Put in place a system to identify dysfunctional algos (i.e. algos leading to loop or runaway situation) and take suitable measures, including advising the member, to shut down such algos and eliminate orders in the system that have been generated by the algos.
- In exigency, the stock exchange should be in a position to shut down the broker's terminal.
- Seek details of trading strategies used by the algo for inquiry, surveillance, investigation, etc.
- Synchronize its system clock with the atomic clock before the start of market such that its clock has precision of atleast one microsecond and accuracy of atleast +/- one millisecond.
- Subject the systems of the stock broker to initial conformance tests
- System audit of the algo trading to be conducted by Certified Information System Auditors (CISA) empanelled by stock exchanges.

10.8 Outsourcing by Intermediaries

The risks associated with outsourcing may be operational risk, reputational risk, legal risk, country risk, strategic risk, exit-strategy risk, counter party risk, concentration and systemic risk.

- Intermediaries are not permitted to outsource their core business activities and compliance functions. A few examples of core business activities:
  - Execution of orders and monitoring of trading activities of clients in case of stock brokers;
  - Dematerialisation of securities in case of depository participants;
  - Investment related activities in case of Mutual Funds and Portfolio Managers.

- The Board / partners of the intermediary have the responsibility for the outsourcing policy and related overall responsibility for activities undertaken under that policy.
- An activity cannot be outsourced if it would impair the supervisory authority's right to assess, or its ability to supervise the business of the intermediary.
- Outsourcing shall be based on evaluation of risk concentrations, limits on the acceptable overall level of outsourced activities, risks arising from outsourcing multiple activities to the same entity, etc.
- The following to be considered while outsourcing:
  - The impact of failure of a third party to adequately perform the activity on the financial, reputational and operational performance of the intermediary and on the investors / clients;
  - Ability of the intermediary to cope up with the work, in case of non-performance or failure by a third party by having suitable back-up arrangements;
  - Regulatory status of the third party, including its fitness and probity status;
  - Situations involving conflict of interest between the intermediary and the third party and the measures put in place by the intermediary to address such potential conflicts, etc.
- Systems to be put in place to have an arm's length distance between the intermediary and the third party in terms of infrastructure, manpower, decision-making, record keeping, etc. for avoidance of potential conflict of interests.

10.9 Qualified Foreign Investors (QFIs)

Foreign investors (termed as Qualified Foreign Investors/ QFI) who meet prescribed Know Your Customer (KYC) requirements are permitted to invest in equity shares listed on the recognized stock exchanges and in equity shares offered to public in India.

QFI mean a person resident in a country that is compliant with Financial Action Task Force (FATF)standards and that is a signatory to International Organization of Securities Commission's (IOSCO's) Multilateral Memorandum of Understanding (MMOU). A QFI cannot be a person resident in India (as defined in the Income Tax Act, 1961). Further QFI cannot be registered with SEBI as Foreign Institutional Investor or Sub-account.

QFIs need to hold equity shares in a demat account opened with a SEBI registered qualified Depository Participant. To become a qualified Depository Participant, a SEBI registered DP has to fulfil the following:

- DP will have net worth of Rs. 50 crore or more;

- DP will be either a clearing bank or clearing member of any of the clearing corporations;
- DP will have appropriate arrangements for receipt and remittance of money with a designated Authorised Dealer (AD) Category - I bank;
- DP will demonstrate that it has systems and procedures to comply with the FATF Standards, Prevention of Money Laundering (PML) Act, Rules and SEBI circulars issued from time to time; and
- DP needs to obtain prior approval of SEBI before commencing the activities relating to opening of accounts of QFI.

QFIs are permitted to do the following transactions:

- Purchase of equity shares in public issues, to be listed on recognised stock exchange(s).
- Purchase of listed equity shares through SEBI registered stock brokers, on recognized stock exchanges in India.
- Sale of equity shares which are held in their demat account through SEBI registered stock brokers.
- Purchase of equity shares against rights issues.
- Receipt of bonus shares or receipt of shares on stock split/ consolidation.
- Receipt of equity shares due to amalgamation, demerger or such other
- corporate actions, subject to the investment limits.
- Receipt of dividends.
- Tender equity shares in open offer in accordance with SEBI (Substantial Acquisition of Shares and Takeovers) Regulations, 2011.
- Tender equity shares in open offer in accordance with SEBI (Delisting of Equity Shares) Regulations, 2009.
- Tender equity shares in case of buy-back by listed companies in accordance with SEBI (Buyback of Securities) Regulations, 1998

Other Conditions:

- A QFI can open only one demat account with any one of the DPs. Purchase and sale of equity shares will be made through that DP only.
- In case of jointly held demat accounts, each of the joint holders has to meet the requirements specified for QFI and each is deemed to be holding a demat account as a QFI.

- DPs need to have adequate systems to ensure the compliance of the same and perform KYC due diligence for each of the joint holders.
- The DP has to carry out necessary due diligence and obtain appropriate declarations and undertakings from QFI to ensure that no other demat account is held by any of the QFI as a QFI or in any other capacity such as NRI, before opening a demat account.
- The DP has to ensure that the same set of ultimate/ end beneficial owner(s) are not allowed to open more than one demat account as QFI. For this purpose, the DP has to carry out necessary due diligence and obtain appropriate declarations and undertakings from QFI.
- A QFI can open trading accounts with one or more SEBI registered stock brokers
- Entities having opaque structure(s) such that the details of ultimate/ end beneficiary are not accessible or where the beneficial owners are ring fenced from each other or where the beneficial owners are ring fenced with regard to enforcement are not allowed to open demat account as QFI.
- In case of any direct/ indirect change in structure or beneficial ownership of the QFI, it has to bring the same to the notice of its DP, forthwith. The DP will assess the eligibility of that QFI afresh, before allowing it to undertake any further transactions.
- The DP has to open a separate single rupee pool bank account with a designated AD Category-1 Bank, exclusively for the purpose of investments by QFI in equity shares in India.
- The DP has to ensure that funds of each and every QFI in the rupee pool account are clearly segregated from each other at all times. Further, the DP has to maintain appropriate records including audit trails on an ongoing basis regarding such segregation.
- The DP can open a demat account for the QFI only after ensuring compliance with all the requirements as per PML Act, rules and regulations, FATF standards and SEBI circulars issued in this regard, from time to time. It will also ensure that QFI comply with all these requirements on an ongoing basis.
- The DP has to ensure that every QFI transacts only through one designated overseas bank account and such overseas bank account which QFI has designated for the purpose is based in a country which is compliant with FATF standards and is a signatory to MMOU of IOSCO.

- The DP has to capture, the details of the overseas bank account designated by the QFI and ensure that all inward bound investments are received from that overseas account and repatriation/ remittances of proceeds are also transferred into the same overseas account.
- The DP has to ask QFI to submit necessary information for the purpose of obtaining PAN. The DP can use the combined PAN cum KYC form as notified by CBDT for this purpose. Each QFI needs to obtain a separate and distinct PAN.

  The DP is permitted take any additional information/ documents from QFI other than those mentioned in the common PAN cum KYC form to ensure compliance with PML rules and regulations, FATF standards and SEBI circulars issued from time to time.
- The DP has to ensure that all the investor related documents/ records of QFI are available with the DP.
- The DP has to ensure that equity shares held by QFI are free from all encumbrances including pledge or lien etc. at all times.
- The DP shall, at all times, ensure compliance with laws, rules and regulations of the jurisdictions where the QFI are based.
- The DP has to ensure that the interests of other clients of DP are not adversely affected in any manner due to transactions done on behalf of QFI.
- In case of any penalty, pending litigations or proceedings, findings of inspections or investigations for which action may have been taken or is in the process of being taken by an overseas regulator against DP/ QFI, the DP has to notify such information forthwith, to the attention of SEBI, depositories and stock exchanges.

  The DP has to mandate the QFI to furnish the details of any such penalty, pending litigations or proceedings, findings of inspections or investigations to it on an ongoing basis.
- The DP is responsible for the deduction of applicable tax at source on account of profits or gains or dividends or any other income accruing to or received by QFI before making any reinvestment/ repurchase or repatriation/ remittance to QFI, and remit and report the same to the relevant tax authorities.
- In case a QFI desires to change the DP with whom he holds the demat account, he is allowed to operate a new demat account with another DP only after closure of the earlier demat account. At the time of opening a new demat account with a different DP, the QFI has to furnish the details regarding the existing demat account with the earlier DP and the details of the shareholdings in the earlier demat account.

- Simultaneously, the QFI has to issue transfer instructions to the earlier DP with a copy to the new DP.

  The funds of the QFI lying in the rupee pool account of the earlier DP, are to be remitted back to the designated overseas bank account of the concerned QFI. At any point of time, a QFI can operate through only one demat account with a DP.

- The following investment restrictions are prescribed for the QFIs:
  - The QFI can transact in Indian equity shares only on the basis of taking and giving delivery of shares purchased or sold.
  - Each transaction by QFI has to be cleared and settled on gross basis.
  - QFI cannot issue offshore derivatives instruments/ participatory notes. A declaration and undertaking to this effect is to be obtained by DP from the QFI.
  - The DP has to provide on a daily basis, QFI wise, ISIN wise and company wise buy/sell information and any other transaction or any related information to their respective depositories on the same day i.e the day on which the transaction was carried out, before the time stipulated by the depositories.
  - The stock exchanges have to provide the details of paid up equity capital of all the listed companies, ISIN wise, to the depositories once in six months, periodically and also provide information regarding change in paid up equity capital in any listed company, immediately.
  - The QFI and DP have to ensure that the total shareholding held by a QFI does not exceed five per cent of paid up equity capital of the company at any point of time. This investment limit is applicable to each class of equity shares having separate and distinct ISIN.
  - The depositories have to put in place appropriate systems and procedures to monitor the above limit by using PAN and/ or other unique identity number of the QFI.
  - The depositories need to administer and monitor, so as to ensure, that aggregate shareholding of all QFIs does not exceed ten per cent of the paid up equity capital of the company at any point of time, in respect of each equity share class having separate and distinct ISIN.
  - The depositories have to jointly publish/ disseminate the ISIN wise and company wise aggregate shareholding of QFIs to public, on daily basis.
  - The information regarding ISIN wise and company wise aggregate QFI shareholding has to also be provided by the depositories to the RBI in a manner and format as stipulated by the Reserve Bank of India from time to time.

- When the aggregate shareholding of all the QFIs in a company reaches 8% of the equity paid up capital, the company's name along with ISIN has to be published in caution list by the depositories and no fresh purchases can be allowed without prior approval of the depositories. The same is to be informed by the depositories to the DPs and recognized stock exchanges having nationwide terminals. The depositories have to also inform the DPs and such stock exchanges when any company is removed from the caution list.
- For fresh purchases by QFI in equity shares of companies in the caution list, prior approval of the depositories is to be obtained. The QFI needs to make such request for prior approval to the concerned depository through the DP specifying therein the name of the QFI, PAN and other unique identification number relating to that QFI, number of shares to be purchased and the ISIN, by way of any mode of communication as specified by the depositories in consultation with each other. The concerned depository has to provide the details of prior approval requests received by it to the other depository.
- After market hours, the depository has to give prior approval to request for purchase of equity shares of companies in the caution list on a first-come-first-served basis in co-ordination with the other depository, based on time of receipt of the prior approval requests by the depositories,. The validity of the approval is for the next trading day only.
- In case the aggregate shareholding of the QFI exceeds the limit of ten percent in respect of any ISIN, the depositories have to jointly notify the respective DPs regarding the breach along with the names of the QFI due to whom the limits have been breached. For this purpose, the stock exchanges have to provide the required information so as to enable the depositories to identify the transaction details of the QFI including the name of QFI, PAN and/ or other unique identification number relating to that QFI, purchase quantity and time or any other information as may be required by the depositories.
- In case the aggregate shareholding of the QFIs exceeds the limit of ten per cent for whatsoever reason, the QFI due to whom the limit is breached has to mandatorily divest excess holdings within three working days of such breach being notified by depositories to the DP. The DP has to obtain necessary authorization from the QFI at the time of account opening for such divestment of excess holdings.
- The stock exchanges have to amend Clause 35 of the listing agreement on or before June 30, 2012, so as to incorporate another class of investor to disseminate QFI shareholding in equity shares.

- The stock exchanges have to develop a separate segment for intra QFI transactions in the equity shares of companies in the caution list, if they wish to buy without the prior approval of depositories. However, QFI who have obtained prior approval of the depositories may purchase equity shares in the normal segment of recognized stock exchanges.
- The stock exchanges/ depositories/ DPs are not permitted to levy any charges towards services relating to monitoring and administering of investment limits of QFI.

- The transaction flow envisaged is as follows:
  - Purchases
    - The QFI will place a purchase order with the DP mentioning the name of the company and ISIN, number of equity shares, name of the stock broker and remit foreign inward remittances from the designated overseas bank account of QFI through normal banking channel in any permitted currency (freely convertible) directly to the single rupee pool bank account of the DP maintained with a designated AD category - I bank.
    - The DP in turn will forward the purchase order to the SEBI registered stock broker with whom QFI has opened trading account and remit the money to the broker's account after receipt of funds from QFI and as per the instructions of QFI.
    - If for any reasons, the QFI is not able to purchase equity shares within five working days of the inward remittance (including the date of receipt of foreign inward remittance through normal banking channels from the designated overseas bank account of the QFI into the single rupee pool bank account), the DP has to immediately remit the money back to the designated overseas bank account of the QFI.
    - The DP has to ensure that equity shares purchased on behalf of QFI are credited into the demat account of that QFI on the pay-out date.
    - In case of QFI's participation in public issues, the QFI has to provide instruction to the DP to make application for public issue. The DP, after obtaining necessary instructions from the QFI and subject to availability of funds on account of that QFI in the rupee pool account, will make application on behalf of such QFI and remit money to the issuer company.
  - Sale
    - On receipt of instruction from QFI containing name of the company and / or ISIN, number of equity shares and name of the stock broker, the DP has to

place order for sale of equity shares only after verifying availability of such equity shares in demat account of that QFI.

- Upon receipt of sale proceeds on account of sale of equity shares made on behalf of QFI, the same has to be retained in single rupee pool bank account of the DP for a period of maximum five working days.
- The QFI can instruct the DP to make fresh purchase of equity shares out of sale proceeds on account of sale of equity shares provided that such purchase is made within five working days (including the date of receipt of the sale proceeds in the single rupee pooled bank account) of receipt of money in the pooled bank account.

  In case no purchase is made within said period, the money has to be remitted by the DPs to the designated bank overseas account of the QFI within five working days from the date of receipt of money in the pooled bank account.

o Dividend and other Corporate Actions

- In case of dividend received on account of QFI, the DP has to remit the same to the designated bank overseas account of the QFI within five working days (including the date of credit to the single rupee pool account) from the date of receipt of money in the DP's rupee pooled bank account, unless any fresh purchase of equity shares is made out of such dividend receipts.
- In case of QFI participation in corporate actions such as buy back, delisting etc. wherein the pool account maintained with DP is credited with funds, such funds have to be remitted back to the designated bank overseas account of the QFI within five working days of receipt of same, unless any fresh purchase of equity shares is made out of such funds.

- The transactions of QFIs, for all purposes, have to be treated at par with that of Indian non-institutional investors with regard to margins, voting rights, public issues etc.

10.10 KYC Registration Agency (KRA)

SEBI has simplified the account opening process for investors and made it uniform across intermediaries in the securities markets. Further, to avoid duplication of KYC process with every intermediary, SEBI has provided for a KRA system where the KYC records in the securities markets are centralised. This new system was made applicable

for new clients who opened accounts with the intermediaries from January 1, 2012. Highlights of the KRA system are as follows:

- Guidelines for intermediaries
    - After doing the initial KYC of the new clients, the intermediary has to forthwith upload the KYC information on the system of the KRA and send the KYC documents i.e. KYC application form and supporting documents of the clients to the KRA within 10 working days from the date of execution of documents by the client and maintain the proof of dispatch.
    - In case a client's KYC documents sent by the intermediary to KRA are not complete, the KRA will inform the same to the intermediary who has to forward the required information / documents promptly to KRA.
    - For existing clients, the KYC data needs to be uploaded by the intermediary provided they are in conformity with details sought in the uniform KYC form

      While uploading these clients' data the intermediary has to ensure that there is no duplication of data in the KRA system.
    - The intermediary has to carry out KYC when the client chooses to trade/ invest / deal through it.
    - The intermediaries have to maintain electronic records of KYCs of clients and keeping physical records is not necessary.
    - The intermediary has to promptly provide KYC related information to KRA, as and when required.
    - The intermediary needs to have adequate internal controls to ensure the security / authenticity of data uploaded by it.
- Guidelines for KRAs
    - KRA system should provide KYC information in data and image form to the intermediary.
    - KRA has to send a letter to the client within 10 working days of the receipt of the initial/updated KYC documents from intermediary, confirming the details thereof and maintain the proof of dispatch.
    - KRA(s) should develop systems, in co-ordination with each other, to prevent duplication of entry of KYC details of a client and to ensure uniformity in formats of uploading / modification / downloading of KYC data by the intermediary.
    - KRA should maintain an audit trail of the upload / modifications / downloads made in the KYC data, by the intermediary in its system.

- KRA has to ensure that a comprehensive audit of its systems, controls, procedures, safeguards and security of information and documents is carried out annually by an independent auditor. The Audit Report along with the steps taken to rectify the deficiencies, if any, should be placed before its Board of Directors. Thereafter, the KRA has to send the Action Taken Report to SEBI within 3 months.
- KRA systems should clearly indicate the status of clients falling under PAN exempt categories viz. investors residing in the state of Sikkim, UN entities / multilateral agencies exempt from paying taxes / filing tax returns in India.
- A client can start trading / investing/ dealing with the intermediary and its group / subsidiary / holding company as soon as the initial KYC is done and other necessary information is obtained while the remaining process of KRA is in progress.

- In-Person Verification (IPV)
  - It is mandatory for KYC Registration Agencies (KRAs), Stock Brokers, Depository Participants (DPs), Mutual Funds (MFs), Portfolio Managers (PMs), Venture Capital Funds (VCFs) and Collective Investment Schemes (CIS) to carry out IPV of their clients.
  - The intermediary has to ensure that the details like name of the person doing IPV, his designation, organization with his signatures and date are recorded on the KYC form at the time of IPV.
  - The IPV carried out by one SEBI registered intermediary can be relied upon by another intermediary.
  - In case of Stock brokers, their sub-brokers or Authorised Persons (appointed by the stock brokers after getting approval from the concerned Stock Exchanges) can perform the IPV.
  - In case of Mutual Funds, their Asset Management Companies (AMCs) and the distributors who comply with the certification process of National Institute of Securities Market (NISM) or Association of Mutual Funds (AMFI) and have under gone the process of 'Know Your Distributor (KYD)', can perform the IPV.

    However, in case of applications received by the mutual funds directly from the clients (i.e. not through any distributor), they may also rely upon the IPV performed by the scheduled commercial banks.

The KYC details of the existing clients of the intermediaries are also being uploaded in the current KRA system, in a phased manner, as follows:

- For existing clients who trade / invest / deal with the intermediary anytime after April 16, 2012, the intermediaries have to forthwith upload their KYC details in the KRA

system. They also need to send original KYC documents to the KRA on continuous basis and complete the process within prescribed time limits.

Printouts of scanned documents can be sent to the KRAs instead of original documents, certifying that the intermediary has retained the originals.

The process has to be completed by March 31, 2013.

- When an existing client approaches another intermediary, it is the responsibility of that intermediary which downloads the data of that client from the KRA system, to update the missing information, do IPV as per requirements (if not done already) and send the relevant supporting documents, if any, to the KRA. Thereafter, the KRA system will indicate the records as updated.

  While SEBI has standardised the KYC in areas that are under its control, banks and insurance companies have their own KYC formalities. The finance minister, in his Budget Speech in 2012, has proposed a central KYC depository for the entire financial sector.

Appendix 10.1

Common Rating Symbols and Definitions

Rating Symbols and Definitions for Long Term Debt Instruments

Long term debt instruments: The instruments with original maturity exceeding one year

Rating symbols should have CRA's first name as prefix

AAA - Instruments with this rating are considered to have the highest degree of safety regarding timely servicing of financial obligations. Such instruments carry lowest credit risk.

AA - Instruments with this rating are considered to have high degree of safety regarding timely servicing of financial obligations. Such instruments carry verylow credit risk.

A - Instruments with this rating are considered to have adequate degree of safety regarding timely servicing of financial obligations. Such instruments carry low credit risk.

BBB - Instruments with this rating are considered to have moderate degree of safety regarding timely servicing of financial obligations. Such instruments carry moderate credit risk.

BB - Instruments with this rating are considered to have mode rate risk of default regarding timely servicing of financial obligations.

B - Instruments with this rating are considered to have high risk of default regarding timely servicing of financial obligations.

C - Instruments with this rating are considered to have very high risk of default regarding timely servicing of financial obligations.

D - Instruments with this rating are in default or are expected to be in default soon.

Modifiers {"+" (plus) / "-"(minus)} can be used with the rating symbols forthe categories AA to C. The modifiers reflect the comparative standing within the category.

Rating Symbols and Definitions for Short Term Debt instruments

Short term debt instruments: The instruments with original maturity of upto one year

Rating symbols should have CRA's first name as prefix

A1 – Instruments with this rating are considered to have very strong degree of safety regarding timely payment of financial obligations. Such instruments carrylowest credit risk.

A2 – Instruments with this rating are considered to have strong degree of safety regarding timely payment of financial obligations. Such instruments carry lowcredit risk.

A3 – Instruments with this rating are considered to have moderate degree of safety regarding timely payment of financial obligations. Such instruments carry higher credit risk as compared to instruments rated in the two higher categories.

A4- Instruments with this rating are considered to have minimal degree of safety regarding timely payment of financial obligations. Such instruments carry very high credit risk and are susceptible to default.

D – Instruments with this rating are in default or expected to be in default on maturity.

Modifier {"+" (plus)} can be used with the rating symbols for the categories A1 to A4. The modifier reflects the comparative standing within the category.

Rating Symbols and Definitions for Long Term Structured Finance Instruments

Long term structured finance instruments: The instruments with original maturity exceeding one year

Rating symbols should have CRA's first name as prefix

AAA (SO) - Instruments with this rating are considered to have the highest degree of safety regarding timely servicing of financial obligations. Suchin struments carry lowest credit risk.

AA (SO) - Instruments with this rating are considered to have high degree of safety regarding timely servicing of financial obligations. Such instruments carry very low credit risk.

A (SO) - Instruments with this rating are considered to have adequate degree of safety regarding timely servicing of financial obligations. Such instruments carry low credit risk.

BBB (SO) - Instruments with this rating are considered to have moderate degree of safety regarding timely servicing of financial obligations. Such instruments carry moderate credit risk.

BB(SO) - Instruments with this rating are considered to have moderate risk of default regarding timely servicing of financial obligations.

B(SO) - Instruments with this rating are considered to have high risk of default regarding timely servicing of financial obligations.

C (SO) - Instruments with this rating are considered to have very high likelihood of default regarding timely payment of financial obligations.

D (SO) - Instruments with this rating are in default or are expected to be in default soon.

Modifiers {"+" (plus) / "-"(minus)} can be used with the rating symbols for the categories AA(SO) to C(SO). The modifiers reflect the comparative standing within the category.

Rating Symbols and Definitions for Short Term Structured Finance Instruments

Short term structured finance instruments: The instruments with original maturity of upto one year

Rating symbols should have CRA's first name as prefix

A1 (SO) – Instruments with this rating are considered to have very strong degree of safety regarding timely payment of financial obligation. Such instruments carry lowest credit risk.

A2 (SO) - Instruments with this rating are considered to have strong degree of safety regarding timely payment of financial obligation. Such instruments carry low credit risk.

A3 (SO) - Instruments with this rating are considered to have moderate degree of safety regarding timely payment of financial obligation. Such instruments carry higher credit risk as compared to instruments rated in the two higher categories.

A4 (SO) - Instruments with this rating are considered to have minimal degree of safety regarding timely payment of financial obligation. Such instruments carry very high credit risk and are susceptible to default.

D (SO) - Instruments with this rating are in default or expected to be in default on maturity.

Modifier {"+" (plus)} can be used with the rating symbols for the categories A1(SO) to A4(SO). The modifier reflects the comparative standing within the category.

Rating Symbols and Definitions for Long Term Debt Mutual Fund Schemes

Long term debt mutual fund schemes: The debt mutual fund schemes that have an original maturity exceeding one year.

Rating symbols should have CRA's first name as prefix

AAAmfs – Schemes with this rating are considered to have the highest degree of safety regarding timely receipt of payments from the investments that they have made.

AAmfs – Schemes with this rating are considered to have the high degree of safety regarding timely receipt of payments from the investments that they have made.

Amfs – Schemes with this rating are considered to have the adequate degree of safety regarding timely receipt of payments from the investments that they have made.

BBBmfs - Schemes with this rating are considered to have the moderate degreeof safety regarding timely receipt of payments from the investments that they have made.

BBmfs - Schemes with this rating are considered to have moderate risk of default regarding timely receipt of payments from the investments that they have made.

Bmfs - Schemes with this rating are considered to have high risk of default regarding timely receipt of timely receipt of payments from the investments that they have made.

Cmfs - Schemes with this rating are considered to have very high risk of default regarding timely receipt of timely receipt of payments from the investments that they have made.

Modifiers {"+" (plus) / "-"(minus)} can be used with the rating symbols for the categories AAmfs to Cmfs. The modifiers reflect the comparative standing within the category.

Rating Symbols and Definitions for Short Term Debt Mutual Fund Schemes

Short term debt mutual fund schemes: The debt mutual fund schemes that have an original maturity of upto one year.

Rating symbols should have CRA's first name as prefix

A1mfs - Schemes with this rating are considered to have very strong degree of safety regarding timely receipt of payments from the investments that they have made.

A2mfs - Schemes with this rating are considered to have strong degree of safety regarding timely receipt of payments from the investments that they have made.

A3mfs - Schemes with this rating are considered to have moderate degree of safety regarding timely receipt of payments from the investments that they have made.

A4mfs - Schemes with this rating are considered to have minimal degree of safety regarding timely receipt of payments from the investments that they have made.

Modifier {"+" (plus)} can be used with the rating symbols for the categories A1mfs to A4mfs. The modifier reflects the comparative standing within the category.

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