

CHAPTER 1:

SECURITIES MARKET IN INDIA–AN OVERVIEW

INTRODUCTION

The securities markets in India witnessed several policy initiatives since the year 2000, which further refined the market micro-structure, modernised operations and broadened investment choices for the investors. The irregularities in the securities transactions in the last quarter of the previous financial year hastened the introduction and implementation of several reforms. While a Joint Parliamentary Committee was constituted to go into the irregularities and manipulations in all their ramifications in all transactions relating to securities, decisions were taken to complete the process of demutualisation and corporatisation of stock exchanges to implement the decision to separate ownership, management and operation of stock exchanges and to effect legislative changes for investor protection, and to enhance the effectiveness of SEBI as the capital market regulator. Rolling settlement on T+5 basis was introduced in respect of most active 251 securities from July 2, 2001 and in respect of balance securities from 31st December 2001. Rolling settlement on T+3 basis commenced for all listed securities from April 1, 2002 and subsequently on T+2 basis from April 1, 2003. All deferral products such as carry forward were banned from July 2, 2002. Trading in index options commenced in June 2001 and trading in options on individual securities commenced in July 2001. Futures contracts on individual stock were launched in November 2001. Futures and options contracts on 49 individual securities were made available from August 2003. Interest rate futures contract was launched from June 2003. The year 2001-02 has also been quiet eventful for debt markets in India, with implementation of several important decisions like setting up of a clearing corporation for government securities, a negotiated dealing system to facilitate transparent electronic bidding in auctions and secondary market transactions on a real time basis and dematerialisation of debt instruments. These reforms and other market developments have been discussed in detail in the subsequent chapters of the book. This chapter, however, takes a review of the stock market developments since 1990. These developments in the securities market, which support corporate initiatives, finance the exploitation of new ideas and facilitate management of financial risks, hold

out necessary impetus for growth, development and strength of the emerging market economy of India.

1.1 PRODUCTS, PARTICIPANTS AND FUNCTIONS

Transfer of resources from those with idle resources to others who have a productive need for them is perhaps most efficiently achieved through the securities markets. Stated formally, securities markets provide channels for reallocation of savings to investments and entrepreneurship and thereby decouple these two activities. As a result, the savers and investors are not constrained by their individual abilities, but by the economy's abilities to invest and save respectively, which inevitably enhances savings and investment in the economy.

Savings are linked to investments by a variety of intermediaries through a range of complex financial products called "securities" which is defined in the Securities Contracts (Regulation) Act, 1956 to include shares, bonds, scrips, stocks or other marketable securities of like nature in or of any incorporate company or body corporate, government securities, derivatives of securities, units of collective investment scheme, interest and rights in securities, security receipt or any other instruments so declared by the central government. There are a set of economic units who demand securities in lieu of funds and others who supply securities for funds. These demand for and supply of securities and funds determine, under competitive market conditions in both goods and securities market, the prices of securities which reflect the present value of future prospects of the issuer, adjusted for risks and also prices of funds.

It is not that the users and suppliers of funds meet each other and exchange funds for securities. It is difficult to accomplish such double coincidence of wants. The amount of funds supplied by the supplier may not be the amount needed by the user. Similarly, the risk, liquidity and maturity characteristics of the securities issued by the issuer may not match preference of the supplier. In such cases, they incur substantial search costs to find each other. Search costs are minimised by the intermediaries who match and bring the suppliers and users of funds together. These intermediaries may act as agents to match the needs of users and suppliers of funds for a commission, help suppliers and users in creation and sale of securities for a fee or buy the securities issued by users and in turn, sell their own securities to suppliers to book profit. It is, thus, a misnomer that securities market disintermediates by establishing a direct relationship between the savers and the users of funds. The market does not work in a vacuum; it requires services of a large variety of intermediaries. The disintermediation in the securities market is in fact an intermediation with a difference; it is a risk-less intermediation, where the ultimate risks are borne by the savers and not the intermediaries. A large variety and number of intermediaries provide

intermediation services in the Indian securities market as may be seen from Table 1.1.

Table 1.1: Market Participants in Securities Market

Market Participants	Number as on March 31	
	2002	2003
Securities Appellate Tribunal	1	1
Regulators*	4	4
Depositories	2	2
Stock Exchanges		
With Equities Trading	23	23
With Debt Market Segment	1	1
With Derivative Trading	2	2
Listed Securities	9,644	9,413
Brokers	9,687	9,519
Corporate Brokers	3,862	3,835
Sub-brokers	12,208	13,291
FIIIs	490	502
Portfolio Managers	47	54
Custodians	12	11
Share Transfer Agents	161	143
Primary Dealers	18	19
Merchant Bankers	145	124
Bankers to an Issue	68	67
Debenture Trustees	40	35
Underwriters	54	43
Venture Capital Funds	34	43
Foreign Venture Capital Investors	2	6
Mutual Funds	37	38
Collective Investment Schemes	6	0

* DCA, DEA, RBI & SEBI.

The securities market, thus, has essentially three categories of participants, namely the issuers of securities, investors in securities and the intermediaries and two categories of products, namely the services of the intermediaries, the securities, including derivatives. The issuers and investors are the consumers of services rendered by the intermediaries while the investors are consumers (they subscribe for and trade in securities) of securities issued by issuers. In pursuit of providing a product to meet the needs of each investor and issuer, the intermediaries churn out more and more complicated products. They educate and guide them in their dealings and bring them together. Those who receive funds in exchange for securities and those who receive securities in exchange for funds often need the reassurance that it is safe to do so. This reassurance is provided by the

law and by custom, often enforced by the regulator. The regulator develops fair market practices and regulates the conduct of issuers of securities and the intermediaries so as to protect the interests of suppliers of funds. The regulator ensures a high standard of service from intermediaries and supply of quality securities and non-manipulated demand for them in the market.

1.2 SECURITIES MARKET AND FINANCIAL SYSTEM

The securities market has two interdependent and inseparable segments, the new issues (primary market) and the stock (secondary) market. The primary market provides the channel for sale of new securities while the secondary market deals in securities previously issued. The price signals, which subsume all information about the issuer and his business including associated risk, generated in the secondary market, help the primary market in allocation of funds. The issuers of securities issue (create and sell) new securities in the primary market to raise funds for investment and/or to discharge some obligation. They do so either through public issues or private placement. It is a public issue if any body and everybody can subscribe for the securities. If the issue is made to select people, it is called private placement. In terms of the Companies Act, 1956, an issue becomes public if it results in allotment to more than 50 persons. This means an issue resulting in allotment to less than 50 persons is private placement. There are two major types of issuers who issue securities. The corporate entities issue mainly debt and equity instruments (shares, debentures, etc.), while the governments (central and state governments) issue debt securities (dated securities, treasury bills).

The secondary market enables participants who hold securities to adjust their holdings in response to changes in their assessment of risk and return. They also sell securities for cash to meet their liquidity needs. The secondary market has further two components, namely the over-the-counter (OTC) market and the exchange-traded market. OTC is different from the market place provided by the Over The Counter Exchange of India Limited. OTC markets are essentially informal markets where trades are negotiated. Most of the trades in government securities are in the OTC market. All the spot trades where securities are traded for immediate delivery and payment take place in the OTC market. The exchanges do not provide facility for spot trades in a strict sense. Closest to spot market is the cash market where settlement takes place after some time. Trades taking place over a trading cycle, i.e. a day under rolling settlement, are settled together after a certain time (currently 2 working days). All the 23 stock exchanges in the country provide facilities for trading of equities. Trades executed on the leading exchange (National Stock Exchange of India Limited (NSE)) are cleared and

settled by a clearing corporation which provides novation and settlement guarantee. Nearly 100% of the trades settled by delivery are settled in demat form. NSE also provides a formal trading platform for trading of a wide range of debt securities including government securities. A variant of secondary market is the forward market, where securities are traded for future delivery and payment. Pure forward is out side the formal market. The versions of forward in formal market are futures and options. In futures market, standardised securities are traded for future delivery and settlement. These futures can be on a basket of securities like an index or an individual security. In case of options, securities are traded for conditional future delivery. There are two types of options—a put option permits the owner to sell a security to the writer of options at a predetermined price while a call option permits the owner to purchase a security from the writer of the option at a predetermined price. These options can also be on individual stocks or basket of stocks like index. Two exchanges, namely NSE and the Stock Exchange, Mumbai (BSE) provide trading of derivatives of securities.

The past decade in many ways has been remarkable for securities market in India. It has grown exponentially as measured in terms of amount raised from the market, number of stock exchanges and other intermediaries, the number of listed stocks, market capitalisation, trading volumes and turnover on stock exchanges, and investor population. Along with this growth, the profiles of the investors, issuers and intermediaries have changed significantly. The market has witnessed fundamental institutional changes resulting in drastic reduction in transaction costs and significant improvements in efficiency, transparency and safety.

International Scenario

Reforms in the securities market, particularly the establishment and empowerment of SEBI, market determined allocation of resources, screen based nation-wide trading, dematerialisation and electronic transfer of securities, rolling settlement and ban on deferral products, sophisticated risk management and derivatives trading, have greatly improved the regulatory framework and efficiency of trading and settlement. Indian market is now comparable to many developed markets in terms of a number of qualitative parameters.

As may be seen from Table 1.2, except USA, no other country has higher turnover ratio than India. At the end of December 2002, Standard and Poor's (S&P) ranked India 19th in terms of market capitalization, 17th in terms of total value traded in stock exchanges and 7th in terms of turnover ratio. Except for USA, India has highest number of securities listed on exchanges. These data, though quite impressive, do not reflect the full Indian market, as S&P (even other international publications) does not cover

the whole market. For example, India has 9,413 listed companies at the end of March 2003, while S&P considers only 5,650 companies (till December end 2002). If whole market is taken into consideration, India's position vis-à-vis other countries would look much better.

Table 1.2: International Comparison: end December 2002

Particulars	USA	UK	Japan	Germany	Singapore	Hongkong	China	India
No. of listed Companies	5,685	1,701	3,058	715	434	968	1,235	5,650
Market Capitalisation (\$ Bn.)	11,052	1,864	2,126	686	102	463	463	131
Market Capitalisation Ratio (%)	113.0	126.2	47.0	35.4	114.7	271.9	40.9	27.4
Turnover (\$ Mn.)	25,371	2,721	1,573	1,233	56	211	333	197
Turnover Ratio (%)	202.5	135.4	71.0	140.5	39.3	43.5	67.6	165.0

Source: S&P Emerging Stock Market Factbook, 2003

Table 1.3: Market Capitalisation & Turnover for Major Markets

Country/ Region	(US \$ million)					
	Market Capitalisation (end of period)			Turnover		
	1990	2001	2002	1990	2001	2002
Developed Markets	8,795,239	25,246,554	20,955,876	4,616,473	39,676,018	36,098,731
Australia	108,879	374,269	380,969	40,113	240,667	294,658
Japan	2,917,679	2,251,814	2,126,075	1,602,388	1,826,230	1,573,279
UK	848,866	2,217,324	1,864,134	278,740	1,871,894	2,721,342
USA	3,059,434	13,810,429	11,052,403	1,751,252	29,040,739	25,371,270
All Emerging Markets	604,420	2,572,064	2,436,038	898,233	2,397,080	2,546,742
China	--	523,952	463,080	--	448,928	333,369
India	38,567	110,396	131,011	21,918	249,298	197,118
Indonesia	8,081	23,006	29,991	3,992	9,667	13,042
Korea	110,594	220,046	249,639	75,949	703,960	873,692
Malaysia	48,611	120,007	123,872	10,871	20,772	27,623
Philippines	5,927	41,523	39,021	1,216	3,148	3,103
Taiwan	100,710	292,621	261,474	715,005	544,808	631,931
World Total	9,399,659	27,818,618	23,391,914	5,514,706	42,076,862	38,645,472
US as % of World	32.55	49.64	47.25	31.76	69.02	65.65
India as % of World	0.41	0.40	0.56	0.40	0.59	0.51

Source: S&P Emerging Stock Market Factbook, 2003.

The stock markets worldwide have grown in size as well as depth over last one decade, though it is showing decreasing trend over last couple of years. Tables 1.3 and 1.4 present select indicators for major markets. As can be observed from Table 1.3, the turnover on all markets taken together has grown nearly eight times from US \$ 5.5 trillion in 1990 to US \$ 42 trillion in 2001 before depleting to about \$38 trillion in 2002. The turnover in developed markets has, however, grown more sharply than that in emerging markets. It is significant to note that US alone accounted for about 65.65% of worldwide turnover in 2002. Despite having a large number of companies listed on its stock exchanges, India accounted for a meagre 0.51% in total turnover in 2002 down from 0.59% in 2001. The market capitalisation of all listed companies taken together on all markets increased from US\$ 9.3 trillion as at end-1990 to US\$ 23 trillion as at end-2002. The share of US in worldwide market capitalisation increased from 32.5% as at end-1990 to 47.2% as at end-2002 while Indian listed companies accounted for 0.56% of total market capitalisation.

Table 1.4: Select Stock Market Indicators

Markets	Market Capitalisation as % of GDP			Turnover Ratio (%)			Listed Domestic Companies		
	1990	2000	2001	1990	2001	2002	1990	2001	2002
High Income	51.6	120.6	103.9	59.5	129.9	138.5	17,078	25,548	26,035
Middle Income	20.0	41.2	35.7	78.3	84.9	44.4	4,900	15,364	9,442
Low & Middle Income	18.8	38.7	33.1	70.7	90.1	58.0	8,346	23,097	17,284
East Asia & Pacific	16.4	48.3	45.8	117.2	149.9	72.5	1,443	3,486	2,886
Europe & Central Asia	2.1	20.5	19.3	--	83.1	54.2	110	8,220	2,759
Latin America & Caribbean	7.6	34	33.4	29.7	26.9	21.6	1,734	1,567	1,570
Middle East & N. Africa	27.8	34.8	26.3	--	22.3	19.8	817	1,596	2,020
South Asia	10.8	27	19.7	54.0	161.6	180.3	3,231	7,159	7,010
Sub-Saharan Africa	52.0	102.3	103.9	--	22.5	23.8	1,011	1,069	1,039
Low Income	9.8	23.6	18.3	53.8	121.3	53.8	3,446	7,733	7,842
India	12.2	32.4	23.1	65.9	191.4	225.8	2,435	5,795	5,650
World	48.0	105.1	90.7	57.2	122.3	57.2	25,424	48,645	43,319

Source: World Development Indicators 2002, World Bank.

However, market capitalisation as per cent of GDP in all major country groups has declined in 2001 compared to year 2000 as is evident from Table 1.4. The market capitalisation as per cent of GDP was the highest at 103.9% for high-income countries as at end 2001 and lowest for low-income countries at 18.3%. Market capitalisation as per cent of GDP for India stood at 23.1% as at end 2001. The turnover ratio, which is a measure of liquidity, was lower for low-income countries at 53.8% in 2002 as compared to 138.5% for high-income countries. The corresponding figure for India was only 225.8%. The total number of listed companies stood at 26,035 for high-income countries, 9,442 for middle-income countries and 7,842 for low-income countries as at end-2002. The number of listed companies in India was 5,650 as at end 2002. It may, however, be noted that these figures differ from the similar figures presented in this chapter and also in other chapters, as the coverage of international publications differ from one another.

1.3 SECURITIES MARKET & ECONOMIC DEVELOPMENT

Three main sets of entities depend on securities market. While the corporates and governments raise resources from the securities market to meet their obligations, the households invest their savings in the securities.

Corporate Sector: The 1990s witnessed emergence of the securities market as a major source of finance for trade and industry. A growing number of companies are accessing the securities market rather than depending on loans from FIs/banks. The corporate sector is increasingly depending on external sources for meeting its funding requirements. There appears to be growing preference for direct financing (equity and debt) to indirect financing (bank loan) within the external sources. According to CMIE data (Table 1.5), the share of capital market based instruments in resources raised externally increased to 53% in 1993-94, but declined thereafter to 20.60% by 2001-02.

The listing agreements have been amended recently requiring the companies to disclose shareholding pattern on a quarterly basis. Table 1.6 presents sector-wise shareholding pattern of companies listed on NSE. It is observed that on an average the promoters hold about 58% of total shares. Though the non-promoter holding is about 42%, Indian public held only 16.27% and the public float (holding by FIIs, MFs, Indian public) is at best 24%. There is not much difference in the shareholding pattern of companies in different sectors.

Table 1.5: Dependence on Securities Market

Year	Share (%) of Securities Market in			
	External Finance of Corporates	Fiscal Deficit of Central Government	Fiscal Deficit of State Government	Financial Savings of Households
1990-91	19.35	17.9	13.6	14.4
1991-92	19.17	20.7	17.5	22.9
1992-93	33.38	9.2	16.8	17.2
1993-94	53.23	48.0	17.6	14.0
1994-95	44.99	35.2	14.7	12.1
1995-96	21.67	54.9	18.7	7.7
1996-97	22.12	30.0	17.5	6.9
1997-98	28.16	36.5	16.5	4.5
1998-99	27.05	60.9	14.1	4.2
1999-00	33.58	67.1	13.9	7.3
2000-01	31.39	61.4	13.8	4.3
2001-02	20.60	69.4	15.2	8.0
2002-03	N.A.	77.6	19.9	N. A

Source: Economic Intelligence Service - Corporate Sector, CMIE & RBI.

Governments: Along with increase in fiscal deficits of the governments, the dependence on market borrowings to finance fiscal deficits has increased over the years. During the year 1990-91, the state governments and the central government financed nearly 14% and 18% respectively of their fiscal deficit by market borrowing (Table 1.5). In percentage terms, dependence of the state governments on market borrowing did not increase much during the decade 1991-2001. In case of central government, it increased to 69.4% by 2001-02.

Households: According to RBI data, household sector accounted for 82% of gross domestic savings during 2001-02. They invested 38% of financial savings in deposits, 33% in insurance/provident funds, 11% on small savings, and 8% in securities, including government securities and units of mutual funds during 2001-2002 (Table 1.7). Thus the fixed income bearing instruments are the most preferred assets of the household sector. Their share in total financial savings of the household sector witnessed an increasing trend in the recent past and is estimated at 82.4% in 2001-02. In contrast, the share of financial savings of the household sector in securities (shares, debentures, public sector bonds and units of UTI and other mutual funds and government securities) is estimated to have gone down from 14.4% in 1990-91 to 8.0% in 2001-02.

(Table:1.6)

Table 1.7: Savings of Household Sector in Financial Assets

	(In per cent)		
Financial Assets	1990-91	2000-01	2001-02
Currency	10.6	6.4	9.5
Fixed income investments	74.9	89.4	82.4
Deposits	33.3	44.3	37.9
Insurance/Provident/Pension Funds	28.4	33.5	33.4
Small Savings	13.2	11.6	11.1
Securities Market	14.4	4.3	8.0
Mutual Funds	9.1	1.3	1.7
Government Securities	0.2	1.6	5.7
Other Securities	5.1	1.4	0.6
Total	100.0	100.0	100.0

Source: RBI.

Though there was a major shift in the saving pattern of the household sector from physical assets to financial assets and within financial assets, from bank deposits to securities, the trend got reversed in the recent past due to high real interest rates, prolonged subdued conditions in the secondary market, lack of confidence by the issuers in the success of issue process as well as of investors in the credibility of the issuers and the systems and poor performance of mutual funds. The portfolio of household sector remains heavily weighted in favour of physical assets and fixed income bearing instruments.

1.4 Investor Population

The Society for Capital Market Research and Development carries out periodical surveys of household investors to estimate the number of investors. Their first survey carried out in 1990 placed the total number of share owners at 90-100 lakh. Their second survey estimated the number of share owners at around 140-150 lakh as of mid-1993. The 1997 survey estimates the number of shareowners at around 2 crore, after which it remained stagnant upto the end of 1990s. The bulk of increase in number of investors took place during 1991-94 and tapered off thereafter. 49% of the share owners at the end of 2000 had, for the first time, entered the market before the end of 1990, 44% entered during 1991-94, 6.3% during 1995-96 and 0.8% since 1997. The survey attributes such tapering off to persistent depression in the share market and investors' bad experience with many unscrupulous company promoters and managements.

According to the SEBI- NCAER survey of Indian investors conducted in early 1999, an estimated 12.8 million, or 7.6%, of all Indian households representing 19 million individuals had directly invested in equity shares and

or debentures as at the end of financial year 1998-99. The investor households increased at a compound growth rate of 22%, between 1985-86 and 1998-99. There was a sharper rise in investor households between 1991-92 and 1998-99 than between 1985-86 and 1991-92. About 35% of investor households became investors in equity shares prior to 1991, while 47% of the investors entered the market between 1991 and 1995 and 17% after 1995. More than 156 million, or 92%, of all Indian households were non-investor households who did not have any investments in equity/debentures. Low per capita income, apprehension of loss of capital, and economic insecurity, which are all inter-related factors, significantly influenced the investment attitude of the households. The lack of awareness about securities market and absence of a dependable infrastructure and distribution network coupled with aversion to risk inhibited non-investor households from investing in the securities market.

An estimated 15 million, or nearly 9%, of all households representing at least 23 million unit holders had invested in units of mutual funds. Total investible resources of mutual funds account for about 23% of market capitalisation compared to more than 50% in developed countries. The mutual funds have not yet become an attractive investment avenue for the low and middle-income groups.

Distribution of Investors

According to SEBI-NCAER survey, of the 48 million urban households, an estimated 8.8 million households, or 18%, representing approximately 13 million urban investors owned equity shares and/or debentures. Of the 121 million rural households, only about 4 million households, or 3%, representing nearly 6 million rural investors owned these instruments. The rural investor households have increased at a compound growth rate of 30% compared to 19% for urban investor households. The Society for Capital Market Research & Development estimates that 15% of urban households and only 0.5-1.0% of semi-urban and rural households own shares. 4% of all households own shares.

An indirect, but very authentic source of information about distribution of investors is the data base of beneficial accounts with the depositories. By February 2002, there were 4 million beneficial accounts with the National Securities Depository Limited (NSDL). The state-wise distribution of beneficial accounts with NSDL is presented in Table 1.8. Maharashtra and Gujarat account for nearly 45% of total beneficial accounts.

Table 1.8: Distribution of Beneficial Accounts with NSDL at the end of February 2003

Sl. No.	States/ Union Territories	Beneficial Accounts	
		Number	% to Total
1	Andaman & Nicobar	109	0.00
2	Andhra Pradesh	194,405	6.08
3	Arunachal Pradesh	37	0.00
4	Assam	7,703	0.24
5	Bihar	27,340	0.85
6	Chandigarh	7,891	0.25
7	Daman & Diu	41	0.00
8	Delhi	323,693	10.12
9	Goa	11,374	0.36
10	Gujarat	536,720	16.78
11	Haryana	46,228	1.45
12	Himachal Pradesh	3,706	0.12
13	Jammu & Kashmir	7,320	0.23
14	Karnataka	195,159	6.10
15	Kerala	76,793	2.40
16	Madhya Pradesh	71,158	2.23
17	Maharashtra	911,997	28.52
18	Manipur	102	0.00
19	Meghalaya	205	0.01
20	Mizoram	11	0.00
21	Nagaland	147	0.00
22	Orissa	14,701	0.46
23	Pondicherry	2,481	0.08
24	Punjab	52,434	1.64
25	Rajasthan	72,316	2.26
26	Tamil Nadu	230,407	7.20
27	Tripura	219	0.01
28	Uttar Pradesh	188,835	5.90
29	West Bengal	214,432	6.71
	Total	3,197,964	100.00

Source: NSDL

Investors' Perception

SEBI-NCAER Survey: According to the survey, safety and liquidity are the primary considerations that determine the choice of an asset. Ranked by an ascending order of risk perception, bank fixed deposits were considered very

(Table:1.9A)

safe, i.e., least risky, followed by gold, units of UTI-US 64, UTI- other schemes, fixed deposits of non-government companies, mutual funds, equity shares and debentures. Debentures were perceived to be as risky as equity. About 65% of all households and 76% of investor households consider bank fixed deposits as very safe. 30% of all households and 37% of investor households regard gold as very safe. About 26% of all households and 32% of investor households consider investment in equity as risky. Table 1.9A presents distribution of investor households in terms of their risk perception of different instruments. The distribution of investments of all households into different financial instruments corresponds to their risk perception, i.e. higher proportion of households invests in instruments with a lower risk perception. For example, 76% of all households invested in fixed deposits, while 65% of all households consider fixed deposits to be very safe.

Table 1.9B: Distribution of Households by Instruments

(In per cent)			
Instruments	All India	Urban	Rural
UTI Schemes	8.45	19.52	4.05
Other MFs	5.45	12.02	2.84
Fixed Deposits	76.23	83.89	73.18
Bonds	6.21	11.56	4.08
Provident Fund	20.92	40.24	13.24
Life Insurance	39.21	57.31	32.01
Chit Funds	5.94	9.51	4.52
Post Office RDs	44.73	40.77	46.3
Small Savings	27.46	35.98	24.07
Preference Share	2.63	6.59	1.06
Others	8.75	11.85	7.52

Source: SEBI-NCAER Survey of Indian Investors, June 2000.

It is clear from Table 1.9B that fixed deposits with banks, post office, government and non-government undertakings, NBFCs and term lending institutions are the most preferred choice of investors. About three-fourth of households own a fixed deposit. 45% of the households have invested in fixed deposits with banks and post offices, 17% each in fixed deposits with government undertakings and non-government undertakings, 7% in NBFCs and 2% in term-lending institutions. The second preference is the recurring deposits of banks and post offices, where 45% of households have invested. LIC policy is another preferred investment instrument for 39% of households, while 27% of households have invested in small savings instruments. This brings out the importance of distribution network. Banks

and post offices have wide network of branches and are in a better position to garner a large chunk of savings of households.

About 80% of equity investor households were the first generation investors. Majority of equity owning households have inadequate diversification of portfolio. About 23% of the households have invested in one company, 38% in two companies, while only about 5% in more than five companies. These data indicate lack of experience in stock market operations. Out of 12.1 million equity investor households, 84% have invested in equity shares through the primary market, and 63% have bought equity shares in the secondary market. It has been estimated that 16% of equity investor households have invested only through the secondary market, 37% invested only through the primary market and 47% invested through both the primary and secondary markets. Difficulties faced by households in investing through secondary market-lack of easy access to the market, inadequacy of the market infrastructure, problems in locating the right intermediary, lack of guidance and advice-inhibited the households from investing in the secondary market. The number of broker related problems is higher than the number of issuer related problems.

SCMRD & VFFL Survey: All-India survey of household investors was organized in September-October 2002, jointly by the Society for Capital Market Research & Development (SCMRD) and Messrs. Vivek Financial Focus Limited (VFFL) to examine the investor's perceptions regarding the stock market. The survey involved personal interviews of household heads through a structured questionnaire. The survey has thrown up some interesting findings which can be helpful in understanding recent changes in the household investors' general attitude towards participation in equity market and their problems.

- (1) Fraudulent Company Managements: Over one-fourth of household heads identified 'fraudulent company managements' as the foremost cause of worry for household investors. A comparison of September-October 2002 survey with the last year's survey (April-July 2001) shows that the *investors' worry on account of "fraudulent company managements"* has gone up from 17.4% to 27.5%. An analysis by income-class confirmed the same as average percentage of respondents worried on this account ranged between 20.7-33.0% in September-October 2002 survey as compared to 11.1-20% in the previous survey. A high degree of consistency of results across income classes is indicative of fairly high reliability of the data generated by the survey. In practical terms, this really means that, in India today, the investor's confidence in the stock market is low primarily because of corporate malfeasance and mismanagement.
- (2) Volatility and Manipulation: In the second place after fraudulent managements is the worry on account of "*too much volatility*" and
- (3) In the third place is "*too much price manipulation*". These two were the topmost worries in every income-class in the last year's survey

but have declined significantly this year. The proportion of respondents worried most on account of "too much volatility" this year is 22.6% (against 30% last year); and the proportion on account of "too much price manipulation" is 16.2% (against 31.7% last year). Such reduction represents considerable improvement and can be attributed to the radical reforms of the stock market initiated after the crisis of March 2001. An income-class-wise analysis confirms the decline: the average percentage of investors worried on account of volatility and manipulation among income-classes varied between 55-60% among income-classes last year but only between 34-46% this year. However, the reduction on this account has been largely offset by aggravation of the problem of fraudulent managements.

Taken together, the above three worries affected two-thirds of (the sample of total 527) household investors. Of much lower order were investors' worries on account of insider trading (10.6%), ineffective SEBI (10.3%) and brokers' unfair practices (9.3%).

The survey concluded that corporate malfeasance and mismanagement was the root-cause of all kinds of investors' worries regarding the stock market. The survey, therefore, recommends that devising a satisfactory system to protect fund providers (financial institutions or common investors) to corporates is of utmost importance for growth of India's corporate economy. Thus, India needs to build a better framework of check and balance to tackle corporate mismanagement and fraud.

1.5 PRIMARY MARKET

A total of Rs. 252018 crore were raised by the government and corporate sector during 2002-03 as against Rs.226911 crore during the preceding year. Government raised about two third of the total resources, with central government alone raising nearly Rs.151126 crore.

Corporate Securities

Average annual capital mobilisation from the primary market, which used to be about Rs.70 crore in the 1960s and about Rs.90 crore in the 1970s, increased manifold during the 1980s, with the amount raised in 1990-91 being Rs. 4,312 crore. It received a further boost during the 1990s with the capital raised by non-government public companies rising sharply to Rs. 26,417 crore in 1994-95. The capital raised which used to be less than 1% of gross domestic saving (GDS) in the 1970s increased to about 13% in 1992-93. In real terms, the capital raised increased 4 times between 1990-91 and 1994-95. During 1994-95, the amount raised through new issues of securities from the securities market accounted for about four-fifth of the

disbursements by FIs. The trend in the public issues market is presented in Table 1.10.

Table 1.10: Resources Mobilised through Public Issues
(Rs. million)

Year	Resources Raised by non-government companies	% of GDS	% of disbursements by FIs	Index in Real Terms	Mobilisation by Mutual Funds
1990-91	431,200	3.32	33.66	100.00	750,800
1991-92	61,930	4.38	38.08	126.27	1,12,530
1992-93	1,98,030	12.76	85.54	366.88	1,30,210
1993-94	1,93,300	9.98	74.85	330.51	1,12,430
1994-95	2,64,170	10.48	78.69	401.14	1,12,750
1995-96	1,60,750	5.34	41.59	226.04	-58,330
1996-97	1,04,100	3.28	24.40	139.93	-20,370
1997-98	31,380	0.84	5.85	40.40	40,640
1998-99	50,130	1.27	8.59	60.92	36,110
1999-00	51,530	1.11	7.51	60.64	1,99,532
2000-01	49,490	1.01	6.89	54.34	1,11,350
2001-02	56,924	1.17	10.18	60.34	71,370
2002-03	18,777	0.74	18.37	--	45800

The market, however, appears to have dried up since 1995-96 due to interplay of demand and supply side forces. In real terms, the amount raised by non-government public companies during 2001-02 is about 60% of the amount raised a decade back in 1990-91. Many investors who were lured into the market during 1992-94 seem to be adopting a very cautious approach because of their frustration with some of the issuers and intermediaries associated with the securities market. They have not completely withdrawn from the market, but are looking for quality issues the availability of which has declined due to stricter eligibility criteria for public issues imposed by SEBI and the general slowdown in the economic activity. Simultaneously, issuers have shifted focus to other avenues for raising resources like private placement where compliance is much less. Available data (Table 1.11), although scanty, indicate that private placement has become a preferred means of raising resources by the corporate sector.

There is a preference for raising resources in the primary market through private placement of debt instruments. Private placements accounted for about 89% of total resources mobilised through domestic issues by the corporate sector during 2001-02. Rapid dismantling of shackles on institutional investments and deregulation of the economy are driving growth of this segment. There are several inherent advantages of relying on private placement route for raising resources. While it is cost and time

(Table:1.11)

effective method of raising funds and can be structured to meet the needs of the entrepreneurs, it does not require detailed compliance with formalities as required in public or rights issues. It is believed in some circles that private placement has crowded out public issues. However, to prevent public issues from being passed on as private placement, the Companies (Amendment) Act, 2001 considers offer of securities to more than 50 persons as made to public.

As may be seen from Table 1.11, Indian market is getting integrated with the global market though in a limited way through euro issues. Since 1992, when they were permitted access, Indian companies have raised about Rs. 3,426 crore through ADRs/GDRs during 2002-03. By the end of March 2003, 502 FIIs were registered with SEBI. They had net cumulative investments over of US \$ 15.8 billion by the end of March 2003. Their operations influence the market as they do delivery-based business and their knowledge of market is considered superior.

The market is getting institutionalised as people prefer mutual funds as their investment vehicle, thanks to evolution of a regulatory framework for mutual funds, tax concessions offered by government and preference of investors for passive investing. The net collections by mutual funds picked up during this decade and increased to Rs. 19,953 crore during 1999-2000. This declined to Rs. 11,135 crore during 2000-01 which may be attributed to increase in rate of tax on income distributed by debt oriented mutual funds and lackluster secondary market. The total collection of mutual funds for 2002-03 has been Rs. 10537.8 crore. Starting with an asset base of Rs. 25 crore in 1964, the total assets under management at the end of March 2003 was Rs. 79464 crore. The number of households owning units of MFs exceeds the number of households owning equity and debentures. At the end of financial year March 2003, according to the SEBI press release, 23 million unit holders had invested in units of MFs, while 16 million individual investors invested in equity and or debentures.

Government Securities

The primary issues of the Central Government have increased many-fold since 1990s from Rs. 8,989 crore in 1990-91 to Rs. 151126 crore in 2002-03 (Table 1.11). The issues by state governments increased by about twelve times from Rs. 2,569 crore to Rs. 30853 crore during the same period. The Central Government mobilised Rs. 1,25,000 crore through issue of dated securities and Rs. 26,126 crore through issue of T-bills. After meeting repayment liabilities of Rs. 27,420 crore for dated securities, and redemption of T-bills of Rs. 19,588 crore, net market borrowing of Central Government amounted to Rs. 1,04,118 crore for the year 2002-03. The state governments collectively raised Rs. 30,583 crore during 2002-03 as against Rs. 18,707 crore in the preceding year. The net borrowings of State Governments in 2002-03 amounted to Rs. 29,064 crore.

Along with growth of the market, the investor base has become very wide. In addition to banks and insurance companies, corporates and individual

investors are investing in government securities. With dismantling of control regime, and gradual lowering of the SLR and CRR, Government is borrowing at near-market rates. The coupons across maturities went down recently signifying lower interest rates. The weighted average cost of its borrowing at one stage increased to 13.75% in 1995-96, which declined to 7.34% in 2002-03. The maturity structure of government debt is also changing. In view of bunching of redemption liabilities in the medium term, securities with higher maturities were issued during 2002-03. About 64% of primary issues were raised through securities with maturities above 5 years. As a result the weighted average maturity of dated securities increased to 13.83 years from 6.6 years in 1997-98.

1.6 SECONDARY MARKET

Corporate Securities

Selected indicators in the secondary market are presented in Table 1.12. The number of stock exchanges increased from 11 in 1990 to 23 now. All the exchanges are fully computerised and offer 100% on-line trading. 9,413 companies were available for trading on stock exchanges at the end of March 2003. The trading platform of the stock exchanges was accessible to 9,519 members from over 358 cities on the same date.

The market capitalisation grew ten fold between 1990-91 and 1999-2000. It increased by 221% during 1991-92 and by 107% during 1999-2000. All India market capitalisation is estimated at Rs.631921 crore at the end of March 2003. The market capitalisation ratio, which indicates the size of the market, increased sharply to 57.4% in 1991-92 following spurt in share prices. The ratio increased to 85% by March 2000. It, however, declined to 55% at the end of March 2001 and to 29% by end March 2003.

The trading volumes on exchanges have been witnessing phenomenal growth during the 1990s. The average daily turnover grew from about Rs.150 crore in 1990 to Rs. 12,000 crore in 2000, peaking at over Rs. 20,000 crore. The turnover increased by 184% during 1996-97, 102% during 1999-2000 and by 39% during 2000-01. One-sided turnover on all stock exchanges exceeded Rs. 10,00,000 crore during 1998-99, Rs. 20,00,000 crore during 1999-2000 and approached Rs. 30,00,000 crore during 2000-01. However, the trading volume substantially depleted to Rs.9,68,954 crore in 2002-03. The turnover ratio, which reflects the volume of trading in relation to the size of the market, has been increasing by leaps and bounds after the advent of screen based trading system by the NSE. The turnover ratio for the year 2000-01 increased to 375 but fell substantially due to bad market conditions to 119 during 2001-02 and recovered slightly to 153.3% in 2002-03. The year 2001-02 started in the backdrop of a market turbulence, which broke out in early 2001 involving some brokers and the

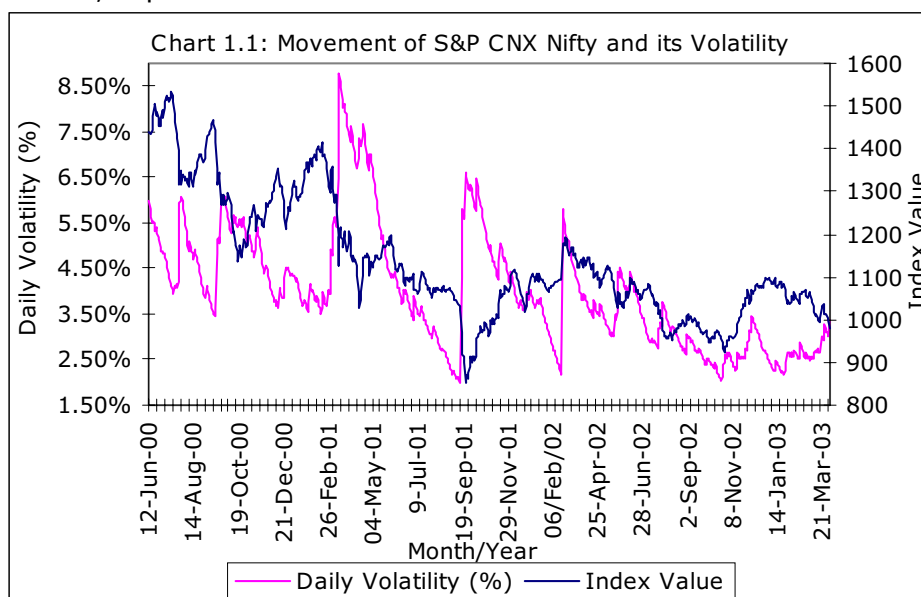
(Table:1.12)

(Table:1.13)

banking system. The year also witnessed several structural changes such as rolling settlement and withdrawal of deferral products, which are usually accompanied by fall in volumes initially. The massive sale by FIIs and the terrorist attack on September 11, 2001 seem to have precipitated the fall of volumes further.

The relative importance of various stock exchanges in the market has undergone dramatic change during this decade. The increase in turnover took place mostly at the large big exchanges and it was partly at the cost of small exchanges that failed to keep pace with the changes. NSE is the market leader with over 85% of total turnover (volumes on all segments) in 2002-03. Top 5 stock exchanges accounted for 99.88% of turnover, while the rest 18 exchange for less than 0.12% during 2002-03 (Table 1.13). About 10 exchanges reported nil turnover during the year.

The movement of the S&P CNX NIFTY, the most widely used indicator of the market, is presented in Chart 1.1.



In the very first year of liberalisation, i.e. 1991-92, it recorded a growth of 267%, followed by sharp decline of 47% in the next year as certain irregularities in securities transactions were noticed. The market picked up next year thanks to increased inflow of foreign funds, and increased investor interest. Thereafter the market remained subdued. The index recorded a decline of 3.47% during 1998-99 under the pressure of economic sanctions following detonation of nuclear device, continuing woes of East Asian financial markets, volatility of Indian currency and worries about financial health of UTI's US-64 scheme. The Union Budget of 1999 brought cheers to the market. The market moved on a roller coaster ride, but a distinct rising trend emerged due to all-round positive perception about strength of the Government and also its commitment towards second generation reforms,

improved macro-economic parameters and better corporate results. The S&P CNX Nifty firmed up during 1999-2000 by 42% which was nearly four times the average return offered on bank deposits. The trend got reversed during 2000-01, which witnessed large sell-offs in new economy stocks in global markets and deceleration in the growth of the domestic economy. This brought down Nifty from a high of 1636.95 in April 2000 to a low of 1108.20 in October 2000. The market looked up in November-January in anticipation of a good budget. However it did not last long as the market received shocking news about imminent payment crisis on certain exchanges, large scale manipulations in stock prices and revelation of large scale corruption in the procurement of defence equipments. The Nifty closed at 1148.20 at the end of March 2001 recording a fall of about 25% during 2000-01. The trend precipitated further with introduction of rolling settlement and withdrawal of deferral products in July 2002, suspension of repurchase facility under UTI's US-64 scheme, terrorist attack on world Trade Centre in September 2001, etc. which caused a further decline in S&P CNX Nifty by 1.6% during 2001-02.

Government Securities

The trading volumes in government securities for the first time exceeded the combined trading volumes in equity segments of all the exchanges in the country during 2001-02. The aggregate turnover in central and state government dated securities, including treasury bills, through SGL transactions increased 31 times between 1994-95 and 2001-02. During 2001-2002 it reached a level of Rs.1,573,893 crore, recording about 125% growth over Rs.698,121 crore in the previous year. Such growing turnover reflects further deepening of the market (Table 1.12). The bulk of transactions during 2000-02 were on outright basis. The share of outright transactions in government securities increased from 23.2% in 1995-96 to 77% in 2001-02. The share of repo transactions declined correspondingly from 76.8% in 1995-96 to 23% in 2001-02.

The share of WDM segment of NSE in total turnover for government securities decreased marginally from 59.3% in 2000-01 to 52% in 2002-03. As compared to the increase in overall turnover of government securities by 24%, the same on WDM grew by 11% during 2002-03. Share of WDM in transactions of dated securities decreased from 61.1% in 2001-02 to 55.6% in 2002-03. Its share in transactions of T-bills decreased from 27.4% in 2001-02 to 21.5% in 2002-03.

Government debt, which constitutes about three-fourth of the total outstanding debt, has the highest level of liquidity amongst the fixed income instruments in the secondary market. The share of dated securities in total turnover of government securities has been increasing over the years. Two-way quotes are available for the active gilt securities from the primary dealers. Though many trades in the gilts take place through telephones, a larger chunk of trades get routed through NSE brokers.

1.7 DERIVATIVES MARKET

Trading in derivatives of securities commenced in June 2000 with the enactment of enabling legislation in early 2000. Derivatives are formally defined to include: (a) a security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security, and (b) a contract which derives its value from the prices, or index of prices, or underlying securities. Derivatives are legal and valid only if such contracts are traded on a recognised stock exchange, thus precluding OTC derivatives.

Derivatives trading commenced in India in June 2000 after SEBI granted the approval to this effect in May 2001. SEBI permitted the derivative segment of two stock exchanges, i.e. NSE and BSE, and their clearing house/corporation to commence trading and settlement in approved derivative contracts. To begin with, SEBI approved trading in index futures contracts based on S&P CNX Nifty Index and BSE-30 (Sensex) Index. This was followed by approval for trading in options based on these two indices and options on individual securities. The trading in index options commenced in June 2001 and trading in options on individual securities would commence in July 2001 while trading in futures of individual stocks started from November 2001. In June 2003, SEBI-RBI approved and the trading on interest rate derivative instruments.

The total exchange traded derivatives witnessed a volume of Rs.4,42,333 crore during 2002-03 as against Rs. 1,03,848 crore during the preceding year. While NSE accounted for about 99.5% of total turnover, BSE accounted for less than 1% in 2002-03. The market witnessed higher volumes from June 2001 with introduction of index options, and still higher volumes with the introduction of stock options in July 2001. There was a spurt in volumes in November 2001 when stock futures were introduced. It is believed that India is the largest market in the world for stock futures.

1.8 REGULATORY FRAMEWORK

The four main legislations governing the securities market are: (a) the SEBI Act, 1992 which establishes SEBI to protect investors and develop and regulate securities market; (b) the Companies Act, 1956, which sets out the code of conduct for the corporate sector in relation to issue, allotment and transfer of securities, and disclosures to be made in public issues; (c) the Securities Contracts (Regulation) Act, 1956, which provides for regulation of transactions in securities through control over stock exchanges; and (d) the Depositories Act, 1996 which provides for electronic maintenance and transfer of ownership of demat securities.

1.8.1 Legislations

Capital Issues (Control) Act, 1947: The Act had its origin during the war in 1943 when the objective was to channel resources to support the war effort. It was retained with some modifications as a means of controlling the raising of capital by companies and to ensure that national resources were channeled into proper lines, i.e., for desirable purposes to serve goals and priorities of the government, and to protect the interests of investors. Under the Act, any firm wishing to issue securities had to obtain approval from the Central Government, which also determined the amount, type and price of the issue. As a part of the liberalisation process, the Act was repealed in 1992 paving way for market determined allocation of resources.

SEBI Act, 1992: The SEBI Act, 1992 was enacted to empower SEBI with statutory powers for (a) protecting the interests of investors in securities, (b) promoting the development of the securities market, and (c) regulating the securities market. Its regulatory jurisdiction extends over corporates in the issuance of capital and transfer of securities, in addition to all intermediaries and persons associated with securities market. It can conduct enquiries, audits and inspection of all concerned and adjudicate offences under the Act. It has powers to register and regulate all market intermediaries and also to penalise them in case of violations of the provisions of the Act, Rules and Regulations made there under. SEBI has full autonomy and authority to regulate and develop an orderly securities market.

Securities Contracts (Regulation) Act, 1956: It provides for direct and indirect control of virtually all aspects of securities trading and the running of stock exchanges and aims to prevent undesirable transactions in securities. It gives Central Government regulatory jurisdiction over (a) stock exchanges through a process of recognition and continued supervision, (b) contracts in securities, and (c) listing of securities on stock exchanges. As a condition of recognition, a stock exchange complies with conditions prescribed by Central Government. Organised trading activity in securities takes place on a specified recognised stock exchange. The stock exchanges determine their own listing regulations which have to conform to the minimum listing criteria set out in the Rules.

Depositories Act, 1996: The Depositories Act, 1996 provides for the establishment of depositories in securities with the objective of ensuring free transferability of securities with speed, accuracy and security by (a) making securities of public limited companies freely transferable subject to certain exceptions; (b) dematerialising the securities in the depository mode; and (c) providing for maintenance of ownership records in a book entry form. In order to streamline the settlement process, the Act envisages transfer of ownership of securities electronically by book entry without making the

securities move from person to person. The Act has made the securities of all public limited companies freely transferable, restricting the company's right to use discretion in effecting the transfer of securities, and the transfer deed and other procedural requirements under the Companies Act have been dispensed with.

Companies Act, 1956: It deals with issue, allotment and transfer of securities and various aspects relating to company management. It provides for standard of disclosure in public issues of capital, particularly in the fields of company management and projects, information about other listed companies under the same management, and management perception of risk factors. It also regulates underwriting, the use of premium and discounts on issues, rights and bonus issues, payment of interest and dividends, supply of annual report and other information.

1.8.2 Rules Regulations and Regulators

The Government has framed rules under the SCRA, SEBI Act and the Depositories Act. SEBI has framed regulations under the SEBI Act and the Depositories Act for registration and regulation of all market intermediaries, and for prevention of unfair trade practices, insider trading, etc. Under these Acts, Government and SEBI issue notifications, guidelines, and circulars which need to be complied with by market participants. The SROs like stock exchanges have also laid down their rules and regulations.

The absence of conditions of perfect competition in the securities market makes the role of regulator extremely important. The regulator ensures that the market participants behave in a desired manner so that securities market continues to be a major source of finance for corporate and government and the interest of investors are protected.

The responsibility for regulating the securities market is shared by Department of Economic Affairs (DEA), Department of Company Affairs (DCA), Reserve Bank of India (RBI) and SEBI. The activities of these agencies are coordinated by a High Level Committee on Capital Markets. The orders of SEBI under the securities laws are appellable before a Securities Appellate Tribunal.

Most of the powers under the SCRA are exercisable by DEA while a few others by SEBI. The powers of the DEA under the SCRA are also concurrently exercised by SEBI. The powers in respect of the contracts for sale and purchase of securities, gold related securities, money market securities and securities derived from these securities and ready forward contracts in debt securities are exercised concurrently by RBI. The SEBI Act and the Depositories Act are mostly administered by SEBI. The rules under the

securities laws are framed by government and regulations by SEBI. All these are administered by SEBI. The powers under the Companies Act relating to issue and transfer of securities and non-payment of dividend are administered by SEBI in case of listed public companies and public companies proposing to get their securities listed. The SROs ensure compliance with their own rules as well as with the rules relevant for them under the securities laws.

1.8.3 Reforms Since 1990s

Corporate Securities Market

With the objectives of improving market efficiency, enhancing transparency, preventing unfair trade practices and bringing the Indian market up to international standards, a package of reforms consisting of measures to liberalise, regulate and develop the securities market was introduced. The practice of allocation of resources among different competing entities as well as its terms by a central authority was discontinued. The issuers complying with the eligibility criteria were allowed freedom to issue the securities at market determined rates. The secondary market overcame the geographical barriers by moving to screen based trading. Trades enjoyed counter-party guarantee. The trading cycle shortened to a day and trades are settled within 3 working days, while all deferral products were banned. Physical security certificates almost disappeared. A variety of derivatives were permitted. The following paragraphs discuss the principal reform measures undertaken since 1992.

SEBI Act, 1992: It created a regulator (SEBI), empowered it adequately and assigned it with the responsibility for (a) protecting the interests of investors in securities, (b) promoting the development of the securities market, and (c) regulating the securities market. Its regulatory jurisdiction extends over corporates in the issuance of capital and transfer of securities, in addition to all intermediaries and persons associated with securities market. All market intermediaries are registered and regulated by SEBI. They are also required to appoint a compliance officer who is responsible for monitoring compliance with securities laws and for redressal of investor grievances. The courts have upheld the powers of SEBI to impose monetary penalties and to levy fees from market intermediaries.

Enactment of SEBI Act is the first attempt towards integrated regulation of the securities market. SEBI was given full authority and jurisdiction over the securities market under the Act, and was given concurrent/delegated powers for various provisions under the Companies Act and the SC(R)A. Many provisions in the Companies Act having a bearing on securities market are administered by SEBI. The Depositories Act, 1996 is also administered by

SEBI. A high level committee on capital markets has been set up to ensure co-ordination among the regulatory agencies in capital markets.

DIP Guidelines: Major part of the liberalisation process was the repeal of the Capital Issues (Control) Act, 1947 in May 1992. With this, Government's control over issue of capital, pricing of the issues, fixing of premia and rates of interest on debentures etc. ceased and the market was allowed to allocate resources to competing uses. In the interest of investors, SEBI issued Disclosure and Investor Protection (DIP) guidelines. The guidelines contain a substantial body of requirements for issuers/intermediaries, the broad intention being to ensure that all concerned observe high standards of integrity and fair dealing, comply with all the requirements with due skill, diligence and care, and disclose the truth, whole truth and nothing but truth. The guidelines aim to secure fuller disclosure of relevant information about the issuer and the nature of the securities to be issued so that investors can take informed decisions. For example, issuers are required to disclose any material 'risk factors' and give justification for pricing in their prospectus. The guidelines cast a responsibility on the lead managers to issue a due diligence certificate, stating that they have examined the prospectus, they find it in order and that it brings out all the facts and does not contain anything wrong or misleading. Issuers are now required to comply with the guidelines and then access the market. The companies can access the market only if they fulfill minimum eligibility norms such as track record of distributable profits and net worth. In case they do not do so, they can access the market only through book building with minimum offer of 60% to qualified institutional buyers. The norms for continued disclosure by listed companies also improved availability of information. The information technology helped in easy dissemination of information about listed companies and market intermediaries. Equity research and analysis and credit rating improved the quality of information about issues.

Screen Based Trading: The trading on stock exchanges in India used to take place through open outcry without use of information technology for immediate matching or recording of trades. This was time consuming and inefficient. This imposed limits on trading volumes and efficiency. In order to provide efficiency, liquidity and transparency, NSE introduced a nation-wide on-line fully-automated screen based trading system (SBTS) where a member can punch into the computer quantities of securities and the prices at which he likes to transact and the transaction is executed as soon as it finds a matching sale or buy order from a counter party. SBTS electronically matches orders on a strict price/time priority and hence cuts down on time, cost and risk of error, as well as on fraud resulting in improved operational efficiency. It allows faster incorporation of price sensitive information into prevailing prices, thus increasing the informational efficiency of markets. It enables market participants to see the full market on real-time, making the market transparent. It allows a large number of participants, irrespective of

their geographical locations, to trade with one another simultaneously, improving the depth and liquidity of the market. It provides full anonymity by accepting orders, big or small, from members without revealing their identity, thus providing equal access to everybody. It also provides a perfect audit trail, which helps to resolve disputes by logging in the trade execution process in entirety. This diverted liquidity from other exchanges and in the very first year of its operation, NSE became the leading stock exchange in the country, impacting the fortunes of other exchanges and forcing them to adopt SBTS also. As a result, manual trading disappeared from India. Technology was used to carry the trading platform to the premises of brokers. NSE carried the trading platform further to the PCs in the residences of investors through the Internet and to hand-held devices through WAP for convenience of mobile investors. This made a huge difference in terms of equal access to investors in a geographically vast country like India.

Trading Cycle: The trades accumulated over a trading cycle and at the end of the cycle, these were clubbed together, and positions were netted out and payment of cash and delivery of securities settled the balance. This trading cycle varied from 14 days for specified securities to 30 days for others and settlement took another fortnight. Often this cycle was not adhered to. Many things could happen between entering into a trade and its performance providing incentives for either of the parties to go back on its promise. This had on several occasions led to defaults and risks in settlement. In order to reduce large open positions, the trading cycle was reduced over a period of time to a week. The exchanges, however, continued to have different weekly trading cycles, which enabled shifting of positions from one exchange to another. Rolling settlement on T+5 basis was introduced in respect of specified scrips reducing the trading cycle to one day. It was made mandatory for all exchanges to follow a uniform weekly trading cycle in respect of scrips not under rolling settlement. All scrips moved to rolling settlement from December 2001. T+5 gave way to T+3 from April 2002 and T+2 since April 2003. The market also had a variety of deferral products like modified carry forward system, which encouraged leveraged trading by enabling postponement of settlement. The deferral products have been banned. The market has moved close to spot/cash market.

Derivatives Trading: To assist market participants to manage risks better through hedging, speculation and arbitrage, SC(R)A was amended in 1995 to lift the ban on options in securities. However, trading in derivatives did not take off, as there was no suitable legal and regulatory framework to govern these trades. Besides, it needed a lot of preparatory work- the underlying cash markets strengthened with the assistance of the automation of trading and of the settlement system; the exchanges developed adequate infrastructure and the information systems required to implement trading discipline in derivative instruments. The SC(R)A was amended further in

December 1999 to expand the definition of securities to include derivatives so that the whole regulatory framework governing trading of securities could apply to trading of derivatives also. A three-decade old ban on forward trading, which had lost its relevance and was hindering introduction of derivatives trading, was withdrawn. Derivative trading took off in June 2000 on two exchanges. The market presently offers index futures and index options on two indices; stock options and stock futures on individual stocks (in NSE 49 stocks as of August 2003); and futures in interest rate products like notional 91-day T-Bills and notional 10 year bonds.

Demutualisation: Historically, brokers owned, controlled and managed stock exchanges. In case of disputes, the self often got precedence over regulations leading inevitably to conflict of interest. The regulators, therefore, focused on reducing dominance of members in the management of stock exchanges and advised them to reconstitute their governing councils to provide for at least 50% non-broker representation. This did not materially alter the situation. In face of extreme volatility in the securities market, Government proposed in March 2001 to corporatise the stock exchanges by which ownership, management and trading membership would be segregated from one another. A few exchanges have already initiated demutualisation process. Government has offered a variety of tax incentives to facilitate corporatisation and demutualization of stock exchanges.

NSE, however, adopted a pure demutualised governance structure where ownership, management and trading are with three different sets of people. This completely eliminated any conflict of interest and helped NSE to aggressively pursue policies and practices within a public interest (market efficiency and investor interest) framework.

Depositories Act: Settlement system on Indian stock exchanges gave rise to settlement risk due to the time that elapsed before trades are settled. Trades were settled by physical movement of paper. This had two aspects. First, the settlement of trade in stock exchanges by delivery of shares by the seller and payment by the purchaser. The stock exchange aggregated trades over a period of time to carry out net settlement through the physical delivery of securities. The process of physically moving the securities from the seller to the ultimate buyer through the seller's broker and buyer's broker took time with the risk of delay somewhere along the chain. The second aspect related to transfer of shares in favour of the purchaser by the company. The system of transfer of ownership was grossly inefficient as every transfer involved physical movement of paper securities to the issuer for registration, with the change of ownership being evidenced by an endorsement on the security certificate. In many cases the process of transfer took much longer, and a significant proportion of transactions ended up as bad delivery due to faulty compliance of paper work. Theft, forgery, mutilation of certificates and other irregularities were rampant, and

in addition the issuer had the right to refuse the transfer of a security. All this added to costs, and delays in settlement, restricted liquidity and made investor grievance redressal time consuming and at times intractable.

To obviate these problems, the Depositories Act, 1996 was passed to provide for the establishment of depositories in securities with the objective of ensuring free transferability of securities with speed, accuracy and security by (a) making securities of public limited companies freely transferable subject to certain exceptions; (b) dematerialising the securities in the depository mode; and (c) providing for maintenance of ownership records in a book entry form. In order to streamline both the stages of settlement process, the Act envisages transfer of ownership of securities electronically by book entry without making the securities move from person to person. In order to promote dematerialisation, the regulator mandated trading and settlement in demat form in an ever-increasing number of securities in a phased manner. The stamp duty on transfer of demat securities was waived. Two depositories, namely, NSDL and CDSL, have come up to provide instantaneous electronic transfer of securities. At the end of March 2003, 4,761 and 4,628 companies were connected to NSDL and CDSL respectively. The number of dematerialised securities increased to 76.9 billion at the end of March 2003. As on the same date, the value of dematerialised securities was Rs. 5,875 billion and the number of investor accounts was 3,795,604. All actively traded scrips are held, traded and settled in demat form. Demat settlement accounts for over 99% of turnover settled by delivery. This has almost eliminated the bad deliveries and associated problems.

To prevent physical certificates from sneaking into circulation, it has been mandatory for all new IPOs to be compulsorily traded in dematerialised form. The admission to a depository for dematerialisation of securities has been made a prerequisite for making a public or rights issue or an offer for sale. It has also been made compulsory for public listed companies making IPO of any security for Rs. 10 crore or more to do the same only in dematerialised form.

Risk Management: Market integrity is the essence of any financial market. To pre-empt market failures and protect investors, the regulator/exchanges have developed a comprehensive risk management system, which is constantly monitored and upgraded. It encompasses capital adequacy of members, adequate margin requirements, limits on exposure and turnover, indemnity insurance, on-line position monitoring and automatic disablement, etc. They also administer an efficient market surveillance system to curb excessive volatility, detect and prevent price manipulations. Exchanges have set up trade/settlement guarantee funds for meeting shortages arising out of non-fulfillment/partial fulfillment of funds obligations by the members in a settlement.

The fact that an anonymous electronic order book ushered in by the NSE does not allow members to assess credit risk of the counter-party

necessitated some innovation in this area. To effectively address this issue, NSE introduced the concept of a novation, and set up the first clearing corporation, viz. National Securities Clearing Corporation Ltd. (NSCCL), which commenced operations in April 1996. The NSCCL assures the counterparty risk of each member and guarantees financial settlement. Counterparty risk is guaranteed through a fine tuned risk management system and an innovative method of on-line position monitoring and automatic disablement. A large Settlement Guarantee Fund, which stood at Rs. 1,487 crore at NSCCL as on March 31, 2003, provides the cushion for any residual risk. The market has now full confidence that settlements will take place in time and will be completed irrespective of default by isolated trading members. In fact such confidence is driving volumes on exchanges. Traditionally, brokerage firms in India have been proprietary or partnership concerns with unlimited liabilities. This restricted the amount of capital that such firms can raise. The growing volume of transactions made it imperative for such firms to be well capitalised and professional. The necessary legal changes were effected to open up the membership of stock exchanges to corporates with limited liability, so that brokerage firms may be able to raise capital and retain earnings. In order to boost the process of corporatisation, capital gains tax payable on the difference between the cost of the individual's initial acquisition of membership and the market value of that membership on the date of transfer to the corporate entity was waived. In response, many brokerage firms reorganised themselves into corporate entities. At the end of March 2003, 3,835 brokers out of 9,519 were corporate bodies.

Investor Protection: The SEBI Act established SEBI with the primary objective of protecting the interests of investors in securities and empowers it to achieve this objective. SEBI specifies the matters to be disclosed and the standards of disclosure required for the protection of investors in respect of issues and issues directions to all intermediaries and other persons associated with the securities market in the interest of investors or of orderly development of the securities market. The Central Government has established a fund called Investor Education and Protection Fund (IEPF) in October 2001 for the promotion of awareness amongst investors and protection of the interest of investors. The Government issued the following guidelines for the purpose of financial assistance from IEPF:

- (a) Any organisation/entity/person with a viable project proposal on investors' education and protection would be eligible for assistance from the fund.
- (b) The entity should be registered under the Societies Registration Act or formed as Trusts or incorporated Companies; should be in existence for a minimum period of 2 years prior to its date of application for registration for assistance; should have a minimum of 20 members and a proven record of 2 years; and should have

- rules, regulations and or by-laws for its governance and management.
- (c) No profit making entity shall be eligible for financial assistance from the fund.
 - (d) Notwithstanding the above, the Committee on IEPF can give a project to any organisation.
 - (e) The limit for each entity for assistance would be subject to 5% of the budget of IEPF during that financial year and not exceeding 50% of the amount to be spent on the proposed programme/activity.

DEA, DCA, SEBI and exchanges have set up investor grievance cells for redressal of investor grievance. The exchanges maintain investor protection funds to take care of investor claims, which may arise out of non-settlement of obligations by a trading member for trades executed on the exchange. DCA has also set up an investor education and protection fund for the promotion of investors' awareness and protection of interest of investors. All these agencies and investor associations are organising investor education and awareness programmes. Government is considering the report of N. L. Mitra committee, which has, among others, recommended that there should be a specific Act for protecting investors' interest.

Globalisation: Indian securities market is getting increasingly integrated with the rest of the world. Indian companies have been permitted to raise resources from abroad through issue of ADRs, GDRs, FCCBs and ECBs. ADRs/GDRs have two-way fungibility. Indian companies are permitted to list their securities on foreign stock exchanges by sponsoring ADR/GDR issues against block shareholding. NRIs and OCBS are allowed to invest in Indian companies. FIIs have been permitted to invest in all types of securities, including government securities. The investments by FIIs enjoy full capital account convertibility. They can invest in a company under portfolio investment route upto 24% of the paid up capital of the company. This can be increased up to the sectoral cap/statutory ceiling, as applicable, provided this has the approval of the Indian company's board of directors and also its general body. Indian Stock Exchanges have been permitted to set up trading terminals abroad. The trading platform of Indian exchanges is now accessed through the Internet from anywhere in the world. Mutual Funds have been permitted to set up off-shore funds to invest in equities of other countries. They can also invest in ADRs/GDRs of Indian companies.

Government Securities Market

The government securities market has witnessed significant transformation in the 1990s. With giving up of the responsibility of allocating resources

from securities market, government stopped expropriating seigniorage and started borrowing at near-market rates. Government securities are now sold at market related coupon rates through a system of auctions instead of earlier practice of issue of securities at very low rates just to reduce the cost of borrowing of the government. Major reforms initiated in the primary market for government securities include auction system (uniform price and multiple price method) for primary issuance of T-bills and central government dated securities, a system of primary dealers and non-competitive bids to widen investor base and promote retail participation, issuance of securities across maturities to develop a yield curve from short to long end and provide benchmarks for rest of the debt market, innovative instruments like, zero coupon bonds, floating rate bonds, bonds with embedded derivatives, availability of full range (91-day and 382-day) of T-bills, etc. The reforms in the secondary market include Delivery versus Payment system for settling scripless SGL transactions to reduce settlement risks, SGL Account II with RBI to enable financial intermediaries to open custody (Constituent SGL) accounts and facilitate retail transactions in scripless mode, enforcement of a trade-for-trade regime, settlement period of T+0 or T+1 for all transactions undertaken directly between SGL participants and up to T+2 days for transactions routed through NSE brokers, routing transactions through brokers of NSE, OTCEI and BSE, repos in all government securities with settlement through SGL, liquidity support to PDs to enable them to support primary market and undertake market making, special fund facility for security settlement, etc. Other measures include abolition of TDS on government securities and stamp duty on transfer of demat debt securities. Market Infrastructure: As part of the ongoing efforts to build debt market infrastructure, two new systems, the Negotiated Dealing System (NDS) and the Clearing Corporation of India Limited (CCIL) commenced operations on February 15, 2002. NDS, inter alia, facilitates screen based negotiated dealing for secondary market transactions in government securities and money market instruments, online reporting of transactions in the instruments available on the NDS and dissemination of trade information to the market. Government Securities (including T-bills), call money, notice/term money, repos in eligible securities, Commercial Papers and Certificate of Deposits are available for negotiated dealing through NDS among the members. The CCIL facilitates settlement of transactions in government securities (both outright and repo) on Delivery versus Payment (DVP-II) basis which provides for settlement of securities on gross basis and settlement of funds on net basis simultaneously. It acts as a central counterparty for clearing and settlement of government securities transactions done on NDS. The major reforms planned include strengthening and modernizing legislative framework through a government securities Act and switching over to order-driven screen based trading in government securities on the stock exchanges to impart efficiency and transparency.

Research in Securities Market

In order to deepen the understanding and knowledge about Indian capital market, and to assist in policy-making, SEBI has been promoting high quality research in capital market. It has set up an in-house research department, which brings out working papers on a regular basis. In collaboration with NCAER, SEBI brought out a 'Survey of Indian Investors', which estimates investor population in India and their investment preferences. SEBI has also tied up with reputed national and international academic and research institutions for conducting research studies/projects on various issues related to the capital market. In order to improve market efficiency further and to set international benchmarks in the securities industry, NSE supports a scheme called the NSE Research Initiative with a view to develop an information base and a better insight into the working of securities market in India. The objective of this initiative is to foster research, which can support and facilitate (a) stock exchanges to better design market micro-structure, (b) participants to frame their strategies in the market place, (c) regulators to frame regulations, (d) policy makers to formulate policies, and (e) expand the horizon of knowledge. The Initiative has received tremendous response.

Testing and Certification

The intermediaries, of all shapes and sizes, who package and sell securities, compete with one another for the chance to handle investors/issuers' money. The quality of their services determines the shape and health of the securities market. In developed markets and in some of the developing markets, this is ensured through a system of testing and certification of persons joining market intermediaries in the securities market. This sort of arrangement ensures that a person dealing with financial products has a minimum standard of knowledge about them, market and regulations so as to assist the customers in their dealings. This allows market participants and intermediaries to build their own tailored staff development strategies and improves career prospectus of certified professionals, while maintaining and enhancing the confidence of the investors in the market.

A testing and certification mechanism that has become extremely popular and is sought after by the candidates as well as employers is unique on-line testing and certification programme called National Stock Exchange's Certification in Financial Markets (NCFM). It is an on-line fully automated nation-wide testing and certification system where the entire process from generation of question paper, invigilation, testing, assessing, scores reporting and certifying is fully automated - there is absolutely no scope for human intervention. It allows tremendous flexibility in terms of testing centres, dates and timing and provides easy accessibility and convenience to candidates as he can be tested at any time and from any location. It tests practical knowledge and skills, that are required to operate in financial markets, in a very secure and unbiased manner, and certifies personnel who

have a proper understanding of the market and business and skills to service different constituents of the market. It offers ten securities market related modules.

The above reforms have come in stages. As some deficiency is noted or some malpractice surfaces in the working of the market, the authorities initiate further reforms and corrective steps. As such, the process of reform in the securities market is far from complete. At the same time the reforms undertaken so far have aimed to improve operational and informational efficiency in the market by enabling the participants to carry out transactions in a cost effective manner and providing them with full, relevant and accurate information in time. A number of checks and balances have been built up to protect investors, enhance their confidence and avoid systemic failure of the market. Stability of the system as a whole has been protected by allowing for contestability of the market and imposing entry criteria for issuers and intermediaries. Financial integrity of the market is ensured by prudential controls on intermediaries. As a result of these reforms, the market design has changed drastically for better as may be seen from Annexure 1-1.

1.9 ROLE OF NSE IN INDIAN SECURITIES MARKET

National Stock Exchange of India Limited (NSE) was given recognition as a stock exchange in April 1993. NSE was set up with the objectives of (a) establishing a nationwide trading facility for all types of securities, (b) ensuring equal access to all investors all over the country through an appropriate communication network, (c) providing a fair, efficient and transparent securities market using electronic trading system, (d) enabling shorter settlement cycles and book entry settlements, and (e) meeting the international benchmarks and standards. Within a short span of life, above objectives have been realized and the Exchange has played a leading role as a change agent in transforming the Indian Capital Markets to its present form.

NSE has set up infrastructure that serves as a role model for the securities industry in terms of trading systems, clearing and settlement practices and procedures. The standards set by NSE in terms of market practices, products, technology and service standards have become industry benchmarks and are being replicated by other market participants. It provides screen-based automated trading system with a high degree of transparency and equal access to investors irrespective of geographical location. The high level of information dissemination through on-line system has helped in integrating retail investors on a nation-wide basis. The

(Annexure 1-1)

Exchange currently operates three market segments, namely Capital Market Segment, Wholesale Debt Market Segment and Futures and Options segment. NSE has been playing the role of a catalytic agent in reforming the market in terms of microstructure and market practices. Right from its inception, the exchange has adopted the purest form of demutualised set up whereby the ownership, management and trading rights are in the hands of three different sets of people. This has completely eliminated any conflict of interest and helped NSE to aggressively pursue policies and practices within a public interest framework. It has helped in shifting the trading platform from the trading hall in the premises of the exchange to the computer terminals at the premises of the trading members located country-wide and subsequently to the personal computers in the homes of investors and even to hand held portable devices for the mobile investors. Settlement risks have been eliminated with NSE's innovative endeavors in the area of clearing and settlement viz., reduction of settlement cycle, professionalisation of the trading members, fine-tuned risk management system, dematerialisation and electronic transfer of securities and establishment of clearing corporation. As a consequence, the market today uses the state-of-art information technology to provide an efficient and transparent trading, clearing and settlement mechanism.

NSE provides a trading platform for all types of securities-equity and debt, corporate and government and derivatives. On its recognition as a stock exchange under the Securities Contracts (Regulation) Act, 1956 in April 1993, it commenced operations in the Wholesale Debt Market (WDM) segment in June 1994, in the Capital Market (CM) segment in November 1994, and in Futures & Options (F&O) segment in June 2000. The Exchange started providing trading in retail debt of Government Securities in January 2003. During the year 2002-03, it accounted for over 86% of total trading volume (debt, derivatives and equity) in the stock exchanges and 64% in equities and more than 99% in derivatives.

The *Wholesale Debt Market* segment provides the trading platform for trading of a wide range of debt securities. Its product, which is now disseminated jointly with FIMMDA, the *FIMMDA NSE MIBID/MIBOR* is used as a benchmark rate for majority of deals struck for Interest Rate Swaps, Forwards Rate Agreements, Floating Rate Debentures and Term Deposits in the country. Its 'Zero Coupon Yield Curve' as well as NSE-VaR for Fixed Income Securities have also become very popular for valuation of sovereign securities across all maturities irrespective of its liquidity and facilitated the pricing of corporate papers and GOI Bond Index. Its *Capital Market* segment offers a fully automated screen based trading system, known as the National Exchange for Automated Trading (NEAT) system, which operates on a strict price/time priority. It enables members from across the country to trade simultaneously with enormous ease and efficiency. Its *Futures & Options*

segment provides trading of a wide range of derivatives like Index Futures, Index Options, Stock Options and Stock Futures.

Technology and Application Systems in NSEIL

NSE is the first exchange in the world to use satellite communication technology for trading. It uses satellite communication technology to energise participation from about 2800 VSATs from nearly 358 cities spread all over the country.

Its trading system, called National Exchange for Automated Trading (NEAT), is a state-of-the-art client server based application. At the server end all trading information is stored in an in-memory database to achieve minimum response time and maximum system availability for users. It has uptime record of 99.7%. The system also ensures data integrity with past record of a single error in 10 million bits. For all trades entered into NEAT system, there is uniform response time of less than 1.5 seconds. NSE has been continuously undertaking capacity enhancement measures so as to effectively meet the requirements of increased users and associated trading loads. With recent upgradation of trading hardware, NSE can handle up to 2.5 million trades per day. NSE has also put in place NIBIS (NSE's Internet Based Information System) for on-line real-time dissemination of trading information over the Internet.

As part of its business continuity plan, NSE has established a disaster back-up site at Chennai along with its entire infrastructure, including the satellite earth station and the high-speed optical fibre link with its main site at Mumbai. This site at Chennai is a replica of the production environment at Mumbai. The transaction data is backed up on near real time basis from the main site to the disaster back-up site through the 2 mbps high-speed link to keep both the sites all the time synchronised with each other.

NSEIL is a technology driven exchange and since its inception it has been harnessing technology to provide the best possible and efficient service to all market participants and stake holders. The various application systems that it uses for trading as well clearing and settlement and other operations are the backbone of the Exchange. The application systems used for the day-to-day functioning of the Exchange can be divided into (a) Front end applications and (b) Back office applications.

In the front end, there are 5 applications: (i) NEAT – CM system takes care of trading of securities in the Capital Market segment that includes equities, debentures/notes as well as retail Gilts. The NEAT – CM application has a split architecture wherein the split is on the securities and users. The application runs on two Stratus systems with Open Strata Link (OSL). The application has been benchmarked to support 15000 users and handle 2 million trades. This application also provides data feed for processing to some other systems like Index, OPMS through TCP/IP. This is a direct interface with the Trading members of the CM segment of the Exchange for

entering the orders into the main system. There is a two way communication between the NSE main system and the front end terminal of the Trading Member. (ii) NEAT – WDM system takes care of trading of securities in the Wholesale Debt Market (WDM) segment that includes Gilts, Corporate Bonds, CPs, T-Bills, etc. This is a direct interface with the Trading members of the WDM segment of the Exchange for entering the orders/trades into the main system. There is a two way communication between the NSE main system and the front end terminal of the Trading Member. (iii) NEAT – F&O system takes care of trading of securities in the Futures and Options (F&O) segment that includes Futures on Index as well as individual stock and Options on Index as well as individual stocks. This is a direct interface with the Trading members of the F&O segment of the Exchange for entering the orders into the main system. There is a two way communication between the NSE main system and the front end terminal of the Trading Member. (iv) NEAT – IPO system is an interface to help the initial public offering of companies which are issuing the stocks to raise capital from the market. This is a direct interface with the Trading members of the CM segment who are registered for undertaking order entry on behalf of their clients for IPOs. NSE uses the NEAT IPO system that allows bidding in several issues concurrently. There is a two way communication between the NSE main system and the front end terminal of the Trading Member. (v) NEAT – MF system is an interface with the Trading members of the CM segment for order collection of designated Mutual Funds units.

In the back office, the following important application systems are operative: (a) NCSS (Nationwide Clearing and Settlement System) is the clearing and settlement system of the NSCCL for the trades executed in the CM segment of the Exchange. The system has 3 important interfaces – OLTL (Online Trade loading) that takes each and every trade executed on real time basis and allocates the same to the clearing members, Depository Interface that connects the depositories for settlement of securities and Clearing Bank Interface that connects the 10 clearing banks for settlement of funds. It also interfaces with the clearing members for all required reports. Through collateral management system it keeps an account of all available collaterals on behalf of all trading/clearing members and integrates the same with the position monitoring of the trading/clearing members. The system also generates base capital adequacy reports. (b) FOCASS is the clearing and settlement system of the NSCCL for the trades executed in the F&O segment of the Exchange. It interfaces with the clearing members for all required reports. Through collateral management system it keeps an account of all available collaterals on behalf of all trading/clearing members and integrates the same with the position monitoring of the trading/clearing members. The system also generates base capital adequacy reports. (c) OPMS – the online position monitoring system that keeps track of all trades executed for a trading member vis-à-vis its capital adequacy, (d) PRISM is the parallel risk management system for F&O trades using Standard

Portfolio Analysis (SPAN). It is a system for comprehensive monitoring and load balancing of an array of parallel processors that provides complete fault tolerance. It provides real time information on initial margin value, mark to market profit or loss, collateral amounts, contract-wise latest prices, contract-wise open interest and limits. (e) Data warehousing that is the central repository of all data in CM as well as F&O segment of the Exchange, (f) Listing system that captures the data from the companies which are listed in the Exchange for corporate governance and integrates the same to the trading system for necessary broadcasts for data dissemination process and (g) Membership system that keeps track of all required details of the Trading Members of the Exchange.

1.10 AGENDA FOR FUTURE

Reforms in the securities market, particularly establishment and empowerment of SEBI, allocation of resources by market, screen based nation-wide trading, dematerialisation and electronic transfer of securities, availability of derivatives of securities, etc. have greatly improved the regulatory framework and efficiency and safety of issue, trading clearing and settlement of securities. However, efforts are on to improve working of the securities market further. This section discusses international initiatives in the form of standards/guidelines/recommendations.

1.10.1 International Initiatives

Principles of Securities Regulation: In February 2002, IOSCO released a new version of the *Objectives and Principles of Securities Regulation*, which supersedes the one released in September 1998 and in November 2002 along with BIS, it issued another technical document titled "Assessment methodology for Recommendations for Securities Settlement Systems". It aims to provide advice and a yardstick against which progress towards effective regulation can be measured. IOSCO members, including SEBI, through their endorsement to these principles, intend to use their best endeavors within their jurisdiction to ensure adherence to these principles. These principles are discussed below:

Regulator

1. The responsibilities of the regulator should be clear and objectively stated. This requires a clear definition of responsibilities, preferably set out by law; strong cooperation among responsible authorities through appropriate channels; and adequate legal protection of regulators and their staff acting in bonafide discharge of their functions and powers. Any division of responsibility should avoid gaps and inequities in regulation.

2. The regulator should be operationally independent and accountable in the exercise of its functions and powers. Independence is enhanced by a stable source of funding for the regulator. Accountability implies: a regulator that operates independently of sectoral interests; a system of public accountability of the regulator; and a system of permitting judicial review of decisions of the regulator.

3. The regulator should have adequate powers, proper resources and the capacity to perform its function and exercise its powers. The regulator should have powers of licensing, supervision, inspection, investigation and enforcement and also access to adequate funding.

4. The regulator should adopt clear and consistent regulatory processes. The regulator should have a process for consultation with the public including the regulated, publicly disclose its policies, observe standards of procedural fairness and have regard to the cost of compliance with the regulations. It should also play an active role in the education of investors and other participants in the capital market.

5. The staff of the regulator should observe the highest professional standards, including appropriate standards of confidentiality. They should be given clear guidance on conduct relating to conflict of interest, appropriate use of information obtained in course of duty, observance of confidentiality and secrecy provisions, observance of procedural fairness, etc.

Self-Regulation

6. The regulatory regime should make appropriate use of self-regulatory organisations (SROs) that exercise some direct oversight responsibility for the respective areas of competence to the extent appropriate to the size and complexity of the markets. SROs should undertake those regulatory responsibilities which they incentive to perform efficiently.

7. SROs should be subject to the oversight of the regulator and should observe standards of fairness and confidentiality when exercising powers and delegated responsibilities. The regulator must ensure that no conflict of interest arises because of SRO's access to valuable information about market participants. The conflict may be acute when SRO is responsible both for supervision of its members and regulation of the market sector. Where powers of a SRO are inadequate to address a particular misconduct or conflict of interest necessitates it, the regulator should take over the responsibility. SROs should also follow similar professional standards as expected of the regulator.

Enforcement of Securities Regulation

8. The regulator should have comprehensive inspection, investigation and surveillance powers. It should have power to require the provision of information, or to carry out inspections of business operations to ensure compliance with relevant standards.

9. The regulator should have comprehensive enforcement powers, including regulatory and investigative powers to obtain data/information, to impose

administrative sanctions and/or seek orders from court, to initiate or refer matters for criminal prosecution, to suspend trading in securities, to enter into enforceable settlements etc. It is, however, not necessary that all aspects of enforcement of securities law be given to a single body.

10. The regulatory system should ensure an effective and credible use of inspection, investigation, surveillance and enforcement powers and implementation of an effective compliance program. The powers of regulator should be sufficient to ensure its effectiveness in cases of cross border misconduct. The regulator should require market intermediaries have in place policies and procedures to prevent use of their business as a vehicle for money laundering.

Co-operation in Regulation

11. The regulator should have authority to share both public and non-public information with domestic and foreign counterparts. Domestic laws need to remove impediments to international cooperation.

12. Regulators should establish information sharing mechanisms that set out when and how they will share both public and non-public information with their domestic and foreign counterparts.

13. The regulatory system should allow for assistance to be provided to foreign regulators who need to make inquiries in the discharge of their functions and exercise of their powers. There should be arrangement which identifies the circumstances under which assistance may be sought, identification of the types of information and assistance that can be provided, safeguards of confidentiality of information transmitted, and a description of permitted uses of information.

Issuers

14. There should be full, timely and accurate disclosure of financial results and other information which is material to investors' decisions. Disclosures should be clear, reasonably specific and timely.

15. Holders of securities in a company should be treated in a fair and equitable manner.

16. Accounting and auditing standards should be of a high and internationally acceptable quality.

Collective Investment Schemes

17. The regulatory system should set standards for the eligibility and the regulation of those who wish to market or operate a collective investment scheme. The criteria may include honesty and integrity of the operator, competence to carry out the functions and duties of a scheme operator, financial capacity, internal management procedures, etc.

18. The regulatory system should provide for rules governing the legal form and structure of collective investment schemes and the segregation and protection of client assets.

19. Regulation should require disclosure, as set forth under the principles for issuers, which is necessary to evaluate the suitability of a collective investment scheme for a particular investor and the value of the investor's interest in the scheme.

20. Regulation should ensure that there is a proper and disclosed basis for assets valuation and the pricing and the redemption of units in a collective investment scheme.

Market Intermediaries

21. Regulation should provide for minimum entry standards for market intermediaries. It should reduce the risk to investors of loss caused by negligent or illegal behaviour or inadequate capital. The licensing process should require a comprehensive assessment of the applicant and the licensing authority should have power to withdraw or suspend the license. The regulator should ensure that the public have access to relevant information concerning the licensee.

22. There should be initial and on going capital and prudential requirements for market intermediaries that reflect the risks that the intermediaries undertake. The regulations should provide for right to inspection, investigation, enforcement, discipline and revocation of license.

23. Market intermediaries should be required to comply with standards for internal organisations and operational conduct that aim to protect the interest of clients, ensure proper management risk, and under which management of the intermediary accepts primary responsibility of these matters.

24. There should be a procedure for dealing with the failure of a market intermediary in order to minimise damage and loss to investors and to contain systemic risk.

Secondary Market

25. The establishment of trading systems including securities exchanges should be subject to regulatory authorisation and oversight. The relevant factors for authorisation could be operator competence, operator oversight, admission of products to trading, admission of participants to trading, provision of trading information, etc.

26. There should be ongoing regulatory supervision of exchanges and trading systems which should aim to ensure that the integrity is maintained through fair and equitable rules that strike an appropriate balance between the demands of different market participants. Approval of trading system should be re-examined or withdrawn by the regulator when considered necessary.

27. Regulation should promote transparency of trading.

28. Regulation should be designed to detect and deter manipulation and other unfair trading practices. The regulation should prohibit market manipulation, misleading conduct, insider trading and other fraudulent or deceptive conduct which may distort price discovery system, distort prices

and unfairly disadvantage investors. Such conduct may be addressed by direct surveillance, inspection, reporting, product design requirements, position limits, market halts, etc.

29. Regulation should aim to ensure the proper management of large exposures, default risk and market disruption.

30. Systems for clearing and settlement of securities transactions should be subject to regulatory oversight, and designed to ensure that they are fair, effective and efficient and that they reduce systemic risk.

Recommendations for Securities Settlement Systems

BIS-IOSCO made a set of 19 recommendations in November 2002 covering legal risk, pre-settlement risk, settlement risk, operational risk and other issues relating to securities settlement system. These vis-à-vis securities settlement in India are discussed in the Table 1.14 below:

Table 1.14: Indian Securities Settlement System vis-à-vis BIS-IOSCO Recommendations

	Recommendations	Corporate Securities Market
	Legal Risk	
1	Legal Framework: Securities settlement systems should have a well founded, clear and transparent legal basis in the relevant jurisdiction	There are multiple laws governing trading and settlement in securities market. The Securities Contracts (Regulations) Act 1956 talks about trading while Indian Companies Act 1956 talks of transfer of ownership of shares. Moreover, the settlement issues are handled through Rules, Byelaws, Regulations, circulars, etc. of the exchanges as well as Clearing Corporation which has approval from the regulator. The laws, regulations, rules and procedures, and contractual provisions governing the operation of SSSs are public and accessible to system participants. The legal framework demonstrates a clear legal basis and a high degree of legal assurance for each aspect of the settlement process. The rules and contracts are enforceable in the event of the insolvency of a system participant. All market participants are treated as same in the eye of law.
	Pre-settlement Risk	

2	Trade Confirmation: Confirmation of trades between direct market participants should occur as soon as possible after trade execution, but no later than trade date (T+0). Where confirmation of trades by indirect market participants (such as institutional investors) is required, it should occur as soon as possible after trade execution, preferably on T+0, but no later than T+1.	Trades are executed on the screen-based system and matched trade details are linked to the settlement system. Hence confirmations of trades between direct participants are instantaneous and on-line information is passed on to both buyer and seller. The custodians must affirm the trades on T+1 basis for indirect market participants like institutional investors and FIIs.
3	Settlement Cycles: Rolling settlement should be adopted in all securities markets. Final settlement should occur no later than T+3. The benefits and costs of a settlement cycle shorter than T+3 should be evaluated.	The market has moved to T+2 settlement basis from April 2003 and is scheduled to move to T+1 in 2004. The market has introduced STP in December 2002 and ultimately would move to RTGS as and when it would be introduced by the regulators. The introduction of T+2 settlement did not increase the failed trades and today the bad delivery/objection account for negligible amount. The risk management as well as penal provisions encourage counterparties to settle their obligations on the contractual dates.
4	Central counterparties (CCPs): The benefits and costs of a CCP should be evaluated. Where such a mechanism is introduced, the CCP should rigorously control the risks it assumes.	The Clearing Corporation provides novation to the system and guarantees the settlement. It has put in place comprehensive risk management system to preempt market failures. The exchange maintains Settlement Guarantee Fund (SGF) which is a contributed fund from the members and uses the same for meeting any shortages arising out of non-fulfillment /partial fulfillment of the funds obligations by members before declaring him a defaulter. The settlement guarantee is available to all trading members and in respect of all securities traded in the capital market segment of the exchange unless and until it is specifically provided for. The netting is multilateral and has sound and transparent legal basis as provided in the Rules, Byelaws and Regulations of the Clearing Corporation. The CCP manages its credit risk vis-à-vis participants through initial margins in terms of their minimum base capital as well as the VaR based margining system to cover the market risk. The CCP handles defaults through available legal provisions. The CCP have transparent and enforceable loss allocation rules.

5	Securities lending: Securities lending and borrowing (or repurchase agreements and other economically equivalent transactions) should be encouraged as a method for expediting the settlement of securities transactions. Barriers that inhibit the practice of lending securities for this purpose should be removed.	A securities lending and borrowing scheme is operational. Barriers to securities lending and borrowing have been removed. However, it constitutes a very insignificant part of the market. Securities lending and borrowing are guided by specific regulatory provisions as issued by market regulator (SEBI).
	Settlement Risk	
6	Central securities depositories (CSDs): Securities should be immobilised or dematerialised and transferred by book entry in CSDs to the greatest extent possible.	Almost all listed securities are traded and settled in book entry form. The securities held in depositories are dematerialised and are transferred through book entry form. There is a clear provision in Depositories Act which clearly identifies legal ownership and beneficial ownership.
7	Delivery versus Payment (DvP): CSDs should eliminate principal risk by linking securities transfers to funds transfers in a way that achieves delivery versus payment.	The clearing members pay-in funds and securities to the Clearing Corporation which in turn pays out funds and securities to the receiving clearing members. The Clearing Corporation has full control over receipts and payments and does not make pay-out unless the clearing member fulfills his obligations of pay-ins. This is akin to DvP in the sense that there is no principal risk. A member is guaranteed of pay-out if he fulfills its obligations. Hence, the technical, legal and contractual framework ensures that pay-outs take place only if pay-ins are received from a member.
8	Timing of settlement finality: Final settlement should occur no later than the end of the settlement day. Intraday or real-time finality should be provided where necessary to reduce risks.	The settlement calendar is well defined by the Clearing Corporation which is followed by all market participants. All final settlements occur on the settlement date. The risk management system has a control over the position/exposure of the members which depends on their capital contribution to the exchange and margin money deposited with the Clearing Corporation. The settlement delivery instructions issued by ultimate clients are irreversible. Final settlement takes place on T+2 basis.

9	CSD risk controls to address participants' failures to settle: CSDs that extend intraday credit to participants, including CSDs that operate net settlement systems, should institute risk controls that, at a minimum, ensure timely settlement in the event that the participant with the largest payment obligation is unable to settle. The most reliable set of controls is a combination of collateral requirements and limits.	The Clearing Corporation has put in place a comprehensive risk management mechanism encompassing capital adequacy of members, adequate margining requirement, limits on exposure as well as intraday positions, indemnity cover through insurance, online position monitoring and automatic disablement. The Clearing Corporation ensures that the settlement takes place as scheduled irrespective of payment obligations of members. VaR based margining system takes care of potential losses and liquidity pressures from participant's failures to settle. Overdrafts or debit balances in securities are not permitted by depositories.
10	Cash settlement assets: Assets used to settle the ultimate payment obligations arising from securities transactions should carry little or no credit or liquidity risk. If central bank money is not used, steps must be taken to protect CSD members from potential losses and liquidity pressures arising from the failure of the cash settlement agent whose assets are used for that purpose.	The settlement agents used for funds settlement are the banking system and to reduce the risk on concentrating on a single bank, the Clearing Corporation has agreements with commercial banks that include private as well as state owned banks for participating as clearing banks. Exposure to settlement banks is not concentrated and the financial condition of the settlement banks is monitored and evaluated by the Clearing Corporation. Though the failure of such settlement banks can not be ruled out, it has not happened so far.
	Operational Risk	
11	Operational reliability: Sources of operational risk arising in the clearing and settlement process should be identified and minimised through the development of appropriate systems, controls and procedures. Systems should be reliable and secure, and have adequate, scalable capacity. Contingency plans and backup facilities should be established to allow for timely recovery of operations and completion of the settlement process.	The Clearing Corporation as well as Depositories have back up facilities for the failure of key systems in the form of disaster sites. The business continuity plan (disaster sites) of the Clearing Corporation has been tested and always in sync with the main system. The system provides for preservation of all transaction data. The contingency plans ensure at a minimum that the status of all transactions at the time of the disruption can be identified with certainty in a timely manner. The business continuity plan of the Clearing Corporation is reviewed regularly. External audit of the IT/systems takes place on continuing basis.
	Custody Risk	

12	Protection of customers' securities: Entities holding securities in custody should employ accounting practices and safekeeping procedures that fully protect customers' securities. It is essential that customers' securities be protected against the claims of a custodian's creditors.	The depositories holding securities balances of the beneficial holders reconcile their records with the depository participants on daily basis. Depositories indemnify the investors for any loss arising out of its negligence or of any depository participant. Insolvency laws are adhered to and arrangements are in place at depositories to move the customer's position to a solvent intermediary. The entities holding securities balances for clients like custodians as well as depository participants and the depository itself are subjected to internal as well as external audit. Depositories as well as custodians are also regulated by the market regulator. For investors, the exchanges have Investor Protection Fund which is used to compensate an investor suffers on account of default by a trading member.
	Other Issues	
13	Governance: Governance arrangements for CSDs and CCPs should be designed to fulfill public interest requirements and to promote the objectives of owners and users.	The governance structure of CCPs and CSDs are designed to meet the public interest. These companies have been floated under Companies Act 1956 which has specific requirement with regard to its activities. These entities provide information about its operations through their websites, press releases, circulars, etc. for the stakeholders. The rules, byelaws and regulations and circulars are available in public domain for the benefit of the users. The management of the CCPs and CSDs are accountable to the board. The board is determined on the basis of the shareholding pattern of the CSDs and CCPs. The board has also representation from public, academics as well as from the regulators. No decision is opaque and all decisions are communicated to users through circulars as well as press releases.
14	Access: CSDs and CCPs should have objective and publicly disclosed criteria for participation that permit fair and open access.	The access rules/criteria are clearly disclosed to public through various forms. These criteria/rules have been framed by the regulator depending on various parameters in the interest of public as well as healthy competition. All such access criteria/rules have been designed in terms of perceived risk only. The procedure facilitating the orderly exit of participants that no longer meet membership criteria also has been clearly disclosed to members. The information regarding continuing membership is publicly disclosed.

15	Efficiency: While maintaining safe and secure operations, securities settlement systems should be cost-effective in meeting the requirements of users.	The system providers like exchanges as well as CSDs have their internal methods of cost control which is passed on the members in the form of reduced transaction costs. The costs of trading, settlement, depository services, etc. to investors have come down progressively in recent years. The exchanges, Clearing Corporation, CSDs, etc. have their own review method to monitor service levels. However, no such regular survey of its users has been conducted. But the capacity levels are reviewed regularly to keep in tandem with the volume of business.
16	Communication procedures and standards: Securities settlement systems should use or accommodate the relevant international communication procedures and standards in order to facilitate efficient settlement of cross-border transactions	The present system does not envisage cross-border transaction directly coming to the settlement system. However, the system has the ability to easily convert domestic procedures and standards into the relevant international communication procedures as depositories use SWIFT for messaging. In order to introduce STP, it is proposed to adopt SWIFT ISO 150022 messaging standards as common messaging standard.
17	Transparency: CSDs and CCPs should provide market participants with sufficient information for them to identify and evaluate accurately the risks and costs associated with using the CSD or CCP services.	The CSDs and CCPs make clear disclosures to market participants about its rules, regulations, relevant laws, governance procedures, risks management system in place, the rights and obligations of participants and the cost of participation in the system. These are all available in the form of print outs as well as through websites. These rules, byelaws, regulations have also been framed with the consent of the regulator keeping public interest in mind. Set procedures and internal as well as external audit makes it process transparent and current.
18	Regulation and oversight: Securities settlement systems should be subject to transparent and effective regulation and oversight. Central banks and securities regulators should cooperate with each other and with other relevant authorities.	The settlement system is regulated and overseen by the market regulator through inspection. Settlement banks are governed by central bank of the country and hence subject to the annual inspection by central banks. The settlement system is primarily a non-statute based approach and the relevant regulators have experienced staff, relevant resources and funding to carry out regulatory and oversight functions effectively. There is a framework for cooperation between the securities regulator and the central bank, such as for the exchange of information and views on securities settlement system. There is regular interaction between central bank and securities market regulator. High Level Committee on Capital Markets (HLCC) ensures coordination among regulator.

19	Risks in cross-border links: CSDs that establish links to settle cross-border trades should design and operate such links to reduce effectively the risks associated with cross-border settlements.	Currently there is no provision to have cross-border trades settlement through CSDs. Present system does not allow any cross border links to the settlement system.
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World Federation of Exchanges Trading Survey 2002:

The World Federation of Exchanges conducted a survey in 2002 on trading practices at major stock exchanges through renowned profess Prof. Maureen O'Hara of Cornell University. The report was released in March 2003. The survey covered 42 Exchanges focussed on 6 operational areas: Trading platform, Trading products, Orders and order routing, Execution, Transparency and Information and Other issues.

Trading Platform: The study found that electronic systems prevail and are typically order driven. 32 Exchanges have order driven system and only 2 stock exchanges have a floor system. 14 Exchanges have introduced new trading platform in the past 12 months and 15 are planning to do so in next 12 months. About 86% of Exchanges have platforms that include stock watch or real time error alerts. About 88% of Exchanges have backup systems in place that are fully redundant.

Trading Products: The study finds that 33 exchanges report negative to flat volume growth over the last year but derivatives growth has been stronger. The study finds significant growth of Exchange Traded Funds.

Order and Order Routing: The study finds that 12% of the Exchanges have the system that gives direct access for order routing and straight through processing is commonplace (55%)

Execution: The study finds that execution quality has generally improved with the electronic system in place in most of the Exchanges. The study finds that 49% of exchanges offer automatic execution of small orders and 71% offer opportunities for price improvement and order processing times are typically less than a second.

Transparency and Information: The survey indicated that global markets become more and more transparent. The majority of exchanges disclose substantial market information and disseminate them through variety of ways: 90% through data feed, 74% through internet, 69% through trading system, 36% through special information system and 7% through satellite. 57% of exchanges display the depths of all prices, another 26% display depth for specific price levels and 17% allow indicative quotes to be disclosed.

Other Issues: The survey finds that 76% of the Exchanges reported operating within a self-regulatory framework. As far as how regulatory functions are handled, in 40% of exchanges are handled internally, 14% are by a separate non-governmental entity, 21% are by Government regulator and 38% are handled jointly with a regulatory agency.

MODEL QUESTIONS

Q. Which one of the following is not among the major legislations governing the securities market?

- (a) Capital Issues Act, 1947
- (b) SEBI Act, 1992
- (c) Companies Act 1956
- (d) Depositories Act 1996

Correct Answer: (a)

Q. Which of the following is not the main objective of SEBI?

- (a) Protecting the interest of investors in securities market
- (b) Protecting & development of forex market in India
- (c) Promoting the development of securities market
- (d) Regulating the securities market

Correct answer: (b)

Q. All market intermediaries are registered and regulated by _____.

- (a) DCA
- (b) SEBI
- (c) MOF
- (d) RBI

Correct answer: (b)

Q. The _____ issued by SEBI aim to secure fuller disclosure of the relevant information about the issuer and the nature of issue so that the investors can take informed decision.

- (a) Disclosure & Investor Protection Guidelines
- (b) SCRA
- (c) SEBI (Stock Brokers and Sub brokers) Rules
- (d) SEBI (Prohibition of Fraudulent and Unfair Trade Practices Relating to Securities Markets) regulations

Correct answer: (a)

Q. NSE's screen based trading system (SBTS) matches orders in the _____ priority basis.

- (a) time/price
- (b) price/time
- (c) price/quantity
- (d) quantity/price

Correct answer: (b)

Q. The current trading cycle practiced by the exchanges is

- (a) T+5
- (b) T+3
- (c) T+2
- (d) T+1

Correct answer: (c)

Q. Following problems have been eliminated by introduction of Depositories act?

- (a) Stamp duty on transfer of shares in dematerialized form
- (b) reduction in the share transfer time to the buyer
- (c) higher liquidity
- (d) All of the above

Correct answer: (d)

Q. For the promotion of awareness among the investors and the protection of the interest of the investors the central government has established

- (a) investor education and protection fund
- (b) investors grievance redressal cell
- (c) settlement guarantee fund
- (d) all of the above

Correct Answer: (a)

CHAPTER 2: PRIMARY MARKET

INTRODUCTION

Primary market provides opportunity to issuers of securities, Government as well as corporates, to raise resources to meet their requirements of investment and/or discharge some obligation. The issuers create and issue fresh securities in exchange of funds through public issues and/or as private placement. They may issue the securities at face value, or at a discount/premium and these securities may take a variety of forms such as equity, debt or some hybrid instrument. They may issue the securities in domestic market and/or international market through ADR/GDR/ECB route.

2.1 MARKET DESIGN

The market design for primary market is provided in the provision of the Companies Act, 1956, which deals with issues, listing and allotment of securities. In addition, DIP guidelines of SEBI prescribe a series of disclosures norms to be complied about by issuer, promoter, management, project, risk factors and eligibility norms for accessing the market. In this section, the market design as provided in securities laws has been discussed.

2.1.1 DIP Guidelines, 2000

The issues of capital to public by Indian companies are governed by the Disclosure and Investor Protection (DIP) Guidelines of SEBI, which were issued in June 1992. SEBI has been issuing clarifications to these guidelines from time to time aiming at streamlining the public issue process. In order to provide a comprehensive coverage of all DIP guidelines, SEBI issued a compendium series in January 2000, known as SEBI (DIP) Guidelines, 2000. The guidelines provide norms relating to eligibility for companies issuing securities, pricing of issues, listing requirements, disclosure norms, lock-in period for promoters' contribution, contents of offer documents, pre-and post-issue obligations, etc. The guidelines apply to all public issues, offers for sale and rights issues by listed and unlisted companies.

Eligibility Norms

Any company issuing securities through the offer document has to satisfy the following conditions:

- A company making a public issue of securities has to file a draft prospectus with SEBI, through an eligible merchant banker, at least 21 days prior to the filing of prospectus with the Registrar of Companies (RoCs). The filing of offer document is mandatory for a listed company issuing security through a rights issue where the aggregate value of securities, including premium, if any, exceeds Rs.50 lakh. A company cannot make a public issue unless it has made an application for listing of those securities with stock exchange(s). The company must also have entered into an agreement with the depository for dematerialisation of its securities and also the company should have given an option to subscribers/shareholders/investors to receive the security certificates or securities in dematerialised form with the depository. A company cannot make an issue if the company has been prohibited from accessing the capital market under any order or discretion passed by SEBI.
- An unlisted company can make public issue of equity shares or any other security convertible into equity shares, on fixed price basis or on book building basis, provided (i) it has a pre-issue net worth of not less than Rs. 1 crore in 3 out of the preceding 5 years and has minimum net worth in immediately preceding two years, (ii) it has a track record of distributable profits in terms of section 205 of the Companies Act, 1956, for at least 3 out of immediately preceding 5 years, and (iii) the issue size (offer through offer document + firm allotment + promoters contribution through the offer document) does not exceed five times its pre-issue net worth. A listed company is eligible to make a public issue, on fixed price basis or on book building basis, if the issue size does not exceed five times its pre-issue net worth. If the company, listed or unlisted, does not meet the above criteria, then the issue will have to be compulsorily made through book building route. In such a case, 60% of the issue size will have to be allotted to the 'Qualified Institutional Buyers' (QIBs) failing which the full subscription monies shall be refunded.
- Infrastructure companies are exempt from the requirement of eligibility norms if their project has been appraised by a public financial institution or infrastructure development finance corporation or infrastructure leasing and financing services and not less than 5% of the project cost is financed by any of the institutions, jointly or severally, by way of loan and/or subscription to equity or a combination of both. Banks and rights issues of listed companies are also exempt from the eligibility norms.
- For public and rights issues of debt instruments irrespective of their maturities or conversion period, it is mandatory to obtain credit rating from a registered credit rating agency and to disclose the same in the offer document. If the credit rating is obtained from more than one credit rating agency, all the credit ratings, including

the rejected ones, need to be disclosed. For a public and rights issue of debt securities with issue size greater than or equal to Rs. 100 crore, credit rating from two rating agencies is mandatory. In case of issue of debentures with maturity of more than 18 months, the issuer shall create a debenture redemption reserve and appoint a debenture trustee to protect the interest of debenture holders.

Thus the quality of the issue is demonstrated by track record/appraisal by approved financial institutions/credit rating/subscription by QIBs.

Pricing of Issues

The companies eligible to make public issue can freely price their equity shares or any security convertible into equity at a later date in cases of public/rights issues by listed companies and public issue by unlisted companies. In addition, eligible infrastructure companies can freely price their equity shares subject to compliance of disclosure norms of SEBI. The public and private sector banks can also freely price their shares subject to approval by RBI. A company may issue shares to applicants in the firm allotment category at higher price than the price at which securities are offered to public. A listed company making a composite issue of capital may issue securities at differential prices in its public and rights issue. Further, an eligible company is free to make public/rights issue in any denomination determined by it in accordance with the Companies Act, 1956 and SEBI norms.

Contribution of Promoters and lock-in

The promoters' contribution in case of public issues by unlisted companies and promoters' shareholding in case of 'offers for sale' should not be less than 20% of the post issue capital. In case of public issues by listed companies, promoters should contribute to the extent of 20% of the proposed issue or should ensure post-issue holding to the extent of 20% of the post-issue capital. For composite issues, the promoters' contribution should either be 20% of the proposed public issue or 20% of the post-issue capital. The promoters should bring in the full amount of the promoters contribution including premium at least one day prior to the issue opening date. The requirement of promoters contribution is not applicable in case of (i) public issue of securities which has been listed on a stock exchange for at least 3 years and has a track record of dividend payment for at least 3 immediate preceding years, (ii) companies where no identifiable promoter or promoter group exists, and (iii) rights issues.

For any issue of capital to the public, the minimum promoter's contribution is locked in for a period of 3 years. If the promoters contribution exceeds the required minimum contribution, such excess is locked in for a period of one year. Securities allotted in firm allotment basis are also locked in for a period of one year. The locked-in securities held by promoters may be pledged only with banks or FIs as collateral security for loans granted by such banks or FIs.

Issue of Sweat Equity

The SEBI (Issue of Sweat Equity) Regulations, 2002 have been framed and the main provisions laid down therein for issue of sweat equity are (a) under the new guidelines, the Sweat Equity shares can be issued by a company to its employees and directors as well as promoters, (b) the pricing of the sweat equity shares should be as per the formula prescribed for that of preferential allotment, (c) the sweat equity shares should be locked in for a period of 3 years. In case of a subsequent public issue being made, lock in shall be as per the SEBI (DIP) Guidelines, 2000.

Issue Obligations

The lead merchant banker plays an important role in the pre-issue obligations of the company. He exercises due diligence and satisfies himself about all aspects of offering, veracity and adequacy of disclosures in the offer document. Each company issuing securities has to enter into a Memorandum of Understanding with the lead merchant banker, which specifies their mutual rights, liabilities and obligations relating to the issue. In case of under-subscription of an issue, the lead merchant banker responsible for underwriting arrangements has to invoke underwriting obligations and ensure that the underwriters pay the amount of devolvement. It should ensure the minimum number of collection centres. It should also ensure that the issuer company has entered into an agreement with all the depositories for dematerialization of securities. All the other formalities related to post-issue obligations like, allotment, refund and despatch of certificates are also taken care by the lead merchant banker.

Book Building

Book building is a process of offering securities in which bids at various prices from investors through syndicate members are collected. Based on bids, demand for the security is assessed and its price discovered. In case of normal public issue, the price is known in advance to investor and the demand is known at the close of the issue. In case of public issue through book building, demand can be known at the end of everyday but price is known at the close of issue.

An issuer company proposing to issue capital through book building has two options viz., 75% book building route and 100% book building route. In case of 100% book building route is adopted, not more than 60% of net offer to public can be allocated to QIBs, not less than 15% of the net offer to the public can be allocated to non-institutional investors applying for more than 1000 shares and not less than 25% of the net offer to public can be allocated to retail investors applying for upto 1000 shares. In case 75% of net public offer is made through book building, not more than 60% of the net offer can be allocated to QIBs and not less than 15% of the net offer can

be allocated to non-institutional investors. The balance 25% of the net offer to public, offered at a price determined through book building, are available to retail individual investors who have either not participated in book building or have not received any allocation in the book built portion. Allotment to retail individual or non-institutional investors is made on the basis of proportional allotment system. In case of under subscription in any category, the unsubscribed portions are allocated to the bidders in other categories. The book built portion, 100% or 75%, as the case may be, of the net offer to public, are compulsorily underwritten by the syndicate members or book runners.

Other requirements for book building include: bids remain open for at least 5 days, only electronic bidding is permitted; bids are submitted through syndicate members; bids can be revised; bidding demand is displayed at the end of every day; allotments are made not later than 15 days from the closure of the issue etc. The 100% book building has made the primary issuance process comparatively faster and cost effective and trading can commence from T+16.

The DIP guidelines for book building provides that the company should be allowed to disclose the floor price, just prior to the bid opening date, instead of in the Red herring prospectus, which may be done by any means like a public advertisement in newspaper etc. Flexibility should be provided to the issuer company by permitting them to indicate a 20% price band. Issuer may be given the flexibility to revise the price band during the bidding period and the issuers should be allowed to have a closed book building i.e. the book will not be made public. The mandatory requirement of 90% subscription should not be considered with strictness, but the prospectus should disclose the amount of minimum subscription required and sources for meeting the shortfall. The Primary Market Advisory Committee recommended the practice of 'green-shoe option' available in markets abroad which is an 'over allotment' option granted by the issuer to the underwriter in a public offering. This helps the syndicate member to over allocate the shares to the extent of option available and to consequently purchase additional shares from the issuer at the original offering price in order to cover the over-allotments.

On-line Initial Public Offers (IPO)

A company proposing to issue capital to public through on-line system of the stock exchange has to comply with Section 55 to 68A of the Companies Act, 1956 and SEBI (DIP) Guidelines, 2000. The company is required to enter into an agreement with the stock exchange(s) which have the requisite system for on-line offer of securities. The agreement should cover rights, duties, responsibilities and obligations of the company and the stock exchanges inter-se, with provision for a dispute resolution mechanism between the company and the stock exchange. The issuer company appoints a Registrar to the Issue having electronic connectivity with the stock

exchanges. The issuer company can apply for listing of its securities at any exchange through which it offers its securities to public through on-line system, apart from the requirement of listing on the regional stock exchange. The stock exchange appoints brokers for the purpose of accepting applications and placing orders with the company. The lead manager would co-ordinate all the activities amongst various intermediaries connected in the system.

In addition to the above, the DIP guidelines also provide details of the contents of the offer document and advertisement, other requirements for issues of securities, like those under Rule 19(2) (b) of SC(R) Rules, 1957. The guidelines also lay down detailed norms for issue of debt instruments, issue of capital by designated financial institutions and preferential/bonus issues.

Book Building through On-line IPO System

Book building is basically a process used in IPO for efficient price discovery, wherein during the period for which the IPO is open, bids are collected from investors at various prices, which are above or equal to the floor price. The offer price is determined after the bid closing date. In its strive to continuously improve Indian securities market; NSE offers its infrastructure for conducting online IPOs through book building. It helps to discover price as well as demand for a security to be issued through a process of bidding by investors. The advantages of this new system are: a) the investor parts with money only after allotment, b) it eliminates refunds except in case of direct applications and c) it reduces the time taken for issue process. The securities get listed within 15 days from the closure of the issue. Though the guidelines for book building were issued in 1995, it is being used for IPOs from 1999. Till June 2003, 19 issuers have used this route for making IPO issues. During 2002-03, two issuers used the on-line IPO system of NSE to issue 71.66 lakh shares.

2.1.2 Merchant Banking

The merchant banking activity in India is governed by SEBI (Merchant Bankers) Regulations, 1992. All merchant bankers have to be registered with SEBI. The person applying for certificate of registration as merchant banker has to be a body corporate other than a non-banking financial company, has necessary infrastructure, and has at least two persons in his employment with experience to conduct the business of the merchant banker. The applicant has to fulfill the capital adequacy requirements, with prescribed minimum net worth. The regulations specify the code of conduct to be followed by merchant bankers, responsibilities of lead managers, payments of fees and disclosures to SEBI. They are required to appoint a

Compliance Officer, who monitors compliance requirements of the securities laws and is responsible for redressal of investor grievance.

2.1.3 Credit Rating

Credit rating is governed by the SEBI (Credit Rating Agencies) Regulations, 1999. The Regulations cover rating of securities only and not rating of fixed deposits, foreign exchange, country ratings, real estates etc. CRAs can be promoted by public financial institutions, scheduled commercial banks, foreign banks operating in India, foreign credit rating agencies recognised in the country of their incorporation, having at least five years experience in rating, or any company or a body corporate having continuous net worth of minimum Rs.100 crore for the previous five years. CRAs would be required to have a minimum net worth of Rs. 5 crore. No Chairman, Director or Employee of the promoters shall be Chairman, Director or Employee of CRA or its rating committee. A CRA can not rate (i) a security issued by its promoter, (ii) securities issued by any borrower, subsidiary, an associate promoter of CRA, if there are common Chairman, Directors and Employees between the CRA or its rating committee and these entities (iii) a security issued by its associate or subsidiary if the CRA or its rating committee has a Chairman, Director or Employee who is also a Chairman, Director or Employee of any such entity.

For all public and rights issues of debt securities of issue size greater than or equal to Rs. 100 crore, two ratings from different CRAs would be required. An obligation has been cast on the issuer to disclose in the offer documents all the ratings it has got during the previous 3 years for any of its listed securities, at the time of accessing market through a rated security. CRAs would have to carry out periodic reviews of the ratings given during the lifetime of the rated instrument.

2.1.4 Demat Issues

As per SEBI mandate, all new IPOs are compulsorily traded in dematerialised form. The admission to a depository for dematerialisation of securities is a prerequisite for making a public or rights issue or an offer for sale. The investors would however, have the option of either subscribing to securities in physical form or dematerialised form. The Companies Act, 1956 requires that every public listed company making IPO of any security for Rs. 10 crore or more shall issue the same only in dematerialised form.

2.1.5 Private Placement

The private placement involves issue of securities, debt or equity, to a limited number of subscribers, such as banks, FIs, MFs and high net worth individuals. It is arranged through a merchant/investment banker, who acts

as an agent of the issuer and brings together the issuer and the investor(s). On the presumption that these are allotted to a few sophisticated and experienced investors and the public at large does not have much stake in it, the securities offered in a private placement are exempt from the public disclosure regulations and registration requirements of the regulatory body. What distinguishes private placement from public issues is while the latter invite application from as many subscribers, the subscriptions in the private placement are normally restricted to a limited number. In terms of the Companies Act, 1956, offer of securities to more than 50 persons is deemed to be public issue.

2.1.6 Virtual Debt Portals

The private placement of debt as well as transactions in debt securities are generally effected through opaque negotiations. The result is inefficient price discovery, fragmented market, low liquidity, poor disclosures and ineffective audit trails. Two B2B portals, namely *debttonnetindia* and *riskexpress* provide a secure, anonymous, neutral and flexible transactional platform for issue and trading of fixed income instruments. The *debttonnetindia* is a B2B web-enabled market place for primary issuance of debt securities and provides investors and brokers similar levels of efficiency and transparency on the primary market segment as exchange system provides for secondary market in debt. The *riskexpress*, on the other hand, provides both secondary and primary market platform. Quality issuers are using this e-infrastructure.

2.1.7 ADRs/GDRs

Indian companies are permitted to raise foreign currency resources through two main sources: (a) issue of Foreign Currency Convertible Bonds (FCCBs) – more commonly known as 'Euro Issues' and (b) issue of ordinary equity shares through depository receipts, namely, Global Depository Receipts (GDRs)/American Depository Receipts (ADRs) to foreign investors i.e. institutional investors or individuals (including NRIs) residing abroad. A depository receipt (DR) is any negotiable instrument in the form of a certificate denominated in US dollars. The certificates are issued by an overseas depository bank against certain underlying stock/shares. The shares are deposited by the issuing company with the depository bank. The depository bank in turn tenders DRs to the investors. A DR represents a particular bunch of shares on which the receipt holder has the right to receive dividend, other payments and benefits which company announces from time to time for the share holders. However, it is non-voting equity holding. DRs facilitate cross border trading and settlement, minimize transactions costs and broaden the potential base, especially among institutional investors

An American Depositary Receipt (ADR) is a negotiable U.S. certificate representing ownership of shares in a non-U.S. corporation. ADRs are quoted and traded in U.S. dollars in the U.S. securities market. Also, the dividends are paid to investor in U.S. dollars. ADRs were specifically designed to facilitate the purchase, holding and sale of non-U.S. securities by U.S. investor, and to provide a corporate finance vehicle for non-U.S. companies. Any non-U.S. company seeking to raise capital in the U.S. or increase their base of U.S. investor can issue ADRs. Advantages of ADRs are:

- ADRs allow you to diversify your portfolio with foreign securities easily.
- ADRs trade, clear and settle in accordance with U.S. market regulations and permit prompt dividend payments and corporate action notification.
- If an ADR is exchange-listed, investor also benefits from readily available price and trading information.

Global Depositary Receipts (GDRs) may be defined as a global finance vehicle that allows an issuer to raise capital simultaneously in two or more markets through a global offering. GDRs may be used in either the public or private markets inside or outside the US. GDR, a negotiable certificate usually represents a company's publicly traded equity or debt. The underlying shares correspond to the GDRs in a fixed ratio say of 1 GDR=10 shares.

ADRs and GDRs are identical from a legal, operational, technical and administrative standpoint. The word 'global' denotes receipts issued are on a global basis that is to investors not restricted to US.

The FCCBs/GDRs/ADRs issued by Indian companies to non-residents have free convertibility outside India. In India, GDRs/ADRs are reckoned as part of foreign direct investment and hence need to conform to the existing FDI policy. Resource mobilisation by Indian corporates through Euro issues by way of FCCBs, GDRs and ADRs has been significant in the 1990s. As per current guidelines, the proceeds of ADRs/GDRs/FCCBs cannot be used on investment in real estate and stock markets. This prohibition not only puts restriction on Indian bidders in the first stage offer to the Government, but also to fund second stage of mandatory public offer under SEBI Takeover Code. In order to promote the disinvestment programme, it has been decided that ADR/GDR/FCCB proceeds could be used in the first stage acquisition of shares in the disinvestment process and also in the mandatory second stage offer to the public, in view of their strategic importance. It has been clarified by SEBI that the scheme of two-way fungibility of ADR/GDR issues will be only operated for foreign investors other than OCBs.

As regards transfer of shares (on conversion of GDRs/ADRs into shares) in favour of residents, the non-resident holder of GDRs/ADRs should approach the Overseas Depository bank with a request to the Domestic Custodian bank to get the corresponding underlying shares released in favour of the non-resident investor for being sold by the non-resident or for being transferred in the books of the issuing company in the name of the non-resident. In order to improve liquidity in ADR/GDR market and eliminate arbitrage, RBI issued guidelines in February 2002 to permit two-way fungibility for ADRs/GDRs which means that investors (foreign institutional or domestic) in any company that has issued ADRs/GDRs can freely convert the ADRs/GDRs into underlying domestic shares. They can also reconvert the domestic shares into ADRs/GDRs, depending on the direction of price change in the stock.

2.2 MARKET OUTCOME

2.2.1 Public Issues

The resource mobilisation from the primary market, as depicted in Table 2.1, by way of IPOs and new issues by listed companies decreased from Rs. 7,543 crore during 2001-02 to Rs. 4,070 crore mobilised during 2002-03.

Table 2.1: Resource Mobilisation from Public Issues				
			(Amount in Rs. crore)	
	2001-02		2002-03	
Issue	Number	Amount	Number	Amount
IPOs	7	1,202	6	1038.6
Issues by Listed Companies	28	6,341	20	3031.6
Public Issues	13	5,300	8	2600.4
Rights Issues	15	1,041	12	0431.2
Total	35	7,543	26	4070.2

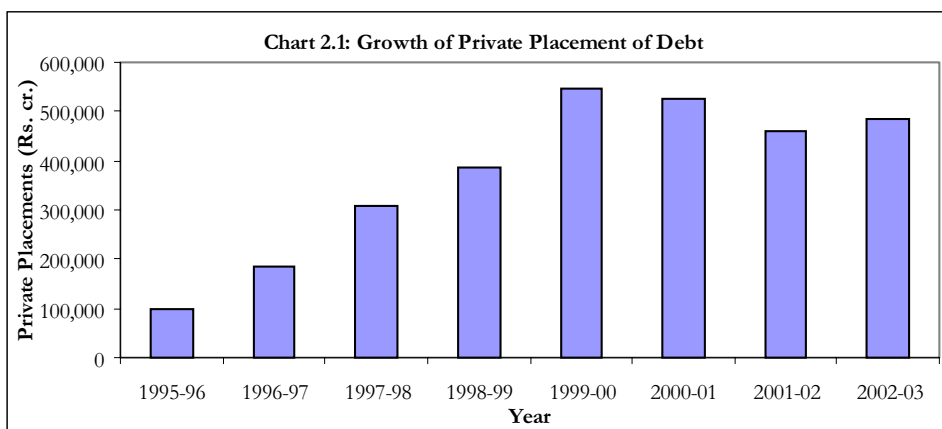
Source: SEBI.

Traditionally, debentures have dominated the public issues. The share of debt in resource mobilisation through public issues increased from 25% in 1995-96 to a peak of 94% in 1998-99. Though declined sharply to 61% in 1999-2000, increased to 63% in 2000-01, 83% in 2001-02 and now 82% in 2002-03.

2.2.2 Private Placement

In sharp contrast to a shrinking public issues market for corporate securities, the last few years have witnessed huge resource mobilization through private placement. Corporate sector mobilised Rs. 48423.6 crore during 2002-03 through private placement of debt securities.

Mostly, securities issued in the private placement market are debt securities. The two sources of information regarding private placement market in India are Prime Database and RBI. The former data set, however, pertains exclusively to debt issues. RBI data, which is compiled from information gathered from arrangers, covers equity private placements also. RBI estimates find the share of equity in total private placements as very insignificant. Some idea about private placement of equity can be had from equity shares issued by NSE-listed companies on private placement basis. From the companies listed at NSE, a total of 22 companies came out with private placement issues mobilising around Rs. 6061 lakh during 2002-03.



Public Sector units and FIs are most active in mobilising funds through private placement. They accounted for 78.8% of the total private placement market in debt instruments during 2002-03 as against 75.8% in 2001-02. All India financial institutions and Banks led the market with a 35.9% share followed by Public Sector Undertakings (PSUs) with 25.9% and Private Sector with 21.17% share of private placement of debt during 2002-03.

Sectoral distribution shows that the financial services sector continues to dominate the private placement market, raising 50% in 2002-03 followed by Power sector which accounted for 16% during the year.

Unlike public issues of bonds, it is not mandatory for corporates issuing bonds in the private placement market to obtain and disclose credit rating from an approved credit rating agency. Rating is, however, required for listing. Of the 485 debt private placement deals during 2002-03, 411 issues were rated; the rest did not get rated. The rated offers constituted 85% of total amount.

Private placement accounted for 89.4% of total resources mobilised by the corporate sector from the primary market. The corresponding share of public issues was a meager 10.6%.

There is a preference for raising resources in the primary market through debt instruments and private placement of debt has emerged as the major route for raising resources. The corporate raised a total of Rs. 53116.6 crore through debt issues-Rs. 48424 crore through private placement and Rs. 4693 crore through public issues. The privately placed debt issues make up for the major part of the bond market, accounting for 91.2% of total debt issues in the primary market. The share of debt in total collection has been increasing consistently over the years and it stood at 98.1% in 2002-03.

2.2.3 Debt Issues

Government and corporate sector accessed market through debt issues. They collectively raised a total of Rs. 235095.6 crore from primary market during 2002-03. About 77.4% of this was raised by Government, while the balance by the corporate sector through public issues and private placement.

2.3 COLLECTIVE INVESTMENT VEHICLES

Three distinct categories of collective investment vehicles (CIVs) namely, Mutual Funds, venture capital funds and collective investment schemes, mobilize resources from market for investment purposes.

2.3.1 Mutual Funds

'Put your money in trust, not trust in money' entices the small investors, who generally lack expertise to invest on their own in the securities market and prefer some kind of collective investment vehicles, which can pool their marginal resources, invest in securities and distribute the returns there from among them on co-operative principles. The investors benefit in terms of reduced risk, and higher returns arising from professional expertise of fund managers employed by such investment vehicle. This was the original appeal of mutual funds (MFs) which offer a path to stock market far simpler and safer than the traditional call-a-broker-and-buy-securities route. This caught the fancy of small investors leading to proliferation of MFs. In developed financial markets, MFs have overtaken bank deposits and total assets of insurance funds. In the USA, the number of MFs far exceeds the number of listed securities.

MFs, thus, operate as CIV that pools resources by issuing units to investors and collectively invests those resources in a diversified portfolio comprising

of stocks, bonds or money market instruments in accordance with objectives disclosed in the offer document issued for the purpose of pooling resources. The profits or losses are shared by investors in proportion to their investments. The process gathered momentum in view of regulatory protection, fiscal concession and change in preference of investors. The first ever MF in India, the Unit Trust of India (UTI) was set up in 1964. This was followed by entry of MFs promoted by public sector banks and insurance companies in 1987. The industry was opened up to private sector in 1993 providing Indian investors a broader choice. Starting with an asset base of Rs. 25 crore in 1964, the industry has grown exponentially to Rs. 79464 crore with a total number of 38 MF at the end of March 2003. The number of households owning units of MFs exceeds the number of households owning equity and debentures.

Regulation of Mutual Funds

The MF industry in India is governed by SEBI (Mutual Fund) Regulations, 1996, which lay the norms for the MF and its Asset Management Company (AMC). SEBI requires all MFs to be registered with it. All MFs in India are constituted as trusts. A MF is allowed to issue open-ended and closed-ended schemes under a common legal structure. The SEBI (Mutual Fund) Regulations, 1996 lay down detailed procedure for launching of schemes, disclosures in the offer document, advertisement material, listing and repurchase of closed-ended schemes, offer period, transfer of units, investments, etc. SEBI Regulations also specify the qualifications for being the sponsor of a fund; the contents of Trust Deed; rights and obligations of Trustees; appointment, eligibility criteria, and restrictions on business activities and obligations of the AMC and its Directors. The AMCs, members of Board of trustees or directors of Trustee Company and other associated company have to follow certain code of conduct. They should ensure that the information disseminated to the unit holders is adequate, accurate, and explicit. They should also avoid conflicts of interest in managing the affairs of the schemes and keep the interest of all unit holders paramount in all matters.

In addition to SEBI, RBI also supervises the operations of bank-owned MFs. While SEBI regulates all market related and investor related activities of the bank/FI-owned funds, any issues concerning the ownership of the AMCs by banks fall under the regulatory ambit of the RBI.

Further, MFs, AMCs and corporate trustees are companies registered under the Companies Act, 1956 and therefore answerable to regulatory authorities empowered by the Companies Act. The Registrar of Companies ensures that the AMC, or the Trustee Company complies with the provisions of the Companies Act.

Many closed-ended schemes of the MFs are listed on one or more stock exchanges. Such schemes are subject to regulation by the concerned stock

exchange(s) through a listing agreement between the fund and the stock exchange.

MFs, being Public Trusts are governed by the Indian Trust Act, 1882. The Board of Trustees or the Trustee Company is accountable to the office of the Public Trustee, which in turn reports to the Charity Commissioner. These regulators enforce provisions of the Indian Trusts Act.

Investment Restrictions

Investment policies of each MF scheme are dictated by the investment objective of the scheme as stated in the offer document. However, the AMC and its fund managers have to comply with the restrictions imposed by SEBI. Investments should be made only in transferable securities in the money market or in the capital market or in privately placed debentures or securitised debts. Money collected under money market schemes should be invested only in money market instruments. Investment by a MF should be subject to following restrictions:

- i. No MF under all its schemes should own more than 10% of any company's paid up capital carrying voting rights.
- ii. Investments in the equity shares or equity-related instruments of a single company are restricted to 10% of the NAV of a scheme. This limit is not applicable in case of index funds and in case of sector/industry specific schemes subject to adequate disclosures in the offer document. Investments by index funds are in accordance with the weightage of the securities in the specific index as disclosed in the offer document. In case of sector/industry specific schemes, the upper ceiling on investments may be in accordance with the weightage of the securities in the representative sectoral index/sub-index as disclosed in the offer document or 10% of the NAV of the scheme whichever is higher. The basic objective of these is to ensure that a fund has an adequately diversified portfolio, unless the specific objective of the scheme is to limit the investments.
- iii. Similarly, for debt schemes, SEBI restricts the investment in 'rated investment grade' debt instruments issued by a single issuer to 15% of NAV of the scheme. This limit may be extended to 20% of the NAV of the scheme with the prior approval of the Board of AMC and the Board of Trustees. Investments within this limit can be made in mortgage backed securitised debt which are not below investment grade. In case of unrated as well as rated but 'below investment grade' debt instruments, the investment in the instruments of a single issuer is not allowed to exceed 10% of the NAV of the scheme. In case of such debt instruments of all the issuers in a scheme shall not exceed 25% of NAV subject to approval of Boards of AMC and Trustee Company. In the interest of investor protection, SEBI has restricted the total level of investment in such more risky securities.

These restrictions do not apply to money market and government securities, as they carry inherently less risk.

- iv. SEBI restricts the investment in unlisted shares to a maximum of 10% of the NAV of a scheme for closed-ended schemes. In case of open-ended schemes the limit is more stringent at 5% of the NAV of the scheme as there is continuous repurchase by investors in such a scheme.
- v. A MF is prohibited from investing in any unlisted security or a security issued through private placement by an associate or group company of the sponsor. In the case of listed securities of group companies of the sponsor, it is not allowed to invest an amount in excess of 25% of the net assets of any of its schemes of the fund.
- vi. SEBI permits MFs to invest abroad in ADRs/GDRs, within an overall limit of US\$500 million for all funds put together. There is a sub-ceiling for individual MFs, which should not exceed 4% of the net assets managed by them as on the date of the last audited balance sheet, subject to a maximum of US\$50 million for each MF.
- vii. The MFs can invest in foreign debt securities in the countries with fully convertible currencies, short term as well as long term debt instruments with highest rating by accredited/registered credit rating agencies. They may also invest in government securities where the countries are AAA rated. They may also invest in units/securities issued by overseas MFs/unit trusts which invest in aforesaid securities. Each MF can invest up to 4% of its net assets as on Feb 28, 2002 subject to the maximum of US\$ 50 mn.
- viii. MFs are required to buy and sell securities only 'for delivery' and shall in all cases of purchases, take delivery of relative securities and in all cases of sale, deliver the securities and shall in no case put itself in a position whereby it has to make short sale or carry forward transaction or engage in badla finance. Trading in derivatives by MFs has been restricted to hedging and portfolio balancing purposes and not for speculative trading purposes.

The MF having an aggregate of securities which are worth Rs. 10 crore or more should settle their transactions only through dematerialised securities. All MFs should enter into transactions in government securities only in demat form. The MF should not borrow except to meet temporary liquidity needs for repurchase/ redemption of units or payment of interest/dividend to unit holders. It should not advance any loans for any purpose. It may lend securities in accordance with SEBI's stock lending scheme. The funds of a scheme should not be used in option trading or in short selling or carry forward transactions.

Investments in Foreign Securities by Mutual Funds

MFs have been allowed, as per SEBI circular in April 2003, to invest in equity of listed overseas companies which have shareholding of at least 10% in an

Indian company listed on a recognized stock exchange in India (as on January 31, of the year of investment). The overall cap for the entire MFs industry to invest in ADR/GDRs issued by Indian companies and foreign equity and debt securities would be US \$ one billion. It has also been decided to permit each MF to invest up to 10% of their net assets as on January 31, 2002 for investment in foreign securities with the limit of a minimum of US\$ 5 million and a maximum of US\$ 50 million to each mutual fund irrespective of size of assets.

Disclosure of Performance

A MF is required to compute net asset value (NAV) of each scheme by dividing net assets of the scheme by the number units outstanding on the valuation date. The performance of a scheme is reflected in its NAV which is disclosed on daily basis in case of open-ended schemes and on weekly basis in case of close-ended schemes. The NAVs of MFs are required to be published in newspapers. The NAVs are also available on the web sites of MFs. All MFs are also required to put their NAVs and sale/repurchase prices on the web site of Association of Mutual Funds in India AMFI by 8 p.m. everyday, so that the investors and the newspapers can access NAVs of all MFs at one place.

The price at which units may be sold or repurchased by a MF is made available to investors. The repurchase price can not be lower than 93% of the NAV and sale price can not be higher than 107% of NAV. The repurchase price of a closed ended scheme shall, however, not be less than 95% of NAV. The difference between repurchase and sale price shall not exceed 7% of the sale price.

The MFs are required to publish their performance in the form of half-yearly results which also include their returns/yields over a period of time i.e. last six months, 1 year, 3 years, 5 years and since inception of schemes. The MFs are required to send annual report or abridged annual report to the unit holders at the end of the year.

All MFs are required to disclose the performance of the benchmark indices in case of equity oriented schemes, debt oriented scheme and balanced fund scheme while disclosing the yields of the schemes in the format of half-yearly results. The MFs may select any of the indices available, e.g. BSE (Sensitive) index, S&P CNX Nifty, BSE 100, BSE 200 or S&P CNX 500, depending on the investment objective and portfolio of the scheme for equity schemes. In case of debt / balanced schemes, the benchmarks have been developed by research and rating agencies recommended by AMFI.

SEBI issued guidelines requiring mutual funds (MFs) to make certain additional disclosures while making half-yearly portfolio disclosures. In respect of equity oriented schemes, the MFs shall disclose portfolio turnover ratio as a footnote and the name of the industry against the name of each security in accordance with industry classification as recommended by AMFI.

In respect of debt oriented schemes, they shall disclose the average maturity period as a footnote.

Code of Conduct

The MF regulations regulate conduct MFs and AMCs, their employees and intermediaries in the following manner:

- (i) Trustees and AMCs must maintain high standards of integrity and fairness in all their dealings and in the conduct of their business. They must keep the interest of all unit holders paramount in all matters.
- (ii) The sponsor of the MF, the trustees or the AMC or any of their employees shall not render, directly or indirectly any investment advice about any security in the publicly accessible media, whether real-time or non real-time, unless a disclosure of his interest including long or short position in the said security has been made, while rendering such advice.
- (iii) Each director of the AMC would file details of his transactions of dealing in securities with the trustees on a quarterly basis.
- (iv) The AMC shall file with the trustees the details of transactions in securities by its key personnel. Also, the trustees shall furnish to SEBI a certificate stating that they have satisfied themselves that there have been no instances of self dealing or front running by any of the trustees, directors and key personnel of the asset management company.
- (v) The employees of AMCs and trust companies shall follow the procedure and code of conduct laid down by SEBI for investments / trading in securities. Specified categories of employees are required to obtain prior approval before making personal transactions.

The intermediaries are required to take necessary steps to protect the interests of the clients, provide full and latest information of schemes to investors, highlight risk factors of each scheme, avoid misinterpretation and exaggeration, avoid any commission driven malpractices, not rebate commission back to investors, and obtain AMFI certification.

Structure of Mutual Funds

A typical MF in India has the following constituents:

Fund Sponsor: A 'sponsor' is any person who, acting alone or in combination with another body corporate, establishes a MF. It obtains the certificate of registration as a MF from SEBI. The sponsor of a fund is similar to the promoter of a company. In accordance with SEBI Regulations, the sponsor forms a trust and appoints a Board of Trustees, and also generally appoints an AMC as fund manager. In addition, the sponsor also appoints a custodian

to hold the fund assets. The sponsor contributes at least 40% of the net worth of the AMC. It must have a sound financial track record over five years prior to registration and general reputation of fairness and integrity in all its business transactions.

Mutual Fund: A MF is constituted in the form of a trust under the Indian Trusts Act, 1882. The instrument of trust is executed by the sponsor in favour of trustees and is registered under the Indian Registration Act, 1908. The fund invites investors to contribute their money in the common pool, by subscribing to 'units' issued by various schemes established by the trust. The assets of the trust are held by the trustee for the benefit of unit holders, who are the beneficiaries of the trust. Under the Indian Trusts Act, the trust or the fund has no independent legal capacity, it is the trustee(s) who have the legal capacity.

Trustees: The MF or trust can either be managed by the Board of Trustees, which is a body of individuals, or by a Trust Company, which is a corporate body. Most of the funds in India are managed by a Board of Trustees. The trustees are appointed with the approval of SEBI. Two thirds of trustees are independent persons and are not associated with sponsors. The trustees being the primary guardians of the unit holders' funds and assets, a trustee has to be a person of high repute and integrity. The Trustees, however, do not directly manage the portfolio of securities. The portfolio is managed by the AMC as per the defined objectives, in accordance with trust deed and SEBI (MF) Regulations.

Asset Management Company: The AMC, which is appointed by the sponsor or the Trustees and approved by SEBI, acts like the investment manager of the Trust. It functions under the supervision of its Board of Directors, and also under the direction of the Trustees and SEBI. AMC, in the name of the Trust, floats and manages the different investment 'schemes' as per the SEBI Regulations and as per the Investment Management Agreement signed with the Trustees.

Apart from these, the MF has some other fund constituents, such as custodians and depositories, banks, transfer agents and distributors. The *custodian* is appointed for a safe keeping of securities and participating in the clearing system through approved depository. The *bankers* handle the financial dealings of the fund. *Transfer agents* are responsible for issue and redemption of units of MF. AMCs appoint *distributors* or brokers who sell units on behalf of the Fund, and also serve as investment advisers. Besides brokers, independent individuals are also appointed as 'agents' for the purpose of selling fund schemes to investors. The regulations require arm's length relationship between the fund sponsors, trustees, custodians and AMC. The agents and distributors are required to pass AMFI certification programme.

Types of Mutual Funds

The 1990s witnessed emergence of a variety of funds. There are funds which invest in growth stocks, funds which specialise in stocks of a particular sector, funds which assure returns to the investors, funds which invest in debt instruments and fund which invest aggressively. Thus, we have income funds, balanced funds, liquid funds, gilt funds, index funds, exchange traded funds, sectoral funds and there are open-ended funds, closed-ended funds and assured return funds-there is a fund for every requirement. The number of funds and schemes offered by them increased to 38 and 382 respectively at the end of March 2003 though recent past has witnessed consolidation of funds.

MF Types According to Maturity Period: MFs can be broadly classified as *open-ended fund* or *closed-ended funds*. An open-ended fund gives the investors an option to redeem and buy units at any time from the fund. These schemes do not have a fixed maturity period. They can conveniently buy and sell units at NAV related prices which are declared on a daily basis. The key feature of open-end schemes is liquidity. A close-ended fund or scheme on the other hand has a stipulated maturity period e.g. 5-7 years. In closed-ended funds, the investors have to wait till given maturity date to redeem their units to the fund. However, to provide liquidity, it is mandatory for closed-ended funds to get themselves listed on a stock exchange within six months from the closure of the subscription. The units of a close ended scheme may be converted to open ended scheme, if the offer document of such scheme discloses the option and the period of such conversion or the unit-holders are provided with an option to redeem their units in full. To safeguard the interests of investors, a mutual fund is required to submit to SEBI a draft of the communication to unit holders which includes the latest portfolio of the scheme in the format prescribed for half yearly disclosures, the details of financial performance of the scheme since inception in the manner prescribed under the Standard Offer Document alongwith comparison with appropriate benchmarks and the addendum to the offer document detailing the modifications (if any) made to the scheme. Further, the unit-holders should be given a time period of at least 30 days for the purpose of exercising the exit option. The unit-holders who opt to redeem their holdings in part or full, should be allowed to exit at the NAV applicable for the day on which such request is received, during the prescribed period. Funds can also be classified as being *tax-exempt* or *non-tax-exempt*, depending on whether they invest in securities that give tax-exempt returns or not. Some schemes assure a specific return to the unit holders irrespective of performance of the scheme. These are called assured return schemes. A scheme cannot promise returns unless such returns are fully guaranteed by the sponsor or AMC.

MF Types According to Investment Objective: MFs/schemes can also be classified on the basis of the nature of their portfolios and investment

objective, i.e. whether they invest in equities or fixed income securities or some combination of both. Such schemes may be open-ended or close-ended schemes as described earlier. Such schemes may be classified mainly as follows:

Growth/Equity Oriented Schemes provide capital appreciation over the medium to long- term. These schemes normally invest a major part of their corpus in equities and are good for investors having a long-term outlook seeking appreciation over a period of time.

Income/Debt Oriented Schemes provide regular and steady income to investors. Such schemes generally invest in fixed income securities such as bonds, corporate debentures, government securities and money market instruments. Such funds are less risky compared to equity schemes.

Balanced Funds provide both growth and regular income as such schemes invest both in equities and fixed income securities in the proportion indicated in their offer documents. These are appropriate for investors looking for moderate growth.

Money Market or Liquid Funds provide easy liquidity, preservation of capital and moderate income. These schemes invest exclusively in safer short-term instruments such as treasury bills, certificates of deposit, commercial paper and inter-bank call money, government securities, etc. These funds are appropriate for corporate and individual investors as a means to park their surplus funds for short periods.

Gilt Funds invest exclusively in government securities which have no default risk.

Index Funds try to mirror a market index, like Nifty or Sensex, as closely as possible by investing in all the stocks that comprise that index in proportions equal to the weightage of those stocks in the index. Thus, index funds are designed to replicate the performance of a well-established stock market index or a particular segment of the stock market. Unlike a typical MF, these are passively managed funds wherein the fund manager invests the funds in the stocks comprising the index in similar ratios. They may at times hold their stocks for the full year even if there are changes in the composition of index. This helps in reducing transaction fees. While reducing the risk associated with the market, index funds offer many benefits to the investors. Firstly, the investor is indirectly able to invest in a portfolio of a blue chip stock that constitutes the index. Next, they offer diversification across a multiplicity of sectors as at least 20-25 sectors find their way into the index. Added to these is the relatively low cost of management. Index funds are considered appropriate for conservative long term investors looking at moderate risk, moderate return arising out of a well-diversified portfolio.

A few index funds were launched in the recent past to reduce the bias of fund managers in stock selection and to provide a return at par with the index. They are UTI Master Index Fund, UTI Index Equity Fund, Franklin India Index Fund and IDBI Principal Index Fund, etc. Templeton launched

the 'Franklin India Index Tax Fund' in February 2001 which is the first tax saving index fund based on S&P CNX Nifty. There are a total of ten funds based on S&P Nifty namely, Franklin India Index Fund, Franklin India Tax Index Fund, IDBI Principal Index, UTI Nifty Index, India Access Fund, ITI Pioneer Index Fund, Magnum Index fund, IL&FS Index Fund, Prudential ICICI Mutual Fund, and HDFC Index Fund.

Exchange Traded Funds (ETFs) may be described as baskets of securities that are traded, like individual stocks, on an exchange. They are the funds/schemes which invest in the securities of only those sectors or industries as specified in the offer documents. For e.g. Pharmaceuticals, Software, Fast Moving Consumer Goods (FMCG), Petroleum stocks, etc. The returns in these funds are dependent on the performance of the respective sectors/industries.

- ETFs are innovative products, which first came into existence in the USA in 1993. These have gained prominence over the last few years with over \$120 billion invested in about 279 ETFs in over 30 indices globally. About 60% of trading volumes on the American Stock Exchange are from ETFs. Among the popular ones are SPDRs (Spiders) based on the S&P 500 Index, QQQs (Cubes) based on the Nasdaq-100 Index, iSHARES based on MSCI Indices and TRAHK (Tracks) based on the Hang Seng Index. More than 60% of trading volume on American Stock Exchange (AMEX) is in ETFs.
- ETFs have a number of advantages over traditional open-ended index funds as they can be bought and sold on the exchange at prices that are usually close to the actual intra-day NAV of the scheme. They are an innovation to traditional MFs as they provide investors a fund that closely tracks the performance of an index with the ability to buy/sell on an intra-day basis. Unlike listed closed-ended funds, which trade at substantial premia or more frequently at discounts to NAV, ETFs are structured in a manner which allows to create new units and redeem outstanding units directly with the fund, thereby ensuring that ETFs trade close to their actual NAVs.
- Like any other index fund, ETFs are usually passively managed funds wherein subscription/redemption of units works on the concept of exchange with underlying securities. Units can also be bought and sold directly on the exchange. The funds have all the benefits of indexing such as diversification, low cost and transparency. As the funds are listed on the exchange, costs of distribution are much lower and the reach is wider. These savings in cost are passed on to the investors in the form of lower costs. Further, exchange traded mechanism helps reduce to the minimal of the collection, disbursement and other processing charges. The structure of ETFs is such that it protects long-term investors from inflows and outflows of short-term investor. This is because the fund does not bear extra transaction cost when buying/selling due to frequent subscriptions and redemptions. Tracking error, which is divergence between the

price behaviour of a position or portfolio and the price behaviour of a benchmark, of an ETF is likely to be low as compared to a normal index fund. ETFs are highly flexible and can be used as a tool for gaining instant exposure to the equity markets, equitising cash or for arbitraging between the cash and futures market.

- ETFs launched on NSE: (1) The first ETF in India, 'Nifty BeES' (Nifty Benchmark Exchange Traded Scheme) based on S&P CNX Nifty, was launched in January 2002 by BENCHMARK Mutual Fund, an Asset Management Company. It is bought and sold like any other stock on NSE and has all characteristics of an index fund. It would provide returns that closely correspond to the total return of stocks included in Nifty. One can buy or sell Nifty BeES in exactly the same way as one buys/sells any share. Each Nifty BeES is approximately 1/10th of the S&P CNX Nifty. Nifty BeES are in dematerialised form and is settled like any other share in rolling settlement. (2) Junior BeES-The units of Nifty Junior Benchmark Exchange Traded Scheme (Junior BeES) were admitted to dealings on the Exchange w.e.f March 6, 2003. These units too are traded in rolling settlement in dematerialised form only. (3) Liquid BeES (Liquid Benchmark Exchange Traded Scheme) is the first money market ETF (Exchange Traded Fund) in the world. The investment objective of the Scheme is to provide money market returns. Liquid BeES invests in a basket of call money, short-term government securities and money market instruments of short and medium maturities. It is listed and traded on the NSE's Capital Market Segment and is settled on a T+2 Rolling basis. The Fund endeavors to provide daily returns to the investors, which accrue in the form of daily dividend, that are compulsorily reinvested in the Fund daily. The units arising out of dividend reinvestment are allotted and credited to the Demat account of the investors at the end of every month. Such units of Liquid BeES are allotted and credited daily, up to 3 decimal places. NSDL and CDSL have waived all the charges (including Custodian charges) relating to transactions in Liquid BeES in the NSDL and CDSL depository systems respectively. (4) S&P CNX NIFTY UTI NOTIONAL DEPOSITORY RECEIPTS SCHEME (SUNDER) is a passively managed open-ended exchange traded fund, with the objective to provide investment returns that, before expenses, closely correspond to the performance and yield of the basket of securities underlying the S&P CNX NIFTY Index. SUNDER has all benefits of index funds such as diversification, low cost and a transparent portfolio and the flexibility of trading like a share. Thus it provides the best features of both open-ended fund and a listed stock. SUNDER commenced trading on NSE on July 16, 2003.
- 'SPIcE', the first Exchange Traded Fund (ETF) on SENSEX, was launched by Prudential ICICI Mutual Fund. An ETF is a hybrid product having features of both an open-ended mutual fund and an exchange

listed security. The price of one SPiCE unit will be equal to approximately 1/100th of SENSEX value. For example, if the current SENSEX is at 3300, one SPiCE unit will trade at around Rs. 33. The scheme will be managed by Prudential ICICI Asset Management Company (AMC) Ltd. and listed on both-The Stock Exchange, Mumbai (BSE) and The Delhi Stock Exchange (DSE). One unique feature of SPiCE is that it can be bought and sold like any other equity share on the BSE trading terminal (BOLT) through a stockbroker. The minimum lot size will be one unit of SPiCE. Effectively, a retail investor can buy one SPiCE unit for Rs. 33 and hold it in his Demat account just like any other security.

Unit Trust of India

Experimentation with MFs in India, as mentioned earlier, began in 1964 with the Unit Trust of India (UTI) set up by a special statute called the UTI Act, 1963. The objective of the statutory corporation was to encourage saving and investment. UTI was not required to be registered with SEBI. Till recently, all of UTI's schemes and its overall functioning were completely governed by the UTI Act. However, schemes launched after July 1994 fell under SEBI purview (and among the major schemes of UTI, only US-64 remained outside the purview of SEBI till December 2002). In October 2002, Cabinet issued an ordinance for restructuring UTI, including repealing the UTI Act. UTI was finally bifurcated into UTI-I and UTI-II in December 2002. UTI-I comprised of US-64 and other assured return schemes, while UTI-II got all the NAV-based schemes. Further in February 2003, UTI-II was converted into UTI Mutual Fund.

Management of MFs

SEBI amended (mutual fund) regulations, 1996 to provide that the meeting of the trustees should be held at least once in two calendar months and at least six such meetings should be held in every year. It provides that as a result of non-recording of transactions, the NAV of a scheme should not be affected by more than 1%. If the NAV of a scheme differs by more than 1% due to non-recording of transactions, the investors or the scheme as the case may be, shall be paid the difference in the amount. If the investors are allotted units at a price higher than NAV or given a price lower than NAV at the time of sale of their units, they shall be paid the difference in amount by the scheme. If investors are charged lower NAV at the time of purchase of their units or are given a higher NAV at the time of sale of their units, the AMC shall pay the difference in amount to scheme.

SEBI amended its Mutual Funds Regulations, 1996 also to provide nomination facility for the unit holders. The asset management company

would now provide an option to the unit holder to nominate a person in whom the units held by him shall vest in the event of his death. Where the units are held jointly, the joint unit holders may together nominate a person in whom all the rights in the units shall vest in the event of death of all the joint unit holders.

Risk Management System for Mutual Funds

MFs should ensure a minimum standard of due diligence or risk management system in various areas of their operations like fund management, operations, customer service, marketing and distribution, disaster recovery and business contingency, etc. For the purpose, AMFI has prepared an operating manual which covers risk management practices in various areas of operations under three categories: (i) Existing industry practices (ii) Practices to be followed on mandatory basis and (iii) Best Practices to be followed by all MFs. AMFI has advised MFs to follow the following step-by-step approach to implement the risk management system:

Identification of observance of each recommendation: The MFs shall identify areas of current adherence as well as non-adherence of various risk management practices under each of the aforesaid three categories. They shall examine the areas where development or improvement of systems is required. After identifying the same, the MFs shall review the progress made on implementation of the systems on a monthly basis and shall ensure full compliance of all the risk management practices within a period of six months.

Review of progress of implementation: Boards of AMCs and trustee companies shall review the progress made by their MFs with regard to risk management practices and the same shall be reported to SEBI at the time of sending quarterly compliance test reports and half-yearly trustee reports.

Review by Internal Auditors: After full implementation of the risk management system, it shall be made a part of internal audit from April 1, 2003 onwards and the auditors would check on a constant basis about the adequacy of risk management systems.

Sale and Repurchase Price of Units

To bring about uniformity in determination of sale and repurchase price of mutual fund units applicable for investors, it has been decided by SEBI that a uniform method should be used by all mutual funds. Applicable load as a percentage of NAV would be added to NAV to calculate sale price and would be subtracted from NAV to calculate repurchase price. The following formulae should be used:

Sale Price = Applicable NAV × (1+ Sales Load, if any)

Repurchase Price = Applicable NAV × (1- Exit Load, if any)

NAV would be rounded off up to four decimal places in case of liquid/money market MF schemes and up to two decimal places in respect of all other schemes. The disclosures relating to these shall be made in the new offer documents and while updating existing offer documents.

Mutual Fund Service System

While a good number of closed-ended schemes are traded on the Exchanges, the facilities for transacting in open-ended schemes of the MFs are very limited. The transactions in units of open-ended scheme take place directly between the individual investor and the AMC. To fulfill the need for a common platform for sale and repurchase of units of schemes managed by different Funds, NSE/NSCCL provide a facility called Mutual Fund Service System (MFSS), which enables investors to transact in the dematerialized units of open-ended schemes of MFs. NSE with its extensive network covering around 400 cities and towns across the country offers a mechanism for electronic on-line collection of orders from the market and NSCCL acts as a central agency for the clearing and settlement of all the orders.

The salient features of the system are:

- Orders for purchase and sale (redemption) of units from investors are collected using the on-line order collection system of NSE.
- Orders are settled using the Clearing and Settlement system of NSCCL.
- Orders are settled on order-to-order basis.
- Settlement is done on rolling basis- i.e. orders entered on T day are settled on T+2 (working days).
- Settlement to the extent of securities/funds pay-in is made by the Participants.
- Securities are settled in dematerialised mode only.
- Transactions are not covered by settlement guarantee.

Mutual Funds Distribution through Post Offices

On January 22, 2001, India Post in partnership with IDBI-Principal, launched a scheme for distribution of MF products through select post offices. A pilot project was initialised with distribution of MF products only in four cities of Mumbai, Delhi, Patna and Kolkata. From June 15, 2001, the scheme was extended to cover post offices in all major cities across the country. Prudential ICICI and SBI Mutual Funds also tied up with the post offices for distribution of their respective schemes. The MF supplies application forms for their schemes to the post office for sale over the counter and any customer who wishes to invest in MF can take a form from the counter, fill it in and hand it back to the officials in the post office which in turn are handed over to the MF office. This system of distribution is now operational with

regards to four products viz. income, index, balanced and tax savings fund available at over 500 post offices from more than 50 cities all over India.

Resource Mobilisation

The MF vehicle is quite popular with investors who are wary of directly investing in the securities market. The popularity of the MFs as an investment avenue is clearly visible from the data presented in Table 2.2. In India, investment in MFs is considered to be as safe as bank deposits. This is due to assured return schemes offered by some MFs in the past and because of the fact that the MFs in India have been primarily sponsored by government, banks and FIs. Thus, the schemes of MFs of the commercial banks and the insurance companies, which entered the market in 1987, were well received. The boom continued into the nineties with liberalisation evoking positive response from the investors.

Table 2.2: Resource Mobilisation by Mutual Funds

(Rs. crore)

Year	Public Sector MFs			Private Sector MFs	Grand Total
	Bank sponsored	FI sponsored	UTI		
1990-91	2,352	604	4,553	-	7,509
1991-92	2,140	427	8,685	-	11,252
1992-93	1,204	760	11,057	-	13,021
1993-94	148	239	9,297	1,560	11,244
1994-95	765	576	8,611	1,322	11,274
1995-96	113	235	-6,314	133	-5,833
1996-97	6	137	-3,043	864	-2,036
1997-98	237	203	2,875	749	4,064
1998-99	231	691	170	2,519	3,611
1999-00	156	357	4,548	14,892	19,953
2000-01	-----513-----		322	9,292	11,135
2001-02	----- 2,860-----		-7,284	13,977	7137
2002-03	-----1988-----		-9434	12026	45800

Source: RBI

2.3.2 Venture Capital Funds

'venture capital fund' means a fund established in the form of a trust or a company including a body corporate and registered under these regulations which has a dedicated pool of capital raised in a manner specified in the regulations, and invests in venture capital undertaking (VCU) in accordance with the regulations. 'venture capital undertaking' means a domestic

company whose shares are not listed on a recognised stock exchange in India and which is engaged in the business for providing services, production or manufacture of article or things or does not include such activities or sectors which are specified in the negative list by the Board with the approval of the Central Government by notification in the Official Gazette in this behalf.

SEBI is the single-point nodal agency for registration and regulation of both domestic and overseas VCFs. No approval of VCFs by tax authorities is required. VCFs enjoy a complete pass-through status. There is no tax on distributed or undistributed income of such funds. The income distributed by the funds is only taxed in the hands of investors at the rates applicable to the nature of income. This liberalisation is expected to give a strong boost to NRIs in Silicon Valley and elsewhere to invest some of their capital, knowledge and enterprise in ventures in their motherland.

Regulations for VCFs

- i. VCF is a fund established in the form of a trust/a company including a body corporate and registered with SEBI. It has a dedicated pool of capital, raised in the specified manner and invested in VCUs in accordance with the regulations. VCU is a domestic company whose shares are not listed on a stock exchange and is engaged in specified business.
- ii. The minimum investment in a VCF from any investor would not be less than Rs. 5 lakh and the minimum corpus of the fund before it could start activities should be at least Rs. 5 crore.
- iii. A VCF can not invest in associated companies. The investment in a single VCU can not exceed 25% of the corpus of VCF. At least 75% of the investible funds shall be invested in unlisted equity shares or equity linked instruments. A VCF seeking to avail benefit under the relevant provisions of the Income Tax Act will be required to divest from the investment within a period of one year from the listing of the VCU.
- iv. The VCF is eligible to participate in the IPO through book building route as Qualified Institutional Buyer.
- v. Automatic exemption is granted from applicability of open offer requirements in case of transfer of shares from VCFs in Foreign Venture Capital Investors (FVCIs) to promoters of a venture capital undertaking.
- vi. VCF has to disclose the investment strategy at the time of application for registration.

Venture Financing

During the year 2002-03, 9 new domestic VCFs and 4 FVCIs were registered. There were 43 VCFs and 6 FVCIs registered with SEBI as at end March 2003. All VCFs are now required to provide information pertaining to their venture capital activity for every quarter starting from the quarter ending December 2000.

According to a survey conducted by Thomson Financial and PRIME Database on behalf of the Indian venture capital association, India ranked as the third most active venture capital market in Asia Pacific (excluding Japan). It recorded 115 deals in 2001 with average investment per deal amounting to US \$ 7.9 million. 57 VCFs invested US \$ 908 million in 101 Indian companies during the year 2001 as against 88 VCFs investing US \$ 1.20 billion in 270 companies in 2000. The communication and media sector secured US \$ 585 million or 64.5% of total investments. Indian VCFs received US \$ 395 million in new commitments in 2001 against US \$ 826 million in 2000.

2.3.3 Collective Investment Schemes

A Collective investment scheme (CIS) is any scheme or arrangement made or offered by any company under which the contributions, or payments made by the investors, are pooled and utilised with a view to receive profits, income, produce or property, and is managed on behalf of the investors. CIS should satisfy the conditions, referred to in sub-section (2) of section 11AA of the SEBI Act. Investors do not have day to day control over the management and operation of such scheme or arrangement. As per the provisions of SEBI (Collective Investment Schemes) Regulations, 1999, which was notified on October 15, 1999, no existing CIS could launch any new scheme or raise money from the investors even under the existing schemes, unless a certificate of registration was granted to it by SEBI. SEBI continued with its efforts aimed at protecting investors in Collective Investment Schemes (CISs) by asking individual entities, which had failed to apply for grant of registration, to wind up their schemes and repay investors, and by issuing public notices cautioning investors about the risks associated with CIS. In terms of regulation, an existing CIS which has failed to make an application for registration to the Board; or has not been granted provisional registration by SEBI; or have obtained provisional registration but failed to comply with the provisions of regulations 71 & sub-regulation 1; or is not desirous of obtaining provisional registration; is required to wind up its existing schemes, make repayment to the investors and thereafter submit its winding up and repayment report to SEBI. Status of CISs as on May 31, 2003 is depicted in the Table 2.3:

Table 2.3: Status of Collective Investment Schemes as on May 31, 2003

Category	No. of Entities
Entities granted provisional registration-Not authorised to mobilize funds from the public	2
Entities whose applications for registration were rejected recently by SEBI and winding up of schemes to repay investors was ordered	5
Entities which, as certified by their statutory auditors, have wound up their schemes and repaid to the investors	62
Entities which, as certified by their statutory auditors, have repaid to a section of investors and have submitted positive consent from the rest of the investors (more than 25%) to continue with the scheme.	5
Entities which have obtained stay orders from Hon'ble Courts	4
Entities in whose case Liquidator/Administrator/Receiver appointed by Hon'ble Courts	17
Entities to which orders u/s 11B of the SEBI Act, 1992 were issued directing for repayment to investors within one month from the date of order	600
Entities:(a) referred by SEBI to the DCA for initiating winding up; (b) referred by SEBI to the State Governments for initiating civil/criminal proceedings; (c) entities and their promoters /directors/managers/persons in charge of business of schemes of the entities debarred by SEBI from operating in the capital market for a period of 5 years	558
Miscellaneous cases (court matter, claimed to have not raised money etc.)	9
Entities against which prosecution already launched by SEBI	139

Collective Investment Management Company

A Collective Investment Management Company is a company incorporated under the provisions of the Companies Act, 1956 and registered with SEBI under the SEBI (Collective Investment Schemes) Regulations, 1999, whose object is to organise, operate and manage a Collective Investment Scheme. A registered Collective Investment Management Company is eligible to raise funds from the public by launching schemes. Such schemes have to be compulsorily credit rated as well as appraised by an appraising agency. The schemes also have to be approved by the Trustee and contain disclosures, as provided in the Regulations, which would enable the investors to make informed decision. A copy of the offer document of the scheme has to be filed with SEBI and if no modifications are suggested by SEBI within 21 days from the date of filing then the Collective Investment Management Company

is entitled to issue the offer document to the public for raising funds from them.

Model Questions:

Q. A company making a public issue of securities has to file a draft prospectus with SEBI at least _____ prior to the filing of prospectus with the Registrar of Companies.

- | | |
|---------------|-------------|
| (a) 21 days | (b) 30 days |
| (c) one month | (d) 15 days |

Correct Answer: (a)

Q. In the case of a public issue through 100% book building route what is the minimum percentage of shares that can be allocated to the retail investors applying for upto 1000 shares for subscription?

- | | |
|---------|---------|
| (a) 20% | (b) 25% |
| (c) 30% | (d) 45% |

Correct Answer: (b)

Q. At the time of public issue each company enters into a memorandum of understanding with its _____

- | | |
|----------------------|---------------|
| (a) Auditors | (b) Directors |
| (c) Merchant Bankers | (d) SEBI |

Correct Answer: (c)

Q. In terms of Companies Act 1956, offer of securities to more than _____ persons is deemed to be public issue.

- | | |
|---------|--------|
| (a) 50 | (b) 40 |
| (c) 100 | (d) 75 |

Correct Answer: (a)

Q. A holder of an ADR/GDR does not have right to _____.

- (a) vote
- (b) receive dividend
- (c) receive corporate action notification
- (d) trade the ADRs/GDRs in the stock market

Correct Answer: (a)

- Q. Which of the following is not true of a credit rating agency (CRA)?
- (a) CRA has to have a minimum net worth of 5 crore
 - (b) CRA cannot rate the securities issued by its promoter
 - (c) CRA cannot rate the securities issued by any borrower, subsidiary, an associate promoter of CRA if there are common Chairman, Directors or employee between CRA or its rating committee and these entities.
 - (d) CRA can be promoted by any company or body corporate having the net worth of 100 crore in previous 3 years.

Correct Answer: (d)

- Q. All Mutual Funds in India are constituted as a _____.
- (a) Private Limited Company
 - (b) Public Limited Company
 - (c) Trust
 - (d) Partnership concern

Correct Answer: (c)

- Q. The sponsor of a mutual fund is similar to the _____ of a company.
- (a) Promoter
 - (b) Director
 - (c) MD
 - (d) Shareholder

Correct Answer: (a)

CHAPTER 3: SECONDARY MARKET

INTRODUCTION

Secondary market is the place for sale and purchase of existing securities. It enables an investor to adjust his holdings of securities in response to changes in his assessment about risk and return. It also enables him to sell securities for cash to meet his liquidity needs. It essentially comprises of the stock exchanges which provide platform for trading of securities and a host of intermediaries who assist in trading of securities and clearing and settlement of trades. The securities are traded, cleared and settled as per prescribed regulatory framework under the supervision of the Exchanges and oversight of SEBI.

3.1 MARKET DESIGN

3.1.1 Stock Exchanges

The stock exchanges are the exclusive centres for trading of securities. The regulatory framework favours them heavily by almost banning trading of securities outside exchanges. Till recently, they enjoyed territorial monopoly. Listing of companies on the local exchange is mandatory to provide an opportunity to investors to invest in the securities of local companies. The companies wishing to list their securities must get listed on the regional (an exchange is considered regional for the state/Union Territory where it is located) stock exchange nearest to their registered office. If they so wish, they can seek listing on other exchanges also. In a vast country like India, investors long for convenience of trading from a nearby place and take pride also in having stock exchanges in their vicinity. Monopoly of the exchanges within their allocated area, regional aspirations of the people and mandatory listing on the regional stock exchange resulted in multiplicity of exchanges. As a result, we have 24 exchanges (The Capital Stock Exchange, the latest in the list, is yet to commence trading) in the country recognized over a period of time to enable investors across the length and breadth of the country to access the market.

Until recently, the area of operation/jurisdiction of an exchange was specified at the time of its recognition, which in effect precluded competition among the exchanges. These are called regional exchanges. However, the three newly set up exchanges (OTCEI, NSE and ICSE) were permitted to have nation wide trading since their inception. All other exchanges have now been allowed to set up trading terminals anywhere in the country. Many of them have already expanded trading operations to different parts of the

country. The trading platforms of many exchanges are now accessible from a location. Further, with extensive use of information technology, the trading platforms of a few exchanges are also accessible from anywhere through the Internet and mobile devices. This made a huge difference in a geographically vast country like India. It significantly expanded the reach of the exchange to the homes of ordinary investors and assuaged the aspiration of the people to have exchanges in their vicinity. The issuers/investors now prefer to list/trade on exchanges providing nation-wide network rather than on regional exchanges. Consequently, territorial jurisdiction of an exchange, opportunity to invest in securities of local companies through listing on regional exchanges, and convenience of trading from a nearby exchange lost relevance.

The trading volumes on exchanges have been witnessing phenomenal growth for last few years. Since the advent of screen based trading system in 1994-95, it has been growing by leaps and bounds and reported a total turnover of Rs. 33,13,338 crore in 2000-2001. It, however, declined to Rs. 24,79,990 crore during 2002-2003 in view of alleged irregularities in stock market operations. The introduction of rolling settlement also contributed to decline as market participants took some time to adjust to the new settlement regime. The growth of turnover has, however, not been uniform across exchanges as may be seen from Table 3.1. The increase in turnover took place mostly at big exchanges and it was partly at the cost of small exchanges that failed to keep pace with the changes. The business moved away from small exchanges to big exchanges, which adopted technologically superior trading and settlement systems. The huge liquidity and order depth of big exchanges further diverted liquidity of other stock exchanges. As a result, 18 small exchanges put together reported less than 0.01% of total turnover during 2002-03, while 2 big exchanges accounted for over 98% of turnover. About a dozen exchanges reported nil turnover during 2001-02. For most of the exchanges, the *raison d'être* for their existence, i.e. turnover, has disappeared.

NSE and BSE are the major exchanges having nationwide operations. NSE operated through 2800 VSATs in 358 cities at the end of March 2003. The turnover in the CM segment of NSE from non-Mumbai locations accounted for over 86% of total turnover of other stock exchanges during 2002-03. Table 3.2 presents the comparative volumes of turnover of other stock exchanges vis-à-vis turnover of NSE terminals (only CM segment) from different cities during 2002-2003. It is observed that NSE now reports higher turnover from its trading terminals in the home turf of most of the corresponding regional exchanges indicating declining attractiveness of regional exchanges even for local investors.

(Table:3.1)

Table 3.2: Turnover on NSE Terminals vs. Turnover on other Exchanges in the City

(Rs. mn.)

Stock Exchange/ Exchange City		2001-02		2002-03	
		NSE	Exchange	NSE	Exchange
1	Mumbai (BSE)	2,063,023	3073924	2,472,423	3,140,732
2	Mumbai (OTCEI)	2,063,023	38	2,472,423	1
3	Mumbai (ICSE)	2,063,023	554	2,472,423	531
4	Calcutta	469,476	270747	743,670	65,228
5	Delhi	995,294	58280	1,135,646	111
6	Ahmedabad	127,570	148435	141,059	154,586
7	Uttar Pradesh (Kanpur)	48,771	252373	46,221	147,634
8	Ludhiana	27,117	8566	27,102	0
9	Pune	52,905	11710	65,340	0
10	Bangalore	143,346	703	155,440	0
11	Hyderabad	146,049	413	197,777	46
12	Cochin	40,650	0	54,160	0
13	Chennai	182,441	241	221,703	756
14	Madhya Pradesh (Indore)	55,172	235	52,620	0
15	Magadh (Patna)	5,721	0	7,125	2
16	Vadodara	31,659	101	42,240	26
17	Coimbatore	30,572	0	34,070	0
18	Bhubaneshwar	3,758	0	3,077	0
19	Jaipur	59,430	0	82,078	0
20	Guwahati	6,025	0	2,792	1
21	Mangalore	5,910	0	7,570	0
22	Rajkot	14,816	266	16,897	0

Note: The NSE figures relate to its volumes in the CM segment (not WDM and Derivatives segments) only from the concerned city, while all other figures represent all India turnover of the concerned exchange.

Corporatisation & Demutualisation of Stock Exchanges:

Demutualization is the process through which a member-owned company becomes shareholder-owned company. Worldwide, stock exchanges have offered striking example of the trend towards demutualization, as the London Stock Exchange (LSE), New York Stock Exchange (NYSE), Toronto Stock Exchange (TSE) and most other exchanges across the globe have either recently converted, are currently in the process, or are considering demutualization. India is no exception to it.

In January 2002, SEBI directed all the recognised stock exchanges to suitably amend their Rules, Articles etc. within a period of two months from the date of the order to provide that no broker member of the stock exchanges shall be an office bearer of an exchange, i.e. hold the position of President, Vice President, Treasurer etc. This would give effect to the decision taken by SEBI and the policy decision of Government in regard to demutualisation/corporatisation of exchanges by which ownership, management and trading membership would be segregated from each other.

Corporatisation and demutualisation of stock exchanges are complex subjects and involve a number of legal, accounting, Companies Act related and tax issues. Therefore, SEBI set up in March 2002 a Group on 'Corporatisation & Demutualisation of Stock Exchanges' under the Chairmanship of Shri M. H. Kania, former Chief Justice of India. The Group has submitted its report in August 2002 with the following recommendations:

- (a) A common model for corporatisation and demutualisation may be adopted for all stock exchanges. Each stock exchange would be required to submit a scheme drawn on the lines of the recommendations of the Group to SEBI for approval. Any stock exchange failing to comply with the requirement of corporatisation and demutualisation by the appointed date may be derecognised.
- (b) The SCRA may be amended to provide that a stock exchange should be a company incorporated under the Companies Act. The stock exchanges set up as association of persons or as companies limited by guarantee may be converted into companies limited by shares.
- (c) The Income Tax Act may be amended to provide that the accumulated reserves of the stock exchange as on the day of corporatisation are not taxed. The reserves may be taxed in the hands of the shareholders when these are distributed to shareholders as dividend at the net applicable tax rate. All future profits of the stock exchange after it becomes a for profit company may be taxed. Further, the issue of ownership rights (shares) and trading rights in lieu of the card should not be regarded as transfer and not attract capital gains tax. However, at the point of sale of any of these two rights, capital gains tax would be attracted.
- (d) The Indian Stamp Act and the Sales Tax laws may be amended to exempt from stamp duty and sales tax, the transfer of the assets from the mutual stock exchange and the issuance of shares by the new demutualised for-profit company.
- (e) While the Group favours the deposit system for trading rights, it likes to leave the choice of adopting either the card or the deposit system to the exchanges. If the deposit system is accepted, the value of the card will be segregated into two independent rights namely the right to share in the net assets and goodwill of the stock exchange and the right to trade on the stock exchange.

- (f) The three stakeholders viz. shareholders, brokers and investing public through the regulatory body should be equally represented on the governing board of the demutualised exchange. The roles and hence the posts of the Chairman and Chief Executive should be segregated. The Chairman should be a person who has considerable knowledge and experience of the functioning of the stock exchanges and the capital market. The Chairman of the Board should not be a practicing broker. The exchange must appoint a CEO who would be solely responsible for the day to day functioning of the exchange, including compliance with various regulations and risk management practices. The board should not constitute any committee which would dilute the independence of the CEO.
- (g) The demutualised stock exchanges should follow the relevant norms of corporate governance applicable to listed companies in particular, the constitution of the audit committee, standards of financial disclosure and accounting standards, disclosures in the annual reports, disclosures to shareholders and management systems and procedures. It would be desirable for the demutualised exchanges to list its shares on itself or on any other exchange. However, this may not be made mandatory; in case the exchange is listed the monitoring of its listing conditions should be left to the Central Listing Authority or SEBI.
- (h) No specific form of dispersal need be prescribed but there should be a time limit prescribed, say three years which can be extended by a further maximum period of 2 years with the approval of SEBI, within which at least 51% of the shares would be held by non-trading members of the stock exchange. There should be a ceiling of 5% of the voting rights, which can be exercised by a single entity, or groups of related entities, irrespective of the size of ownership of the shares.

Some of the stock exchanges could explore the possibility of merger on the lines of Euronext. It would be in national interest that the infrastructure available with the stock exchanges is put to best economic use.

Stock Exchanges Subsidiary

SEBI required with effect from February 28, 2003 that the small stock exchanges which are permitted to promote/float a subsidiary/company to carry out the following changes in management structure of their subsidiaries and to ensure the compliance:

1. The subsidiary company should appoint a CEO who should not hold any position concurrently in the stock exchange (parent exchange). The appointment, the terms and conditions of service, the renewal of appointment and the termination of service of CEO should be subject to prior approval of SEBI.
2. The governing board of the subsidiary company should have the following composition viz., (a) the CEO of the subsidiary company

should be a director on the Board of subsidiary and the CEO should not be a sub-broker of the subsidiary company or a broker of the parent exchange (b) at least 50% of directors representing on the Governing Board of subsidiary company should not be sub-brokers of the subsidiary company or brokers of the promoter/holding exchange and these directors should be called the Public Representatives (c) the public representatives should be nominated by the parent exchange (subject to prior approval of SEBI) (d) public representatives should hold office for a period of one year from the date of assumption of the office or till the Annual General Meeting of subsidiary company whichever is earlier (e) there should be a gap of at least one year after a consecutive period of three years before re-nomination of any person for the post of non-member director (f) the parent exchange should appoint a maximum of two directors who are officers of the parent exchange.

3. The subsidiary company should have its own staff none of whom should be concurrently working for or holding any position of office in the parent exchange.
4. The parent exchange should be responsible for all risk management of the subsidiary company and shall set up appropriate mechanism for the supervision of the trading activity of subsidiary company.

3.1.2 Membership in NSE

The trading platform of the Exchange is accessible to investors only through the trading members who are subject to its regulatory discipline. Any person can become a member by complying with the prescribed eligibility criteria and exit by surrendering trading membership without any hidden/overt cost. There are no entry/exit barriers to trading membership.

The members are admitted to the different segments of the Exchange subject to the provisions of the Securities Contracts (Regulation) Act, 1956, the Securities and Exchange Board of India Act, 1992, the Rules, circulars, notifications, guidelines, etc., issued there under and the Bye laws, Rules and Regulations of the Exchange.

The standards for admission of members laid down by the Exchange stress on factors such as, corporate structure, capital adequacy, track record, education, experience, etc. and reflect a conscious effort on the part of NSE to ensure quality broking services so as to build and sustain confidence among investors in the Exchange's operations.

Benefits to the trading membership of NSE include:

1. access to a nation-wide trading facility for equities, derivatives, debt and hybrid instruments/products,
2. ability to provide a fair, efficient and transparent securities market to the investors
3. use of state-of-the-art electronic trading systems and technology,
4. dealing with an organisation which follows strict standards for trading & settlement at par with those available at the top international bourses,
5. a demutualised Exchange which is managed by independent and experienced professionals, and
6. dealing with an organisation which is constantly striving to move towards a global marketplace in the securities industry.

Membership of NSE is open to all persons desirous of becoming trading members, subject to meeting requirements/criteria as laid down by SEBI and the Exchange. The different segments currently available on the Exchange for trading are:

- A. Capital Market (Equities and Retail Debt)
- B. Wholesale Debt Market
- C. Derivatives (Futures and Options) Market

Admission to membership of the Exchange to any of the segments is currently open and available. Persons or Institutions desirous of securing admission as Trading Members (Stock Brokers) on the Exchange may apply for any one of the following segment groups:

1. Wholesale Debt Market (WDM) Segment
2. Capital Market (CM) and Wholesale Debt Market (WDM) segments
3. Capital Market (CM) and Futures & Options (F&O) segments
4. Capital Market (CM), Wholesale Debt Market (WDM) and Futures & Options (F&O) segment

Eligibility Criteria for Membership:

The eligibility criteria and deposits/fees payable for trading membership are summarised in Table 3.3. An applicant for membership must possess the minimum stipulated networth. The networth for the purpose should be calculated as stipulated by the Exchange/SEBI. In case the company is a member of any other Stock Exchange(s), it should satisfy the combined minimum networth requirements of all these Stock Exchanges including NSEIL. The minimum paid up capital of a corporate applicant for trading membership should be Rs. 30 lakh.

Table 3.3: Eligibility Criteria for Membership

Particulars	WDM Segment	CM and F&O Segments	CM and WDM Segments	CM, WDM and F&O Segments
Constitution	Corporates/ Institutions	Individuals/Firms /Corporates	Corporates/ Institutions	Corporates/ Institutions
Paid-up capital	Rs. 30 lakh	Rs. 30 lakh	Rs. 30 lakh	Rs. 30 lakh
Net Worth	Rs. 200 lakh	Rs 100 lakh*	Rs. 200 lakh	Rs. 200 lakh*
Interest Free Security Deposit (IFSD)	Rs. 150 lakh	Rs. 125 lakh [□]	Rs. 250 lakh	Rs. 275 lakh [□]
Collateral Security Deposit (CSD)	-	Rs. 25 lakh [□]	Rs. 25 lakh	Rs. 25 lakh [□]
Annual Subscription	Rs. 1 lakh	Rs. 1 lakh	Rs. 2 lakh	Rs. 2 lakh
Education	At least two directors should be graduates.	Proprietor/ two partners/two directors should be graduates. Dealers should also have passed SEBI approved certification test for derivatives and NCFM Capital Market (Basic or Dealers) Module.	At least two directors should be graduates. Dealers should also have passed NCFM Capital Market (Basic or Dealers) Module.	At least two directors should be graduates. Dealers should also have passed SEBI approved certification test for derivatives and NCFM Capital Market (Basic or Dealers) Module.
Experience	-----Two year's experience in securities market-----			
Track Record	The Applicant/Partners/Directors should not be defaulters on any stock exchange. They must not be debarred by SEBI for being associated with capital market as intermediaries. They must be engaged solely in the business of securities and must not be engaged in any fund-based activity.			

* No additional networth is required for self clearing members in the F&O segment. However, a networth of Rs. 300 lakh is required for members clearing for self as well as for other TMs.

□ Additional Rs. 25 lakh is required for clearing membership on the F&O segment. In addition, a member clearing for others is required to bring in IFSD of Rs. 2 lakh and CSD of Rs. 8 lakh per trading member; he undertakes to clear in the F&O segment.

Admission: Admission is a two-stage process with applicants requiring to go through an examination (a module of NCFM) followed by an interview. The

examination is conducted so as to test the knowledge of the people associated with the Exchange on different aspects of the capital/financial markets in India, as it would ensure the conduct of fair, professional and sound dealing practices. The purpose of the interview is to gain knowledge about the prospects as to their capability and commitment to carry on stock broking activities, financial standing, integrity, etc.

Based on the performance of the applicant in the written test, the interview and fulfillment of other eligibility criteria, the application is forwarded to SEBI. On obtaining SEBI Registration, the TM is enabled to trade on the system and issued user ids after payment of fees/deposits, submission of relevant documents and satisfying all the formalities and requirements with regard to the Exchange and NSCCL. The dealers on CM segment are required to clear the Capital Market (Dealers) Module of NCFM while dealers on Futures & Options Segment are required to clear the Derivatives Core Module of NCFM. This is a pre-requisite without which user-ids are not issued. Other regional exchanges may have their own financial eligibility criteria for admitting members to their respective exchanges.

3.1.3 Listing of securities

Listing means admission of securities of an issuer to trading privileges on a stock exchange through a formal agreement. The prime objective of admission to dealings on the Exchange is to provide liquidity and marketability to securities, as also to provide a mechanism for effective management of trading.

Central Listing Authority

SEBI in an official Gazette notified the SEBI (Central Listing Authority) Regulations, 2003 (though yet to be operational). The important features of these regulations are as follows:

- (a) The Central Listing Authority (CLA) is constituted by SEBI and consists of a President and not more than ten other members, out of which at least four members are representatives of the stock exchanges. The President and the members are appointed by the Board from amongst persons having integrity, outstanding ability drawn from judiciary, lawyers, academicians, financial experts etc.
- (b) The functions of CLA are: processing the application made by any body corporate, mutual fund or collective investment scheme for the letter of recommendation, making recommendations as to listing conditions and any other functions as may be specified by the Board from time to time.
- (c) Before making an application for listing to any stock exchange, a body corporate, mutual fund or collective investment scheme should obtain a letter of recommendations for listing from the CLA on an application made in that behalf.

- (d) Any exchange should not consider any listing application made by any body corporate, mutual fund or collective investment scheme, unless it is accompanied by a letter of recommendation issued by the CLA.
- (e) Where the CLA refuses to issue letter of recommendation in accordance with the procedure laid down in the Regulations, the aggrieved party may approach SEBI within 10 days of receipt of such refusal and if satisfied, SEBI may direct the CLA to issue a letter of recommendation within 15 days of receipt of such representation.
- (f) If the exchange refuses listing to the body corporate, mutual fund or collective investment scheme, it may prefer an appeal to the Securities Appellate Tribunal (SAT) as provided in the Securities Contracts (Regulation) Act, 1956.
- (g) The CLA has also set up a 'Fund' called the Central Listing Authority Fund for any processing fees charged and received by the Authority. All sums received by the authority from such other sources as may be decided upon by the Board.

Listing Criteria

As per SEBI directive, an unlisted company may make an initial public offering (IPO) of equity shares or any other security which may be converted into or exchanged with equity shares at a later date, only if it meets all the following conditions:

- (a) The company should have net tangible assets of at least Rs. 3 crore in each of the preceding 3 full years (of 12 months each), of which not more than 50% is held in monetary assets;
- (b) The company should have a track record of distributable profits in terms of section 205 of the Companies Act, 1956, for at least three (3) out of immediately preceding five (5) years;
- (c) The company should have a net worth of at least Rs. 1 crore in each of the preceding 3 full years (of 12 months each);
- (d) In case the company has changed its name within the last one year, atleast 50% of the revenue for the preceding 1 full year is earned by the company from the activity suggested by the new name; and
- (e) The aggregate of the proposed issue and all previous issues made in the same financial year in terms of size (i.e. offer through offer document + firm allotment + promoters' contribution through the offer document), does not exceed five (5) times its pre-issue networth as per the audited balance sheet of the last financial year.

Listing agreement

At the time of listing securities of a company on a stock exchange, the company is required to enter into a listing agreement with the exchange. The listing agreement specifies the terms and conditions of listing and the

disclosers that shall be made by a company on a continuous basis to the exchange for the dissemination of information to the market.

Disclosure of audit qualifications:

SEBI has advised the Stock exchanges to modify the listing agreement to incorporate disclosure of audit qualifications. The same would include:

- disclosures of amounts at the year end and the maximum amount of loans/ advances/ investments outstanding during the year from both parent to subsidiary and vice versa,
- un-audited quarterly results of all listed companies should be subjected to Limited Review from the quarters ending on or after June 30, 2003,
- publication of consolidated financial results along with stand-alone financial results should be applicable on annual basis only. However, companies may have option to publish consolidated financial results along with stand alone financial results on a quarterly/half yearly basis,
- In addition to the above, the stock exchanges should also be required to inform SEBI in cases where companies have failed to remove audit qualifications.

EDIFAR

In association with National Informatics Centre (NIC), SEBI set up an Electronic Data Information Filing and Retrieval (EDIFAR) System to facilitate an electronic filing of certain information by listed companies. This is an automated system for filing, retrieval and dissemination of time sensitive corporate information which are now being filed physically by the listed companies with the stock exchanges. The primary objective is to centralise the information and accelerate its dissemination and thereby enhance transparency and efficiency for the benefit of various classes of market participants like investors, regulatory organisation, research institutions, companies and stock exchanges.

The system is being introduced in phases. In the first phase, the information that would be filed online are: (i) financial statements comprising of balance sheets, profit and loss account and full version of annual report, half yearly financial statements including cash flow statements and quarterly financial statements, (ii) corporate governance reports, (iii) shareholding pattern statement, (iv) statement of action taken against the company by an regulatory agencies and (v) such other statement, information or report as may be specified by SEBI from time to time in this regard.

These would be filed electronically by 200 companies included in the BSE Sensex, S&P CNX Nifty and BSE 200 indices. These filings would be in

addition to the filings made by the companies with the stock exchange in compliance with the provisions of the listing agreement. Gradually the physical filing would be discontinued and both the number of companies as well as disclosure statements would be expanded to cover all the actively traded companies for all the disclosure statements.

EDIFAR is available at <http://sebidifar.nic.in>. Companies can access it to file the documents/statements electronically. Investors/public can query the database. Filing of documents/statements on EDIFAR was applicable initially for 200 companies. SEBI decided to make this requirement applicable to further 500 companies, selected on the basis of market capitalization and turnover which became applicable for them with effect from the quarter ending September 2002.

SEBI has advised Stock Exchanges to initiate action in case companies listed on the stock exchange fail to comply with the various requirements of the listing agreements. In other words, the stock exchanges are expected to take actions against companies that do not comply with the provisions of Section 21 of the SC(R)A, 1956.

3.1.4 Delisting of Securities

SEBI (Delisting of Securities) Guidelines 2003 are applicable to delisting of securities of companies and specifically apply to:

- (a) Voluntary delisting being sought by the promoters of a company
- (b) Any acquisition of shares of the company (either by a promoter or by any other person) or scheme or arrangement, by whatever name referred to, consequent to which the public shareholding falls below the minimum limit specified in the listing conditions or listing agreement that may result in delisting of securities
- (c) Promoters of the companies who voluntarily seek to de-list their securities from all or some of the stock exchanges
- (d) Cases where a person in control of the management is seeking to consolidate his holdings in a company, in a manner which would result in the public shareholding in the company falling below the limit specified in the listing conditions or in the listing agreement that may have the effect of company being de-listed
- (e) Companies which may be compulsorily de-listed by the stock exchanges.

Voluntary Delisting

- Any promoter or acquirer desirous of delisting securities of the company under the provisions of these guidelines should obtain the prior approval of shareholders of the company by a special resolution passed at its general meeting, make a public announcement in the

manner provided in these guidelines, make an application to the delisting exchange in the form specified by the exchange, and comply with such other additional conditions as may be specified by the concerned stock exchanges from where securities are to be de-listed.

- Any promoter of a company which desires to de-list from the stock exchange should determine an exit price for delisting of securities in accordance with the book building process as stated in the guidelines.
- The stock exchanges shall provide the infrastructure facility for display of the price at the terminal of the trading members to enable the investors to access the price on the screen to bring transparency to the delisting process. The stock exchange shall also monitor the possibility of price manipulation and keep under special watch the securities for which announcement for delisting has been made.

Compulsory De-listing of Companies

- The stock exchanges may de-list companies which have been suspended for a minimum period of six months for non-compliance with the listing agreement.
- The stock exchanges have to give adequate and wide public notice through newspapers and also give a show cause notice to a company. The exchange shall provide a time period of 15 days within which representation may be made to the exchange by any person who may be aggrieved by the proposed delisting.
- Where the securities of the company are de-listed by an exchange, the promoter of the company should be liable to compensate the security holders of the company by paying them the fair value of the securities held by them and acquiring their securities, subject to their option to remain security-holders with the company.

Reinstatement of De-listed Securities

Reinstatement of de-listed securities should be permitted by the stock exchanges with a cooling period of 2 years. It should be based on the respective norms/criteria for listing at the time of making the application for listing and the application should be initially scrutinized by the CLA.

3.1.5 Listing of Securities on NSE

NSE plays an important role in helping an Indian companies access equity capital, by providing a liquid and well-regulated market. NSE has about 818 (as on 31st March 2003) companies listed representing the length, breadth and diversity of the Indian economy which includes from hi-tech to heavy

industry, software, refinery, public sector units, infrastructure, and financial services. Listing on NSE raises a company's profile among investors in India and abroad. Trade data is distributed worldwide through various news-vending agencies. More importantly, each and every NSE listed company is required to satisfy stringent financial, public distribution and management requirements. High listing standards foster investor confidence and also bring credibility into the markets.

NSE lists securities in its Capital Market (Equities) segment and its Wholesale Debt Market segment. NSE trading terminals are now situated in 358 cities across the length and breadth of India. Securities listed on the Exchange are required to fulfill the eligibility criteria for listing. Various types of securities of a company are traded under a unique symbol and different series.

Benefits of Listing on NSE

Listing on NSE provides qualifying companies with the broadest access to investors, the greatest market depth and liquidity, cost-effective access to capital, the highest visibility, the fairest pricing, and investor benefits.

- (a) A premier marketplace: The sheer volume of trading activity ensures that the impact cost is lower on the Exchange which in turn reduces the cost of trading to the investor. NSE's automated trading system ensures consistency and transparency in the trade matching which enhances investors confidence and visibility of our market.
- (b) Visibility: The trading system provides unparalleled level of trade and post-trade information. The best 5 buy and sell orders are displayed on the trading system and the total number of securities available for buying and selling is also displayed. This helps the investor to know the depth of the market. Further, corporate announcements, results, corporate actions etc are also available on the trading system.
- (c) Largest exchange: NSE is the largest exchange in the country in terms of trading volumes. The Equity segment of the NSE witnessed an average daily turnover of Rs. 2158 crore in March 2003 with an average of nearly 10 lakh trades on a daily basis. During the year 2002-2003, NSE reported a turnover of Rs. 617988.6 crore in the equities segment accounting for 64% of the total Indian securities market.
- (d) Unprecedented reach: NSE provides a trading platform that extends across the length and breadth of the country. Investors from around 358 cities as on 31st March 2003 can avail of trading facilities on the NSE Trading Network. The Exchange uses the latest in communication technology to give instant access from every location.

- (e) Modern infrastructure: NSE introduced for the first time in India, fully automated screen based trading. The Exchange uses a sophisticated telecommunication network with trading terminals connected through 2808 VSATs (Very Small Aperture Terminals).
- (f) Transaction speed: The speed at which the Exchange processes orders, results in liquidity and best available prices. The Exchange's trading system on an average processes 8000 orders per minute. The highest number of trades in a day of 13,96,928 was recorded on February 28, 2003.
- (g) Short settlement cycles: The Exchange has successfully completed around 774 settlements as on 31st March 2003 without any delays.
- (h) Broadcast facility for corporate announcements: The NSE network is used to disseminate information and company announcements across the country. Important information regarding the company is announced to the market through the Broadcast Mode on the NEAT System as well as disseminated through the NSE website. Corporate developments such as financial results, book closure, announcements of bonus, rights, takeover, mergers etc. are disseminated across the country thus minimizing scope for price manipulation or misuse.
- (i) Trade statistics for listed companies: Listed companies are provided with monthly trade statistics for all the securities of the company listed on the Exchange.
- (j) Investor service centers: Six investor-service centers opened by NSE across the country cater to the needs of investors.
- (k) Nominal listing fees: The listing fee charged by the Exchange is much lower compared to the listing fees charged by other exchanges. In case the Exchange is the Non Regional Exchange, the Annual Listing Fees payable would be only 50%.

Listing criteria:

The Exchange has laid down criteria for listing of new issues by companies, IPOs by knowledge-based issuers, companies listed on other exchanges, and companies formed by amalgamation/restructuring, etc. in conformity with the Securities Contracts (Regulation) Rules, 1957 and directions of the Central Government and the Securities and Exchange Board of India (SEBI). The criteria include minimum paid-up capital and market capitalisation, project appraisal, company/promoter's track record, etc. The listing criteria for companies in the CM Segment are presented in Table 3.4. The issuers of securities are required to adhere to provisions of the Securities Contracts (Regulation) Act, 1956, the Companies Act, 1956, the Securities and Exchange Board of India Act, 1992, and the rules, circulars, notifications, guidelines, etc. prescribed there under.

Table 3.4: Listing Criteria for Companies on the CM Segment of NSE

Criteria	Initial Public Offerings (IPOs)	IPOs Knowledge Based Companies	Companies listed on other exchanges
Paid-up Equity Capital (PUEC)/Market Capitalisation (MC)	PUEC $\geq$ Rs. 10 cr. and MC $\geq$ Rs. 25 cr.	PUEC $\geq$ Rs. 5 cr. and MC $\geq$ Rs. 50 cr.	PUEC $\geq$ Rs. 10 cr. and MC $\geq$ Rs. 25 cr. OR PUEC $\geq$ Rs. 25 cr. OR MC $\geq$ Rs. 50 cr.
Company/Promoter's Track Record	3 years of existence of applicant/promoting company.	3 years of existence of applicant/promoting company.	3 years of existence of applicant/promoting company.
Dividend Record or Net worth	--	--	Dividend paid in at least 2 out of the last 3 years OR Net worth Rs. 50 cr.
Project Appraisal / Listing	Project appraisal by specified agencies	Project appraisal by specified agencies	Listed on any other stock exchange for at least last three years OR Project appraisal by specified agencies
Other Requirements	(a) No disciplinary action by other stock exchanges/regulatory authority in past 3 yrs. (b) Satisfactory redressal mechanism for investor grievances, distribution of shareholding and litigation record of the promoting company, if any.	(a) No disciplinary action by other stock exchanges/regulatory authority in past 3 years. (b) Satisfactory redressal mechanism for investor grievances, distribution of shareholding and litigation record of the promoting company, if any.	(a) Same as for IPOs. (b) No negative net worth, No winding-up petition, and No reference to BIFR.

Note.:

1. The criteria for IPOs shall also be applicable to companies which have come out with IPOs, but are not listed on NSE, provided they make an application for listing within 6 months of the date of closure of public issue.
2. Knowledge-based companies are companies in the field of information technology, internet commerce, telecommunications, pharmaceuticals, etc. and the revenue from knowledge-based activity is more than 75% of income for last 2 years.
3. Dividend track record / networth / project appraisal / listing are not applicable to Government Companies, PSUs, FIs, Nationalised Banks, Statutory Corporations, Banking Companies etc. who are otherwise governed by a regulatory framework.

Explanations:

1. Paid-up Equity Capital means post issue paid up equity capital.
2. In case of IPOs, market capitalisation is the product of the issue price and the post-issue number of equity shares. In case of listed companies it is the product of post issue number of equity shares and average of the weekly high and low of the closing prices during last 12 months is used to calculate market capitalisation.
3. Net worth means paid-up equity capital + reserves excluding revaluation reserve-miscellaneous expenses not written off - negative balance in profit and loss account to the extent not set off.

3.1.6 Dematerialisation

Traditionally, settlement system on Indian stock exchanges gives rise to settlement risk due to the time that elapses before trades are settled. Trades are settled by physical movement of certificates. This has two aspects: First relates to settlement of trade in stock exchanges by delivery of shares by the seller and payment by the buyer. The stock exchange aggregates trades over a period of time and carries out net settlement through the physical delivery of securities. The process of physically moving the securities from the seller to his broker to Clearing Corporation to the buyer's broker and finally to the buyer takes time with the risk of delay somewhere along the chain. The second aspect relates to transfer of shares in favour of the purchaser by the issuer. This system of transfer of ownership is grossly inefficient as every transfer involves the physical movement of paper securities to the issuer for registration, with the change of ownership being evidenced by an endorsement on the security certificate. In many cases the process of transfer takes much longer than the two months as stipulated in the Companies Act, and a significant proportion of transactions end up as bad delivery due to faulty compliance of paper work. Theft, forgery, mutilation of certificates and other irregularities are rampant, and in addition the issuer has the right to refuse the transfer of a security. Thus the buyer does not get good title of the securities after parting with good money. All this adds to costs and delays in settlement, restricts liquidity and makes investor grievance redressal time-consuming and at times intractable.

To obviate these problems, the Depositories Act, 1996 was passed to provide for the establishment of depositories in securities with the objective of ensuring free transferability of securities with speed, accuracy and security by

- making securities of public limited companies freely transferable subject to certain exceptions;
- dematerialising the securities in the depository mode; and
- Providing for maintenance of ownership records in a book entry form.

In order to streamline both the stages of settlement process, the Depositories Act envisages transfer ownership of securities electronically by book entry without making the securities move from person to person. The Act has made the securities of all public limited companies freely transferable by restricting the company's right to use discretion in effecting the transfer of securities, and dispensing with the transfer deed and other procedural requirements under the Companies Act.

A depository holds securities in dematerialised form. It maintains ownership records of securities and effects transfer of ownership through book entry. By fiction of law, it is the registered owner of the securities held with it with the limited purpose of effecting transfer of ownership at the behest of the

owner. The name of the depository appears in the records of the issuer as registered owner of securities. The name of actual owner appears in the records of the depository as beneficial owner. The beneficial owner has all the rights and liabilities associated with the securities. The owner of securities intending to avail of depository services opens an account with a depository through a depository participant (DP). The securities are transferred from one account to another through book entry only on the instructions of the beneficial owner.

In order to promote dematerialisation of securities, NSE joined hands with leading financial institutions to establish the National Securities Depository Ltd. (NSDL), the first depository in the country, with the objective of enhancing the efficiency in settlement systems as also to reduce the menace of fake/forged and stolen securities. This has ushered in an era of dematerialised trading and settlement. SEBI has made dematerialised settlement mandatory in an ever-increasing number of securities in a phased manner, thus bringing about an increase in the proportion of shares delivered in dematerialised form. This was initially introduced for institutional investors and was later extended to all investors. Starting with twelve scrips on January 15, 1998, all investors were required to mandatorily trade in dematerialised form in respect of 2,335 securities as at end-June 2001. By November 2001, 3811 companies were under demat mode and the rest of the companies were brought under compulsory demat mode by January 02, 2002. At the end of March 2003, 4,761 and 4,628 companies were connected to NSDL and CDSL respectively. The number of dematerialised securities increased from 37 billion at the end of March 2001 to 68.8 billion at the end of March 2003.

The securities of companies, which fail to establish connectivity with both the depositories on the scheduled date as announced by SEBI, are traded on the 'trade for trade' settlement window of the exchanges. However, in order to mitigate the difficulties of small investors, the stock exchanges provide additional windows for sales upto 500 shares in the physical form.

The share of demat delivery in total delivery at NSE increased to almost 100% in value terms during 2002-2003. There is an increasing preference to settle trades, particularly in high value securities, in demat form. Such high level of demat settlement reassures success of rolling settlement.

3.2 TRADING

3.2.1 *Trading Mechanism*

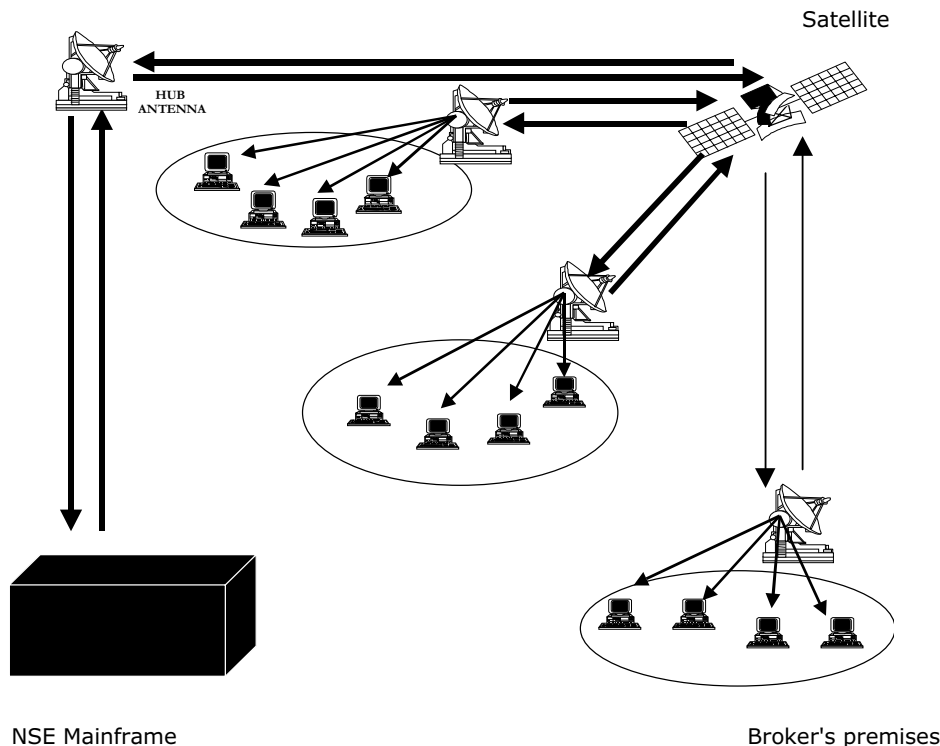
The trading on stock exchanges in India used to take place through open outcry without use of information technology for immediate matching or recording of trades. This was time consuming and inefficient. This imposed limits on trading volumes and efficiency. In order to provide efficiency, liquidity and transparency, NSE introduced a nation-wide on-line fully-automated screen based trading system (SBTS) where a member can punch into the computer quantities of securities and the prices at which he likes to transact and the transaction is executed as soon as it finds a matching sale or buy order from a counter party. SBTS electronically matches orders on a strict price/time priority and hence cuts down on time, cost and risk of error, as well as on fraud resulting in improved operational efficiency. It allows faster incorporation of price sensitive information into prevailing prices, thus increasing the informational efficiency of markets. It enables market participants, irrespective of their geographical locations, to trade with one another simultaneously, improving the depth and liquidity of the market. It provides full anonymity by accepting orders, big or small, from members without revealing their identity, thus providing equal access to everybody. It also provides a perfect audit trail, which helps to resolve disputes by logging in the trade execution process in entirety. This diverted liquidity from other exchanges and in the very first year of its operation, NSE became the leading stock exchange in the country, impacting the fortunes of other exchanges and forcing them to adopt SBTS also. Today India can boast that almost 100% trading takes place through electronic order matching.

Technology was used to carry the trading platform from the trading hall of stock exchanges to the premises of brokers. NSE carried the trading platform further to the PCs at the residence of investors through the Internet and to handheld devices through Wireless Application Protocol (WAP) for convenience of mobile investors. This made a huge difference in terms of equal access to investors in a geographically vast country like India.

The trading network is depicted in **Figure 3.1**. NSE has main computer which is connected through Very Small Aperture Terminal (VSAT) installed at its office. The main computer runs on a fault tolerant STRATUS mainframe computer at the Exchange. Brokers have terminals (identified as the PCs in the Figure 3.1) installed at their premises which are connected through VSATs/leased lines/modems. An investor informs a broker to place an order on his behalf. The broker enters the order through his PC, which runs under Windows NT and sends signal to the Satellite via VSAT/leased line/modem. The signal is directed to mainframe computer at NSE via VSAT at NSE's office. A message relating to the order activity is broadcast to the

respective member. The order confirmation message is immediately displayed on the PC of the broker. This order matches with the existing passive order(s) otherwise it waits for the active orders to enter the system. On order matching, a message is broadcast to the respective member.

Figure 3.1: Trading Network



The trading system operates on a strict price time priority. All orders received on the system are sorted with the best priced order getting the first priority for matching i.e., the best buy orders match with the best sell order. Similar priced orders are sorted on time priority basis, i.e. the one that came in early gets priority over the later one. Orders are matched automatically by the computer keeping the system transparent, objective and fair. Where an order does not find a match, it remains in the system and is displayed to the whole market, till a fresh order comes in or the earlier order is cancelled or modified. The trading system provides tremendous flexibility to the users in terms of kinds of orders that can be placed on the system. Several time-related (day, immediate or cancel), price-related (buy/sell limit and stop loss orders) or volume related (all or none, minimum fill, etc) conditions can be easily built into an order. The trading system also provides complete market information on-line. The market screens at any point of time provide complete information on total

order depth in a security, the five best buys and sells available in the market, the quantity traded during the day in that security, the high and the low, the last traded price, etc. Investors can also know the status of the orders almost as soon as they are placed with the trading members. Thus the NEAT system provides an Open Electronic Consolidated Limit Order Book (OECLOB). Limit orders are orders to buy or sell shares at a stated quantity and stated price. If the price quantity conditions do not match, the limit order will not be executed. The term 'limit order book' refers to the fact that only limit orders are stored in the book and all market orders are crossed against the limit orders sitting in the book. Since the order book is visible to all market participants, it is termed as an 'Open Book'.

The NEAT system supports an order driven market, wherein orders match on the basis of price and time priority. All quantity fields are in units and prices are quoted in Indian Rupees. The regular lot size and tick size for various securities traded is notified by the Exchange from time to time.

Market Types

The Capital Market system (the NEAT system) has four types of active markets:

Normal Market: All orders which are of regular lot size or multiples thereof are traded in the Normal Market. For shares that are traded in the compulsory dematerialised mode the market lot of these shares is one. Normal market consists of various book types wherein orders are segregated as Regular lot orders, Special Term orders, Negotiated Trade Orders and Stop Loss orders depending on their order attributes.

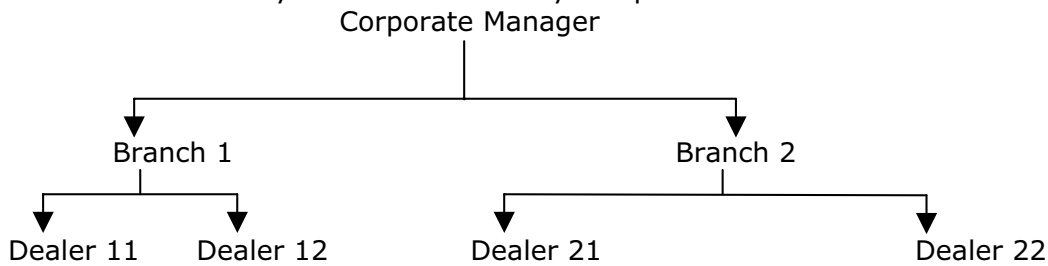
Odd Lot Market:
An order is called an odd lot order if the order size is less than regular lot size. These orders do not have any special terms attributes attached to them. In an odd-lot market, both the price and quantity of both the orders (buy and sell) should exactly match for the trade to take place. Currently the odd lot market facility is used for the Limited Physical Market as per the SEBI directives. Pursuant to the directive of SEBI to provide an exit route for small investors holding physical shares in securities mandated for compulsory dematerialised settlement, the Exchange has provided a facility for such trading in physical shares not exceeding 500 shares. This market segment is referred to as 'Limited Physical Market' (small window). The Limited Physical Market was introduced on June 7, 1999. The trading members are required to ensure that shares are duly registered in the name of the investor(s) before entering orders on their behalf on a trade date.

Auction Market: In the Auction Market, auctions are initiated by the Exchange on behalf of trading members for settlement related reasons.

Retail Debt Market: In Retdebt market, government securities are traded. At present only the Central Government Securities are allowed to trade

Corporate Hierarchy

The trading member has the facility of defining a hierarchy amongst its users of the NEAT system. This hierarchy comprises:



The users of the trading system can logon as either of the user types. The significance of each type is explained below:

- (a) Corporate Manager: The corporate manager is a term assigned to a user placed at the highest level in a trading firm. The facility to set Branch Order Value Limits and User Order Value Limits is available to the corporate manager.
- (b) Branch Manager: The branch manager is a term assigned to a user who is placed under the corporate manager. The branch manager can set user order value limit for each of his branch.
- (c) Dealer: Dealers are users at the lower most level of the hierarchy. A dealer can view and perform order and trade related activities only for oneself.

Market Phases

The system is normally made available for trading on all days except Saturdays, Sundays and NSE specified holidays. A trading day typically consists of a number of discrete stages as explained below:

1. Open phase: The open period indicates the commencement of trading activity. The market open time for different markets is notified by the Exchange to all the trading members. During this phase, orders are matched on a continuous basis. Trading in all the instruments is allowed unless they are specifically prohibited by the exchange.
2. Market close: When the market closes, trading in all instruments for that market comes to an end.
3. Surcon: Surveillance and Control (SURCON) is that period after market close during which, the users have inquiry access only.

Major Segments of the NEAT Screen

The following windows are displayed on the Trader Workstation screen:

- (a) Title bar: It displays trading system name i.e. NEAT, the date and the current time.
- (b) Ticker Window: The ticker displays information about any trade in the system as and when it takes place. The user has the option of selecting the securities that should appear in the ticker. Securities in ticker can be selected for each market type. On the extreme right hand of the ticker is the on-line index window that displays the current index value of NSE indices namely S&P CNX Nifty, S&P CNX Defty, CNX Nifty Junior, S&P CNX500 and CNX Midcap 200. The ticker window will be displaying securities of both derivatives and capital market segments. The ticker selection facility will be confined to the securities of capital segment only. The first ticker window, by default, will display all the derivatives contracts traded in the Futures and Options segment.
- (c) Tool Bar: The toolbar has functional buttons which can be used with the mouse for quick access to various functions such as Buy Order Entry, Sell Order Entry, Market By Price (MBP), Previous Trades (PT), Outstanding Order (OO), Activity Log (AL), Order Status (OS), Market Watch (MW), Snap Quote (SQ), Market Movement (MM), Market Inquiry (MI), Auction Inquiry (AI), Order Modification (OM), Order Cancellation (OCXL), Security List, Net Position, Online Backup, Supplementary Menu, Index Inquiry, Index Broadcast and Help. All these functions are also accessible through the keyboard.
- (d) Market Watch: The Market Watch window is the main area of focus for a trading member. This screen allows continuous monitoring of the securities that are of specific interest to the user. It displays trading information for the selected securities.
- (e) Inquiry Window: This screen enables the user to view information such as Market By Price (MBP), Previous Trades (PT), Outstanding Orders (OO), Activity Log (AL) and so on. Relevant information for the selected security can be viewed.
- (f) Order/Trade Window: This enables the user to enter/modify/cancel orders and sends the request for trade cancellation and modification.
- (g) Message Window: This enables the user to view messages broadcast by the Exchange such as corporate actions, any market news, auctions related information etc. and other messages like order confirmation, order modification, order cancellation, orders which have resulted in quantity freezes/price freezes and the Exchange action on them, trade confirmation, trade cancellation/modification requests and Exchange action on them, name and time when the user logs in/logs off from the system, messages specific to the trading member, etc. These messages appear as and when the event takes place in a chronological order.

Basket Trading

The purpose of Basket Trading is to provide NEAT users with a facility to create offline order entry file for a selected portfolio. On inputting the value, the orders are created for the selected portfolio of securities according to the ratios of their market capitalisations.

All the orders generated through the offline order file are priced at the available market price.

Quantity of shares of a particular security in portfolio are calculated as under:

$$\text{No of Shares of a security in portfolio} = \frac{\text{Amount * Issued Capital for the Security}}{\text{Current Portfolio Capitalization}}$$

Where,

Current Portfolio Capitalisation = Summation [Last Traded Price (Previous close if not traded) * No. of Issued shares]

In case at the time of generating the basket if any of the constituents are not traded, the weightage of the security in the basket is determined using the previous close price. This price may become irrelevant if there has been a corporate action in the security for the day and the same has not yet been traded before generation of the file. Similarly, basket facility will not be available for a new listed security till the time it is traded.

Reverse Basket on Traded Quantity

The Reverse Basket Trading provides the users with an offline file for reversing the trades that have taken place for a basket order. This contains orders for different securities of the selected basket file. The Orders are created according to the volume of trade that has taken place for that basket. This helps to monitor the current status of the basket file as the latest status of the orders are displayed in the list box. It is advised to create each basket with a different name and clean up the directories regularly and not tamper with the original basket file once it has been loaded as it may give erroneous results.

Index Trading

The purpose of Index Trading is to provide NEAT users with a facility of buying and selling of Indices, in terms of securities that comprises the Index. Currently, the facility is only for NIFTY securities. The users have to specify the amount, and other inputs which are sent to the host, and the host generates the orders.

The Index Trading provides users with the choice of gaining with the rise/decline in Index values either by buying or selling them. The buying and

selling of Indices are simulated by entering orders in securities in proportion to the composition of the chosen index.

Quantity of shares of a particular security of NIFTY is calculated as under:

$$\text{No. of Shares of a security in index} = \frac{\text{Amount * Issued Capital for the security}}{\text{Current Market Capitalization of the Index}}$$

Where,

Current Market Capitalisation of the Index = Summation [Last Traded Price (Previous close if not traded) * No. of Issued Shares]

Buy Back Trades

The purpose of Buy Back Trade functionality is to give information to the users/market about the buy back trades so far occurred in the securities whose buyback period is currently on. The front screen provides information about Symbol, Series, Day's high price, Day's Low Price, Day's Weighted Average Price, Day's Volume, Total Volume, Highest/Lowest/Weighted Average Prices till previous day, Buy Back Start & End date.

3.2.2 Order Management

Order Management consists of entering orders, order modification, order cancellation and order matching.

Entering Orders

The trading member can enter orders in the normal market and auction market. A user can place orders in any of the above mentioned markets by invoking the respective order entry screens.

Active & Passive Orders: When any order enters the trading system, it is an active order. It tries to find a match on the other side of the books. If it finds a match, a trade is generated. If it does not find a match, the order becomes a passive order and goes and sits in the order book.

Order Books: As and when valid orders are entered or received by the trading system, they are first numbered, time stamped and then scanned for a potential match. This means that each order has a distinctive order number and a unique time stamp on it. If a match is not found, then the orders are stored in the books as per the price/time priority. Price priority means that if two orders are entered into the system, the order having the best price gets the higher priority. Time priority means that if two orders having the same price are entered, then the order that is entered first gets

the higher priority. Best price for a sell order is the lowest price and for a buy order, best price is the highest price. The different order books in the Capital Market segment are as detailed below:

- a) *Regular Lot Book*: An order that has no special condition {(like All or None (AON) or Minimum Fill (MF) or Stop Loss (SL))} associated with it is a Regular Lot order.
- b) *Special Terms Book*: Orders which have a special term attribute attached to it are known as special terms orders.
- c) *Stop Loss Book*: Stop Loss orders are stored in this book only till the trigger price specified in the order is reached or surpassed and beyond which such orders are released into the Regular lot book. A sell order in the Stop Loss book gets triggered when the last traded price in the normal market reaches or falls below the trigger price of the order. On the other hand, a buy order in the Stop Loss book gets triggered when the last traded price in the normal market reaches or exceeds the trigger price of the order.
- d) *Odd Lot Book*: Odd lot order book can be selected in the order entry screen while trading in the physical market. Book type is 'OL'.
- e) *Retdebt Order Book*: Retdebt market orders can be entered into the system by selecting the Retdebt order book. These orders scan only the Retdebt order book for potential matches. If orders are not found then the order is stored in the order book as passive order. Book type is 'D'.
- f) *Auction Order Book*: Auction order book stores orders entered by the trading members to participate in the Exchange initiated auctions. Auction orders can be initiator orders, competitor orders and solicitor orders. For further details kindly refer to section on 'Auction'.

Symbol & Series: Securities can be selected to the order entry screen from any of the inquiry screens such as MBP, OO, PT, AL, MI and SQ. In case the security is not set up in the Market Watch screen, the Security List can also be used to select the codes.

Order entry in a security is not possible if that security is either suspended from trading or not eligible to trade in a particular market.

Quantity: Quantity should be mentioned in multiples of regular lot size for that security.

Price: A user has the option to either enter the order at the default price or overwrite it with any other desired price. If a user mentions a price, it should be in multiples of the tick size for that particular security and within the day's minimum/maximum price range.

In case of stop loss orders, a user has the flexibility of specifying a limit price along with the trigger price.

Order Types and Conditions: The system allows the trading members to enter orders with various conditions attached to them as per their requirements. These conditions are broadly divided into Time Conditions, Quantity Conditions, Price Conditions and Other Conditions. Several combinations of the above are allowed thereby providing enormous

flexibility to the users. The order types and conditions are summarised below:

a) *Time Conditions*

DAY: A DAY order, as the name suggests is an order that is valid for the day on which it is entered. If the order is not executed during the day, the system cancels the order automatically at the end of the day.

IOC: An Immediate or Cancel (IOC) order allows the user to buy or sell a security as soon as the order is released into the system, failing which the order is cancelled from the system. Partial match is possible for the order, and the unmatched portion of the order is cancelled immediately.

b) *Quantity Conditions*

DQ: An order with a Disclosed Quantity (DQ) allows the user to disclose only a portion of the order quantity to the market. For e.g. if the order quantity is 10,000 and the disclosed quantity is 2,000, then only 2,000 is disclosed to the market.

MF: The Minimum Fill (MF) orders allow the user to specify the minimum quantity for which an order should be traded. The quantity of trade involving such an order condition should be at least this minimum quantity specified. E.g. for a buy order of 10,000 units with a MF of 2,000 units maximum 5 trades is possible with 2,000 units each or a minimum one trade of 10,000 units.

AON: All or None (AON) order allows the user to attach condition that the full order quantity should be traded against. This may be by way of multiple trades. If the full order is not completely traded, the order becomes a passive order and is stored in the special terms book until traded or cancelled. E.g. suppose a buy order of 10,000 shares with an AON condition is released in the market, and then the trade has to take place for 10,000 shares, all at one time.

Note: Currently, AON and MF orders are not available on the system as per SEBI directives.

SUOQL: An additional facility for setting up Security wise User wise Order Quantity Limits (SUOQL) for buy and/or sell has now been provided. The Corporate Manager is allowed to set the SUOQL separately for buy and sell orders for each security for all the Branch Managers (BMs) and Dealers (except inquiry only users) under him including himself. It is possible to modify the SUOQL anytime during trading hours. SUOQL should not be set lower than the used limit for that security. For a Symbol both Buy and Sell quantity can be set to unlimited. The used limit field is displayed for buy and sell separately for each security. Any activity like order modification or cancellation gets reflected in used limit figure for the respective security and respective side. This limit will be applicable for a symbol across all series, across all the markets. SUOQL setting option is given in supplementary menu.

A bulk upload facility to set the security wise buy sell limit through a (comma separated values) csv file has been provided. In case of failure

to upload a particular record/s, failure message is written in the input file in the form of an error code. The file is reusable. SUOQL bulk upload facility is not available during the market hours. After the limit is set successfully, the message is sent to the respective CM/BM/dealer.

A facility to limit trading to the securities set up in the SUOQL has been provided. If limit trading option is set for a user, then the user is allowed to place orders only for Symbols set in his SUOQL list by the CM. It would however be possible to enable this facility without having any security in the SUOQL list, which in turn prevents the user from entering of any fresh orders.

Corporate Manager has been given a facility to allow or disallow a user from entering Index orders. By default all dealers will be allowed to place index orders. Index orders are not validated for SUOQL limits. However, orders once entered are updated in the used limits. It is possible that dealer is restricted to enter order in particular security, but allowed to enter index order and that restricted security is a part of Nifty. If the order is modified by CM/BM for a respective dealer then the used limit will be updated accordingly, but in this case it can exceed the set limit. SUOQL used limit will not be validated and updated for Auction orders.

Quantity Freeze: If the size of the order is greater than x% of the issue size of the security or is greater than Rs. x in value terms ('x' is as specified by the Exchange), then the order is sent as a quantity freeze to the Exchange for approval. In case both the conditions are exceeded by the order size, lower of the two comes first to the exchange as a quantity freeze.

c) Price Conditions

Market Orders: Market orders are orders for which price is specified as 'MKT' at the time the order is entered. For such orders, the system determines the price.

Stop-Loss: This facility allows the user to release an order into the system, after the market price of the security reaches or crosses a threshold price called trigger price.

Trigger Price: Price at which an order gets triggered from the stop loss book.

Limit Price: Price of the orders after triggering from stop loss book.

At Opening Price (ATO): ATO price is the price arrived at by the system at the end of pre-open phase.

Price Freeze: Since no price bands are applicable in respect of securities on which derivative products are available or securities included in indices on which derivative products are available, in order to prevent members from entering orders at non-genuine prices in such securities, the exchange has decided to introduce operating range of 20% for such securities. Any order above or below 20% over the base price should come to the exchange as a price freeze.

Market Price Protection

Market Price protection functionality gives an option to a trader to limit the risk of a market order, within a pre-set percentage of the Last Trade Price (LTP). The pre-set Market price protection percentage is by default set to 5% of the LTP. The users can change the pre-set Market price protection percentage from the Order Limit Screen which can be invoked from the Supplementary Menu. At the time of order entry, the user can press (Page Up) when the cursor is in the price field. In case of a buy order, this defaults a price value, which is greater than LTP by a pre-set percentage. In case of a sell order the default value will be lesser than the LTP by a pre set percentage. The time condition in both cases will automatically change to IOC. The user has the option to change any of the fields. Since the calculations are based on LTP of broadcast for the security is not received, the default value will be 'MARKET'

d) Other Conditions

PRO/CLI/WHS: A user can enter orders on his own account or on behalf of clients or warehouse order on behalf of institutional clients.

Participant Code: By default, the system displays the trading member id of the user in the participant field. Thus, all trades resulting from an order are to be settled by that trading member. NCIT orders can be marked by the user at the order entry level itself. Only a valid participant code can be entered. In case the participant is suspended a message to this effect is displayed to the user on the order entry screen.

Branch Order Value Limit Check: In addition to the checks performed for the fields explained above, every order entry is checked for the branch order value limit. In case the set order value limit is exhausted the subsequent order is rejected by the system.

Order Modification

All orders can be modified in the system till the time they do not get fully traded and only during market hours. Once an order is modified, the branch order value limit for the branch gets adjusted automatically. Order modification is rejected if it results in a price freeze, message displayed is 'CFO request rejected'.

Order Cancellation

Order cancellation functionality can be performed only for orders which have not been fully or partially traded (for the untraded part of partially traded orders only) and only during market hours.

Order Matching

The buy and sell orders are matched on Book Type, Symbol, Series, Quantity and Price.

Matching Priority: The best sell order is the order with the lowest price and a best buy order is the order with the highest price. The unmatched orders are queued in the system by the following priority:

(a) By Price: A buy order with a higher price gets a higher priority and similarly, a sell order with a lower price gets a higher priority. E.g. Consider the following buy orders:

- 1) 100 shares @ Rs. 35 at time 9:30 a.m.
- 2) 500 shares @ Rs. 35.05 at time 9:43 a.m.

The second order price is greater than the first order price and therefore is the best buy order.

(b) By Time: If there is more than one order at the same price, the order entered earlier gets a higher priority. E.g. Consider the following sell orders:

- 1) 200 shares @ Rs. 72.75 at time 9:30 a.m.
- 2) 300 shares @ Rs. 72.75 at time 9:35 a.m.

Both orders have the same price but they were entered in the system at different time. The first order was entered before the second order and therefore is the best sell order.

As and when valid orders are entered or received by the system, they are first numbered, time stamped and then scanned for a potential match. This means that each order has a distinctive order number and a unique time stamp on it. If a match is not found, then the orders are stored in the books as per the price/time priority.

An active buy order matches with the best passive sell order if the price of the passive sell order is less than or equal to the price of the active buy order. Similarly, an active sell order matches with the best passive buy order if the price of the passive buy order is greater than or equal to the price of the active sell order.

3.2.3 Trade Management

A trade is an activity in which a buy and a sell order match with each other. Matching of two orders is done automatically by the system. Whenever a trade takes place, the system sends a trade confirmation message to each of the users involved in the trade. The trade confirmation slip gets printed at the trader workstation of the user with a unique trade number. The system also broadcasts a message to the entire market through the ticker window displaying the details of the trade.

Trade Verification

With a facility to verify trades on the NSE website, an investor who has received a contract note from a trading member of the Exchange, can check

whether the trade has been executed on the Exchange. This facility is available on the NSE website for the Capital Market, Derivatives (F&O) and Retail Debt Market segments.

Trade details are available for verification on the same day (i.e. T itself) after 19:00 hours IST as well as trade details of all trades for the last 5 trading days are available on the website. (i.e. trades executed on 'T' day, can be verified till the T+4th day. The investor needs to input minimum details of the trade viz. client code (provided by the trading member), security details (symbol and series), order number, trade number, trade quantity and price (excluding brokerage). All the above details are mandatory. If an identical match is found for the details provided, a confirmation along with the details of the trade is displayed to the investor. If no match is found, a message is displayed to that effect. Where no match is found, investors are advised to contact their trading member for clarification.

Trade Modification

The user can use trade modification facility to request for modifying trades done during the day. The user can request the Exchange to modify only the trade quantity field. Moreover, the new quantity requested must be lower than the original trade quantity.

If the user is a Corporate Manager of a trading member firm, he can request for trade modification for the trades of any dealer of the trading members firm and if he is a Branch Manager of a branch, then he can request for trade modification for any dealer of the branch of the trading member firm.

The user can request for trade modification either from the previous trades screen or by using the function key provided in the workstation. Trade Modification Request is sent to the Exchange for approval and message to that effect is displayed in the message window. The counterparty to the trade also receives this message. The counterparty then has to make a similar request for the same modified quantity on the same trading day. Once both the parties to trade send their respective trade modification requests, the Exchange either approves or rejects it. The message to that effect is displayed in the message window.

In case a request for trade modification is approved by the Exchange, the parties to trade receive a system message confirming the trade modification and the trade modification slip is printed at their respective trader workstations. If the Exchange rejects the trade modification request, the trade modification rejection slip will be printed at their respective trader workstations.

Trade Cancellation

The user can use trade cancellation screen for cancelling trades done during the day. If the user is a corporate manager of a trading member firm, he

can request for trade cancellation for the trades of any dealer of the trading members firm and if he is a branch manager of a branch, then he can request for trade cancellation for the trades for any dealer of the branch of the trading member firm.

The user can request for trade cancellation either from the previous trades screen or by using the function key provided in the workstation. The trade cancellation request is sent to the Exchange for approval and message to that effect is displayed in the message window. The counterparty to the trade also receives the message. The counterparty then has to make similar request on the same trading day. Once both the parties to trade send the trade cancellation request, the Exchange either approves or rejects it. The message to that effect is displayed in the message window.

When a request for the trade cancellation is approved by the Exchange, the parties to trade receive a system message confirming the trade cancellation and the trade cancellation slip is printed at their respective trader workstations. If the Exchange rejects the trade cancellation request, the trade cancellation rejection slip is printed at their respective trader workstations.

3.2.4 Auction

Auctions are initiated by the Exchange on behalf of trading members for settlement related reasons. The main reason is Shortages. There are three types of participants in the auction market:

- (a) *Initiator*: The party who initiates the auction process is called an initiator.
- (b) *Competitor*: The party who enters on the same side as of the initiator is called a competitor.
- (c) *Solicitor*: The party who enters on the opposite side as of the initiator is called a solicitor.

The trading members can participate in the Exchange initiated auctions by entering orders as a solicitor. E.g. If the Exchange conducts a Buy-In auction, the trading members entering sell orders are called solicitors.

When the auction starts, the competitor period for that auction also starts. Competitor period is the period during which competitor order entries are allowed. Competitor orders are the orders which compete with the initiator's order i.e. if the initiator's order is a buy order, then all the buy orders for that auction other than the initiator's order are competitor orders. And if the initiator order is a sell order then all the sell orders for that auction other than the initiators order are competitor orders.

After the competitor period ends, the solicitor period for that auction starts. Solicitor period is the period during which solicitor order entries are allowed. Solicitor orders are the orders which are opposite to the initiator order i.e. if the initiator order is a buy order, then all the sell orders for that auction are

solicitor orders and if the initiator order is a sell order, then all the buy orders for that auction are solicitor orders.

After the solicitor period, order matching takes place. The system calculates trading price for the auction and all possible trades for the auction are generated at the calculated trading price. After this the auction is said to be complete. Competitor period and solicitor period for any auction are set by the Exchange.

Entering Auction Orders: Auction order entry allows the user to enter orders into auctions that are currently running.

Auction Order Modification: The user is not allowed to modify any auction orders.

Auction Order Cancellation: The user can cancel any solicitor order placed by him in any auction provided the solicitor period for that auction is not over.

Auction Order Matching: When the solicitor period for an auction is over, auction order matching starts for that auction. During this process, the system calculates the trading price for the auction based on the initiator order and the orders entered during the competitor and the solicitor period. At present for Exchange initiated auctions, the matching takes place at the respective solicitor order prices.

All auction orders are entered into the auction order book. The rules for matching of auctions are similar to that of the regular lot book except for the following points:-

- a) Auction order matching takes place at the end of the solicitor period for the auction.
- b) Auction matching takes place only across orders belonging to the same auction.
- c) All auction trades take place at the auction price.

Example 1: Member A places a buy order for 1000 shares of ABC Ltd. in the NEAT system at 11:22:01 for Rs.155 per share. Member B places a sell order for 2000 shares of ABC Ltd. at 11:22:02 for Rs.150 per share. Assume that no other orders were available in the system during this time. Whether the trade will take place and if yes, at what price?

Yes, 1000 shares will get traded at Rs.155 per share (the passive price).

Example 2: Auction is held in TISCO for 5,000 shares.

- a) The closing price of TISCO on that day was Rs.155.00
- b) The last traded price of TISCO on that day was Rs.150.00
- c) The price of TISCO last Friday was Rs.151.00
- d) The previous days' close price of TISCO was Rs.160.00

What is the maximum allowable price at which the member can put a sell order in the auction for TISCO? (Assuming that the price band applicable for auction market is +/-15%)

Max price applicable in auction = Previous days' close price * Price band
= Rs.160*1.15 =Rs.184.00

3.2.5 Internet Broking

SEBI Committee has approved the use of Internet as an Order Routing System (ORS) for communicating clients' orders to the exchanges through brokers. ORS enables investors to place orders with his broker and have control over the information and quotes and to hit the quote on an on-line basis. Once the broker's system receives the order, it checks the authenticity of the client electronically and then routes the order to the appropriate exchange for execution. On execution of the order, it is confirmed on real time basis. Investor receives reports on margin requirement, payments and delivery obligations through the system. His ledger and portfolio account get updated online.

NSE launched internet trading in early February 2000. It is the first stock exchange in the country to provide web-based access to investors to trade directly on the exchange. The orders originating from the PCs of the investors are routed through the Internet to the trading terminals of the designated brokers with whom they are connected and further to the exchange for trade execution. Soon after these orders get matched and result into trades, the investors get confirmation about them on their PCs through the same internet route.

3.2.6 Wireless Application Protocol

SEBI has also approved trading through wireless medium on WAP Platform. NSE.IT launched the Wireless Application Protocol (WAP) in November 2000. This provides access to its order book through the hand held devices, which use WAP technology. This serves primarily retail investors who are mobile and want to trade from any place when the market prices for stocks at their choice are attractive.

3.2.7 Trading Rules

Insider Trading

Insider trading is prohibited and is considered an offence. The SEBI (Prohibition of Insider Trading) Regulations, 1992 prohibit an insider from dealing (on his own behalf or on behalf of others) in listed securities on the basis of 'unpublished price sensitive information', communicating, counseling

or procuring such information any other person to deal in securities of any company on the basis of such information. Price sensitive information is any information, which if published, is likely to materially affect the price of the securities of a company. Such information may relate to the financial results of the company, intended declaration of dividends, issue of securities or buy back of securities, amalgamation, mergers, takeovers, any major policy changes, etc. SEBI, on the basis of any complaint or otherwise, investigates/inspects the allegation of insider trading. On the basis of the report of the investigation, SEBI may prosecute persons found *prima facie* guilty of insider trading in an appropriate court or pass such orders as it may deem fit. Based on inspection, an adjudicating officer appointed by SEBI can impose monetary penalty.

In order to strengthen insider trading regulations, SEBI recently mandated a code of conduct for listed companies, its employees, analysts, market intermediaries and professional firms. The insider trading regulations were amended to include requirements for initial and continual disclosure of shareholding by directors or officers, who are insiders, and substantial shareholders (holding more than 5% shares/voting rights) of listed companies. The listed companies are also mandated to adopt a code of disclosure with regard to price sensitive information, market rumours, and reporting of shareholding/ownership, etc. (please see policy development section for details).

Unfair Trade Practices

The SEBI (Prohibition of Fraudulent and Unfair Trade Practices in relation to the Securities Market) Regulations, 1995 enable SEBI to investigate into cases of market manipulation and fraudulent and unfair trade practices. These regulations empower SEBI to investigate into violations committed by any person, including an investor, issuer or an intermediary associated with the securities market. The regulations define frauds as acts committed by a party to a contract or by his agent, with intent to deceive another party or his agent or to induce him to enter into the contract. The regulations specifically prohibit market manipulation, misleading statements to induce sale or purchase of securities, and unfair trade practices relating to securities. SEBI can conduct investigation, *suo moto* or upon information received by it, through an investigation officer in respect of conduct and affairs of any person buying/selling/dealing in securities. Based on the report of the investigating officer, SEBI can initiate action for suspension or cancellation of registration of an intermediary.

Takeovers

The restructuring of companies by way of takeover is governed by the SEBI (Substantial Acquisition of Shares and Takeovers) Regulations, 1997. The

Regulations were formulated in order to carry out the process of acquisitions and takeovers in a well-defined and orderly manner following the principle of fairness and transparency. As per the regulations, the mandatory public offer by an acquirer is triggered when an acquirer:

- intends to cross existing threshold limit of 15% shares or voting rights in order to acquire atleast additional 20% of the voting capital of target company,
- who holds 15% or more but less than 75% of shares or voting rights of a target company, intends to cross the creeping acquisition limit of 5% of the voting rights in any financial year ending March 31 for additional 20% shares from the shareholders of the target company,
- who holds 75% shares or voting rights of a target company wants to acquire more shares, and
- changes in control with or without acquisition of shares.

The regulations give enough scope to existing shareholders for consolidation and also cover the scenario of indirect acquisition of control. The applications for takeovers are scrutinised by the Takeover Panel constituted by SEBI. In order to ensure more dissemination of information to the shareholders about the post offer detail, SEBI has decided that once the offer formalities have been completed in terms of regulations, the acquirer through the merchant banker should make a public announcement in all the newspapers in which the original public announcement was made. Simultaneously with publication of the public announcement in the newspapers, a copy of the same should be submitted to SEBI through merchant banker.

Further, SEBI approved certain amendments to the SEBI (Substantial Acquisition of Shares and Takeovers) Regulations, 1997 which included, inter alia, (a) relaxation for disinvestment by state PSUs, (b) removal of automatic exemption in respect of acquisition through preferential allotment, (c) additional disclosure requirements, (d) change of control through special resolution instead of ordinary resolution, (e) dispensation with the requirement of advance submission of copy of draft public announcement to SEBI/Stock Exchanges and Target Company, (f) additional parameters for determination of offer price, such as, two weeks daily average of the high and low of the closing prices, (g) payment made in excess of 25% of the offer price pursuant to a non-compete agreement, (h) minimum offer size of 20% in all cases, (i) additional time for making public announcement in respect of global acquisition, (j) facility of withdrawal of acceptances by shareholders, (k) removal of the facility of withdrawal by the first acquirer in case of a competitive bid.

Buy back

Buy back aims at improving liquidity in the shares of companies and helps corporates in enhancing the shareholders' wealth. Under the SEBI (Buy Back

of Securities) Regulations, 1998, a company is permitted to buy back its shares from:

- a) existing shareholders on a proportionate basis through the tender offer, i.e. by means of offer documents;
- b) open market through stock exchanges, and book building process; and
- c) shareholders holding odd lot shares.

The regulations provide for extensive disclosures in the explanatory statement to be annexed to the notice for the general meeting and the letter of offer. The company has to disclose the pre and post-buy back holdings of the promoters. With a view to ensure completion of the buy back process speedily, the regulations provide for time bound steps in every mode. For example, in the cases of purchases through stock exchanges, an offer for buy back shall not remain open for more than 30 days. The verification of shares received in buy back has to be completed within 15 days of the closure of the offer. The payments for accepted securities has to be made within 7 days of the completion of verification and bought back shares have to be extinguished and physically destroyed within 7 days of the date of the payment. To ensure security for performance of its obligation, the company making an offer for buy back will have to open an escrow account on the same lines as provided in takeover regulations.

Price Bands

Stock market volatility is generally a cause of concern for both policy makers as well as investors. To curb excessive volatility, SEBI has prescribed a system of price bands. The price bands or circuit breakers bring about a coordinated trading halt in all equity and equity derivatives markets nation-wide. An index-based market-wide circuit breaker system at three stages of the index movement either way at 10%, 15% and 20% has been prescribed. The breakers are triggered by movement of either S&P CNX Nifty or Sensex, whichever is breached earlier (please see chapter 5 for details). As an additional measure of safety, individual scrip-wise price bands have been fixed as below:

- Daily price bands of 5% (either way) on a set of specified securities depending on volatility,
- Daily price bands of 10% (either way) on another set of specified securities depending on volatility,
- Price bands of 20% (either way) on all remaining securities (including debentures, warrants, preference shares etc which are traded on CM segment of NSE).
- No price bands are applicable on securities on which derivative products are available or securities included in indices on which derivative products are available.
- For Auction market the price bands of 20% are applicable.

- The price bands for the securities in the Limited Physical Market are the same as those applicable for the securities in the Normal Market.

3.3 Clearing and Settlement

3.3.1 *Clearing and Settlement Mechanism*

Introduction

The clearing and settlement mechanism in Indian securities market has witnessed several innovations during the last decade. These include use of the state-of-art information technology, compression of settlement cycle, dematerialisation and electronic transfer of securities, securities lending and borrowing, professionalisation of trading members, fine-tuned risk management system, emergence of clearing corporations to assume counterparty risk etc., though many of these are yet to permeate the whole market.

Till recently, the stock exchanges in India were following a system of account period settlement for cash market transactions, except for transactions in a few active securities, which were settled under T+3 rolling settlement. The rolling settlement has now been introduced for all securities. With effect from April 1, 2003 T+2 rolling settlement has been introduced. The stock exchanges were also offering deferral products to provide leverage to members to postpone their settlement obligations. The transactions are not settled immediately but after 2 days after the trade day. The members receive the funds/securities in accordance with the pay-in/pay-out schedules notified by the respective exchanges. Given the growing volume of trades and market volatility, the time gap between trading and settlement gives rise to settlement risk. In recognition of this, the exchanges and their clearing corporations employ risk management practices to ensure timely settlement of trades. The regulators have also prescribed elaborate margining and capital adequacy standards to secure market integrity and protect the interests of investors. The exchanges not providing counter-party guarantee have been advised by SEBI to set up trade guarantee funds, which would honour pay-in liabilities in the event of default by a member. In pursuance to this, 16 out of 23 exchanges have set up trade/settlement guarantee funds. The trades are settled irrespective of default by a member and the exchange follows up the defaulting member subsequently for recovery of his dues to the exchange. The market has full

confidence that settlements will take place in time and will be completed irrespective of possible default by isolated trading members.

Movement of securities has become almost instantaneous in the dematerialised environment. Two depositories viz., National Securities Depositories Ltd. (NSDL) and Central Depositories Services Ltd. (CDSL) provide electronic transfer of securities and more than 99% of turnover is settled in dematerialised form. All actively traded scrips are held, traded and settled in demat form. The obligations of members are downloaded to members/custodians by the clearing agency. The members/custodians make available the required securities in their pool accounts with depository participants (DPs) by the prescribed pay-in time for securities. The depository transfers the securities from the pool accounts of members/custodians to the settlement account of the clearing agency. As per the schedule determined by the clearing agency, the securities are transferred on the pay-out day by the depository from the settlement account of the clearing agency to the pool accounts of members/custodians. The pay-in and pay-out of securities is affected on the same day for all settlements.

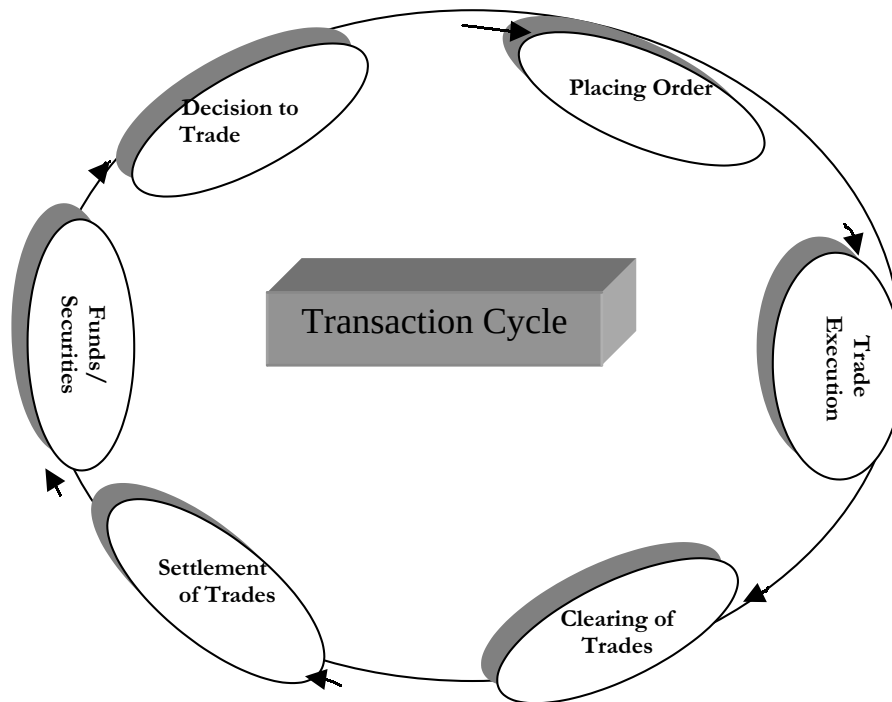
Select banks have been empanelled by clearing agency for electronic transfer of funds. The members are required to maintain accounts with any of these banks. The members are informed electronically of their pay-in obligations of funds. The members make available required funds in their accounts with clearing banks by the prescribed pay-in day. The clearing agency forwards funds obligations file to clearing banks which, in turn, debit the accounts of members and credit the account of the clearing agency. In some cases, the clearing agency runs an electronic file to debit members' accounts with clearing banks and credit its own account. As per the schedule of allocation of funds determined by the clearing agency, the funds are transferred on the pay-out day by the clearing banks from the account of the clearing agency to the accounts of members. In some cases, the clearing agency directly credits the members' accounts with clearing banks and debits its own account. The pay-in and pay-out of funds as well as securities take place 2 working days after the trade date.

Transaction Cycle

A person holding assets (securities/funds), either to meet his liquidity needs or to reshuffle his holdings in response to changes in his perception about risk and return of the assets, decides to buy or sell the securities. He finds out the right broker and instructs him to place buy/sell order on an exchange. The order is converted to a trade as soon as it finds a matching sell/buy order. The trades are cleared to determine the obligations of counterparties to deliver securities/funds as per settlement schedule. Buyer/seller delivers funds/securities and receives securities/ funds and

acquires ownership over them. A securities transaction cycle is presented in Figure 3.2

Figure 3.2: Transaction cycle



Settlement Process

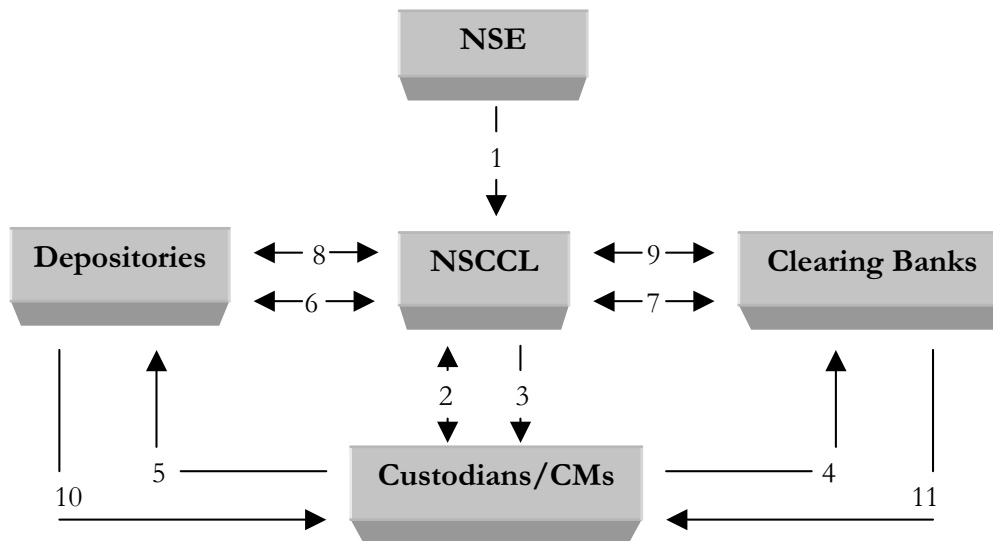
While NSE provides a platform for trading to its trading members, the National Securities Clearing Corporation Ltd. (NSCCL) determines the funds/securities obligations of the trading members and ensures that trading members meet their obligations. The clearing banks and depositories provide the necessary interface between the custodians/clearing members (who clear for the trading members or their own transactions) for settlement of funds/securities obligations of trading members. The core functions involved in the process are:

- a) *Trade Recording*: The key details about the trades are recorded to provide basis for settlement. These details are automatically recorded in the electronic trading system of the exchanges.
- b) *Trade Confirmation*: The counterparties to trade agree upon the terms of trade like security, quantity, price, and settlement date, but not the counterparty which is the NSCCL. The electronic system automatically generates confirmation by direct participants. The

ultimate buyers/sellers of securities also affirm the terms, as the funds/securities would flow from them, although the direct participants are responsible for settlement of trade.

- c) *Determination of Obligation:* The next step is determination of what counter-parties owe, and what counter-parties are due to receive on the settlement date. The NSCCL interposes itself as a central counterparty between the counterparties to trades and nets the positions so that a member has security wise net obligation to receive or deliver a security and has to either pay or receive funds.
- d) *Pay-in of Funds and Securities:* The members bring in their funds/securities to the NSCCL. They make available required securities in designated accounts with the depositories by the prescribed pay-in time. The depositories move the securities available in the accounts of members to the account of the NSCCL. Likewise members with funds obligations make available required funds in the designated accounts with clearing banks by the prescribed pay-in time. The CC sends electronic instructions to the clearing banks to debit member's accounts to the extent of payment obligations. The banks process these instructions, debit accounts of members and credit accounts of the NSCCL.
- e) *Pay-out of Funds and Securities:* After processing for shortages of funds/securities and arranging for movement of funds from surplus banks to deficit banks through RBI clearing, the NSCCL sends electronic instructions to the depositories/clearing banks to release pay-out of securities/funds. The depositories and clearing banks debit accounts of the NSCCL and credit accounts of members. Settlement is complete upon release of pay-out of funds and securities to custodians/members. The settlement process for transactions in securities in the CM segment of NSE is presented in the Figure 3.3.
- f) *Risk Management:* A sound risk management system is integral to an efficient settlement system. The NSCCL ensures that trading members' obligations are commensurate with their net worth. It has put in place a comprehensive risk management system, which is constantly monitored and upgraded to pre-empt market failures. It monitors the track record and performance of members and their net worth; undertakes on-line monitoring of members' positions and exposure in the market, collects margins from members and automatically disables members if the limits are breached.

Figure 3.3: Settlement Process in CM segment of NSE



Explanations:

- (1) Trade details from Exchange to NSCCL (real-time and end of day trade file).
- (2) NSCCL notifies the consummated trade details to CMs/custodians who affirm back. Based on the affirmation, NSCCL applies multilateral netting and determines obligations.
- (3) Download of obligation and pay-in advice of funds/securities.
- (4) Instructions to clearing banks to make funds available by pay-in time.
- (5) Instructions to depositories to make securities available by pay-in-time.
- (6) Pay-in of securities (NSCCL advises depository to debit pool account of custodians/CMs and credit its account and depository does it).
- (7) Pay-in of funds (NSCCL advises Clearing Banks to debit account of custodians/CMs and credit its account and clearing bank does it).
- (8) Pay-out of securities (NSCCL advises depository to credit pool account of custodians/CMs and debit its account and depository does it).
- (9) Pay-out of funds (NSCCL advises Clearing Banks to credit account of custodians/CMs and debit its account and clearing bank does it).
- (10) Depository informs custodians/CMs through DPs.
- (11) Clearing Banks inform custodians/CMs.

Settlement Agencies

The NSCCL, with the help of clearing members, custodians, clearing banks and depositories settles the trades executed on exchanges. The roles of each of these entities are explained below:

- (a) *NSCCL*: The NSCCL is responsible for post-trade activities of a stock exchange. Clearing and settlement of trades and risk management are its central functions. It clears all trades, determines obligations of members, arranges for pay-in of funds/securities, receives funds/securities, processes for shortages in funds/securities, arranges for pay-out of funds/securities to members, guarantees settlement, and collects and maintains margins/collateral/base capital/other funds.
- (b) *Clearing Members*: They are responsible for settling their obligations as determined by the NSCCL. They have to make available funds and/or securities in the designated accounts with clearing bank/depositories, as the case may be, to meet their obligations on the settlement day.
- (c) *Custodians*: Custodian is a clearing member but not a trading member. He settles trades assigned to him by trading members. He is required to confirm whether he is going to settle a particular trade or not. If it is confirmed, the NSCCL assigns that obligation to that custodian and the custodian is required to settle it on the settlement day.
- (d) *Clearing Banks*: Clearing banks are a key link between the clearing members and NSCCL for funds settlement. Every clearing member is required to open a dedicated clearing account with one of the clearing banks. Based on his obligation as determined through clearing, the clearing member makes funds available in the clearing account for the pay-in and receives funds in case of a pay-out.
- (e) *Depositories*: Depositories help in the settlement of the dematerialised securities. Each custodian/clearing member is required to maintain a clearing pool account with the depositories. He is required to make available the required securities in the designated account on settlement day. The depository runs an electronic file to transfer the securities from accounts of the custodians/clearing member to that of NSCCL. As per the schedule of allocation of securities determined by the NSCCL, the depositories transfer the securities on the pay-out day from the account of the NSCCL to those of members/custodians.
- (f) *Professional Clearing Member*: NSCCL admits special category of members namely, professional clearing members. Professional Clearing Member (PCM) may clear and settle trades executed for their clients (individuals, institutions etc.). In such an event, the functions and responsibilities of the PCM would be similar to Custodians. PCMs may also undertake clearing and settlement responsibility for trading members. In such a case, the PCM would settle the trades carried out by the trading members connected to them. The onus for settling the trade would be thus on the PCM and not the trading member. A PCM has no

trading rights but has only clearing rights, i.e. he just clears the trades of his associate trading members and institutional clients.

Risks in Settlement

The following two kinds of risks are inherent in a settlement system:

- (1) *Counterparty Risk*: This arises if parties do not discharge their obligations fully when due or at any time thereafter. This has two components, namely replacement cost risk prior to settlement and principal risk during settlement. (a) The *replacement cost risk* arises from the failure of one of the parties to transaction. While the non-defaulting party tries to replace the original transaction at current prices, he loses the profit that has accrued on the transaction between the date of original transaction and date of replacement transaction. The seller/buyer of the security loses this unrealised profit if the current price is below/above the transaction price. Both parties encounter this risk as prices are uncertain. It has been reduced by reducing time gap between transaction and settlement and by legally binding netting systems. (b) The *principal risk* arises if a party discharges his obligations but the counterparty defaults. The seller/buyer of the security suffers this risk when he delivers/makes payment, but does not receive payment/delivery. This risk can be eliminated by delivery vs. payment mechanism which ensures delivery only against payment. This has been reduced by having a central counterparty which becomes the buyer to every seller and the seller to every buyer. (c) A variant of counterparty risk is *liquidity risk* which arises if one of the parties to transaction does not settle on the settlement date, but later. The seller/buyer who does not receive payment/delivery when due, may have to borrow funds/securities to complete his payment/delivery obligations. (d) Another variant is the *third party risk* which arises if the parties to trade are permitted or required to use the services of a third party which fails to perform. For example, the failure of a clearing bank which helps in payment can disrupt settlement. This risk is reduced by allowing parties to have accounts with multiple banks. Similarly, the users of custodial services face risk if the concerned custodian becomes insolvent, acts negligently or commits fraud.
- (2) *System Risk*: This comprises of operational, legal and systemic risks. The operational risk arises from possible operational failures such as errors, fraud, outages etc. The legal risk arises if the laws or regulations do not support enforcement of settlement obligations or are uncertain. Systemic risk arises when failure of one of the parties to discharge his obligations leads to failure by other parties. The domino effect of successive failures can cause a failure of the settlement system. These risks have been contained by enforcement of an elaborate margining and capital adequacy standards to secure market

integrity, settlement guarantee funds to provide counter-party guarantee, legal backing for settlement activities and business continuity plan, etc.

3.3.2 Rolling Settlement

Introduction

Under rolling settlement, all trades executed on a trading day are settled X days later. This is called 'T+X' rolling settlement, where 'T' is the trade date and 'X' is the number of business days after trade date on which settlement takes place. The rolling settlement has started on T+2 basis in India, implying that the outstanding positions at the end of the day 'T' are compulsorily settled 2 days after the trade date.

Rolling settlement was first introduced in India by OTCEI. As dematerialisation took off, NSE provided an option to settle the trades in demat securities on rolling basis. In January 2000, SEBI made rolling settlement compulsory for trades in 10 scrips selected on the basis of the criteria that they were in the compulsory demat list and had daily turnover of about Rs.1 crore or more. This list, however, did not include scrips, which had carried forward trading facility. SEBI reviewed the progress of rolling settlement in February 2000. Consequent on the review, SEBI added a total of 156 scrips under rolling settlement. 74 companies, which had changed names to infotech companies, were included in compulsory rolling settlement from May 8, 2000. 31 NBFCs, which are listed and traded on the BSE, but whose applications for certificate of registration were rejected by RBI, were covered under compulsory rolling settlement from May 8, 2000. 17 scrips, which exhibited high volatility (i.e., of more than 110% for 7 weeks or more in the last 10 weeks) were also included in compulsory rolling settlement from May 8, 2000. In addition, 34 companies out of 199 companies, which were already included in compulsory demat trading for all investors and did not have carry forward facility in any of the exchanges and had signed agreements with both the depositories were included for compulsory rolling settlement from March 21, 2000.

Following Finance Minister's announcement on March 13, 2001 that the rolling settlement would be extended to 200 category 'A' stocks in MCFS, ALBM and BLESS by July, 2001, SEBI decided that all 263 scrips included in the ALBM/BLESS or MCFS in any stock exchange or in the BSE-200 list would be traded only in the compulsory rolling settlement on all the exchanges from July 2, 2001. Further, SEBI mandated rolling settlement for the remaining securities from December 31, 2001. SEBI introduced T+5 rolling settlement in equity market from July 2001. Subsequently shortened the settlement cycle to T+3 from April 1, 2002. After having gained

experience of T+3 rolling settlement and also taking further steps such as introduction of STP, it was felt appropriate to further reduce the settlement cycle to T+2 thereby reducing the risk in the market and to protect the interest of investors. As a result, SEBI, as a step towards easy flow of funds and securities, introduced T+2 rolling settlement in Indian equity market from 1st April 2003. The time schedule prescribed by SEBI for depositories and custodians for T+2 rolling settlement is as given in Table 3.5:

Table 3.5: Time schedule of Rolling Settlement:

S. No.	Day	Time	Description of activity
1	T		Trade Day
2	T+1	By 11.00 am	Confirmation of all trades (including custodial trades). Facility of an exceptional window for late confirmations would be made available by the exchanges.
		By 1.30 pm	Processing and Downloading of obligation files to brokers/custodians
3	T+2	By 11.00 am	Pay-in of securities and funds
		By 1.30 pm	Pay-out of securities and funds

Further in order to ensure smooth implementation of T+2 rolling settlement by April 1, 2003 and to facilitate the implementation of T+1 rolling settlement from April 1, 2004, SEBI has decided that the depositories should initiate the following steps:

1. Implementation of real time online connectivity between the Depositories.
2. Depositories should design a system so that the exchanges/Clearing House/Clearing Corporation would be able to implement a system of online transmission of client-wise pay-in obligations to the depository so that the depository in turn could download the security pay-in instructions to DPs in respect of the investor maintaining account with them.
3. Depositories should also put up systems to facilitate settlement of transactions by the Clearing House/Clearing Corporation arising out of securities lending and borrowing to meet shortages of pay-in obligations.

As per SEBI directive, the Custodians should adhere to the following activities for implementation of T+2 rolling settlement w.e.f. April 1, 2003:

1. Confirmation of the institutional trades by the custodians latest by 11.00 a.m. on T+1. An exception window would be provided by the exchanges for late confirmations for an additional fee but in any case the confirmation should be made before 1:00 p.m. on T+1.
2. The Custodians should issue instructions in the physical form upto 4 p.m. and in electronic form upto 6 p.m. on T+1 to the DPs for pay-in of securities.
3. Pay-in to be made before 10:30 a.m. on T+2.

Rolling settlement offers several advantages over account period settlement:

- a) The account period settlement does not discriminate between an investor transacting on the first day and an investor transacting on the last day of the trading period, as trades are clubbed together for the purposes of settlement and all investors realise the securities and/or funds together. Hence some investors have to wait longer for settlement of their transactions. Under rolling settlement, the investors trading on a particular day are treated differently from the investors trading on the preceding or succeeding day. All of them wait for "X" days from the trade date for settlement. Further, the gap between the trade date and the settlement date is less under rolling settlement making both securities and funds easily convertible.
- b) The account period settlement combines the features of cash as well as futures markets and hence distorts price discovery process. In contrast, rolling settlement, which segregates cash and futures markets and thereby removes excessive speculation, helps in better price discovery.
- c) Account period settlement allows build up of large positions over a trading period of five days and consequently, there is a pressure to close them out on the last trading day, leading to significant market volatility. This does not happen under rolling settlement, where positions can be built during a day only.
- d) There is scope for both intra-settlement and intra-day speculation under account period settlement, which allows large outstanding positions and hence poses greater settlement risks. In contrast, since all open positions under rolling settlement at the end of a date 'T' are necessarily settled 'X' working days later, it limits the outstanding positions and reduces settlement risk.
- e) Till recently, it was possible to shift positions from one exchange to another under account period as they follow different trading cycles. Rolling settlement took care of this by making trading cycle uniform.

Settlement Cycle

The NSCCL clears and settles trades as per well-defined settlement cycle. The settlement cycle for the CM segment of NSE is presented in Table 3.6. NSCCL notifies the consummated trade details to clearing members/custodians on the trade day. The custodians affirm back the trades to NSCCL by T+1 day. Based on the affirmation, NSCCL nets the positions of counterparties to determine their obligations. A clearing member has to pay-in/pay-out funds and/or securities. A member has a security-wise net obligation to receive/deliver a security. The obligations are netted for a member across all securities to determine his fund obligations and he has to either pay or receive funds. Members' pay-in/pay-out obligations are determined latest by T+1 day and are forwarded to them on the same day so that they can settle their obligations on T+2 day. The securities/funds are paid-in/paid-out on T+2 days and the settlement is complete in 2 days from the end of the trade day.

Under Limited Physical Market segment, settlement for trades is done on a trade-for-trade basis and delivery obligations arise out of each trade. The settlement cycle for this segment is same as for the rolling settlement

Table 3.6: Settlement Cycle in CM Segment of NSE:

Activity	T+3 Rolling Settlement (From April 1, 2002)	T+2 Rolling Settlement (From April 1, 2003)
Trading	T	T
Custodial Confirmation	T+1	T+1
Determination of Obligation	T+1	T+1
Securities/Funds Pay-in	T+3	T+2
Securities/Funds Pay-out	T+3	T+2
Valuation Debit	T+3	T+2
Auction	T+4	T+3
Bad Delivery Reporting	T+5	T+4
Auction Pay-in/Pay-out	T+6	T+5
Close Out	T+6	T+5
Rectified Bad Delivery Pay-in/Pay-out	T+7	T+6
Re-bad Delivery Reporting	T+9	T+8
Close Out of Re-bad Delivery	T+10	T+9

Pay-in and Pay-out of Funds

NSCCL offers Clearing Members the facility of settlement of funds obligations through 10 Clearing Banks, namely Canara Bank, HDFC Bank Ltd., Global Trust Bank Ltd., IndusInd Bank Ltd., ICICI Bank Ltd., UTI Bank Ltd., Centurion Bank Ltd., Bank of India, IDBI Bank Ltd., and Standard Chartered Bank. Clearing Members are required to open clearing account with any one bank for the purpose of settlement of their transactions. They are also required to authorise their Clearing Bank to access their clearing account for debiting, crediting, reporting of balances and any other information in accordance with the advice received from NSCCL. Clearing accounts are used exclusively for clearing and settlement of transactions, i.e. for settling funds and other obligations to/ from the NSCCL, including payments of margins and penal charges. Clearing Banks debit/ credit the clearing account of clearing members as per instructions received from the NSCCL electronically.

Members are informed of their funds obligation for various settlements through the daily clearing data download. Members are also provided daily funds statement which gives date-wise details of each debit/ credit transaction in the member's clearing account. The summary statement provided to members summarises the debit/ credit information for a quick reference. Members can refer to these statements and provide for funds accordingly.

Member's account may be debited for various types of transactions on a daily basis. A member is required to ensure that adequate funds are available in the clearing accounts towards all obligations, by the scheduled date and time. It is possible that the total value of funds pay-in receivable by a bank is different from the value of funds payout from the bank i.e. the pay-in may be either more than the payout in a bank, or vice versa. In such cases, funds need to be transferred from the bank where there is excess pay-in to the bank where there is a shortage in pay-in. Based on estimated pay-in and pay-out of funds, on the day preceding the payout day, NSCCL advises the banks having pay-in in excess of pay-out to issue pay orders to the banks having pay-in less than the pay-out. The deficit banks accordingly get the funds to facilitate timely payout.

Funds Shortages: Members required to ensure that adequate funds are available in the clearing account towards all obligations, on the scheduled date and time. In all cases of funds shortages, NSCCL may initiate various actions including withdrawing the trading facility of the member, withholding the securities pay-out due to the member, reduction in permissible gross exposure limits, requiring the member to make advance pay-in, etc.

Once the member brings in the required funds to fulfill his shortage, the member may be permitted to trade with reduced exposure limits as per the slabs mentioned below:

Cumulative Funds Shortage (Rs.)	Exposure Limit allowed (%of current exposure limit)
2-5 lakhs	80%
> 5 lakhs	60%

If the cumulative funds shortage for the next 4 settlements is less than Rs.2 lakh, the exposure limits may be restored. The exposure limit may also be restored if a member provides a cash deposit equivalent to his cumulative funds shortage as the 'funds shortage collateral' in his clearing account. Such deposit is kept with the NSCCL for a period of 4 settlements and is released only if no further funds shortages are reported for the member in next 4 consecutive settlements. Further, a member shall not be provided any exposure benefit or any interest payment on the amount so deposited as 'funds shortage collateral'. The 'funds shortage collateral' may be deposited by way of cash, or FDR or Bank Guarantee.

Apart from the above, the member is required to pay a penal charge at the rate of 0.09% per day computed on the amount outstanding at the end of the day, till the amount is recovered. Further, for every case of non-fulfillment of funds pay-in obligations, penalty points are levied on members.

Pay-in and Pay-out of Securities

In order to settle trades in the dematerialised securities, a clearing member needs to open a clearing account with a depository participant (DP). Each clearing account consists of three sub-accounts:

- a) *Pool Account*: This is used by the clearing member to interface with his clients. The clients deliver securities to this account of the clearing member. The clearing member pools all client deliveries in this account before making a delivery to NSCCL.
- b) *Delivery Account*: This is used by the clearing member to deliver securities to NSCCL. The clearing member moves net deliverable quantity of shares from the pool account to the delivery account from where it comes to NSCCL.

- c) *Receipt Account*: NSCCL gives pay-out to the clearing member in the receipt account from where it is transferred to the pool account of the clearing member.

Clearing members are informed of their securities obligation for various settlements through the daily clearing data download. Clearing members are also provided final delivery statement and delivery details statement.

Before pay-in, selling investors instruct DP to transfer security balances from their beneficiary accounts to clearing member's pool account. At or before the time and day specified for pay-in by NSCCL, the clearing member instructs his DP to move the required balance from his pool account to his delivery account. On the pay-in day, the depository moves balances from all the clearing members delivery accounts and sends them to NSCCL at the scheduled time. The balances in respective clearing members' delivery accounts are first transferred to NSCCL's pool account which is then matched with the obligations generated by NSCCL system. The quantity and securities matched are accepted and credited to the Receipt Accounts of the receiving clearing members through depository. The quantity and securities, not matched for any reason whatsoever, are not accepted and as such credited back to Delivery Accounts of the delivering clearing members. On receipt of pay-out instructions from NSCCL, the depository credits the receipt accounts of the receiving clearing members from which the securities get transferred to the clearing members' pool accounts. From the pool accounts, the clearing members distribute the deliveries to the buying clients by issuing instructions to his DP.

Straight Through Processing

'Straight Through Processing' (STP) implies automation of the entire process of securities transactions right from trade initiation to settlement. SEBI envisages implementation of STP across various market participants. It, therefore, had set up a committee to examine feasibility of introduction of STP and for designing and recommending an expeditious solution for electronic transmission of trade and settlement information in the Indian markets, across participants.

The current trade-processing environment is characterised by many manual/physical procedures, multiple service providers, incompatible databases, lack of standardisation and high costs. There is an urgent need to create adaptable and flexible communication infrastructures to ensure smooth flow of information between various market participants and also smooth transition from trade initiation to settlement. With STP, firms would automate processes within themselves and then be able to communicate with multiple trading partners using multiple communication standards with ease and flexibility. The benefits of STP are that it (i) reduces risk leading to fewer trade fails (ii) improves operational efficiency in handling larger

volumes (iii) facilitates movement towards shorter settlement cycles (iv) enables increased cross border trading (FII trades) (v) provides transparency with clear audit trail (vi) enables better market surveillance with real time information to regulators, and (vii) increases competitive advantage of the market.

After examining the current transaction chain, the committee recommended messaging standards for delivery of confirmation information to the clearing corporation and for receipt of corporate action announcements from the clearing corporation. The committee recommended the Society for Worldwide Inter bank Financial Telecommunication (SWIFT) ISO 15022 messaging standards to be used as the common messaging structure. SWIFT is an industry owned cooperative supplying secure messaging services and interface software to financial institutions and has standardized formats for communication of financial messages which are well accepted and understood all over the world. The committee also recommended that the first phase of STP implementation should focus on connectivity between broker and the custodian (and the fund manager) and connectivity between the fund manager and the custodian.

The inability of continuous connectivity across wide area networks (WAN) restricts the introduction of STP. The committee therefore recommended SEBI take up this matter with Department of Telecommunications to permit inter-WAN connectivity.

SEBI finalised the report of the Committee set up to examine the feasibility of introduction of STP in Indian securities market and introduced STP for electronic trade processing with a common messaging standard i.e. ISO15022 with effect from December 2, 2002.

3.3.3 Risk Management

A sound risk management system is integral to an efficient clearing and settlement system. The clearing corporation ensures that trading members' obligations are commensurate with their net worth. It has put in place a comprehensive risk management system, which is constantly monitored and upgraded to pre-empt market failures. It monitors the track record and performance of members and their net worth; undertakes on-line monitoring of members' positions and exposure with the market, collects margins from members and automatically disables members if the limits are breached. To safeguard the interest of the investors, NSE administers an effective market surveillance system to curb excessive volatility, detect and prevent price manipulation and follows a system of price bands. Further, the exchange maintains strict surveillance over market activities in illiquid and volatile securities.

Risk Containment Measures. There have been umpteen experiments with different risk containment measures in the recent past. These measures

have been repeatedly reviewed and revised. This section, however, discusses the measures prevailing as on March 31, 2003.

Capital Adequacy Requirements

As compared to the minimum statutory requirements as also those stipulated by other stock exchanges, the capital adequacy requirements stipulated by the NSE are higher. The capital adequacy norms to be followed by members are presented in Table 3.7. Out of the total capital provided by the TM (Base Minimum Capital and Additional Base Capital) i.e. the deposits kept with the Exchange as part of the membership requirement, base minimum capital of the member is taken to determine the member's intra-day trading limit and/or gross exposure limit only whereas the amount provided as additional base capital is allowed to be utilised towards margin payment if not used up for taking Exposure/Turnover.

Table 3.7: Capital Adequacy Norms for Membership on NSE

(Rs. in lakh)

Requirement	Members of				Professional Clearing Members of	
	WDM Segment	CM and F&O Segment	CM and WDM Segment	CM, WDM and F&O Segment	CM Segment	CM and F&O Segment
Net Worth	200	100	200	200	300	300
Interest Free Security Deposit	150	125	250	275	25	34
Collateral Security Deposit	Nil	25	25	25	25	50
Note: A PCM is required to bring in interest free security deposit of Rs.6 lakh and collateral security deposit of Rs.17.5 lakh (Rs. 9 lakh and Rs.25 lakh respectively for corporate members) per trading member in the CM segment.						

Trading and Exposure Limits

NSCCL imposes limits on turnover and exposure in relation to the base minimum capital of a member, which is the amount of funds and securities that a member keeps with the Exchange/NSCCL. The members are subject to limits on trading volumes in a day as well as exposure at any point of time. Gross intra-day turnover (Buy + Sell) of a member shall not exceed 33 1/3 times of the capital available with NSCCL. Similarly, gross exposure (aggregate of cumulative net outstanding positions in each security, at any point of time) of a member shall not exceed 8.5 times of free base capital up

to Rs. 1 crore. If a member has free capital in excess of Rs. 1 crore, his exposure shall not exceed Rs. 8.5 crore plus 10 times of the capital in excess of Rs. 1 crore. Members exceeding these limits are automatically and instantaneously disabled by the automated trading system. A penalty of Rs. 5,000 is levied for each violation of gross exposure limit and intra-day turnover limit.

Determination of Gross Exposure: The gross exposure of a member is computed across all securities and across all open settlements. Open settlements are all those settlements for which trading has commenced and for which pay-in is yet to be completed. It is arrived at by adding up the absolute values of the products of net cumulative values and the specified adjustment factor, for all securities in which a member has an open position. For this purpose, scrips have been classified in to three groups, based on market capitalisation, impact cost and number of trades. Groups I, II and III have been assigned adjustment factors of 1, 2 and 8.5 respectively. Members exceeding the gross exposure limit are not permitted to trade with immediate effect until the member's cumulative gross exposure is reduced to below the gross exposure limits as defined above or any such lower limits as applicable to the members. Alternatively, a member may bring in additional base capital resulting in enhanced gross exposure limit.

Early pay-in of funds/securities: If members meet funds obligations prior to the funds pay-in day, after satisfying the applicable conditions, then the margin payable by the member is re-computed after considering the funds pay-in. The value of the advance pay-in made is reduced from the cumulative net outstanding position of the member for the purpose of calculating gross exposure.

Similarly, if members deliver securities prior to the securities pay-in day, after satisfying the applicable conditions, then the margin payable by the member is recomputed after considering the above pay-in of securities. The value of the advance pay-in made is reduced from the cumulative net outstanding position of the member for the purpose of calculating gross exposure.

On-line Exposure Monitoring: NSCCL has put in place an on-line monitoring and surveillance system whereby exposure of the members is monitored on a real time basis. A system of alerts has been built in so that both the member and NSCCL are alerted as per pre-set levels (reaching 70%, 85%, 95% and 100%) when the members approach their allowable limits. The system enables NSSCL to further check the micro-details of members' positions, if required and take pro-active action.

The on-line surveillance mechanism also generates various alerts/reports on any price/volume movement of securities not in line with past trends/patterns. For this purpose the exchange maintains various databases

to generate alerts. Alerts are scrutinised and if necessary taken up for follow up action. Open positions of securities are also analysed. Besides this, rumors in the print media are tracked and where they are price sensitive, companies are contacted for verification. Replies received are informed to the members and the public.

Off-line Monitoring: Off-line surveillance activity consists of inspections and investigations. As per regulatory requirement, a minimum of 10% of the active trading members are to be inspected every year to verify the level of compliance with various rules, byelaws and regulations of the Exchange. Usually, inspection of more members than the regulatory requirement is undertaken every year. The inspection verifies if investor interests are being compromised in the conduct of business by the members. The investigation is based on various alerts, which require further analysis. If further analysis reveals any suspicion of irregular activity which deviates from the past trends/patterns and concentration of trading at NSE at the member level, then a more detailed investigation is undertaken. If the detailed investigation establishes any irregular activity, then disciplinary action is initiated against the member. If the investigation suggests suspicions of possible irregular activity across exchanges and/or possible involvement of clients, then the same is informed to SEBI.

Margin Requirements:

As per SEBI directive, in T+2 rolling settlement, all stock exchanges have imposed stringent margin requirements as a part of their risk containment measures. The prescribed categorisation of stocks for imposition of margins has the structure as given below:

- The stocks which have traded at least 80% of the days for the previous 18 months (from July 1, 2001) should constitute the Group I and Group II.
- Out of the scrips identified above, the scrips having mean impact cost of less than or equal to 1% should be categorised under Group I and the scrips where the impact cost is more than 1, should be categorised under Group II.
- The remaining stocks should be categorised under Group III.
- The impact cost should be calculated at 15th of each month on a rolling basis considering the order book snapshots of the previous six months. On the calculated impact cost, the scrips are moved from one group to another group from the 1st of the next month.

The daily margin in rolling settlement comprises of Value at Risk-based Margin (VaR-based margin) and Mark to Market Margin (MTM margin). The margins are computed at client level. A member entering an order needs to

enter the client code. Based on this information, margin is computed at the client level, which will be payable by the trading members on T+1 basis.

(A) Value at Risk (VaR)-based Margin.

The VaR rate is applied to gross exposure to determine VaR-based margin. VaR margin is charged at differential rate on the Net outstanding sale position of the client. However, such margins are added up across all clients of the member or custodian and the same are collected from the Trading Member or Custodian as the case may be. VaR margin is applicable for all securities in rolling settlement. All securities are classified into three groups for the purpose of VaR margin:

1. For the securities listed in Group I Scrip wise daily volatility calculated using the exponentially weighted moving average methodology that is used in the index futures market and the scrip wise daily VaR would be 3.5 times the volatility so calculated.
2. For the securities listed in Group II the VaR margin should be higher of scrip VaR (3.5 sigma) or three times the index VaR, and it should be scaled up by $\sqrt{3}$.
3. For the securities listed in Group III, the VaR margin would be equal to five times the index VaR and scaled up by $\sqrt{3}$.

VaR margin rate for a security constitute the following:

1. VaR based margin, which is arrived at, based on the methods stated above. The index VaR, for the purpose, would be the higher of the daily Index VaR based on S&P CNX NIFTY or BSE SENSEX. The index VaR would be subject to a minimum of 5%.
2. Additional VaR Margin: 6% as specified by SEBI.
3. Security specific Margin: NSCCL may stipulate security specific margins for the securities from time to time.

The VaR based margin would be rounded off to the next higher integer (For eg, if the VaR based Margin rate is 10.01, it would be rounded off to 11.00) and capped at 100%. The VaR margin rate computed as mentioned above will be charged on the net outstanding position (buy value-sell value) of the respective clients on the respective securities across all open settlements. The net position at a client level for a member is arrived at and thereafter, it is grossed across all the clients for a member to compute gross exposure for margin calculation. For example, in case of a member, if client A has a buy position of 1000 in a security and client B has a sell position of 1000 in the same security, the net position of the member in the security would be taken as 2000. The buy position of client A and sell position of client B in the same security would not be netted. It would be summed up to arrive at the member's exposure for the purpose of margin calculation.

NSE disseminates VaR margin rates to the members and public at large through its web-site. VaR margin rate for each security is provided on a daily basis, at the end of each trading day. These rates are applicable on the positions at the end of next trading day. A separate file is also provided on a daily basis for the VaR margin rates applicable for the institutional trades on the net outstanding sale positions at the end of next trading day. A file on the multiplier is provided on a monthly basis, detailing the multiplier to be applied on each security in the following month.

All margins are payable on trade day plus one. Members are required to compute their margin obligations and deposit the margin money in cash, bank guarantee or FDRs, rounded off to the next higher multiple of Rs.10,000/-. The margins deposited in cash on a given day are released to the member on the subsequent day after adjustment for margin, ABC and any other funds dues

Computation of VaR Rate:

VaR rate is a single number, which encapsulates whole information about the risk in a portfolio. It measures potential loss from an unlikely adverse event in a normal market environment. It involves using historical data on market prices and rates, the current portfolio positions, and models (e.g., option models, bond models) for pricing those positions. These inputs are then combined in different ways, depending on the method, to derive an estimate of a particular percentile of the loss distribution, typically the 99th percentile loss. The step by step computation of VaR-based margin is explained below.

- Obtain the closing price of the security (for the days on which it was traded in the exchange) and closing index values for the previous one-year period. Let these be
 - Closing prices of the security → CP₀, CP₁, CP₂, CP_n
 - Closing values of index → CV₀, CV₁, CV₂, CV_n
- Calculate the logarithmic returns with respect to previous day's closing price of the security/closing value of index for each day in the reference period. Logarithmic return (R_n) for day 'n' can be computed using the formula:
 - For scrip → R_n=LN(CP_n/CP_{n-1})
 - For index → R_n=LN(CV_n/CV_{n-1})
- Compute initial volatility by calculating the standard deviation of returns for the one year period using the formula:

$$\text{Standard deviation } \sigma_0 = \sqrt{\sum_{i=1}^n (\bar{R} - R_i)^2 / n}$$

where $\bar{R}$ is the average return for the reference period.

- Calculate daily volatility for subsequent days. For day 1, the volatility will be

$$\sigma_1 = \sqrt{\lambda(\sigma_o)^2 + (1 - \lambda)R_1^2}$$

Similarly for day 2

$$\sigma_2 = \sqrt{\lambda(\sigma_1)^2 + (1 - \lambda)R_2^2}$$

Where, $\lambda=0.94$, a parameter which indicates how rapidly volatility estimate changes. This value has been arrived at on the basis of the empirical study done by Prof. J R Varma.

- Calculate VaR for the scrip at 3.5σ level and VaR for the index at 3σ level. A higher σ level is used for the scrip because the scrip is expected to have higher volatility as compared to the index, which is a portfolio. The volatility estimate at 3σ level represents 99% VaR.
- Calculate VaR for a security or index for a particular day using the σ for both long positions and short positions.
 - For scrip,
 - VaR for short positions = Exponential $(3.5\sigma)-1$, and
 - VaR for long positions = $1 - \text{Exponential } (-3.5\sigma)$.
 - For index,
 - VaR for short positions = Exponential $(3\sigma)-1$, and
 - VaR for long positions = $1 - \text{Exponential } (-3\sigma)$

To ensure that risk for all possible situations is covered, long VaR or short VaR, whichever is higher, is considered as the VaR for the scrip or index, as the case may be.

Determination of Exposure:

The exposure to be reckoned for the purpose of applying VaR-based margin rates is determined in the manner illustrated in Table 3.8. It is arrived at by adding up the absolute values of the net cumulative positions for all securities in which a member has an open position, assuming the member has only two clients and no proprietary position. It is also assumed that the scrips A, B, C and D attract VaR rate of 25%, 30%, 35% and 40% respectively.

(Table: 3.8)

(B) Mark to Market Margin: MTM margin is computed on the basis of mark to market loss to a member. The MTM loss is the notional loss, which a member would incur, if the cumulative net outstanding positions in all securities were closed out at the closing price of the securities at the end of the relevant day. Mark to market margin is calculated by marking each transaction in scrip to the closing price of the scrip at the end of trading. In case a security has not been traded on the relevant particular day, the latest available closing price is considered as the closing price. In the event of the net outstanding position of a member in any security being nil, the difference between the buy and sell values would be considered as notional loss for the purpose of calculating the mark to market margin payable. For each security, this is worked out by multiplying the difference between the close price and the price at which the trade was executed by the cumulative buy and sell open position (for buy position the close price being lower than the actual trade price and for sale position, the close price being higher than the actual trade price). The aggregate across all securities is the MTM margin payable by a member. MTM profit/loss across different securities within the same settlement is set off to determine the MTM loss for a settlement, but set off benefits across the settlements are not allowed.

Index-based Circuit Filters

An index based market-wide circuit breaker system applies at three stages of the index movement either way at 10%, 15% and 20%. These circuit breakers bring about a coordinated trading halt in all equity and equity derivatives markets nation wide. The breakers are triggered by movement of either S&P CNX Nifty or Sensex whichever is breached earlier. As an additional measure of safety, individual scrip-wise price bands of 20% either way have been imposed for all scrips, including debentures and warrants. However, in respect of scrips for which derivative products are available or those included in indices on which derivative products are available, a daily price limit of 10% is applicable. Any order above or below 20% over the base price comes to the Exchange as a "price freeze". NSE may suo moto cancel the orders in the absence of any immediate confirmation from the members that these orders are genuine or for any other reason as it may deem fit. The Exchange views entries of non-genuine orders with utmost seriousness as this has market-wide repercussion.

Settlement Guarantee

After the execution of trade, the NSCCL becomes the counter-party to each transaction and ensures that funds and securities obligations are met. It provides settlement on the strength of a settlement guarantee fund. A large Settlement Guarantee Fund, which stood at Rs. 1,487 crore at the end of March 2003, provides the cushion for any residual risk. It operates like a self-insurance mechanism where members contribute to the Fund. In the event of failure of a trading member to meet settlement obligations or committing a default, the Fund is utilised to the extent required for successful completion of the settlement. This has eliminated counter-party risk of trading on the Exchange. The market has full confidence that settlement shall take place in time and shall be completed irrespective of default by isolated trading members.

Other stock exchanges have been allowed by SEBI to use settlement guarantee funds maintained by them for meeting the shortages arising out of non-fulfillment/partial fulfillment of funds obligations by members in a settlement before declaring the concerned member a defaulter as in the case of NSCCL, subject to the condition that: (a) in cases where the shortage was in excess of the BMC, the trading facility of the member was withdrawn and the securities pay out due to the member was withheld, (b) in cases where the shortage exceeded 20% of the BMC and was less than the BMC on six occasions within a period of three months, the trading facility of the member was withdrawn and the securities pay-out to the member was withheld. On recovery of the complete shortages, the member would be permitted to trade with a reduced exposure.

Direct Pay-out of Securities

NSCCL has put in place a system for giving direct pay-out of securities to investor's account. The system is applicable for both the depositories. An investor who is expecting a pay-out is required to give his/her account details to the trading member. The trading member in turn passes on this information to NSCCL. In order to smoothen the back office work of the trading members for providing this information, NSCCL has provided a front end for creating the file through which the information is passed on to NSCCL. On the pay-out day, pay-out goes to such investors' account directly from NSCCL. In case of any wrong information provided by the trading member, the pay-out goes to the pool account of the trading member.

Gross Margining

Presently margins are calculated for members security-wise on a net basis across clients. SEBI has now directed the Exchanges that the members will be subjected to margins on a gross basis across clients. Thus there will be no offsetting of positions of different clients in the same security. This is effective from September 3, 2001.

No-delivery Period

Whenever a book closure or a record date is announced by a company, the exchange sets up a 'no-delivery' period for that security. During this period, trading is permitted in the security. However, these trades are settled only after the no-delivery period is over. This is done to ensure that investor's entitlement for the corporate benefits is clearly determined. However, there is no no-delivery period on account of book closures and record dates for corporate actions, such as, issue of dividend and bonus shares, in respect of the scrips which are traded in the compulsory dematerialised mode. The time gap between two book closures/record dates is 30 days.

Penalty Points and Penal Interest:

NSCCL has instituted a penalty points system. Non performance in settlement by way of non-payment of amounts, short delivery or bad delivery attracts penalty points and a penal interest charge. The penalty interest and points are levied for a month. The penalty points that are accumulated, and the penalty that would be imposed for different types of violations, are made transparent to the members. The strict implementation of this system acts as a strong deterrent for settlement lapses. In addition, it also helps in identifying potential problem cases entailing risks.

Indemnity Insurance

The Exchange has arranged a comprehensive insurance scheme to cover risks of trading members. The Exchange has also taken an insurance cover of Rs. 50 crore to protect against risks arising from settlement defaults and transit risk arising from securities movement among its clearing centres.

Investigation and Inspection

As per regulatory requirement, a minimum of 10% of the active trading members are to be inspected every year to verify the level of compliance with various rules, byelaws and regulations of the Exchange. Usually, inspection of more members than the regulatory requirement is undertaken every year. The inspection randomly verifies if investor interests are being compromised in the conduct of business by the members. The investigation is based on various alerts which require further analysis. If further analysis suggests any possible irregular activity which deviates from the past trends/patterns and concentration of trading at NSE at the member level, then a more detailed investigation is undertaken. If the detailed investigation establishes any irregular activity, then disciplinary action is initiated against the member. If the investigation suggests possible irregular activity across exchanges and/or possible involvement of clients, then the same is informed to SEBI.

3.3.4 Investor Protection Fund

Investor Protection Fund (IPF) has been set up as a trust under Bombay Public Trust Act, 1950 under the name and style of National Stock Exchange Investor Protection Fund Trust and is administered by the Trustees. The IPF is maintained by NSE to make good investor claims, which may arise out of non-settlement of obligations by the trading member, who has been declared defaulter, in respect of trades executed on the Exchange. The IPF is utilised to settle claims of such investors where the trading member through whom the investor has dealt has been declared a defaulter. Payments out of the IPF may include claims arising of non payment/non receipt of securities by the investor from the trading member who has been declared a defaulter.

The maximum amount of claim payable from the IPF to the investor (where the trading member through whom the investor has dealt is declared a defaulter) is Rs. 5 lakh.

A notice is published in widely circulated daily newspapers notifying the trading member who has been declared defaulter. Claims against the trading member specified in the notice are required to be made, on or before three months from the date of such published notice. The claimant is required to

submit full details and all relevant facts of the case duly supported by copies of the relevant documents.

The trustees in disallowing (whether wholly or partly) a claim for compensation shall serve notice of such disallowance on the claimant. The trustees may at any time and from time to time require any person to produce and deliver any securities, documents or statements of evidence necessary to support any claim made or necessary for the purpose of establishing his claims. In default of delivery of such documents, the trustees may disallow (wholly or partly) any claim made by him.

3.4 Market Outcome

Turnover – Growth and Distribution

Trading volumes in the equity segments of the stock exchanges have been witnessing phenomenal growth for last few years. NSE consolidated its lead position during 2002-03 further, accounting for more than 60% of total turnover of all the stock exchanges in the country. The turnover of the CM segment increased rapidly from Rs. 1,805 crore during the first year of its operations, i.e. 1994-95 (November-March) to Rs. 617,989 crore during 2002-03. The average daily turnover also increased by leaps and bounds from Rs. 17 crore during 1994-95 to Rs. 2,462 crore during 2002-03. The CM segment registered a record number of trades on February 28, 2003 with 1,396,928 trades. The demat turnover in the CM segment increased from Rs. 351 crore during 1997-98 to Rs. 617,984 crore during 2002-03, accounting for about 99.99% of total turnover on the CM segment in value terms. The business growth of the CM segment is presented in [Table 3.9](#) and Chart 3.1.

Market Capitalisation

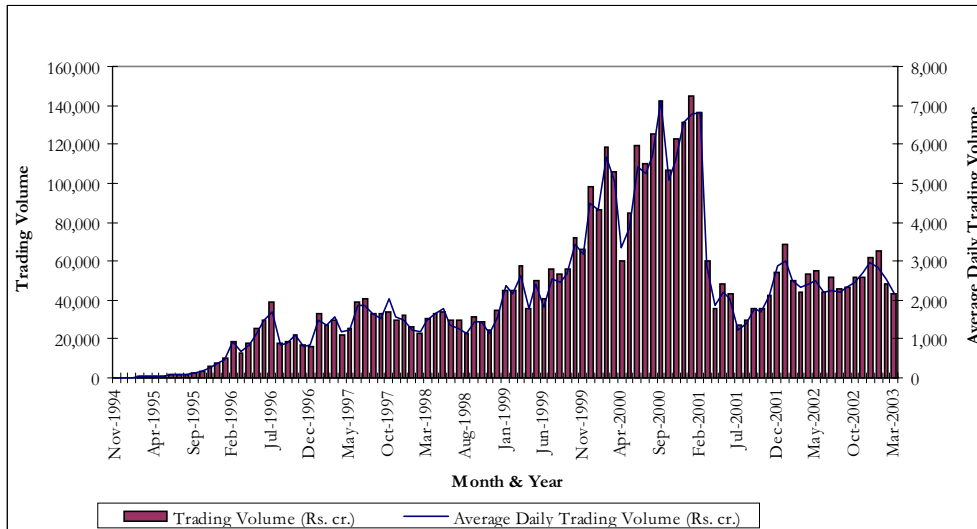
The total market capitalisation of securities available for trading on the CM segment increased from Rs. 3,63,350 crore as at end March 1995 to Rs. 537,133 crore as at end March 2003.

Liquidity

Many securities listed on stock exchanges are not traded. Trading in many other securities is negligible. These suggest illiquidity in such securities. The liquidity in the CM segment, as measured by the turnover ratio, has witnessed a steady increase and reached nearly 8% during March 2003 when about 97% of securities available for trading were in fact traded during the month. About 85% of securities available for trading is being

traded every day and 96% every month. About 86% of the securities were traded for at least 100 days during 2002-2003.

CHART-1: BUSINESS GROWTH OF CAPITAL MARKET SEGMENT



Transaction Costs

Liquidity to a large extent depends on transaction costs. Lower the transaction cost, the lower is the bid-ask spread and higher the volumes. SEBI released a Working Paper titled 'Trade Execution Cost of Equity Shares in India' in January 2002. The study has measured implicit (indirect) costs in terms of quoted spread (possible cost of trading in a stock) and effective bid-ask spread (actual cost incurred by an investor to execute a trade in a stock) and their behaviour in relation to volume traded, market capitalisation, volatility and market hour. The major findings of the study are as follows:

1. Effective spread is, by and large, lower than the quoted spread.
2. Market micro-structural changes appear to have influenced spread size.
3. The spread is inversely related to volume traded and market capitalisation and positively related to volatility (variance). Efforts to reduce volatility will also lead to reduction in bid-ask spread.
4. Speed and time of arrival of information in the market also affects trade cost. The spreads are very high at the open of market hours and they slowly taper off as trading progresses. An investor who postpones his decision to buy or sell towards close of trading saves more than 50% in terms of spread.
5. Spreads are mostly independent of quantity quoted and traded.

(Table: 3.9)

3.5 Market Index

Traditionally, indices have been used as benchmarks to monitor markets and judge performance. Modern indices were first proposed by two 19th century mathematicians: Etienne Laspeyres and Hermann Paasche. The grandfather of all equity indices is the Dow Jones Industrial Average which was first published in 1896; since then indices have come a long way - not only in their sophistication - but also in the variety.

There are three main types of indices, namely price index, quantity index and value index. The price index is most widely used. It measures changes in the levels of prices of products in the financial, commodities or any other markets from one period to another. The indices in financial markets measure changes in prices of securities like equities, debentures, government securities, etc. The most popular index in financial market is the stock (equity) index which uses a set of stocks that are representative of the whole market, or a specified sector, to measure the change in overall behaviour of the markets or sector over a period of time.

A stock index is important for its use:

1. as the lead indicator of the performance of the overall economy or a sector of the economy: A good index tells us how much richer or poorer investors have become.
2. as a barometer for market behaviour: It is used to monitor and measure market movements, whether in real time, daily, or over decades, helping us to understand economic conditions and prospects.
3. as a benchmark for portfolio performance: A managed fund can communicate its objectives and target universe by stating which index or indices serve as the standard against which its performance should be judged.
4. as an underlying for derivatives like index futures and option. It also underpins products such as, exchange-traded funds, index funds etc. These index-related products form a several trillion dollar business and are used widely in investment, hedging and risk management.
5. as it supports research (for example, as benchmarks for evaluating trading rules, technical analysis systems and analysts' forecasts); risk measurement and management; and asset allocation.

In addition to the above functional use, a stock index reflects changing expectations of the market about future of the corporate sector. The index rises if the market expects the future to be better than previously expected and drops if the expectation about future becomes pessimistic.

Price of a stock moves for two reasons, namely, company specific development (product launch, closure of a factory, arrest of chief executive)

and development affecting the general environment (nuclear bombs, election result, budget announcement), which affects the stock market as a whole. The stock index captures the second part, that is, impact of environmental change on the stock market as a whole. This is achieved by averaging which cancels out changes in prices of individual stocks.

3.5.1 Understanding the index number

An index is a summary measure that indicates changes in value(s) of a variable or a set of variables over a time or space. It is usually computed by finding the ratio of current values(s) to a reference (base) value(s) and multiplying the resulting number by 100 or 1000. For instance, a stock market index is a number that indicates the relative level of prices or value of securities in a market on a particular day compared with a base-day price or value figure, which is usually 100 or 1000.

Illustration: The values of a market portfolio at the close of trading on Day 1 and Day 2 are:

	Value of portfolio	Index value
DAY1 (base day)	Rs. 20,000	1000
Day 2	Rs. 30,000	1500

Assume that Day 1 is the base day and the value assigned to the base day index is 1000. On Day 2 the value of the portfolio has changed from Rs. 20,000 to Rs. 30,000, a 50% increase. The value of the index on Day 2 should reflect a corresponding 50% increase in market value.

Thus,

$$\begin{aligned}
 \text{Index on Day2} &= \frac{\text{Portfolio Value of Day2}}{\text{Portfolio Value of Base Day}} * \text{Index Value of Base Day} \\
 &= \frac{\text{Rs. 30,000}}{\text{Rs. 20,000}} * 1000 \\
 &= 1500
 \end{aligned}$$

Day 2's index is 1500 as compared to the 1000 of day 1.

The above illustration only serves as an introduction to how an index is constructed. The daily computation of a stock index involves more complexity especially when there are changes in market capitalization of constituent stocks, e.g., rights offers, stock dividend etc.

Attributes of an index

A good stock market index should have the following attributes:

- (a) *Capturing behaviour of portfolios*: A good market index should accurately reflect the behaviour of the overall market as well as of different portfolios. This is achieved by diversification in such a manner that a portfolio is not vulnerable to any individual stock or industry risk. A well-diversified index is more representative of the market. However there are diminishing returns from diversification. There is very little gain by diversifying beyond a point. Including illiquid stocks, actually worsens the index since an illiquid stock does not reflect the current price behaviour of the market, its inclusion in index results in an index, which reflects, delayed or stale price behaviour rather than current price behaviour of the market. Thus a good index should include the stocks which best represent the universe.
- (b) *Including liquid stocks*: Liquidity is much more than reflected by trading frequency. It is about ability to transact at a price, which is very close to the current market price. For example, when the market price of a stock is at Rs.320, it will be considered liquid if one can buy some shares at around Rs.320.05 and sell at around Rs.319.95. A liquid stock has very tight bid-ask spread. Impact cost is the most practical and operational definition of liquidity.
- (c) *Maintaining professionally*: An index is not a constant. It reflects the market dynamics and hence changes are essential to maintain its representative character. This necessarily means that the same set of stocks would not satisfy index criteria at all times. A good index methodology must therefore incorporate a steady pace of change in the index set. It is crucial that such changes are made at a steady pace. Therefore the index set should be reviewed on a regular basis and, if required, changes should be made to ensure that it continues to reflect the current state of market.

Methodology for index construction

Stock market indices differ from one another basically in their sampling and/or weighting methods.

SAMPLING METHOD

Unlike market indices such as American Stock Market Index and the Hong Kong Stock Exchange All-Ordinaries Index that comprise of all stocks listed in a market, under sampling method, an index is based on a fraction or a certain percentage of select stocks which is highly representative of total stocks listed in a market.

WEIGHTING METHOD

In a value-weighted index, the weight of each constituent stock is proportional to its market share in terms of market capitalization. In an index portfolio, we can assume that the amount of money invested in each constituent stock is proportional to its percentage of the total value of all constituent stocks. Examples include all major stock market indices like S&P CNX Nifty.

There are three commonly used methods for constructing indices:

- Price weighted method
- Equally weighted method
- Market capitalisation weighted method

A price-weighted index is computed by summing up the prices, of the various securities included in the index, at time 1, and dividing it by the sum of prices of the securities at time 0 multiplied by base index value. Each stock is assigned a weight proportional to its price.

Example: Assuming base index = 1000, price weighted index consisting of 5 stocks tabulated below would be:

COMPANY	Share Price at Time- 0	Share Price at Time- 1
Reliance	351.75	340.50
AB & U	329.10	350.30
INFOSYS	274.60	280.40
HLL	1335.25	1428.75
Tata Tea	539.25	570.25
Total	2829.95	2970.20

$$\text{Index} = \frac{2970.20}{2829.95} * 1000 = 1049.56$$

An equally weighted index assigns equal weight to each stock. This is achieved by adding up the proportionate change in the price of each stock, dividing it by no of stocks in the index and multiplying by base index value.

Assuming base index = 1000, equally weighted index consisting of 5 stocks tabulated in the earlier example would be calculated as:

$$\begin{aligned}\text{Index} &= \frac{\frac{340.50}{351.75} + \frac{350.30}{329.10} + \frac{280.40}{274.60} + \frac{1428.75}{1335.25} + \frac{570.25}{539.25}}{5} * 1000 \\ &= \frac{5.1810682}{5} * 1000 = 1036.21\end{aligned}$$

Market capitalisation weighted index: The most commonly used weight is market capitalization (MC), that is, the number of outstanding shares multiplied by the share price at some specified time. In this method,

$$\text{Index} = \frac{\text{Current Market Capitalization}}{\text{Base Market Capitalization}} * \text{Base Value}$$

Where,

Current MC = Sum of (number of outstanding shares*Current Market Price) all stocks in the index

Base MC = Sum of (number of outstanding shares*Market Price) all stocks in index as on base date

Base value = 100 or 1000

Assuming base index = 1000, market capitalisation weighted index consisting of 5 stocks tabulated in the earlier example would be calculated as:

COMPANY	Current Market Capitalization (Rs. Lakh)	Base Market Capitalization (Rs. Lakh)
Reliance	1668791.10	1654247.50
AB & U	872686.30	860018.25
INFOSYS	1452587.65	1465218.80
HLL	2675613.30	2669339.55
Tata Tea	660887.75	662559.30
Total	7330566.10	7311383.40

$$\text{Index} = \frac{7330566.10}{7311383.40} * 1000 = 1002.62$$

Difficulties in index construction:

The major difficulties encountered in constructing an appropriate index are:

- deciding the number of stocks to be included in the index,
- selecting stocks to be included in the index,
- selecting appropriate weights, and
- selecting the base period and base value.

Important stock indices

The prominent stock market indices are presented in Table 3.10.

Table 3.10: Important Indices in the World

Name of the Index	Country	Weight	No. of Stocks	Base Year	Base Value	Value as on 30th March 2003
S&P CNX Nifty	NSEIL, India	Market Capitalisation	50	1995	1000	978.20
SENSEX 30	BSE, India	"	30	1978-79	100	3048.72
NASDAQ 100	NASDAQ, USA	"	100	1985	125	1341.17
FTSE 100	UK	"	100	1984	1000	3613.30
Hang Seng	Hongkong	"	33	1964	100	8634.45
Dow Jones	USA	Price	30	1928		7992.13
Nikkei 225	Tokyo	Price	225	1949		7972.71

3.5.2 Understanding S&P CNX NIFTY

S&P CNX Nifty (Nifty), the most popular and widely used indicator of the stock market in the country, is a 50-stock index comprising the largest and the most liquid stocks from about 25 sectors in India. These stocks have a MC of over 50% of the total MC of the Indian stock market. The index was introduced in 1995 by the National Stock Exchange (NSE) keeping in mind it would be used for modern applications such as index funds and index derivatives besides reflecting the stock market behaviour. NSE maintained it till July 1998, after which the ownership and management rights were transferred to India Index Services & Products Ltd. (IISL), the only professional company in India which provides index services.

Choice of index set size:

While trying to construct Nifty, a number of calculations were done to arrive at the ideal number of stocks. A simple index construction algorithm was implemented which did not pre-specify the size of the index set, but added and deleted stocks based on criteria of MC and liquidity. Ten index time-series (from 1990 to 1995) were generated by using various thresholds for addition and deletion of stocks from/into the index set. These index sets turned out to range from 69 to 182 stocks as of end-1995 indicating that the ideal number of stocks for the index could be somewhere in the range 69 to 182. For each of these ten index time-series, the correlation between the index time-series and thousands of randomly chosen portfolios was calculated. This gave a quantitative sense of how increasing the index set size helps improve the extent to which the index reflects the behaviour of the market. It was observed that the gain from increasing the number of

stocks from 69 to 182 was quite insignificant. It was corroborated by the theory on portfolio diversification, which suggests that diversifying from 10 to 20 stocks results in considerable reductions in risk, while the gains from further diversification are smaller. An analysis of liquidity further suggested that the Indian market had comfortable liquidity of around 50 stocks. Beyond 50, the liquidity levels became increasingly lower. Hence the index set size of 50 stocks was chosen.

Selection of stocks:

From early 1996 onwards, the eligibility criteria for inclusion of stocks in S&P CNX Nifty are based on the criteria of Market Capitalization (MC), liquidity and floating stock.

Market capitalisation: Stocks eligible for inclusion in Nifty must have a six monthly average market capitalisation of Rs.500 crore or more during the last six months.

Liquidity (Impact cost): Liquidity can be measured in two ways: Traditionally liquidity is measured by volume and number of trades. The new international practice of measuring liquidity is in terms of impact cost. An ideal stock can be traded at its ruling market price. However practically, when one tries to buy a stock, one pays a price higher than the ruling price for purchase, or receives a price lower than the ruling price from sale, due to sufficient quantity not being available at the ruling price. This difference from the ruling price in percentage terms is the impact cost. It is defined as the percentage degradation suffered in the price for purchase or sale of a specified quantity of shares, when compared to the ideal price. It can be computed for each individual stock based on order book snapshots. It can also be computed for a market index based on the impact cost of constituent stocks, using their respective index weights. The impact cost of a market index is effectively the cost incurred when simultaneously placing market orders for all constituents of the index, in the proportion of their weights in the index. A highly liquid market index is one where the impact cost of buying or selling the entire index is low.

It is the percentage mark up suffered while buying / selling the desired quantity of a stock compared to its ideal price, that is, $(\text{best buy} + \text{best sell})/2$.

Let us assume the order book for a stock looks as follows:

Buy		Sell	
Quantity	Price	Quantity	Price
1000	98	1000	99
2000	97	1500	100
1000	96	1000	101

To buy 1500 stocks,

$$\text{Ideal price} = \frac{99 + 98}{2} = 98.5$$

$$\text{Actual buy price} = \frac{1000 * 99 + 500 * 100}{1500} = 99.33$$

$$\text{Impact cost} = \frac{99.33 - 98.5}{98.5} \times 100 = 0.84\%$$

(For 1500 stocks)

Impact cost for sell can also be worked out. The impact cost criterion requires that the stocks traded for 85% of the trading days at an impact cost of less than 0.75% can be included in the index.

Floating Stock: Companies eligible for inclusion in S&P CNX Nifty should have atleast 12% floating stock. For this purpose, floating stock shall mean stocks which are not held by the promoters and associated entities (where identifiable) of such companies.

Base date and value:

The base date selected for S&P CNX Nifty index is the close of prices on November 3, 1995, which marks the completion of one year of operations of NSE's Capital Market segment. The base value of the index has been set at 1000.

S&P CNX Nifty has a historical time series dating back to January 1990. It is worth explaining the manner of calculation of the series. On 1st July 1990, BSE (the Stock Exchange, Bombay) data for the preceeding six months was analysed to shortlist a set of stocks which had adequate liquidity. The top fifty companies were included in the index set, and the index time series was calculated for three months from 1st July 1990 to 30th September 1990. The index set was re-calculated afresh at this point (i.e. by dropping some low-liquidity or low MC stocks, and adding better alternatives), and this new index set was used for the next three months, and so on. This methodology avoided selection bias associated with the simple back-calculation, which generates higher returns in the back-calculated series than is really the case. This happens because the index set chosen today is likely to contain stocks, which have fared well in the recent past. Conversely, stocks that fared badly in the past are likely to have lower MC and hence not get included in today's index set. The historical time-series of Nifty truly reflects the behaviour of an index populated with the biggest 50 stocks, which have required levels of liquidity through out.

Index maintenance

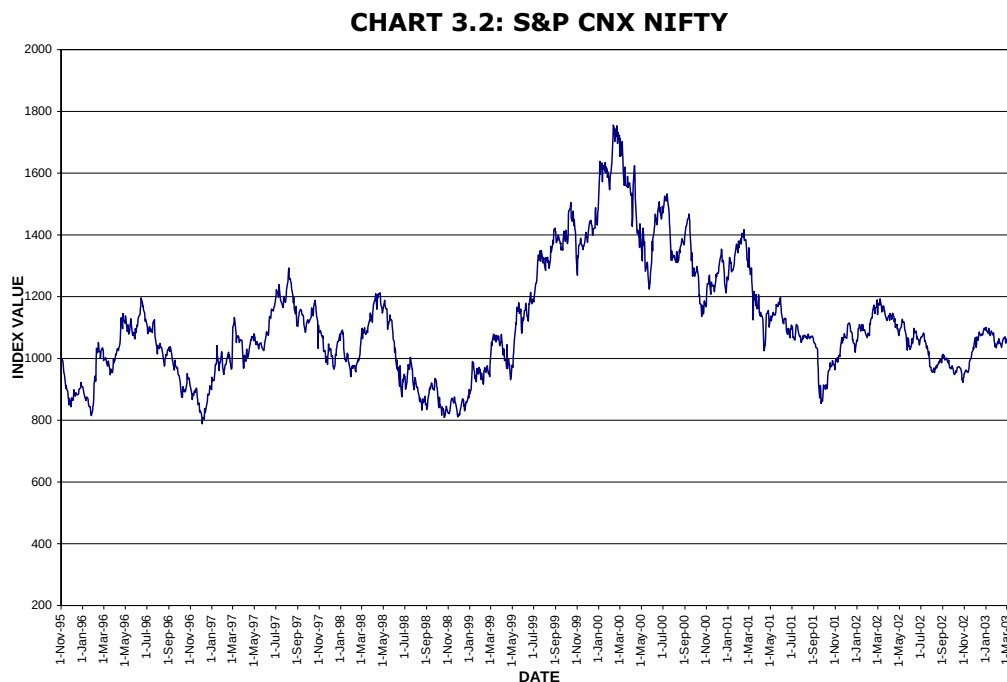
An index is required to be maintained professionally to ensure that it continues to remain a consistent benchmark of the equity markets. This

involves transparent policies for inclusion and exclusion of stocks in the index and for day-to-day tracking and giving effect to corporate actions on individual stocks. At IISL, an Index Policy Committee comprising of eminent professionals from mutual funds, broking houses, financial institutions, academicians etc. formulates policy and guidelines for management of the Indices. An Index Maintenance Sub-Committee, comprising of representatives from NSE, CRISIL, S&P and IISL takes all decisions on addition/ deletion of stocks in any Index and the day to day index maintenance.

On-line computation and dissemination:

The index is calculated afresh every time a trade takes place in an index stock. Hence, we often see days where there are more than 5,00,000 observations for Nifty. The index data base provides data relating to Open, High, Low, and Close values of index every day, the number of shares traded for each of the index stocks, the sum of value of the stocks traded of each of the index stocks, the sum of the MC of all the stocks in the index etc.

Nifty is calculated on-line and disseminated over trading terminals across the country. This is also disseminated on real-time basis to information vendors such as Bloomberg, Reuters etc. The movement of S&P CNX NIFTY since inception till March 2003 is presented in Chart 3.2:



3.5.3 India Index Services & Products Ltd. (IISL)

IISL is jointly promoted by NSE, the leading stock exchange and The Credit Rating and Information Services of India Ltd. (CRISIL), the leading credit rating agency in India. IISL has a consulting and license agreement with Standard & Poor's (S&P), the leading index services provider in the world. S&P CNX Nifty, the most popular and widely used indicator of the stock market in India, is the owned and managed by IISL, which also maintains over 80 indices comprising broad based benchmark indices, sectoral indices and customised indices. The prominent indices provided by IISL include:

Name of the Index	Description
S&P CNX Nifty	50-stock large MC Index
S&P CNX 500	A broad based 500 stock Index
S&P CNX Defty	US \$ denominated Index of S&P CNX Nifty
S&P CNX Industry indices	The S&P CNX 500 is classified in 73 industry sectors. Each such sector forms an Index by itself.
CNX Nifty Junior	50-stock Index which comprise the next rung of large and liquid stocks after S&P CNX Nifty
CNX Midcap 200	A midcap Index of 200 stocks
CNX PSE Index	Public Sector Enterprises Index
CNX MNC Index	Multinational Companies Index
CNX IT Index	Information Technology Index
CNX FMCG Index	Fast Moving Consumer Goods Index
CNX Millenium Index	The new economy Index

Model questions

Q. In which of the following market types Central Government securities are allowed to trade?

- (a) Normal Market
- (b) Odd lot Market
- (c) Auction Market
- (d) Retdebt Market

Correct Answer: (d)

Q. Basket Trading allows the trader to _____.

- (a) create offline order entry file for a selected portfolio
- (b) buy/sell nifty stock
- (c) only buy selected portfolio
- (d) trade only on selected portfolio

Correct Answer: (a)

Q. What is the prevailing price band for Nifty/derivative stocks?

- (a) 10%
- (b) 15%
- (c) 20%
- (d) No band

Correct Answer: (d)

Q. The market price protection functionality_____.

- (a) limits the risk of a market order within a pre-set percentage of the last traded price
- (b) limits over all risk of the market
- (c) protects the market from price fluctuations
- (d) all of the above

Correct Answer: (a)

Q. Auction price applicable is _____.

- (a) previous day's close price
- (b) last trade price on that day
- (c) that day's close price
- (d) previous day's last trade price

Correct Answer: (a)

Q. A professional clearing member is _____.

- (a) a trading and clearing member and is entitled to settle trades for clients/trading members
- (b) a trading and clearing member and is not entitled to settle trades for client
- (c) only a clearing member and can clear and settle trades for his clients
- (d) none of the above

Correct answer: (c)

Q. The gross intra day turnover limit set for members is ____ of the capital of a member available with NSCCL.

- (a) $16 \frac{2}{3}^{\text{rd}}$ times
- (b) $33 \frac{1}{3}^{\text{rd}}$ times
- (b) 40%
- (d) 10%

Correct answer: (b)

Q. Custodial Trades are confirmed by the custodians on _____ day.

- (a) T
- (b) T + 1
- (c) T + 2
- (d) none of the above

Correct answer: (b)

Q. Delivery versus Payment (DVP) mechanism is ensured through:

- (a) Pay-in first and Pay-out later,
- (b) Pay-out first and Pay-in later,
- (c) Pay-in and Pay-out simultaneously
- (d) None of the above

Correct answer: (d)

CHAPTER 4:

GOVERNMENT SECURITIES MARKET

4.1 Indian Debt Markets

4.1.1 Introduction

The debt market in India comprises of two main segments, *viz.*, the government securities market and the corporate securities market, besides the emerging market for interest rate derivatives. The market for government securities is the most dominant part of the debt market in terms of outstanding securities, market capitalisation, trading volume and number of participants. It sets benchmark for the rest of the market. The outstanding volume in marketable government securities (of central as well as state government) is estimated at around Rs. 641212 crore at the end of March 2003. The short-term instruments in this segment are used by RBI as instrument of monetary policy. The main instruments in the government securities market are fixed rate bond, floating rate bonds, zero coupon bonds and inflation index bonds, partly paid securities, securities with embedded derivatives, treasury bills and the state government bonds. The corporate debt segment includes private corporate debt, bonds issued by public sector units (PSUs) and bonds issued by development financial institutions (DFIs). This segment is not very deep and liquid. The market for debt derivatives has not yet developed appreciably.

The government securities market has witnessed significant transformation in the 1990s in terms of market design. The most significant developments include introduction of auction-based price determination for government securities, development of new instruments and mechanisms for government borrowing as well as participation by new market participants, increase in information dissemination on market borrowings and secondary market transactions, screen based negotiations for trading, and the development of the yield curve for government securities for marking-to-market portfolios of banks. During the last one decade, RBI introduced the system of primary dealers (PDs) and satellite dealers (since discontinued from December 2002), introduced delivery *versus* payment (DvP) in securities settlement, expanded the number of players in the market with facility for non-competitive bidding in auctions, and allowed wider participation in constituent Subsidiary General Ledger (SGL) accounts. The government securities market also benefited from emergence of liquidity arrangement through the Liquidity Adjustment Facility (LAF), expansion of

the repo markets, complete stoppage of automatic monetisation of deficits, and emergence of self regulatory bodies, such as, the Primary Dealers Association of India (PDAI) and the Fixed Income Money Markets and Derivatives Association (FIMMDA).

These reforms have resulted in a marked change in the nature of instruments offered, a wider investor base and a progressive movement towards market-determined interest rates. The market for government securities has, however, remained largely captive and wholesale in nature, with banks and institutions being the major investors in this segment. While the primary market for government securities witnessed huge activity due to increased borrowing needs of the government, only a small part of the outstanding stock finds its way into the secondary market. The number of transactions in the secondary market continues to be small relative to the size of outstanding debt and the size of the participants, though the year 2001-2002 witnessed a phenomenal growth in trading volumes in the market. Many banks and other institutions trade in these securities on the telephone and report trades on the Wholesale Debt Market (WDM) segment of NSE. The nature of the market has not changed appreciably even after introduction of Negotiated Dealing System in February 2002. The liquidity continues to be thin despite a shift to screen-based trading on NSE. Further reforms are, therefore, necessary for improving market design and liquidity. The activity in the secondary market could pick up once bond yields are better aligned and retail investors, apart from institutional investors, start actively participating in the market.

The development of secondary debt market in India has considerably lagged behind the equity market. About 97% of activity in the secondary debt market is on account of transactions in government securities and T-bills, while trades in corporate debt paper and PSU bonds are insignificant. This is partly due to lack of sufficient number of securities and partly due to lack of interest by retail investors in those securities.

The year 2001-02 has been most eventful for debt markets in India, with implementation of several important decisions like setting up of a clearing corporation for government securities, a negotiated dealing system to facilitate transparent electronic bidding in auctions and secondary market transactions on a real time basis and dematerialisation of debt instruments. The year also witnessed unprecedented volumes both in primary market and secondary market. The trading volumes of the WDM segment of the NSE far exceeded combined trading volumes in equity segments of all the exchanges in the country during 2001-02.

During 2001-02, the government and corporate sector collectively mobilised Rs. 204,981 crore from primary debt market, 10.8% higher than the resources mobilised in the preceding year. About 75% of these were raised by the government (Central and State Governments), while the balance amount was mobilised by the corporate sector through public and private placement issues. The turnover in secondary debt market during 2001-02 aggregated Rs. 1,573,893 crore and during 2002-2003 aggregated to Rs.

1,955,731 crore (i.e. more than 24% higher than that in the previous year). The share of NSE in total turnover in debt securities remained at about 60% during 2001-02.

4.1.2 Market Subgroups

The various subgroups in debt market in India are discussed below:

- Government securities form the oldest and most dominant part of the debt market in India. The market for government securities comprises the securities issued by the central government, state governments and state-sponsored entities. In the recent past, local bodies such as municipal corporations have also begun to tap the debt market for funds. The Central Government mobilises funds mainly through issue of dated securities and T-bills, while State Governments rely solely on State Development Loans. The major investors in sovereign papers are banks, insurance companies and financial institutions, which generally do so to meet statutory requirements.
- Bonds issued by government-sponsored institutions like DFIs, infrastructure-related institutions and the PSUs, also constitute a major part of the debt market. The gradual withdrawal of budgetary support to PSUs by the government since 1991 has increased their reliance on the bond market for mobilising resources. The preferred mode of raising capital by these institutions has been private placement, barring an occasional public issue. Banks, financial institutions and other corporates have been the major subscribers to these issues.
- The Indian corporate sector relies, to a great extent, on raising capital through debt issues, which comprise of bonds and Commercial Papers (CPs). Of late, most of the bond issues are being placed through the private placement route. These bonds are structured to suit the requirements of investors and the issuers, and include a variety of tailor-made features with respect to interest payments and redemption. Corporate bond market has seen a lot of innovations, including securitised products, corporate bond strips, and a variety of floating rate instruments with floors and caps. In the recent years, there has been an increase in issuance of corporate bonds with embedded put and call options. While some of these securities are traded on the stock exchanges, the secondary market for corporate debt securities is yet to fully develop.
- In addition to above, there is another segment, which comprises of short-term paper issued by banks, mostly in the form of certificates of deposit (CDs). This segment is, however, comparatively less dominant.
- The Indian debt market also has a large non-securitised, transactions-based segment, where players are able to lend and borrow amongst themselves. This segment comprises of call and notice money markets, inter-bank market for term money, market for inter-corporate loans, and

market for ready forward deals (repos). Typically, short-term instruments are traded in this segment.

- The market for interest rate derivatives like FRAs, IRSs, and OISs (Overnight Index Swaps) is emerging to enable banks, PDs and FIs to hedge interest rate risks.

4.1.3 Instruments

Debt instruments represent contracts whereby one party lends money to another on pre-determined terms with regard to rate of interest to be paid by the borrower to the lender, the periodicity of such interest payment, and the repayment of the principal amount borrowed. In the Indian securities markets, we use the term 'bond' for debt instruments issued by the Central and State governments and public sector organisations, and the term 'debentures' for instruments issued by private corporate sector. In this workbook the terms bonds, debentures and debt instruments have been used inter-changeably.

The principal features of a bond are:

- Maturity: In the bond markets, the terms maturity and term-to-maturity, are used quite frequently. Maturity of a bond refers to the date on which the bond matures, or the date on which the borrower has agreed to repay (redeem) the principal amount to the lender. The borrowing is extinguished with redemption, and the bond ceases to exist after that date. Term to maturity, on the other hand, refers to the number of years remaining for the bond to mature. Term to maturity of a bond changes everyday, from the date of issue of the bond until its maturity.
- Coupon: Coupon refers to the periodic interest payments that are made by the borrower (who is also the issuer of the bond) to the lender (the subscriber of the bond). Coupon rate is the rate at which interest is paid, and is usually represented as a percentage of the par value of a bond.
- Principal: Principal is the amount that has been borrowed, and is also called the par value or face value of the bond. The coupon is the product of the principal and the coupon rate.

4.1.4 Participants

Debt markets are pre-dominantly wholesale markets, with institutional investors being major participants. Banks, financial institutions, mutual funds, provident funds, insurance companies and corporates are the main investors in debt markets. Many of these participants are also issuers of debt instruments. The small number of large players has resulted in the

debt markets being fairly concentrated, and evolving into a wholesale negotiated dealings market. Most debt issues are privately placed or auctioned to the participants. Secondary market dealings are mostly done on telephone, through negotiations. In some segments, such as the government securities market, market makers in the form of primary dealers have emerged, which enable a broader holding of treasury securities. Debt funds of the mutual fund industry, comprising of liquid funds, bond funds and gilt funds, represent a recent mode of intermediation of retail investments into the debt markets. The market participants in the debt market are described below:

- (a) Central Government raises money through bond and T-bill issues to fund budgetary deficits and other short and long-term funding requirements.
- (b) Reserve Bank of India (RBI), as investment banker to the government, raises funds for the government through dated securities and T-bill issues, and also participates in the market through open-market operations in the course of conduct of monetary policy. RBI also conducts daily repo and reverse repo to moderate money supply in the economy. RBI also regulates the bank rates and repo rates, and uses these rates as tools of its monetary policy. Changes in these benchmark rates directly impact debt markets and all participants in the market as other interest rates realign themselves with these changes.
- (c) Primary Dealers (PDs), who are market intermediaries appointed by RBI, underwrite and make market in government securities by providing two-way quotes, and have access to the call and repo markets for funds. Their performance is assessed by RBI on the basis of their bidding commitments and the success ratio achieved at primary auctions. In the secondary market, their outright turnover has to three times their holdings in dated securities and five times their holdings in treasury bills. Satellite dealers constituted the second tier of market makers till December 2002.
- (d) State governments, municipal and local bodies issue securities in the debt markets to fund their developmental projects as well as to finance their budgetary deficits.
- (e) Public Sector Undertakings (PSUs) and their finance corporations are large issuers of debt securities. They raise funds to meet the long term and working capital needs. These corporations are also investors in bonds issued in the debt markets.
- (f) Corporates issue short and long-term paper to meet their financial requirements. They are also investors in debt securities issued in the market.
- (g) Development Financial Institutions (DFIs) regularly issue bonds for funding their financing requirements and working capital needs. They also invest in bonds issued by other entities in the debt markets. Most FIs hold government securities in their investment and trading portfolios.

- (h) Banks are the largest investors in the debt markets, particularly the government securities market due to SLR requirements. They are also the main participants in the call money and overnight markets. Banks arrange CP issues of corporates and are active in the inter-bank term markets and repo markets for their short term funding requirements. Banks also issue CDs and bonds in the debt markets. They also issue bonds to raise funds for their Tier-II capital requirement.
- (i) The investment norms for insurance companies make them large participants in government securities market.
- (j) Mutual funds have emerged as important players in the debt market, owing to the growing number of debt funds that have mobilised significant amounts from the investors. Most mutual funds also have specialised debt funds such as gilt funds and liquid funds. Mutual funds are not permitted to borrow funds, except for meeting very short-term liquidity requirements. Therefore, they participate in the debt markets pre-dominantly as investors, and trade on their portfolios quite regularly.
- (k) Foreign Institutional Investors (FIIs) are permitted to invest in treasury and corporate bonds, within certain limits.
- (l) Provident and pension funds are large investors in the debt markets. The prudential regulations governing the deployment of the funds mobilised by them mandate investments pre-dominantly in treasury and PSU bonds. They are, however, not very active traders in their portfolio, as they are not permitted to sell their holdings, unless they have a funding requirement that cannot be met through regular accruals and contributions.
- (m) Charitable institutions, trusts and societies are also large investors in the debt markets. They are, however, governed by their rules and bye-laws with respect to the kind of bonds they can buy and the manner in which they can trade on their debt portfolios.
- (n) Since January 2002, retail investors have been permitted submit non-competitive bids at primary auction through any bank or PD. They submit bids for amounts of Rs. 10,000 and multiples thereof, subject to the condition that a single bid does not exceed Rs. 1 crore. The non-competitive bids upto a maximum of 5% of the notified amount are accepted at the weighted average cut off price / yield.
- (o) NDS, CCIL and WDM are other participants which are discussed in greater detail in subsequent sections.

The matrix of issuers, investors, instruments in the debt market and their maturities are presented in Table 4.1.

Table 4.1: Participants and Products in Debt Markets

Issuer	Instruments	Maturity	Investors
Central Government	Dated Securities	2 - 30 years	RBI, Banks, Insurance Companies, Provident Funds, Mutual Funds, PDs, Individuals, FIIs
Central Government	T-Bills	91/364 days	RBI, Banks, Insurance companies, Provident Funds, PDs, Mutual Funds, Individuals, FIIs
State Government	State Development Loans	7 -20 years	Banks, Insurance Companies, Provident Funds, Individuals
PSUs	Bonds, Structured Obligations	1 -20 years	Banks, Insurance Companies, Provident Funds, Mutual Funds, Individuals, Corporates, FIIs
Corporates	Debentures, Bonds	1 - 15 years	Banks, Mutual Funds, Corporates, Individuals, FIIs
Corporates, PDs	Commercial Papers	15 days to 1 year	Banks, Mutual Funds, Financial Institutions, Corporates, Individuals, FIIs
Scheduled Commercial Banks	Certificates of Deposits (CD)	15 days to 1 year	Banks, Corporations, Individuals, companies, trusts, funds, associations, FIs, non-resident Indians
Financial Institutions		1 year to 3 years	
Scheduled Commercial Banks	Bank bonds	1-10 years	Corporations, Individuals, Companies, Trusts, Funds, Associations, FIs, non-resident Indians
PSU	Municipal bonds	0-7 Years	Banks, Corporations, Individuals, companies, trusts, funds, associations, FIs, non-resident Indians

4.2 Primary Market

4.2.1 Issuance Process-Government securities

The issue of government securities is governed by the terms and conditions specified in the general notification of the government and also the terms and conditions specified in the specific notification issued in respect of issue of each security. The terms and conditions specified in the general notification are discussed in this section.

Any person including firm, company, corporate body, institution, state government, provident fund, trust, NRI, OCB predominantly owned by NRIs and FII registered with SEBI and approved by RBI can submit offers, including in electronic form, for purchase of government securities. Payment for the securities are made by the applicants on such dates as mentioned in the specific notification, by means of cash or cheque drawn on RBI or Banker's pay order or by authority to debit their current account with RBI or by Electronic Fund Transfer in a secured environment. Government securities are issued for a minimum amount of Rs.10,000/- (face value) and in multiples of Rs.10,000/- thereafter. These are issued to the investors by credit to their SGL account or to a Constituents' SGL account of the institution as specified by them, maintained with RBI or by credit to their Bond Ledger Account maintained with RBI or with any institution authorised by RBI, or in the form of physical certificate. These are repaid at Public Debt Offices of RBI or any other institution at which they are registered at the time of repayment. If specified in the specific notification, the payment for securities and the repayment thereof can be made in specified installments.

Government issues securities through the following modes:

- (a) **Issue of securities through auction:** The securities are issued through auction either on price basis or on yield basis. Where the issue is on price basis, the coupon is pre-determined and the bidders quote price per Rs.100 face value of the security, at which they desire to purchase the security. Where the issue is on yield basis, the coupon of the security is decided in an auction and the security carries the same coupon till maturity. On the basis of the bids received, RBI determines the maximum rate of yield or the minimum offer price as the case may be at which offers for purchase of securities would be accepted at the auction.

The auctions for issue of securities (on either yield basis or price basis) are held either on 'Uniform price' method or on 'Multiple price' method. Where an auction is held on 'Uniform price' method, competitive bids offered with rates up to and including the maximum rate of yield or the prices up to and including the minimum offer price, as determined by RBI, are accepted at the maximum rate of yield or minimum offer price so determined. Bids quoted higher than the maximum rate of yield or

lower than the minimum price are rejected. Where an auction is held on 'Multiple price' method, competitive bids offered at the maximum rate of yield or the minimum offer price, as determined by RBI, are accepted. Other bids tendered at lower than the maximum rate of yield or higher than the minimum offer price are accepted at the rate of yield or price as quoted in the respective bid. Bids quoted higher than the maximum rate of yield or lower than the minimum price are rejected.

Individuals and specified institutions (read 'retail investors') can participate in the auctions on 'non-competitive' basis. Allocation of the securities to non-competitive bidders are made at the discretion of RBI and at a price not higher than the weighted average price arrived at on the basis of the competitive bids accepted at the auction or any other price announced in the specific notification. The nominal amount of securities that would be allocated to retail investors on non-competitive basis is restricted to a maximum 5 percentage of the aggregate nominal amount of the issue, within or outside the nominal amount which is issued at the weighted average price of the issue at the auction.

- (b) **Issue of securities with pre-announced coupon rates:** The coupon on such securities is announced before the date of floatation and the securities are issued at par. In case the total subscription exceeds the aggregate amount offered for sale, RBI may make partial allotment to all the applicants.
- (c) **Issue of securities through tap sale:** No aggregate amount is indicated in the notification in respect of the securities sold on tap. Sale of such securities may be extended to more than one day and the sale may be closed at any time on any day.
- (d) **Issue of securities in conversion of maturing treasury bills/dated securities:** The holders of treasury bills of certain specified maturities and holders of specified dated securities are provided an option to convert their holding at specified prices into new securities offered for sale. The new securities could be issued on an auction/pre-announced coupon basis. RBI may participate in auctions as a 'non-competitor' or subscribe to the government securities in other issues. Allotment of securities to RBI are made at the cut off price/yield emerging in the auction or at any other price/yield decided by the government. In order to maintain a stable interest rate environment, RBI accepts private placement of government securities. Such privately placed securities and securities that devolve on RBI are subsequently offloaded through RBI's open market operations.

Government issues the following types of Government securities:

- (a) **Securities with fixed coupon rates:** These securities carry a specific coupon rate remaining fixed during the term of the security and payable periodically. These may be issued at a discount, at par or at a premium to the face value and are redeemed at par.

- (b) **Floating Rate Bonds:** These securities carry a coupon rate which varies according to the change in the base rate to which it is related. The description of the base rate and the manner in which the coupon rate is linked to it is announced in the specific notification. The coupon rate may be subject to a floor or cap.
- (c) **Zero Coupon Bonds:** These are issued at a discount and redeemed at par. No interest payment is made on such bonds before maturity. On the basis of the bids received through tenders, RBI determines the cut-off price at which tenders for purchase such bonds would be accepted at the auction.
- (d) **Securities with Embedded Derivatives:** These securities are repaid at the option of government/holder of the security, before the specified redemption date, where a 'call option'/'put option' is specified in the specific notification and repaid on the date of redemption specified in the specific notification, where neither a 'call option' nor a 'put option' is specified/ exercised.
- (e) **Indexed Bond:** Interest payments of these bonds are based on Wholesale Price Index/ Consumer Price Index.

4.2.2 Issuance Process–Treasury Bills

Treasury bills (T-bills) are short-term debt instruments issued by the Central government. Until recently, 4 types of T-bills were issued: 14-day, 91-day, 182-day and 364-day, representing the 4 types of tenors for which these instruments are issued. RBI did away with 14-day and 182-day T-bills from May 2001.

T-bills are sold through an auction process announced by the RBI at a discount to its face value. RBI issues a calendar of T-bill auctions. It also announces the exact dates of auction, the amount to be auctioned and payment dates. T-bills are available for a minimum amount of Rs. 25,000 and in multiples of Rs. 25,000. Banks and PDs are major bidders in the T-bill market. Both discriminatory and uniform price auction methods are used in issuance of T-bills. The auctions of 91-day T-bills are uniform price auctions, where all successful bidders are allotted amounts at the cut-off prices. In the case of 364-day bills, discriminatory price auction is followed, where the successful bidders have to pay the prices they have actually bid for. Non-competitive bids, where bidders need not quote the rate of yield at which they desire to buy these T-bills, are also allowed from provident funds and other investors. RBI allots bids to the non-competitive bidders at the weighted average yield arrived at on the basis of the yields quoted by accepted competitive bids at the auction. Allocations to non-competitive bidders are outside the amount notified for sale. Non-competitive bidders therefore do not face any uncertainty in purchasing the desired amount of T-bills from the auctions.

Since May 1999, devolvement in T-bill auctions on PDs has been done away with. Thus, devolvement, if any, takes place on RBI alone. This enables RBI

to manage T-bill yields as a tool of interest rate policy. Each PD is required to make a minimum bidding commitment for auctions of T-bills so that together they absorb 100% of notified amount.

4.2.3 Participants

Primary dealers (PDs) are important intermediaries in the government securities markets. There are 19 PDs operating in the market. They act as underwriters in the primary market for government securities, and as market makers in the secondary market. PDs underwrite a portion of the issue of government security that is floated for a pre-determined amount. Normally, PDs are collectively offered to underwrite up to 100% of the notified amount in respect of all issues where amounts are notified. The underwriting commitment of each PD is broadly decided on the basis of its size in terms of its net owned funds, its holding strength, the committed amount of bids and the volume of turnover in securities. Several facilities have been extended to PDs given their special role in the government debt market. RBI provides liquidity support to the PDs through LAF against collateral of government securities and through repo operations/refinance. PDs are also given favoured access to the RBI's open market operations. PDs are permitted to borrow and lend in the money market, including call money market. PDs can also raise funds through CPs and have access to finance from commercial banks as any other corporate borrower.

Satellite dealers (SDs) formed the second tier of trading and distribution of government securities. They were expected to further strengthen the infrastructure of distribution, enhance liquidity, provide a retail outlet and encourage holding among a wider investor base. They were given the facility of SGL, CSDL, current accounts, liquidity support through reverse repo, issue of CPs, etc. However, the Satellite Dealers Scheme was discontinued since December 2002.

4.3 Secondary Market

4.3.1 Trading of Government Securities on Stock Exchanges

With a view to encouraging wider participation of all classes of investors, including retail, trading in government securities through a nationwide, anonymous, order driven screen based trading system on stock exchanges

and settlement through the depositories, in the same manner in which trading takes place in equities, has been introduced with effect from January 16, 2003. Accordingly, trading of dated Government of India (GOI) securities in dematerialized form has started on automated order driven system of the National Stock Exchange (NSE), The Stock Exchange, Mumbai (BSE) and the Over the Counter Exchange of India (OTCEI). The Scheme will subsequently be extended to GOI Treasury Bills and State Government Securities.

This trading facility is in addition to the present system of trading in government securities. Being a parallel system, the trades concluded on the exchanges will be cleared by their respective clearing corporations/clearing houses. The trades of RBI regulated entities have to be settled either directly with clearing corporation/clearing house (in case they are clearing members) or else through clearing member custodian.

Primary Dealers (PDs) are expected to play an active role in providing liquidity to the government securities market and promote retailing. They may, therefore, make full use of proposed facility to distribute government securities to all categories of investors through the process of placing and picking-up orders on the exchanges. With a view to facilitating participation on the Stock Exchanges within the regulations prescribed by RBI, SEBI and the exchanges, the PDs are being extended following facilities:

- a. PDs may open demat accounts with a Depository Participant (DP) of NSDL/CDSL in addition to their accounts with RBI.
- b. Value free transfer of securities between SGL/CSGL and demat accounts would be enabled by PDO-Mumbai subject to operational guidelines being issued by our Department of Government and Bank Accounts (DGBA) separately.

Operational Guidelines:

1. PDs should take specific approval from their Board of Directors to enable them to trade in the Stock Exchanges.
2. PDs should put up an effective internal control system and enabling IT infrastructure to track the orders executed for settlement / reconcile balances with the custodians, etc.
3. As in the case of equities, PDs as institutional investors, would be exempted from margin requirements. As a consequence, they can undertake transactions only on the basis of giving and taking delivery of securities.
4. Brokers/trading members shall not be involved in the settlement process; all trades have to be settled either directly with clearing corporation/clearing house (in case they are clearing members) or else through clearing member custodians.
5. The trades done through any single broker will also be subjected to the current regulations on transactions done through brokers.

6. At the time of trade, securities must be available with the PDs either in their SGL or in the demat account.
7. Any sale on T+2 basis on the Stock Exchanges cannot be covered by a purchase on the NDS/OTC market (even on T+0) and subsequent transfer from SGL account to their demat account for effecting deliveries. Similarly, no sale is permitted on NDS/OTC on T+0 against pay-in of securities expected on T+0 on the Stock Exchanges. Any purchase transactions by PDs should similarly be subject to availability of clear funds in their settlement accounts at the time of pay-in.
8. Any settlement failure on account of non-delivery of securities/ non-availability of clear funds will be treated as SGL bouncing and the current penalties in respect of SGL transactions will be applicable. Stock Exchanges will report such failures to the respective Public Debt Offices.
9. PDs who are trading members of the Stock Exchanges may have to put up margins on behalf of their non-institutional client trades. Such margins are required to be collected from the respective clients. PDs are not permitted to pay up margins on behalf of their client trades and incur overnight credit exposure to their clients. In so far as the intra day exposures on clients for margins are concerned, the PDs should be conscious of the underlying risks in such exposures.
10. PDs who intend to offer clearing /custodial services should take specific approval from SEBI in this regard. Similarly, PDs who intend to take trading membership of the Stock Exchanges should satisfy the criteria laid down by SEBI and the Stock Exchanges.
11. PDs are required to submit a weekly statement to IDM Cell giving the aggregate of trades done on the Exchanges and details of any closed out transactions in the Exchanges

Any failure to comply with the requirements of this circular would invite regulatory action.

Most of the secondary market trades in government securities are negotiated between participants (Banks, FIs, PDs, MFs) having SGL accounts with RBI. These may be negotiated directly between counter parties or negotiated through brokers. NDS of RBI provides an electronic platform for negotiating trades in government securities. If a broker is involved, the trade is reported to the concerned exchange. Trades are also executed on electronic platform of the WDM segment of NSE. WDM segment of NSE provides trading and reporting facilities for government securities.

4.3.2 Repo and Reverse Repo

Repo or Repurchase Agreements are short-term money market instruments. Repo is nothing but collateralized borrowing and lending through

sale/purchase operations in debt instruments. Under a repo transaction, a holder of securities sells them to an investor with an agreement to repurchase at a predetermined date and rate. In a typical repo transaction, the counter-parties agree to exchange securities and cash, with a simultaneous agreement to reverse the transactions after a given period. To the lender of cash, the securities lent by the borrower serves as the collateral; to the lender of securities, the cash borrowed by the lender serves as the collateral. Repo thus represents a collateralized short term lending.

A reverse repo is the mirror image of a repo. When one is doing a repo, it is reverse repo for the other party. For, in a reverse repo, securities are acquired with a simultaneous commitment to resell. Hence whether a transaction is a repo or a reverse repo is determined only in terms of who initiated the first leg of the transaction. When the reverse repurchase transaction matures, the counter-party returns the security to the entity concerned and receives its cash along with a profit spread.

In a repo transaction, the securities should be sold in the first leg at market related prices and repurchased in second leg at derived price. The sale and repurchase should be accounted for in the repo account. On the other hand, in a reverse repo transaction, the securities should be purchased in the first leg at market related prices and sold in second leg at derived price. The purchase and sale should be accounted for in the reverse repo account.

Illustration:

Details of Repo in a coupon bearing security:

Security offered under Repo	11.43% 2015	
Coupon payment dates	7 August and 7 February	
Market Price of the security offered under Repo (i.e. price of the security in the first leg)	Rs.113.00	(1)
Date of the Repo	19 January, 2003	
Repo interest rate	7.75%	
Tenor of the repo	3 days	
Broken period interest for the first leg*	$11.43\% \times 162/360 \times 100 = 5.1435$	(2)
Cash consideration for the first leg	(1) + (2) = 118.1435	(3)
Repo interest**	$118.1435 \times 3/365 \times 7.75\% = 0.0753$	(4)
Broken period interest for the second leg	$11.43\% \times 165/360 \times 100 = 5.2388$	(5)
Price for the second leg	$(3) + (4) - (5) = 118.1435 + 0.0753 - 5.2388 = 112.98$	(6)
Cash consideration for the second leg	$(5) + (6) = 112.98 + 5.2388 = 118.2188$	(7)

* Computation of days based on 30/360 day count convention

** Computation of days based on Actual/365 day count convention applicable to money market instruments

4.3.3 Negotiated Dealing System

NDS, inter alia, facilitates screen based negotiated dealing for secondary market transactions in government securities and money market instruments, online reporting of transactions in the instruments available on the NDS and dissemination of trade information to the market. Government Securities (including T-bills), call money, notice/term money, repos in eligible securities are available for negotiated dealing through NDS among the members. NDS members concluding deals outside NDS system, in instruments available on NDS, are required to report the deal on NDS system within 15 minutes of concluding the deal. NDS interfaces with CCIL for settlement of government securities transactions for both outright and repo trades done/reported by NDS members. Other instruments viz, call money, notice/term money, commercial paper and certificate of deposits settle as per existing settlement procedure.

With the objective of creating a broad-based and transparent market in government securities and thereby enhancing liquidity in the system, the NDS is designed to provide:

- Electronic bidding in primary market auctions (T-Bills, dated securities, state government securities) by members,
- Electronic bidding for OMO of RBI including repo auctions under LAF,
- Screen based negotiated dealing system for secondary market operations,
- Reporting of deals in government securities done among NDS members outside the system (over telephone or using brokers of exchanges) for settlement,
- Dissemination of trade information to NDS members,
- Countrywide access of NDS through INFINET,
- Electronic connectivity for settlement of trades in secondary market both for outright and repos either through CCIL or directly through RBI, and
- Creation and maintenance of basic data of instruments and members.

The above functionalities are being developed in phases. The functional scope of the NDS relating to trading includes:

- giving/receiving a Quote,
- placing a call and negotiation (with or without a reference to the quote),
- entering the deals successfully negotiated,
- setting up preferred counterparty list and exposure limits to the counterparties,
- dissemination of on-line market information such as the last traded prices of securities, volume of transactions, yield curve and information on live quotes,
- interface with Securities Settlement System for facilitating settlement of deals done in government securities and treasury bills.
- facility for reporting on trades executed through the exchanges for information dissemination and settlement in addition to deals done through NDS.

The system is designed to maintain anonymity of buyers and sellers but only the vital information of a transaction viz., ISIN of the security, nomenclature, amount (face value), price/rate and/ or indicative yield, in case applicable, are disseminated to the market, through Market and Trade Watch.

The benefits of NDS include:

- Transparency of trades in money and government securities market,
- Electronic connectivity with securities settlement systems, thus, eliminating submission of physical SGL form,
- Settlement through electronic SGL transfer,
- Elimination of errors and discrepancies and delay inherent in manual processing system, and
- Electronic audit trail for better monitoring and control.

4.3.4 Wholesale Debt Market of NSE

The wholesale debt market (WDM) segment of NSE commenced operations on June 30, 1994 and provided the first formal screen-based trading facility for the debt market in the country. Initially, government securities, T-bills and bonds issued by PSUs were made available in this segment. This range has been widened to include non-traditional instruments like floating rate bonds, zero coupon bonds, index bonds, CPs, CDs, corporate debentures, state government loans, SLR and non-SLR bonds issued by financial institutions, units of mutual funds and securitised debt. The WDM trading system, known as NEAT (National Exchange for Automated Trading), is a fully automated screen based trading system, which enables members across the country to trade simultaneously with enormous ease and efficiency. The trading system is an order driven system, which matches best buy and sell orders on a price/time priority.

Trading system provides two market sub-types: continuous market and negotiated market. In continuous market, the buyer and seller do not know each other and they put their best buy/sell orders, which are stored in order book with price/time priority. If orders match, it results into a trade. The trades in WDM segment are settled directly between the participants, who take an exposure to the settlement risk attached to any unknown counter-party. In the NEAT-WDM system, all participants can set up their counter-party exposure limits against all probable counter-parties. This enables the trading member/participant to reduce/minimise the counter-party risk associated with the counter-party to trade. A trade does not take place if both the buy/sell participants do not invoke the counter-party exposure limit in the trading system.

In the negotiated market, the trades are normally decided by the seller and the buyer outside the exchange, and reported to the Exchange through the

broker. Thus, deals negotiated or structured outside the exchange are disclosed to the market through NEAT-WDM system. In negotiated market, as buyers and sellers know each other and have agreed to trade, no counter-party exposure limit needs to be invoked.

The trades on the WDM segment could be either outright trades or repo transactions with flexibility for varying days of settlement (T+0 to T+2) and repo periods (1 to 14 days). For every trade, it is necessary to specify the number of settlement days and the trade type (repo or non-repo), and in the event of a repo trade, the repo term.

The Exchange facilitates trading members to report off-market deals in securities in cases where the repo period is more than the permissible days in the trading system (14 days) or where the securities are not available for trading on the Exchange as they do not meet the listing requirements. These trades are required to be reported to the Exchange within 24 hours of the issuance of contract note.

Membership in NSE:

Membership of NSE-WDM segment is open to all persons desirous of becoming trading members, subject to meeting requirements/criteria as laid down by SEBI and the Exchange – Please refer to the chapter 3 for details.

Listing:

All Government securities and Treasury bills are deemed to be listed automatically as and when they are issued. Other securities, issued publicly or placed privately, could be listed or admitted for trading, if eligible as per rules of the Exchange by following prescribed procedure:

1. All Listing are subject to compliance with Byelaws, Rules and other requirements framed by the Exchange from time to time in addition to the SEBI and other statutory requirements.
2. The Issuer of security proposed for listing has to forward an application in the prescribed format, which forms a part of the Listing Booklet.
3. Every issuer, depending on the category and type of security has to submit along with application, such supporting documents/information as stated in the Listing booklet and as prescribed by the Exchange from time to time.
4. On getting an in-principal consent of the exchange the issuer has to enter into a listing agreement in the prescribed format under its common seal.
5. Upon listing, the Issuer has to comply with all requirements of law, any guidelines/directions of Central Government, other Statutory or local authority.

6. The Issuer shall also comply with the post listing compliance as laid out in the listing agreement and shall also comply with the rules, bye-laws, regulations and any other guidelines of the Exchange as amended from time to time.
7. Listing on WDM segment does not imply a listing on CM segment also or vice versa.
8. If the equity shares of an issuer are listed on other stock exchanges but not listed on Capital Market segment of the Exchange, though eligible, then the debt securities of the said issuer will not be permitted to be listed on the WDM segment.
9. The Exchange reserves the right to change any of the requirements indicated in the Listing booklet without prior notice.

Certain securities like Treasury Bills and other securities issued by Government of India available in demat form are eligible for Repo. Every security in the trading system is given a symbol representative of the security.

The market capitalisation of the securities on the WDM segment has been increasing steadily. The segment has also seen a marked increase in the number of securities available for trading other than the traditional instruments like Govt. securities and T-bills.

The listing requirements for securities on the WDM segment are presented in Table 4.2.

Trading Mechanism:

The trades on the WDM segment can be executed in the Continuous or Negotiated market. In the continuous market, orders entered by the trading members are matched by the trading system on time price priority. For each order entering the trading system, the system scans for a probable match in the order books. On finding a match, a trade takes place. In case the order does not find a suitable counter order in the order books, it is stored in the order books as a passive order. This could later match with any future order entering the order book and result into a trade. This future order, which results in matching of an existing order, is called the active order. In the negotiated market, deals are negotiated outside the exchange between the two counter parties and are reported on the trading system for approval.

The WDM trading system recognises three types of users-Trader, Privileged and Inquiry. Trading Members can have all the three user types whereas Participants are allowed privileged and inquiry users only. The user-id of a trader gives access for entering orders on the trading system. The privileged user has the exclusive right to set up counter party exposure limits. The Inquiry user can only view the market information and set up the market watch screen but cannot enter orders or set up exposure limits.

Table 4.2: Listing Criteria for Securities on WDM Segment

Issuer	Eligibility Criteria for Listing	
	Public Issue	Private Placement
Public Sector Undertaking: - Min. 51% holding by Central Govt, and/or State Govts. and/or Govt. Company. - Less than 51% shareholding	Eligible As applicable to corporates	Eligible As applicable to corporates
Statutory Corporation under Special Act of Parliament/State Legislature, Local bodies / authorities: - Min. 51% holding by Central Govt and/or State Govts. And/or Govt. Company - Less than 51% shareholding	As applicable to PSUs As applicable to corporates	Same as norms for PSUs As applicable to corporates
Financial Institutions u/s 4A of Companies Act. , 1956 including Industrial Development Corporations: - SLR Bonds - Non-SLR Bonds	Eligible	Credit rating-Investment Grade
Banks: - Scheduled banks, and - Networth of Rs. 50 cr or above	Eligible	Credit rating – Investment Grade
Corporate Bodies: - Paid up capital of Rs. 10 crore or - Market capitalization of Rs. 25 crore. (Networth in case of unlisted companies)	Eligible	Credit rating – Investment Grade
Infrastructure Companies: - Tax exemption & recognition as Infrastructure Company under related statutes/regulation. - Credit rating—investment Grade	Eligible	Eligible
Mutual Fund Units: Any SEBI registered Mutual Fund/ Scheme: - Investment objective to invest predominantly in debt or - Scheme is traded in secondary market as Debt instrument.	Eligible	Eligible
Securitized Debt: - Minimum tranche: Rs. 20 crore, and - Credit rating – Investment Grade	Eligible	Eligible

The WDM supports two kinds of trades:

- Repo trades (RE), which are reversed after a specific term, allowed only in specified securities, and
- Non-Repo (NR) trades, which are for outright sales and purchase, allowed in all securities.

Trading in debt as outright trades or as 'repo' transactions can be for varying days of settlement and repo periods. For every security it is necessary to specify the number of settlement days (whether for same day settlement or T+1 etc. depending on what is permitted by the Exchange), the trade type (whether Repo or Non Repo), and in the event of a Repo trade, the Repo term. Order matching is carried out only between securities which carry the same conditions with respect to settlement days, trade type and repo period, if any.

The security itself is represented by three fields -

- Security Type (e.g. GS for Government Securities),
- Security (e.g. CG2010 - Central Government maturing in 2010) and
- Issue (e.g. 6.25%).

All order matching is on the basis of descriptors. All inquiries also require the selection of valid descriptors. There are 6 fields, which together form an entity, which is called 'Security Descriptor' in the system:

Security Type	Security	Issue	Settlement days	Trade Type	Repo Term
GS	CG2001	11.55%	SD	Non Repo	-
TB	364D	060901	2	Repo	7

All trade matching is essentially on the basis of descriptor, its price (for non-repos)/ rate (for repos) volume and order conditions and types. All volumes, in order entry screens and display screens, are in Rs. lakh unless informed to the trading members otherwise. All prices are in Rupees. Repo rates are in percentages. A maximum of two decimal places are allowed for values and four decimal places for prices. The Exchange sets the multiples (incremental value) in which orders can be entered for different securities. The Exchange announces from time to time the minimum order size and increments thereof for various securities traded on the Exchange.

Maximum Brokerage & Transaction Charges in Government Securities:

In light of the recent fraudulent transactions in the guise of government securities transactions in physical format, RBI decided to accelerate the measures for further reducing the scope for trading in physical form. The measures are as follows:

- (i) For banks which do not have SGL account with RBI, only one CSGL account can be opened.

- (ii) In case the CSGL accounts are opened with a scheduled commercial bank, the account holder has to open a designated funds account (for all CSGL related transactions) with the same bank.
- (iii) The entities maintaining the CSGL/designated funds accounts will be required to ensure availability of clear funds in the designated funds accounts for purchases and of sufficient securities in the CSGL account for sales before putting through the transactions.
- (iv) No further transactions by the bank should be undertaken in physical form with any broker with immediate effect.
- (v) Banks should ensure that brokers approved for transacting in Government securities are registered with the debt market segment of NSE/BSE/OTCEI.
- (vi) It should also be ensured that users of NDS deal directly on the system and use the system for transactions on behalf of their clients.

Transaction Charges:

NSE has specified the maximum rates of brokerage that can be levied by trading members for trades on WDM. The rate depends on the type of security and value of transactions. The rate for central government securities ranges from 5 paise to 25 paise for every Rs. 100 of transactions. Similarly it ranges from 10 paise to 50 paise for state government securities. It is 1% of the order value for debentures, securitised debt and commercial paper. Details are as under:

Maximum Transaction Charges:

Govt. Of India Securities and T-Bills	
Order Value upto Rs.10 million	25 ps. per Rs.100
More than 10 million upto 50 million	15 ps. per Rs.100
More than 50 million upto 100 million	10 ps per Rs.100
More than 100 million	5 ps per Rs.100
State Govt. Securities & Institutional Bonds	
Order Value upto Rs.2.5 million	50 ps. per Rs.100
More than 2.5 million upto 5 million	30 ps. per Rs.100
More than 5 million upto 10 million	25 ps per Rs.100
More than 10 million upto 50 million	15 ps per Rs.100
More than 50 million upto 100 million	10 ps per Rs.100
More than 100 million	5 ps per Rs.100
PSU & Floating Rate Bonds	
Order Value upto Rs.10 million	50 ps. per Rs.100

More than 10 million upto 50 million	25 ps. per Rs.100
More than 50 million upto 100 million	15 ps per Rs.100
More than 100 million	10 ps per Rs.100
Commercial paper and Debentures & Securitised Debt	1% of the order value

A trading member is required to pay transaction charges @ Rs. 0.25 per lakh of turnover subject to maximum of Rs. 1 lakh per year.

4.3.5 Clearing and Settlement

All trades in government securities are reported to RBI-SGL for settlement. The trades are settled on gross basis through the DvP system, where funds and securities are transferred simultaneously. Central government securities and T-bills are held as dematerialised entries in the SGL of RBI. The PDO, which oversees the settlement of transactions through the SGL, enables the transfer of securities from one participant to another. Transfer of funds is effected by crediting/debiting the current account of the seller/buyer, maintained with the RBI. Securities are transferred through credits/debits in the SGL account. In order to do this, the SGL Form is filled by the seller, countersigned by the buyer, and sent to the RBI. The buyer transfers funds towards payment. The SGL form contains transfer instruction for funds and securities signed by both counter-parties and has to be submitted to RBI within one working day after the date of signing the form. The SGL form provides details of the buyer and the seller, the security, the clean price, accrued interest and details of credit in the current account.

Most transactions in government securities are placed through brokers. Buyers and sellers confirm transactions through phone and fax, after the deal is made. Brokers are usually paid a commission of 0.50 paise per market lot (of Rs. 5 crore), for deals upto Rs. 20 crore. Larger deals attract fixed commissions.

Gross settlement occasionally leads to gridlock in the DvP system due to shortfall of funds on a gross basis in the current accounts of one or more SGL account holders, though sufficient balance are available to settle on net basis. To take care of such unusual occurrences, the scheme of special fund facility provides intra-day funds to banks and primary dealers against un-drawn collateralised lending facility and liquidity support facility from RBI.

Constituent SGL Accounts

Subsidiary General Ledger (SGL) account is a facility provided by RBI to large banks and financial institutions to hold their investments in

government securities and T-bills in the electronic book entry form. Such institutions can settle their trades for securities held in SGL through a DvP mechanism, which ensures movement of funds and securities simultaneously. As all investors in government securities do not have an access to the SGL accounting system, RBI has permitted such investors to hold their securities in physical form. They are also permitted to open a constituent SGL account with any entity authorised by RBI for this purpose, and thus avail of the DvP settlement. Such client accounts are referred to as constituent SGL accounts or SGL II accounts. RBI has permitted NSCCL, NSDL, CDSL, SHCIL, banks, and PDs to offer constituent SGL account facility to an investor who is interested in participating in the government securities market. The facilities offered by the constituent SGL accounts are dematerialisation, re-materialisation, buying and selling of transactions, corporate actions, and subscription to primary market issues. All entities regulated by RBI [including FIs, PDs, cooperative banks, RRBs, local area banks, NBFCs] should necessarily hold their investments in government securities in either SGL (with RBI) or CSDL account.

Clearing Corporation of India Limited

The Clearing Corporation of India Limited (CCIL), promoted by the banks and financial institutions, was incorporated in April 2001 to support and facilitate clearing and settlement of trades in government securities (and also trades in forex and money markets). It facilitates settlement of transactions in government securities (both outright and repo) on Delivery *versus* Payment (DVP-II) basis which provides for settlement of securities on gross basis and settlement of funds on net basis simultaneously. It acts as a central counterparty for clearing and settlement of government securities transactions done on NDS. It provides guaranteed settlement for transactions in government securities including repos through improved risk management practices viz, daily mark to market margin and maintenance of settlement guarantee fund.

Only a Bank/Financial Institution/Primary Dealer/Mutual Fund or a Statutory Corporation or body corporate that is a member of NDS and has opened an SGL Account and a Current Account with RBI can apply for CCIL's membership for the Securities segment. The members pay one-time membership fees of Rs. 1 lakh. In addition, they pay the fees for different services as under:

Fees for services of CCIL

Service	Fees
Securities: Settlement of Outright Trades (Payable by each counter-party)	Rs. 150 per crore of face value, Minimum Rs. 25/- Maximum Rs. 5000/- per Trade
Tresury Bills: Settlement of Outright Trades (Payable by each counter-party)	Rs. 75 per crore of face value, Minimum Rs. 25/- Maximum Rs. 5000/- per Trade
Settlement of OVER NIGHT REPO Trades (Difference between first and second leg settlement dates is One Calendar Day) (Payable by each counter-party)	Rs. 10/- per crore of face value for over night repo trades subject to Minimum of Rs. 20/- and Maximum of Rs. 1000/- for each leg .
Settlement of TERM REPO Trades (Difference between first and second leg settlement dates is more than One Calendar Day) (Payable by each counter-party)	Rs. 20/- per crore of face value of term repo subject to Minimum of Rs. 20/- and Maximum of Rs. 1000/- for each leg.
Delayed payment of Transaction Charges and System Usage charges.(If payment is made after 10th of a calendar month).	5 basis point per day on the amount of charges

Members conclude trades, on-line, on the NDS platform, via the INFINET network, a secure closed-user group (CUG) hybrid network consisting of VSATs and leased lines. After trades have been concluded on the NDS, details are forwarded to the CCIL system, via INFINET, for settlement. All Repo deals by NDS members irrespective of amount are settled through CCIL.

CCIL has in place a comprehensive risk management system. It encompasses strict admission norms, measures for risk mitigation (in the form of exposure limit, settlement Guarantee Fund, liquidity arrangements, continuous position monitoring and loss allocation procedure) penalties in case of default etc. Each member contributes collaterals (partly in cash and partly in acceptable securities) to a Settlement Guarantee Fund (SGF), against which CCIL avails of a line of credit from a bank(s) so as to be able to complete settlement in case a situation of shortage resulting from a member's default is experienced. The price risk (on account of securities held by CCIL pending settlement of trades and transfer of ownership to the respective members) is mitigated by stipulating that members contribute additional collaterals in the form of Initial and Mark-to-Market (MTM) Margins. Securities contributed by, and standing to the credit of, members (their "SGF Contribution") are marked to market at fortnightly intervals, and calls for additional collateral made if needed. In case of funds shortages, CCIL completes settlement by utilizing the cash component of the concerned member's contribution to SGF and/or the lines of credit available to CCIL

from banks and/or by entering into a reverse repo transaction with market participants. In case of securities shortages, CCIL arranges to complete settlement by transferring the security/ securities to the member concerned, either from its Settlement Guarantee Fund SGL Account or from its own Proprietary SGL Account at RBI, or by paying a cash compensation in lieu thereof, to the member to whom the security was to be delivered. The rupee funds payable to the defaulting member are withheld, and the securities utilised in completing settlement replenished the next day. The defaulting member has to pay a penalty for defaulting on its obligations and bear any other costs incurred by CCIL in meeting the default situation.

4.3.6 Retail Debt Market

With a view to encouraging wider participation of all classes of investors across the country (including retail investors) in government securities, the Government, RBI and SEBI have introduced trading in government securities for retail investors. Trading in this retail debt market segment (RDM) on NSE has been introduced w.e.f. January 16, 2003.

RDM Trading:

Trading takes place in the existing Capital Market segment of the Exchange and in the same manner in which the trading takes place in the equities (Capital Market) segment. The RETDEBT Market facility on the NEAT system of Capital Market Segment is used for entering transactions in RDM session. The trading holidays and market timings of the RDM segment are the same as the Equities segment.

Trading Parameters: The trading parameters for RDM segment are as below:

Face Value	Rs. 100/-
Permitted Lot Size	10
Tick Size	Rs. 0.01
Operating Range	+/- 5%
Mkt. Type Indicator	D (RETDEBT)
Book Type	RD

Trading in Retail Debt Market is permitted under Rolling Settlement, where in each trading day is considered as a trading period and trades executed during the day are settled based on the net obligations for the day. Settlement is on a T+2 basis i.e. on the 2nd working day. For arriving at the settlement day all intervening holidays, which include bank holidays, NSE holidays, Saturdays and Sundays are excluded. Typically trades taking place

on Monday are settled on Wednesday, Tuesday's trades settled on Thursday and so on.

Eligibility: Trading Members who are registered members of NSE in the Capital Market segment and Wholesale Debt Market segment are allowed to trade in Retail Debt Market (RDM) subject to fulfilling the capital adequacy norms. Trading Members with membership in Wholesale Debt Market segment only, can participate in RDM on submission of a letter in the prescribed format.

RDM Clearing & Settlement:

National Securities Clearing Corporation Limited (NSCCL) is the clearing and settlement agency for all deals executed in Retail Debt Market.

Salient features of Clearing and Settlement in Retail Debt Market segment:

- Clearing and settlement of all trades in the Retail Debt Market shall be subject to the Bye Laws, Rules and Regulations of the Capital Market Segment and such regulations, circulars and requirements etc. as may be brought into force from time to time in respect of clearing and settlement of trading in Retail Debt Market (Government securities).
- Settlement in Retail Debt Market is on T + 2 Rolling basis viz. on the 2nd working day. For arriving at the settlement day all intervening holidays, which include bank holidays, NSE holidays, Saturdays and Sundays are excluded. Typically trades taking place on Monday are settled on Wednesday, Tuesday's trades settled on Thursday and so on.
- Clearing and settlement would be based on netting of the trades in a day.
- NSCCL shall compute member obligations and make available reports/data by T+1. The obligations shall be computed separately for this market from the obligations of the equity market.
- The settlement schedule for the Retail Debt Market (Government Securities)

Day	Description
T	Trade Date
T + 1 (03:30 p.m.)	Custodial Confirmation
T + 2 (11.00 a.m.)	Securities & Funds pay-in
T + 2	Securities & Funds pay-out

- Funds settlement and securities settlement are through the existing clearing banks and depositories of NSCCL, in a manner similar to the Capital Market segment. The existing clearing bank accounts shall be used for funds settlement.

- The existing CM pool account with the depositories that is currently operated for the CM segment, will be utilized for the purpose of settlements of securities.
- In case of short deliveries, unsettled positions shall be closed out. The close out would be done at Zero Coupon Yield Curve valuation for prices plus a 5% penalty factor. The buyer shall be eligible for the highest traded price from the trade date to the date of close out or closing price of the security on the close out date plus interest calculated at the rate of overnight FIMMDA-NSE MIBOR for the close out date whichever is higher and the balance should be credited to the Investor Protection Fund.
- The penal actions and penalty point is similar to as in Capital Markets

RDM Risk Management:

Base Capital & Networth Requirements

- Clearing members of Capital Market and Trading members of the WDM segment of the Exchange will be allowed to participate in clearing and settlement of trades done in Government securities, subject to a minimum net worth of Rs.1 crore.
- An initial contribution to the Settlement Guarantee Fund (SGF) of this market by way of interest free security deposit (IFSD) of Rs.5 lakh is required to be kept with NSCCL. A member desirous of participating in this segment may opt to set aside a contribution of Rs.5 lakh from his additional base capital available on the Capital Market segment and / or Futures & Options segment (s) towards this IFSD.

Margins & Gross Exposure Limits

- Mark to market margins will be applicable on all-open positions in government securities and shall be calculated on the basis of ZCYC prices. This margin shall be payable on T + 1 day.
- Institutions that are permitted under the relevant regulations to transact only on the basis of giving and taking delivery will operate through the custodial mechanism and shall be exempt from margin as in the case of the equities. Custodial trades on behalf of Provident Funds transacting through SGL – II accounts shall also be eligible for margin exemption.
- The gross exposure in respect of these securities shall not exceed 20 times of the IFSD. Any member desirous of a higher exposure will be required to bring in additional base capital as in Capital Market segment.

4.3.7 Interest Rate Derivatives

Deregulation of interest rate exposed market participants to a wide variety of risks. To manage and control these risks and to deepen money market, scheduled commercial banks, primary dealers and all India financial institutions have been permitted to undertake forward rate agreements (FRAs) and interest rate swaps (IRSs).

A FRA is a financial contract between two parties to exchange interest payments for a 'notional principal' amount on settlement date, for a specified period from start date to maturity date. Accordingly, on the settlement date, based on contract (fixed) and the settlement rate, cash payments are made by the parties to one another. The settlement rate is the agreed bench-mark/ reference rate prevailing on the settlement date.

An IRS is a financial contract between two parties exchanging or swapping a stream of interest payments for a 'notional principal' amount on multiple occasions during a specified period. Such contracts generally involve exchange of a 'fixed to floating' rates of interest. Accordingly, on each payment date—that occurs during the swap period—cash payments based on fixed/floating and floating rates, are made by the parties to one another. FRAs/IRSs provide means for hedging the interest rate risk arising on account of lendings or borrowings made at fixed/ variable interest rates.

Scheduled commercial banks (excluding Regional Rural Banks), primary dealers (PDs) and all-India financial institutions (FIs) undertake FRAs/ IRSs as a product for their own balance sheet management or for market making. Banks/FIs/PDS offer these products to corporates for hedging their (corporates) own balance sheet exposures.

Banks / PDS/ FIs can undertake different types of plain vanilla FRAs/ IRS. Swaps having explicit/implicit option features such as caps/floors/collars are not permitted. The parties are free to use any domestic money or debt market rate as benchmark rate for entering into FRAs/ IRS, provided methodology of computing the rate is objective, transparent and mutually acceptable to counterparties. The interest rates implied in the foreign exchange forward market can also used as a benchmark for undertaking FRAs/IRSs. There are no restrictions on the minimum or maximum size of 'notional principal' amounts of FRAs/ IRSs. There are also no restrictions on the minimum or maximum tenor of the FRAs/ IRSs.

Please note that Exchange Traded Derivatives (Interest Rate Futures Contracts) are discussed in details in the chapter on 'Derivatives Market' of this book.

4.3.8 Zero Coupon Yield Curve

The 'zero coupon yield curve' (ZCYC) starts from the basic premise of 'time value of money'—that a given amount of money due today has a value different from the same amount due at a future point of time. An individual willing to part with his money today has to be compensated in terms of a higher amount due in future – in other words, he has to be paid a rate of interest on the principal amount. The rate of interest to be paid would vary with the time period that elapses between today (when the principal amount is being foregone) and the future point of time (at which the amount is repaid). At any point of time therefore, we would observe different spot rates of interest associated with different terms to maturity; longer maturity offering a 'term spread' relative to shorter maturity. The term structure of interest rates, or ZCYC, is the set of such spot interest rates. This is the principal factor underlying the valuation of most fixed income instruments.

Fixed income instruments can be categorized by type of payments. Most fixed income instruments pay to the holder a periodic interest payment, commonly known as the coupon, and an amount due at maturity, the redemption value. There exist some instruments that do not make periodic interest payments; the principal amount together with the entire outstanding amount of interest on the instrument is paid as a lump sum amount at maturity. These instruments are also known as 'zero coupon' instruments (Treasury Bills provide an example of such an instrument). These are sold at a discount to the redemption value, the discounted value being determined by the interest rate payable (yield) on the instrument.

Keeping in mind the requirements of the banking industry, financial institutions, mutual funds, insurance companies, etc. that have substantial investment in sovereign papers, NSE disseminates a 'Zero Coupon Yield Curve' (NSE Zero Curve) to help in valuation of securities across all maturities irrespective of its liquidity in the market. This product has been developed by using Nelson-Siegel model to estimate the term structure of interest rate at any given point of time. The spot rate function may be specified as follows:

$$r(m,b) = \beta_0 + (\beta_1 + \beta_2) * \left\{ \frac{[1 - \exp(-\frac{m}{\tau})]}{(\frac{m}{\tau})} \right\} - \beta_2 * \exp(-\frac{m}{\tau})$$

where 'm' denotes related maturity for the cash flows in a bond and 'b' = [β_0 , β_1 , β_2 and τ] are parameters to be estimated. Here β_0 is the level parameter and commonly interpreted as long term (long term in mathematical sense – approaching infinity) rate, β_1 is slope parameter, β_2 is curvature parameter and τ (τ) is scale parameter while ($\beta_0 + \beta_1$) gives the short term rate. Alternatively it can also be said that β_0 is the

contribution of long term component, β_1 is the contribution of short term component, β_2 indicates the contribution of medium term component, τ is the decay factor and β_2 & τ determine the shape of the curve.

The appeal of the NS functional form lies in its flexibility to cover the entire range of possible shapes that the ZCYC can take, depending on the value of the estimated parameters. Once the functional form is specified and the parameter values are generated $[\beta_0, \beta_1, \beta_2 \text{ and } \tau]$, these values are used to calculate the spot rates for any term greater than 0 using the above equation. These spot rates are used to calculate the present value (commonly known as the estimated price or model price) of the cash flows and combine them to get the value of the bond. The present value arrived at is the estimated price (p_{est}) for each bond. These estimated values now can be compared with the observed market prices. It is common to observe market prices ($pmkt$) that deviate from this value. But the objective of a good estimation is to reduce the difference between the observed market prices and the estimated prices.

Illustration:

Given the following ZCYC Parameters for the settlement date March 15, 2003 as $\beta_0 = 7.7103$; $\beta_1 = 0.5398$; $\beta_2 = 3.2907$ and $\tau = 4.1902$, what is the Model price of a security with semi-annual coupon of 6.25 %, maturing on March 23, 2004?

Explanation: Since half yearly coupon payment is Rs 6.25, on maturity date we receive Rs 106.25. [Redemption value (Rs.100) + half yearly coupon (Rs.6.25)]

Coupon date	Coupon Rate	Distance in years from Settlement date	Appropriate Zcyc spot rates	Present Value
	(A)	(m)	(C)	$A / (1 + (C/200)^m)$
23-Mar-03	6.25	0.02	7.1633329	6.2404
23-Sep-03	6.25	0.53	7.0129545	6.0274
23-Mar-04	106.25	1.02	6.8890368	99.1262
ZCYC Model Price:				111.394062

$$r(m, b) = \beta_0 + (\beta_1 + \beta_2) * \left\{ \frac{[1 - \exp(-\frac{m}{\tau})]}{(\frac{m}{t})} \right\} - \beta_2 * \exp(-\frac{m}{t})$$

In the above table, appropriate Zcyc spot rates, using NS model (the above formula), are calculated as follows:

Term	Appropriate Zcyc Spot rates Using N-S Model
0.02	$7.7103 + ((-0.5398 + -3.2907) * (1 - \text{Exp}(-0.02 / 4.1902))) / ((0.02 / 4.1902)) - 3.2907 * \text{Exp}(-0.02 / 4.1902) = 7.1633329$
0.53	$7.7103 + ((-0.5398 + -3.2907) * (1 - \text{Exp}(-0.53 / 4.1902))) / ((0.53 / 4.1902)) - 3.2907 * \text{Exp}(-0.53 / 4.1902) = 7.0129545$
1.02	$7.7103 + ((-0.5398 + -3.2907) * (1 - \text{Exp}(-1.02 / 4.1902))) / ((1.02 / 4.1902)) - 3.2907 * \text{Exp}(-1.02 / 4.1902) = 6.8890368$

The ZCYC is estimated and has been successfully tested by using daily WDM trades data. This is being disseminated daily. The ZCYC depicts the relationship between interest rates in the economy and the associated term to maturity. It provides daily estimates of the term structure of interest rates using information on secondary market trades in government securities from the WDM segment. The term structure forms the basis for the valuation of all fixed income instruments. Modeled as a series of cash flows due at different points of time in the future, the underlying price of such an instrument is calculated as the net present value of the stream of cash flows. Each cash flow, in such a formulation, is discounted using the interest rate for the associated term to maturity; the appropriate rates are read off the estimated ZCYC. Once estimated, the interest rate-maturity mapping is used to compute underlying valuations even for securities that do not trade on a given day. Changes in the economy cause shifts in the term structure, changing the underlying valuations of fixed income instruments. The daily ZCYC captures these changes, and is used to track the value of portfolios of government securities on a day-to-day basis.

4.3.9 FIMMDA-NSE MIBID/MIBOR

NSE has been computing and disseminating the NSE Mumbai Inter-bank Bid Rate (MIBID) and NSE Mumbai Inter-bank Offer Rate (MIBOR) for the overnight money market from June 15, 1998, the 14-day MIBID/MIBOR from November 10, 1998 and the 1 month and 3 month MIBID/MIBOR from December 1, 1998. In view of the robust methodology of computation of these rates and their extensive use by market participants, these have been co-branded with Fixed Income and Money Market Derivatives Association (FIMMDA) from March 4, 2002. These are now known as FIMMDA-NSE MIBID/MIBOR from March 4, 2002. These rates are used as benchmarks for majority of deals struck for interest rate swaps, forward rate agreements, floating rate debentures and term deposits.

FIMMDA-NSE MIBID/MIBOR are based on rates polled by NSE from a representative panel of 29 banks/institutions/primary dealers. Currently, quotes are polled and processed daily by the Exchange at 0940 (IST) for overnight rate and at 1130 (IST) for the 14 day, 1 month and 3 month

rates. The rates polled are then processed using the bootstrap method to arrive at an efficient estimate of the reference rates. The overnight rates are disseminated daily to the market at about 0955 (IST) and the 14 day, 1 month and 3 month rates at about 1145 (IST). These are broadcast through NEAT-WDM trading system immediately on release and also disseminated through websites of NSE and FIMMDA and through e-mail.

The overnight MIBID/MIBOR rates ruled fairly steady within a narrow range during the year 2001-2002. These touched the peak of 13.47% and 16.54% respectively on November 2, 2001 and the low of 6.29% and 6.47% respectively on March 22, 2002. The overnight MIBID/MIBOR rates ruled fairly steady within a narrow range during the year 2002-03. These touched the peak of 7.70% and 7.95% respectively on May 21, 2002 and the low of 4.89% and 5.06% respectively on March 06, 2003. The rates have been particularly stable during the current financial year, reflective of a stable interest rate environment, and have been hovering around 6-7%. The stability of the rates in overnight call market may be due to the guidelines issued by RBI moving non-banks from the call market in a phased manner.

4.3.10 NSE-VaR System

NSE has developed a Value-at-Risk (VaR) system for measuring the market risk inherent in Government of India (GOI) securities. NSE-VaR system builds on the NSE database of daily yield curves-the NSE-ZCYC which is now well accepted in terms of its conceptual soundness and empirical performance, and is increasingly being used by market participants as a basis for valuation of fixed income instruments. The NSE-VaR system provides measures of VaR using 5 alternative methods (normal (variance-covariance), weighted normal, historical simulation, weighted historical simulation and extreme value theory). Together, these 5 methods provide a range of options for market participants to choose from.

NSE-VaR system releases daily estimates of security-wise VaR at 1-day and multi-day horizons for securities traded on WDM segment of NSE and all outstanding GOI securities with effect from January 1, 2002. Participants can compute their portfolio risk as weighted average of security-wise VaRs, the weights being proportionate to the market value of a given security in their portfolio.

4.3.11 Bond Index

While there exists an array of indices for the equity market, a well-constructed and widely accepted bond index is conspicuous by its absence. There are a few additional difficulties in construction and maintenance of debt indices. First, on account of the fixed maturity of bonds vis-à-vis the

perpetuity of equity, the universe of bonds changes frequently (new issues come in while existing issues are redeemed). Secondly, while market prices for the constituents of an equity index are normally available on all trading days over a long period of time, market prices of constituent bonds in a bond index, irrespective of the selection criteria used, may not be available daily. This is on account of the fact that the liquidity of a security varies over its lifetime and, in addition, can witness significant fluctuations over a short period of time. However, market participants need an index to compare their performance with as well as the performance of different classes of assets.

NSE Government Securities Index

The increased activity in the government securities market in India and simultaneous emergence of mutual (gilt) funds has given rise to the need for a well-defined Bond Index to measure returns in the bond market. The NSE-Government Securities Index prices components off the NSE Benchmark ZCYC, so that movements reflect returns to an investor on account of change in interest rates only, and not those arising on account of the impact of idiosyncratic factors. The index is available from January 1, 1997. The index would provide a benchmark for portfolio management by various investment managers and gilt funds. It could also form the basis for designing index funds and for derivative products such as options and futures.

Salient features of the Index:

- The base date for the index is 1st January 1997 and the base date index value is 100
- The index is calculated on a daily basis from 1st January 1997 onwards; weekends and holidays are ignored.
- The index uses all Government of India bonds issued after April 1992. These were issued on the basis of an auction mechanism that imparted some amount of market-relatedness to their pricing. Bonds issued prior to 1992 were on the basis of administered interest rates.
- Each day, the prices for all these bonds are estimated off the NSE Benchmark-ZCYC for the day.
- The constituents are weighted by their market capitalisation.
- Computations are based on arithmetic and not geometric calculations.
- The index uses a chain-link methodology i.e. today's values are based on the previous value times the change since the previous calculations. This gives the index the ability to add new issues and also remove old issues when redeemed.
- Coupons and redemption payments are assumed to be re-invested back into the index in proportion to the constituent weights.
- Both the Total Returns Index and the Principal Returns Index are computed.

- The indices provided are: Composite, 1-3, 3-8, 8+ years, TB index, GS index

4.4 MARKET OUTCOME

4.4.1 Primary Market

Resource Mobilization: The government raises resources in the debt markets, through market borrowings, pre-dominantly to fund the fiscal deficit. Along with increase in fiscal deficits of the governments, the dependence on market borrowings to finance fiscal deficits has increased over the years. During the year 1990-91, the state governments and the central government financed nearly 14% and 18% respectively of their fiscal deficit by market borrowing. In percentage terms, dependence of the state governments on market borrowing did not increase much during the decade 1991-2001. In case of central government, it is estimated to have increased to over 70% by 2002-03. The central government and the state governments together borrowed Rs. 86,667 crore from market during 2000-01 against Rs. 10,57 crore in 1990-91 (Table 4.3).

Table 4.3: Financing of Gross Fiscal Deficit of Governments
(in percent)

Year	Central Government				State Governments		
	Market Borrowings	T-Bills	Other Liabilities	External Finances	Market Borrowings	Loan from Central Govt.	Others
1990-91	17.9	25.4	49.5	7.1	13.6	53.1	33.3
1991-92	20.7	18.9	45.5	14.9	17.5	49.6	32.9
1992-93	9.2	30.6	47.0	13.2	16.8	42.7	40.5
1993-94	48.0	18.2	25.4	8.4	17.6	46.3	36.1
1994-95	35.2	1.7	56.9	6.2	14.7	53.3	32.0
1995-96	54.9	16.3	28.3	0.5	18.7	47.1	34.2
1996-97	30.0	19.7	45.8	4.5	17.5	47.1	35.4
1997-98	36.5	-1.0	63.3	1.2	16.5	53.6	30.0
1998-99	60.9	-0.2	37.6	1.7	14.1	41.8	44.1
1999-00	67.1	0.8	30.9	1.1	13.8	42.5	43.7
2000-01	61.4	1.0	31.3	6.3	14.4	45.8	39.8
2001-02	69.4	2.9	26.1	1.6	15.2 (E)	46.9 (E)	37.9 (E)
2002-03 (E)	70.7	0.0	28.7	0.6	11.9 (E)	57.0 (E)	31.0 (E)

(E) Estimated for the year

Source: RBI Annual Report

Market Borrowings: During 2000-01, the gross and net borrowings of Central Government amounted to Rs. 1,15,183 crore and Rs. 73,787 crore,

respectively. The gross borrowings of Central Government increased by 15.6% during the year 2000-01. The primary issuance of State Government securities increased from Rs. 13,706 crore in 1999-2000 to Rs. 13,300 crore in 2000-01. The gross borrowings of the Central and State Governments taken together increased by 13.4% from Rs. 1,13,336 crore in 1999-2000 to Rs. 1,28,483 crore during 2000-01 (Table 4.4).

Table 4.4: Market Borrowings of Government

(Rs. Crore)

	Security	Gross			Repayment			Net		
		2000-01	2001-02	2002-03*	2000-01	2001-02	2002-03*	2000-01	2001-02	2002-03*
1	Central Government (a+b)	115,183	133,801	142,867	41,396	41,499	47,008	73,787	77,353	95,859
	a) Dated Securities	100,183	114,213	116,867	28,396	26,499	27,420	71,787	72,853	89,447
	b) 364-day T-bills	15,000	19,588	26,000	13,000	15,000	19,588	2,000	4,500	6,412
2	State Government	13,300	18,707	13,814	420	1,446	1,789	12,880	11,201	12,025
Total (1+2)		128,483	152,508	156,681	41,816	42,945	48,797	86,667	88,554	107,884

* Budget Estimates

Source: RBI Annual Report, 2001-02

The primary market for government securities was active during 2000-01 with RBI mopping up funds on behalf of the government. The Central Government mobilised Rs. 100,183 crore through issue of dated securities and Rs. 15,000 crore through issue of T-bills. After meeting repayment liabilities of Rs. 28,396 crore for dated securities, and redemption of 364-day T-bills of Rs. 13,000 crore, net market borrowing of Central Government amounted to Rs. 73,787 crore for the year 2000-01, which fell short of budget target by around 3%. The state governments collectively raised Rs. 13,300 crore during 2000-01 as against Rs. 13,706 crore in the preceding year. The net borrowings of State Governments in 2000-01 amounted to Rs. 12,880 crore after meeting repayment liabilities of Rs. 420 crore.

During April-June 2001, the Central Government made gross and net borrowings of Rs. 51,250 crore and Rs. 43,932 crore, respectively, against budget estimate of Rs. 1,18,852 crore and Rs. 77,353 crore for the full year. The average maturity of G-secs issued in the market has increased over the years, particularly since 1998-99, when the RBI introduced securities with 12, 15 and 20-year tenors in the market. In 1999-2000, 23 out of the 30 issues were for tenors of 10 years or more, accounting for over 77.5% of total issuances. This led to a sharp increase in the weighted average maturity of G-sec issues in that year.

The cost of market borrowing on the other hand has been decreasing over the years. The weighted average cost of borrowing for the year 2000-01 was 10.95% (whole year), registering an 82 basis point drop in average cut-off yields, as compared to the earlier year. The current rates are nearly 2.75% lower than what the average rates for G-secs were in 1995-96. Table 4.5 provides a summary of average maturity and cut-off yields in primary market borrowings of the government.

Table 4.5: Market Borrowings-Average Tenor and Yield

Year	No. of Issues	Total Amount Issued (Rs. cr.)	Weighted Tenor (Years)	Weighted Cut-off Yield (% p.a.)
1995-96	20	38634.24	5.7376	13.7496
1996-97	12	27911.06	5.5112	13.6928
1997-98	13	43390.39	6.5757	12.0100
1998-99	32	83752.82	7.7064	11.8624
1999-00	30	86629.85	12.6614	11.7661
2000-01	19	67183.45	9.9438	10.7977

Source: Compiled from RBI, Handbook of Statistics on Indian Economy, 2000, Table 193. Data for 2000-01 are from various WSS, RBI.

Yields

RBI's support to Central Government's borrowing programme by way of private placement and devolvement amounted to Rs. 32,978 crore, i.e., 28.6% of primary issues during 2000-01. The yields on primary issues of dated government securities eased during the year with the cut-off yield varying between 9.47% to 11.7% during 2000-01 as against the range of 10.72% to 12.45% during the preceding year. The yields across maturities also came down signifying lower interest rates. The highest yield of 11.7% was recorded in the month of October 2000 for 12-year government paper. The weighted average yield on government dated securities declined from 11.77% in 1999-2000 to 10.95% in 2000-01 (Table 4.6).

Table 4.6 Profile of Central Government Dated Securities
(Amount in Rs. crore)

Items		2000-01	2001-02
1	Gross Borrowing	100,183	114,213
2	Repayments	28,396	26,499
3	Net Borrowings	71,787	87,714
4	Weighted Average Maturity (In years)	10.60	14.26
5	Weighted Average Yield (Per cent)	10.95	9.44
6	(A) Maturity Distribution (Amount)		
	A Upto 5 years	12,500	2,000
	B Above 5 and upto 10 years	35,000	16,000
	C Above 10 years	52,683	96,213
	Total	100,183	114,213
	(B) Maturity Distribution (Per cent)		
	A Upto 5 years	12.48	1.75
	b Above 5 and upto 10 years	34.94	14.01
	c Above 10 years	52.58	84.24
	Total	100.00	100
7	Price based Auctions Amount	65,000	53,000
8	Yield - (Per cent)		
	Minimum	9.47	6.98
		(2 yrs, 11 mths)	(FRB, 8 yrs)
	Maximum	11.70	11.00
		(11 yrs, 9 mths)	(19 yrs, 8 mths)
9	Yield - Maturity Distribution-wise		
	(A) Less than 10 years		
	Minimum	9.47	6.98
		(2 yrs, 11 mths)	(FRB, 8 years)
	Maximum	11.69	9.81
		(9 yrs, 10 mths)	(7 yrs, 5 mths)
	(B) 10 years		
	Minimum	11.30	9.39
	Maximum	11.30	9.39
	(C) Above 10 years		
	Minimum	10.47	7.18
		(14 yrs)	(14 yrs, 11 mths)
	Maximum	11.70	11.00
		(11 yrs, 9 mths)	(19 yrs, 8 mths)

Note: Figures in brackets indicate residual maturity in years.

Source: RBI.

4.4.2 Secondary Market

Turnover

The aggregate turnover in (Central and State Government dated securities and T-bills through SGL (including outright and repo transaction) touched a level of Rs. 1,955,731 crore in 2002-03, recording an increase of 24.26% over Rs. 1,573,893 crore in the previous year(2001-02). The growing turnover of government securities reflects increasing depth of the market. The monthly turnover for the year 2002-03 ranged between Rs. 100832 crore and Rs. 257623 crore, with a monthly average of Rs. 162978 crore. Such record volume is attributed to the fact that the commercial banks are flush with funds while the recent past has witnessed several cuts in bank rates. The collapse of the equity market has also led to increased interest in debt market. The improvement in trading of corporate debt paper market is attributed to RBI prescription of demat debt issues, which removes settlement risk. The setting up of clearing corporation and launch of NDS would enable greater participation/volumes in the days to come.

The bulk of transactions during 2002-03 were on outright basis. The outright transactions amounted to Rs. 1,392,383 crore, accounting for 71.20% of total turnover (Table 4.7) The share of outright transactions in government securities increased from 23.2% in 1995-96 to 71.20% in 2002-03. The share of repo transactions declined correspondingly from 76.8% in 1995-96 to 28.80% in 2002-03.

Table 4.7: Secondary Market Transactions in Government Securities

Year	Total SGL Turnover (Rs. cr.)	Share in Turnover (%)		Share in Turnover (%)	
		Outright	Repo	Dated Securities	T-Bills
1995-96	127,179	23.20	76.80	86.80	12.84
1996-97	122,941	76.40	23.60	69.40	30.12
1997-98	185,708	86.74	13.26	75.04	24.24
1998-99	227,228	82.53	17.47	79.73	19.59
1999-00	539,232	84.66	15.34	89.20	10.12
2000-01	698,121	81.95	18.05	88.98	11.02
2001-02	1,573,893	77.00	23.00	94.10	5.90
2002-03	1,955,731	71.20	28.80	92.32	7.68

The trading volume on WDM segment has been growing rapidly. The trading volume (face value) increased from Rs. 6,781 crore during 1994-95 (June-March) to Rs. 1,068,702 crore during 2002-03. The average daily trading volume increased from Rs. 30 crore to Rs. 3,598 crore during the same period. The WDM segment registered a record trading volume of Rs.10,470.92 crore on July 25, 2003.

The share of top '10' securities decreased from 68.5% in 2001-02 to 65.15% in 2002-03, still indicating concentration of trading in fewer securities.

Market Capitalization

Market capitalisation of the WDM segment has witnessed a constant increase indicating an increase in the number of securities available for trading on this segment. It is also partly due to increase in the market price of securities arising from fall in interest rate observed in the recent past. Total market capitalisation of the securities available for trading on WDM segment stood at Rs. 8,64,481 crore as at end March 2003. The government securities accounted for 76.12% of total market capitalisation on the same date. The details of market capitalisation of WDM securities are presented in Table 4.8 on market capitalisation can be said to be indicative of the relative size of the different segments of the debt market.

Table 4.8: Market Capitalisation - WDM Segment of NSE

Security	Market Capitalisation (Rs. crore)		Share in Total (%)	
	March-02	March-03	March-02	March-03
Government Securities	542,601	658,002	71.70	76.12
PSU Bonds	39,944	38,383	5.28	4.44
State Loans	61,385	72,094	8.11	8.34
T-bills	23,849	34,919	3.15	4.04
Other	89,016	61,083	11.76	7.06
Total	756,795	864,481	100.00	100.00

Model questions

Q. Calculate the ZCYC Spot rate for 2 Year maturity when $\beta_0=5.1596$, $\beta_1= -0.3615$, $\beta_2=4.5209$, $\tau=13.1202$?

- (a) **5.135786** (b) 5.127548
(c) 5.142458 (d) 5.139978

Correct Answer: (a)

Solution:

Using the formula: $R(m, b) = \beta_0 + (\beta_1 + \beta_2) * \{1 - \exp(-m/\tau)\} / (m/\tau) - \beta_2 * \exp(-m/\tau)$ we get: $5.1596 + ((-0.3615 + 4.5209) * (1 - \exp(-2/13.202))) / ((2/13.202)) - 4.5209 * \exp(-2/13.202) = 5.135786$

Q. Which instruments constitute the major portion of trades in secondary market of the debt segment?

- (a) Dated Central Government securities.
- (b) Treasury Bills
- (c) Debentures
- (d) Commercial Papers.

Correct Answer: (a)

Q. What is the maximum % allocated to non-competitive bidders in Government securities auction?

- (a) 10%
- (b) 15%
- (c) 5 %
- (d) 20%

Correct Answer: (c)

Q. What are the various types of Government securities?

- (a) Only Fixed coupon Bonds & Floating rate Bonds.
- (b) Only Floating rate Bonds & Zero Coupon Bonds.
- (c) Only zero Coupon Bonds & Securities with embedded Derivatives
- (d) Fixed coupon Bonds, Floating rate Bonds, Zero Coupon Bonds & Securities with embedded Derivatives

Correct Answer: (d)

Q. What are the varying days of settlement allowed on WDM?

- (a) T+0 & T+3
- (b) T+1 & T+3
- (b) T+2 & T+3
- (d) T+0, T+1 & T+2

Correct Answer: (d)

Q. What is the limit on the exposure of Foreign Institutional Investors to Indian debt markets?

- (a) There is no limit on the extent of investments FIIs can make in the debt markets.
- (b) FIIs cannot invest more than 30% of their portfolio in debt instruments.
- (c) FIIs cannot invest more than 30% of their portfolio in government bonds.
- (d) FIIs cannot invest more than 30% of their portfolio in Treasury Bills.

Correct Answer: (b)

Q. Presently which of the following T-bills is traded in the market?

- (a) 91 Days & 364 Days T-Bill
- (b) 14 Days & 364 Days T-Bill
- (c) 182 Days & 364 Days T-Bill
- (d) 14 Days & 91 Days T-bill

Correct Answer: (a)

Q. When are the FIMMDA-NSE MIBID/MIBOR rates polled daily by NSE-WDM?

- (a) At 9.30 am & 11.30 am

- (b) At 9.40 am & 11.40 am
- (c) At 9.50 am & 11.30 am
- (d) At 9.40 am & 11.30 am

Correct Answer: (d)

Q. Which are the instruments used to calculate Zcyc?

- (a) Only Central Government Securities.
- (b) Only T-Bill
- (c) Both T-bill & Central Government Securities.
- (d) Corporate Debentures ,CD & CP

Correct Answer: (c)

Q. What are the various securities on which Repo trades are allowed by RBI?

- (a) Only Central Government Securities.
- (b) Only Treasury Bills
- (c) Only Central Government Securities & Treasury bills
- (d) Central Government securities, Treasury Bills & State Government securities
- (e) Central Government Securities, Treasury bills & corporate debts.

Correct Answer: (d)

CHAPTER 5: DERIVATIVES MARKET

5.1 DERIVATIVES

5.1.1 Introduction

Derivative is a product whose value is derived from the value of one or more basic variables, called bases (underlying asset, index or reference rate), in a contractual manner. The underlying asset can be equity, forex, commodity or any other asset. The International Monetary Fund defines derivatives as *"financial instruments that are linked to a specific financial instrument or indicator or commodity and through which specific financial risks can be traded in financial markets in their own right. The value of a financial derivative derives from the price of an underlying item, such as an asset or index. Unlike debt securities, no principal is advanced to be repaid and no investment income accrues"*.

The emergence of the market for derivative products, most notably forwards, futures and options, can be traced back to the willingness of risk-averse economic agents to guard themselves against uncertainties arising out of fluctuations in asset prices. By their very nature, the financial markets are marked by a very high degree of volatility. Through the use of derivative products, it is possible to partially or fully transfer price risks by locking-in asset prices. As instruments of risk management, these generally do not influence the fluctuations in the underlying asset prices. However, by locking-in asset prices, derivative products minimise the impact of fluctuations in asset prices on the profitability and cash flow situation of risk-averse investors.

Derivative is a product whose value is derived from the value of one or more basic variables, called bases (underlying asset, index, or reference rate), in a contractual manner. The underlying asset can be equity, forex, commodity or any other asset. For example, wheat farmers may wish to sell their harvest at a future date to eliminate the risk of a change in prices by that date. Such a transaction is an example of a derivative. The price of this derivative is driven by the spot price of wheat which is the 'underlying'.

Derivative products initially emerged as hedging devices against fluctuations in commodity prices and commodity-linked derivatives remained the sole form of such products for almost three hundred years. The financial

derivatives came into spotlight in post-1970 period due to growing instability in the financial markets. However, since their emergence, these products have become very popular and by 1990s, they accounted for about two-thirds of total transactions in derivative products. In recent years, the market for financial derivatives has grown tremendously both in terms of variety of instruments available, their complexity and also turnover. The factors generally attributed as the major driving force behind growth of financial derivatives are (a) increased volatility in asset prices in financial markets, (b) increased integration of national financial markets with the international markets, (c) marked improvement in communication facilities and sharp decline in their costs, (d) development of more sophisticated risk management tools, providing economic agents a wider choice of risk management strategies, and (e) innovations in the derivatives markets, which optimally combine the risks and returns over a large number of financial assets, leading to higher returns, reduced risk as well as transaction costs as compared to individual financial assets. In the class of equity derivatives, futures and options on stock indices have gained more popularity than on individual stocks, especially among institutional investors, who are major users of index-linked derivatives. Even small investors find these useful due to high correlation of the popular indices with various portfolios and ease of use. The lower costs associated with index derivatives vis-à-vis derivative products based on individual securities is another reason for their growing use.

5.1.2 Products, participants and functions

Derivative contracts have several variants. The most common variants are forwards, futures, options and swaps. The following three broad categories of participants hedgers, speculators, and arbitrageurs trade in the derivatives market.

- Hedgers face risk associated with the price of an asset. They use futures or options markets to reduce or eliminate this risk.
- Speculators wish to bet on future movements in the price of an asset. Futures and options contracts can give them an extra leverage; that is, they can increase both the potential gains and potential losses in a speculative venture.
- Arbitrageurs are in business to take advantage of a discrepancy between prices in two different markets. If, for example, they see the futures price of an asset getting out of line with the cash price, they will take offsetting positions in the two markets to lock in a profit.

The derivatives market performs a number of economic functions. First, prices in an organised derivatives market reflect the perception of market participants about the future and lead the prices of underlying to the

perceived future level. The prices of derivatives converge with the prices of the underlying at the expiration of the derivative contract. Thus, derivatives help in discovery of future as well as current prices. Second, the derivatives market helps to transfer risks from those who have them but may not like them to those who have an appetite for them. Third, derivatives, due to their inherent nature, are linked to the underlying cash markets. With the introduction of derivatives, the underlying market witnesses higher trading volumes because of participation by more players who would not otherwise participate for lack of an arrangement to transfer risk. Fourth, speculative trades shift to a more controlled environment of derivatives market. In the absence of an organised derivatives market, speculators trade in the underlying cash markets. Margining, monitoring and surveillance of the activities of various participants become extremely difficult in these kinds of mixed markets. Fifth, an important incidental benefit that flows from derivatives trading is that it acts as a catalyst for new entrepreneurial activity. The derivatives have a history of attracting many bright, creative, well-educated people with an entrepreneurial attitude. They often energise others to create new businesses, new products and new employment opportunities, the benefit of which are immense. Finally, derivatives markets help increase savings and investment in the long run. Transfer of risk enables market participants to expand their volume of activity.

5.1.3 *Types of Derivatives*

The most commonly used derivatives contracts are forwards, futures and options which we shall discuss in detail later. Here we take a brief look at various derivatives contracts that have come to be used.

Forwards: A forward contract is a customised contract between two entities, where settlement takes place on a specific date in the future at today's pre-agreed price.

Futures: A futures contract is an agreement between two parties to buy or sell an asset at a certain time in the future at a certain price. Futures contracts are special types of forward contracts in the sense that the former are standardised exchange-traded contracts.

Options: Options are of two types – calls and puts. Calls give the buyer the right but not the obligation to buy a given quantity of the underlying asset, at a given price on or before a given future date. Puts give the buyer the right, but not the obligation to sell a given quantity of the underlying asset at a given price on or before a given date.

Warrants: Options generally have lives of upto one year, the majority of options traded on options exchanges having maximum maturity of nine months. Longer-dated options are called warrants and are generally traded over-the-counter.

LEAPS: The acronym LEAPS means Long Term Equity Anticipation Securities. These are options having a maturity of upto three years.

Baskets: Basket options are options on portfolios of underlying assets. The underlying asset is usually a moving average or a basket of assets. Equity index options are a form of basket options.

Swaps: Swaps are private agreements between two parties to exchange cash flows in the future according to a prearranged formula. They can be regarded as portfolios of forward contracts. The two commonly used swaps are:

- *Interest rate swaps:* These entail swapping only the interest related cash flows between the parties in the same currency
- *Currency Swaps:* These entail swapping both principal and interest between the parties, with the cash flows in one direction being in a different currency than those in the opposite direction.

Swaptions: Swaptions are options to buy or sell a swap that will become operative at the expiry of the options. Thus a swaptions is an option on a forward swap. Rather than have calls and puts, the swaptions market has receiver swaptions and payer swaptions. A receiver swaption is an option to receive fixed and pay floating. A payer swaption is an option to pay fixed and receive floating.

5.1.4 Derivatives markets in India

The first step towards introduction of derivatives trading in India was the promulgation of the Securities Laws (Amendment) Ordinance, 1995, which withdrew the prohibition on options in securities. The market for derivatives, however, did not take off, as there was no regulatory framework to govern trading of derivatives. SEBI set up a 24-member committee under the Chairmanship of Dr. L. C. Gupta on November 18, 1996 to develop appropriate regulatory framework for derivatives trading in India. The committee submitted its report on March 17, 1998 prescribing necessary pre-conditions for introduction of derivatives trading in India. The committee recommended that derivatives should be declared as 'securities' so that regulatory framework applicable to trading of 'securities' could also govern trading of securities. SEBI also set up a group in June 1998 under the chairmanship of Prof. J. R. Varma, to recommend measures for risk containment in derivatives market in India. The report, which was submitted in October 1998, worked out the operational details of margining system, methodology for charging initial margins, broker net worth, deposit requirement and real-time monitoring requirements.

The SCRA was amended in December 1999 to include derivatives within the ambit of 'securities' and the regulatory framework was developed for governing derivatives trading. The act also made it clear that derivatives shall be legal and valid only if such contracts are traded on a recognised stock exchange, thus precluding OTC derivatives. The government also

rescinded in March 2000, the three-decade old notification, which prohibited forward trading in securities.

Derivatives trading commenced in India in June 2000 after SEBI granted the final approval to this effect in May 2000. SEBI permitted the derivatives segments of two stock exchanges. NSE and BSE, and their clearing house/ corporation to commence trading and settlement in approved derivatives contracts. To begin with, SEBI approved trading in index futures contracts based on S&P CNX Nifty and BSE-30 (Sensex) index. This was followed by approval for trading in options commenced in June 2001 and the trading in options on individual securities commenced in July 2001. Futures contracts on individual stocks were launched in November 2001. Futures and Options contracts on individual securities are available on 41 securities stipulated by SEBI. Trading and settlement in derivative contracts is done in accordance with the rules, byelaws, and regulations of the respective exchanges and their clearing house/ corporation duly approved by SEBI and notified in the official gazette.

5.1.5 Membership of NSE

NSE admits members on its derivatives segment (more popularly referred to as F&O segment) in accordance with the rules and regulations of the Exchange and the norms specified by SEBI. NSE follows 2-tier membership structure stipulated by SEBI to enable wider participation. Those interested in taking membership on F&O segment are required to take membership of 'CM and F&O segment' or 'CM, WDM and F&O segment'. Trading and clearing members are admitted separately. Essentially, a clearing member (CM) does clearing for all his trading members (TMs), undertakes risk management and performs actual settlement. The eligibility criteria for membership on F&O segment are summarised in tables 5.1 and 5.2. The trading members are required to have qualified users and sales persons, who have passed a certification programme approved by SEBI. Refer to chapter 3 for further details about eligibility criteria of the membership.

Table 5.1: Eligibility Criteria for Membership on F&O Segment of NSE

Particulars	New Members	
	CM and F&O Segment	CM, WDM and F&O Segment
Net Worth ¹	Rs. 100 lakh	Rs. 200 lakh
Interest Free Security Deposit (IFSD) ²	Rs. 125 lakh	Rs. 275 lakh
Collateral Security Deposit (CSD) ²	Rs. 25 lakh	Rs. 25 lakh
Annual Subscription	Rs. 1 lakh	Rs. 2 lakh

Note: (1) No additional networth is required for self-clearing members in F&O segment. However, networth of Rs. 300 lakh is required for members clearing for self as well as for other

trading member. (2) Additional Rs. 25 lakh is required for clearing membership. In addition, the clearing member is required to bring in IFSD of Rs. 2 lakh and CSD of Rs. 8 lakh per trading member in the F&O segment.

Table 5.2: Requirements for Professional Clearing Membership (PCM)

Particulars	F&O Segment	CM and F&O Segment
Eligibility	Trading members of NSE / SEBI registered Custodians / Recognised Banks	
Net Worth	Rs. 300 lakh	
Interest Free Security Deposit (IFSD)	Rs. 25 lakh	Rs. 34 lakh
Collateral Security Deposit (CSD)	Rs. 25 lakh	Rs. 50 lakh
Annual Subscription	Nil	Rs. 2.5 lakh

Note: The PCM is required to bring in IFSD of Rs. 2 lakh and CSD of Rs. 8 lakh per trading member whose trades he undertakes to clear in the F&O segment.

5.2 Futures and Options

In recent years, derivatives have become increasingly important in the field of finance. While futures and options are now actively traded on many exchanges, forward contracts are popular on the OTC market.

5.2.1 Forward contracts

A forward contract is an agreement to buy or sell an asset on a specified date for a specified price. One of the parties to the contract assumes a long position and agrees to buy the underlying asset on a certain specified future date for a certain specified price. The other party assumes a short position and agrees to sell the asset on the same date for the same price. Other contract details like delivery date, price and quantity are negotiated bilaterally by the parties to the contract. The forward contracts are normally traded outside the exchanges.

The salient features of forward contracts are:

- They are bilateral contracts and hence exposed to counter-party risk.
- Each contract is custom designed, and hence is unique in terms of contract size, expiration date and the asset type and quality.
- The contract price is generally not available in public domain.
- On the expiration date, the contract has to be settled by delivery of the asset.
- If the party wishes to reverse the contract, it has to compulsorily go to the same counterparty, which often results in high prices being charged.

However, forward contracts in certain markets have become very standardised, as in the case of foreign exchange, thereby reducing transaction costs and increasing transactions volume. This process of standardisation reaches its limit in the organised futures market.

Forward contracts are very useful in hedging and speculation. The classic hedging application would be that of an exporter who expects to receive payment in dollars three months later. He is exposed to the risk of exchange rate fluctuations. By using the currency forward market to sell dollars forward, he can lock on to a rate today and reduce his uncertainty. Similarly an importer who is required to make a payment in dollars two months hence can reduce his exposure to exchange rate fluctuations by buying dollars forward.

If a speculator has information or analysis, which forecasts an upturn in a price, then he can go long on the forward market instead of the cash market. The speculator would go long on the forward, wait for the price to rise, and then take a reversing transaction to book profits. Speculators may well be required to deposit a margin upfront. However, this is generally a relatively small proportion of the value of the assets underlying the forward contract. The use of forward markets here supplies leverage to the speculator.

Forward markets world-wide are afflicted by several problems:

- Lack of centralisation of trading,
- Illiquidity, and
- Counterparty risk

In the first two of these, the basic problem is that of too much flexibility and generality. The forward market is like a real estate market in that any two consenting adults can form contracts against each other. This often makes them design terms of the deal which are very convenient in that specific situation, but makes the contracts non-tradable. Counterparty risk arises from the possibility of default by any one party to the transaction. When one of the two sides to the transaction declares bankruptcy, the other suffers. Even when forward markets trade standardised contracts, and hence avoid the problem of illiquidity, still the counterparty risk remains a very serious issue.

5.2.2 Futures

Futures markets were designed to solve the problems that exist in forward markets. A futures contract is an agreement between two parties to buy or sell an asset at a certain time in the future at a certain price. But unlike forward contracts, the futures contracts are standardised and exchange

traded. To facilitate liquidity in the futures contracts, the exchange specifies certain standard features of the contract. It is a standardised contract with standard underlying instrument, a standard quantity and quality of the underlying instrument that can be delivered, (or which can be used for reference purposes in settlement) and a standard timing of such settlement. A futures contract may be offset prior to maturity by entering into an equal and opposite transaction. More than 99% of futures transactions are offset this way. The standardised items in a futures contract are:

- Quantity of the underlying
- Quality of the underlying
- The date and the month of delivery
- The units of price quotation and minimum price change
- Location of settlement

Distinction between futures and forwards contracts: Forward contracts are often confused with futures contracts. The confusion is primarily because both serve essentially the same economic functions of allocating risk in the presence of future price uncertainty. However futures are a significant improvement over the forward contracts as they eliminate counterparty risk and offer more liquidity. Table 5.3 lists the distinction between the two.

Table 5.3 Distinction between futures and forwards

Futures	Forwards
Trade on an organised exchange	OTC in nature
Standardised contract terms	Customised contract terms
Hence more liquid	Hence less liquid
Requires margin payments	No margin payment
Follows daily settlement	Settlement happens at end of period

Futures terminology

- *Spot price*: The price at which an asset trades in the spot market.
- *Futures price*: The price at which the futures contract trades in the futures market.
- *Contract cycle*: The period over which a contract trades. The index futures contracts on the NSE have one month, two-month and three-month expiry cycles which expire on the last Thursday of the month. Thus a January expiration contract expires on the last Thursday of January and a February expiration contract ceases trading on the last Thursday of February. On the Friday following the last Thursday, a new contract having a three-month expiry is introduced for trading.
- *Expiry date*: It is the date specified in the futures contract. This is the last day on which the contract will be traded, at the end of which it will cease to exist.

- *Contract size*: The amount of asset that has to be delivered under one contract. For instance, the contract size on NSE's futures market is 200 Nifties.
- *Basis*: In the context of financial futures, basis can be defined as the futures price minus the spot price. There will be a different basis for each delivery month for each contract. In a normal market, basis will be positive. This reflects that futures prices normally exceed spot prices.
- *Cost of carry*: The relationship between futures prices and spot prices can be summarised in terms of what is known as the cost of carry. This measures the storage cost plus the interest that is paid to finance the asset less the income earned on the asset.
- *Initial margin*: The amount that must be deposited in the margin account at the time a futures contract is first entered into is known as initial margin.
- *Marking-to-market*: In the futures market, at the end of each trading day, the margin account is adjusted to reflect the investor's gain or loss depending upon the futures closing price. This is called marking-to-market.
- *Maintenance margin*: This is somewhat lower than the initial margin. This is set to ensure that the balance in the margin account never becomes negative. If the balance in the margin account falls below the maintenance margin, the investor receives a margin call and is expected to top up the margin account to the initial margin level before trading commences on the next day.

5.2.3 Options

Options are fundamentally different from forward and futures contracts. An option gives the holder of the option the right to do something. The holder does not have to exercise this right. In contrast, in a forward or futures contract, the two parties have committed themselves to doing something. Whereas it costs nothing (except margin requirements) to enter into a futures contract, the purchase of an option requires an upfront payment.

Options terminology

- *Index options*: These options have the index as the underlying. Some options are European while others are American. Like index futures contracts, index options contracts are also cash settled.
- *Stock options*: Stock options are options on individual stocks. Options currently trade on over 500 stocks in the United States. A contract gives the holder the right to buy or sell shares at the specified price.

- *Buyer of an option:* The buyer of an option is the one who by paying the option premium buys the right but not the obligation to exercise his option on the seller/writer.
- *Writer of an option:* The writer of a call/put option is the one who receives the option premium and is thereby obliged to sell/buy the asset if the buyer wishes to exercise his option.

There are two basic types of options, call options and put options.

- *Call option:* A call option gives the holder the right but not the obligation to buy an asset by a certain date for a certain price.
- *Put option:* A put option gives the holder the right but not the obligation to sell an asset by a certain date for a certain price.
- *Option price:* Option price is the price which the option buyer pays to the option seller. It is also referred to as the option premium.
- *Expiration date:* The date specified in the options contract is known as the expiration date, the exercise date, the strike date or the maturity.
- *Strike price:* The price specified in the options contract is known as the strike price or the exercise price.
- *American options:* American options are options that can be exercised at any time upto the expiration date. Most exchange-traded options are American.
- *European options:* European options are options that can be exercised only on the expiration date itself. European options are easier to analyse than American options, and properties of an American option are frequently deduced from those of its European counterpart.
- *In-the-money option:* An in-the-money (ITM) option is an option that would lead to a positive cash flow to the holder if it were exercised immediately. A call option on the index is said to be in-the-money when the current value of index stands at a level higher than the strike price (i.e. spot price > strike price). If the value of index is much higher than the strike price, the call is said to be deep ITM. On the other hand, a put option on index is said to be ITM if the value of index is below the strike price.
- *At-the-money option:* An at-the-money (ATM) option is an option that would lead to zero cash flow if it were exercised immediately. An option on the index is at-the-money when the value of current index equals the strike price (i.e. spot price = strike price).
- *Out-of-the-money option:* An out-of-the-money (OTM) option is an option that would lead to a negative cash flow if it was exercised immediately. A call option on the index is said to be out-of-the-money when the value of current index stands at a level which is less than the strike price (i.e. spot price < strike price). If the index is much lower than the strike price, the call is said to be deep OTM. On the other hand, a put option on index is OTM if the value of index is above the strike price.
- *Intrinsic value of an option:* The option premium can be broken down into two components—intrinsic value and time value. Intrinsic value of

an option is the difference between the market value of the underlying security/index in a traded option and the strike price. The intrinsic value of a call is the amount when the option is ITM, if it is ITM. If the call is OTM, its intrinsic value is zero.

- *Time value of an option:* The time value of an option is the difference between its premium and its intrinsic value. Both calls and puts have time value. An option that is OTM or ATM has only time value. Usually, the maximum time value exists when the option is ATM. The longer the time to expiration, the greater is an option's time value, all else equal. At expiration, an option should have no time value. While intrinsic value is easy to calculate, time value is more difficult to calculate. Historically, this made it difficult to value options prior to their expiration. Various option pricing methodologies were proposed, but the problem wasn't solved until the emergence of Black-Scholes theory in 1973.

Distinction between Futures and options

Options are different from futures in several interesting senses. At a practical level, the option buyer faces an interesting situation. He pays for the option in full at the time it is purchased. After this, he only has an upside. There is no possibility of the options position generating any further losses to him (other than the funds already paid for the option). This is different from futures, which is free to enter into, but can generate very large losses. This characteristic makes options attractive to many occasional market participants, who cannot put in the time to closely monitor their futures positions.

Buying put options is buying insurance. To buy a put option on Nifty is to buy insurance which reimburses the full extent to which Nifty drops below the strike price of the put option. This is attractive to many people, and to mutual funds creating 'guaranteed return products'. The Nifty index fund industry will find it very useful to make a bundle of a Nifty index fund and a Nifty put option to create a new kind of a Nifty index fund, which gives the investor protection against extreme drops in Nifty. Selling put options is selling insurance, so anyone who feels like earning revenues by selling insurance can set himself up to do so on the index options market.

More generally, options offer 'non-linear payoffs' whereas futures only have 'linear payoffs'. By combining futures and options, a wide variety of innovative and useful payoff structures can be created.

Table 5.4 Distinction between futures and options

Futures	Options
Exchange traded, with novation	Same as futures.
Exchange defines the product	Same as futures.
Price is zero, strike price moves	Strike price is fixed, price moves.
Price is zero	Price is always positive.
Linear payoff	Non-linear payoff.
Both long and short at risk	Only short at risk.

5.2.4 Pricing of Derivatives

Pricing Futures:

Stock index futures began trading on NSE on the 12th June 2000. Stock futures were launched on 9th November 2001. The volumes and open interest on this market has been steadily growing. Looking at the futures prices on NSE's market, have you ever felt the need to know whether the quoted prices are a true reflection of the price of the underlying index/stock? Have you wondered whether you could make risk-less profits by arbitraging between the underlying and futures markets? If so, you need to know the cost-of-carry to understand the dynamics of pricing that constitute the estimation of fair value of futures.

The cost of carry model: We use fair value calculation of futures to decide the no-arbitrage limits on the price of a futures contract. This is the basis for the cost-of-carry model where the price of the contract is defined as:

$$F = S + C$$

Where,

F = Futures price; S = Spot price; C = Holding costs or carry costs.

This can also be expressed as:

$$F = S (1 + r)^T$$

r = Cost of financing and T = Time till expiration of futures contract

If $F < S(1 + r)^T$ or $F > S(1 + r)^T$, arbitrage opportunities would exist i.e.

whenever the futures price moves away from the fair value, there would be chances for arbitrage. We know what the spot and futures prices are, but what are the components of holding cost? The components of holding cost vary with contracts on different assets. At times the holding cost may even be negative. In the case of commodity futures, the holding cost is the cost of financing plus cost of storage and insurance purchased etc. In the case of equity futures, the holding cost is the cost of financing minus the dividends returns.

The concept of discrete compounding is used, where interest rates are compounded at discrete intervals, for example, annually or semi-annually. Pricing of options and other complex derivative securities require the use of continuously compounded interest rates. In case the concept of continuous compounding, the above equation would be expressed as:

$$F = S e^{(rT)}$$

Where,

r = Cost of financing (using continuously compounded interest rate)
 T = Time till expiration; and $e = 2.71828$

Pricing options:

An option buyer has the right but not the obligation to exercise on the seller. The worst that can happen to a buyer is the loss of the premium paid by him. His downside is limited to this premium, but his upside is potentially unlimited. This optionality is precious and has a value, which is expressed in terms of the option price. Just like in other free markets, it is the supply and demand in the secondary market that drives the price of an option. On dates prior to 31 Dec 2000, the 'call option on Nifty expiring on 31 Dec 2000 with a strike of 1500' will trade at a price that purely reflects supply and demand. There is a separate order book for each option which generates its own price. The values shown in Table 5.5 are derived from a theoretical model, namely the Black-Scholes option pricing model.

Table 5.5: Option prices: some illustrative values					
	Option strike price				
	1400	1450	1500	1550	1600
Calls					
1 month	117	79	48	27	13
3 month	154	119	90	67	48
Puts					
1 month	8	19	38	66	102
3 month	25	39	59	84	114
<i>Assumptions:</i> Nifty spot is 1500, Nifty volatility is 25% annualized, interest rate is 10%, Nifty dividend yield is 1.5%.					

If the secondary market prices deviate from these values, it would imply the presence of arbitrage opportunities, which (we might expect) would be swiftly exploited. But there is nothing innate in the market which forces the prices in the table to come about.

There are various models which help us get close to the true price of an option. Most of these are variants of the celebrated Black-Scholes model for pricing European options. Today most calculators and spread-sheets come with a built-in Black-Scholes options pricing formula so to price options we don't really need to memorise the formula. What we shall do here is discuss this model in a fairly non-technical way by focusing on the basic principles and the underlying intuition.

Introduction to the Black-Scholes formulae

Options have existed—at least in concept—since antiquity. It wasn't until publication of the Black-scholes (1973) option pricing formula that a theoretically consistent framework for pricing options became available. That

framework was a direct result of work by Robert Merton as well as Fisher Black and Myron Scholes. In 1997, Scholes and Merton won the Nobel Prize in economics for this work. Black had died in 1995, but otherwise would have shared the prize.

The factors affecting the option price are: (i) The spot price of the underlying, (ii) exercise price, (iii) risk-free interest rate, (iv) volatility of the underlying, (v) time to expiration and (vi) dividends on the underlying (stock or index). Interestingly before Black and Scholes came up with their option pricing model, there was a widespread belief that the expected growth of the underlying ought to affect the option price. Black and Scholes demonstrate that this is not true. The beauty of the Black and Scholes model is that like any good model, it tells us what is important and what is not. It doesn't promise to produce the exact prices that show up in the market, but certainly does a remarkable job of pricing options within the framework of assumptions of the model. Virtually all option pricing models, even the most complex ones, have much in common with the Black-Scholes model.

Black and Scholes start by specifying a simple and well-known equation that models the way in which stock prices fluctuate. This equation called *Geometric Brownian Motion*, implies that stock returns will have a lognormal distribution, meaning that the logarithm of the stock's return will follow the normal (bell shaped) distribution. Black and Scholes then propose that the option's price is determined by only two variables that are allowed to change: time and the underlying stock price. The other factors, namely, the volatility, the exercise price, and the risk-free interest rate do affect the option's price but they are not allowed to change. By forming a portfolio consisting of a long position in stock and a short position in calls, the risk of the stock is eliminated. This hedged portfolio is obtained by setting the number of shares of stock equal to the approximate change in the call price for a change in the stock price. This mix of stock and calls must be revised continuously, a process known as delta hedging.

Black and Scholes then turn to a little-known result in a specialised field of probability known as stochastic calculus. This result defines how the option price changes in terms of the change in the stock price and time to expiration. They then reason that this hedged combination of options and stock should grow in value at the risk-free rate. The result then is a partial differential equation. The solution is found by forcing a condition called a boundary condition on the model that requires the option price to converge to the exercise value at expiration. The end result is the Black and Scholes model.

5.3 TRADING SYSTEM

5.3.1 Introduction

The futures & options trading system of NSE, called 'National Exchange for Automated Trading' NEAT-F&O trading system, provides a fully automated screen-based trading for Nifty futures & options, stock futures & options and futures on interest rate on a nationwide basis as well as an online monitoring and surveillance mechanism. It supports an order driven market and provides complete transparency of trading operations. It is similar to that of trading of equities in the cash market segment.

The software for the F&O market has been developed to facilitate efficient and transparent trading in futures and options instruments. Keeping in view the familiarity of trading members with the current capital market trading system, modifications have been performed in the existing capital market trading system so as to make it suitable for trading futures and options.

5.3.2 Trading mechanism

The NEAT F&O system supports an order driven market, wherein orders match automatically. Order matching is essentially on the basis of security, its price, time and quantity. All quantity fields are in units and price in rupees. The lot size on the futures and options market is 200 for Nifty. The exchange notifies the regular lot size and tick size for each security traded on this segment from time to time. Orders, as and when they are received, are first time stamped and then immediately processed for potential match. When any order enters the trading system, it is an active order. If it finds a match, a trade is generated. If a match is not found, then the orders are stored in different 'books'. Orders are stored in price-time priority in various books in the following sequence:

- Best Price
- Within Price, by time priority.

Entities in the trading system

There are four entities in the trading system:

1. Trading members: Trading members are members of NSE. They can trade either on their own account or on behalf of their clients including participants. The exchange assigns a Trading member ID to each trading member. Each trading member can have more than one user.
2. Clearing members: Clearing members are members of NSCCL. They carry out risk management activities and confirmation/inquiry of trades through the trading system.
3. Professional clearing members: A professional clearing member is a clearing member who is not a trading member. Typically, banks and

custodians become professional clearing members and clear and settle for their trading members.

4. *Participants*: A participant is a client of trading members like financial institutions. These clients may trade through multiple trading members but settle through a single clearing member.
5. *Participant Clearing Members*: Banks, Financial Institutions and Primary Dealers who are registered with SEBI / RBI and such other entities as prescribed from time to time, is allowed to become participant clearing members.

Corporate hierarchy

In the F&O trading software, a trading member has the facility of defining a hierarchy amongst users of the system. This hierarchy comprises corporate manager, Admin user, branch manager and dealer.

1. *Corporate manager*: The term 'Corporate manager' is assigned to a user placed at the highest level in a trading firm. Such a user can perform all the functions such as order and trade related activities, receiving reports for all branches of the trading member firm and also all dealers of the firm. Additionally, a corporate manager can define exposure limits for the branches of the firm. This facility is available only to the corporate manager.
2. *Admin User*: This user type will facilitate the Trading members and the clearing members to receive and capture on a real-time basis all the trades, exercise requests and give up requests of all the users under him. The clearing members will be able to receive and capture all the above information on a real time basis for the members and participants linked to him. All this information will be written to comma separated files which can be accessed by any another program on a real time basis in a read only mode. Besides this the admin users will be able to take online backup, view and upload net position, view previous trades, view Give-up Screens and Exercise request for all the users (Corporate managers, Branch Managers, Dealers) belonging or linked to the member. The Admin User will also be able to view the relevant messages for trades, exercise and give up requests in the message area.
3. *Branch manager*: The branch manager is a term assigned to a user who is placed under the corporate manager. Such a user can perform and view order and trade related activities for all dealers under that branch.
4. *Dealer*: Dealers are users at the lower most level of the hierarchy. A Dealer can perform view order and trade related activities only for oneself and does not have access to information on other dealers under either the same branch or other branches.

Below given cases explain activities possible for specific user categories:

1. *Clearing member corporate manager*:

He can view outstanding orders, previous trades and net position of his client trading members by putting the TM ID (Trading member identification) and leaving the Branch ID and Dealer ID blank.

2. *Clearing member and trading member corporate manager:* He can view:
 - (a) Outstanding orders, previous trades and net position of his client trading members by putting the TM ID and leaving the Branch ID and the Dealer ID blank.
 - (b) Outstanding orders, previous trades and net positions entered for himself by entering his own TM ID, Branch ID and User ID. This is his default screen.
 - (c) Outstanding orders, previous trades and net position entered for his branch by entering his TM ID and Branch ID fields
 - (d) Outstanding orders, previous trades, and net positions entered for any of his users/dealers by entering his TM ID, Branch ID and user ID fields.
3. *Clearing member and trading member dealer:*
He can only view requests entered by him.
4. *Trading member corporate manager:* He can view
 - (a) Outstanding requests and activity log for requests entered by him by entering his own Branch and User IDs. This is his default screen.
 - (b) Outstanding requests entered by his dealers and/or branch managers by either entering the Branch and/or User IDs or leaving them blank.
5. *Trading member branch manager:* He can view
 - (a) Outstanding requests and activity log for requests entered by him by entering his own Branch and User IDs. This is his default screen.
 - (b) Outstanding requests entered by his users either by filling the User ID field with a specific user or leaving the User ID field blank.
6. *Trading member dealer:* He can only view requests entered by him.

Order types and conditions

The system allows the trading members to enter orders with various conditions attached to them as per their requirements. These conditions are broadly divided into the following three categories:

Time conditions

- *Day order:* A day order, as the name suggests is an order which is valid for the day on which it is entered. If the order is not executed during the day, the system cancels the order automatically at the end of the day.
- *Good till canceled (GTC):* A GTC order remains in the system until the user cancels it. Consequently, it spans trading days, if not traded on the day the order is entered. The maximum number of days an order can remain in the system is notified by the exchange from time to time after which the order is automatically cancelled by the system. Each day counted is a calendar day inclusive of holidays. The days counted are inclusive of the day on which the order is placed

and the order is cancelled from the system at the end of the day of the expiry period.

- *Good till days/date (GTD)*: A GTD order allows the user to specify the number of days/date till which the order should stay in the system if not executed. The maximum days allowed by the system are the same as in GTC order. At the end of this day/date, the order is cancelled from the system. Each day/date counted is inclusive of the day/date on which the order is placed and the order is cancelled from the system at the end of the day/date of the expiry period.
- *Immediate or Cancel(IOC)*: An IOC order allows the user to buy or sell a contract as soon as the order is released into the system, failing which the order is cancelled from the system. Partial match is possible for the order, and the unmatched portion of the order is cancelled immediately.

Price condition

- *Stop-loss*: This facility allows the user to release an order into the system, after the market price (Last Traded Price) of the security reaches or crosses a threshold price e.g. if for stop-loss buy order, the trigger is 1027.00, the limit price is 1030.00 and the market (last traded) price is 1023.00, then this order is released into the system once the market price reaches or exceeds 1027.00. This order is added to the regular lot book with time of triggering as the time stamp, as a limit order of 1030.00. For the stop-loss sell order, the trigger price has to be greater than the limit price.

Other conditions

- *Market price*: Market orders are orders for which no price is specified at the time the order is entered (i.e. price is market price). For such orders, the system determines the price.
- *Limit price*: Price of the order specified by the user while entering the order.
- *Pro*: Pro means that the orders are entered on the trading member's own account.
- *Cli*: Cli means that the trading member enters the orders on behalf of a client.

Several combinations of the above are allowed thereby providing enormous flexibility to the users.

Market watch window

The following windows are displayed on the trader workstation screen.

- Title bar
- Ticker window of futures and options market
- Ticker window of underlying(capital) market
- Tool bar
- Market watch window
- Inquiry window

- Snap quote
- Order/trade window
- System message window

The purpose of market watch is to allow continuous monitoring of contracts or securities that are of specific interest to the user. It displays trading information for contracts selected by the user. The user also gets a broadcast of all the cash market securities on the screen. This function also will be available if the user selects the relevant securities for display on the market watch screen. Display of trading information related to cash market securities will be on "Read only" format i.e. the dealer can only view the information on cash market but, cannot trade in them through the system. This is the main window from the dealer's perspective.

Inquiry window

The inquiry window enables the user to view information such as Market by Price (MBP), Previous Trades (PT), Outstanding Orders (OO), Activity log (AL), Snap Quote (SQ), Order Status (OS), Market Movement (MM), Market Inquiry (MI), Net Position, On line backup, Multiple index inquiry, Most active security and so on.

Placing orders on the trading system

For both the futures and the options market, while entering orders on the trading system, members are required to identify orders as being proprietary or client orders. Proprietary orders should be identified as 'Pro' and those of clients should be identified as 'Cli'. Apart from this, in the case of 'Cli' trades, the client account number should also be provided. The futures and options market is a zero sum game i.e. the total number of long in the contract always equals the total number of short in any contract. The total number of outstanding contracts (long/short) at any point in time is called the 'Open interest'. This Open interest figure is a good indicator of the liquidity in the contract. Based on studies carried out in international exchanges, it is found that open interest is maximum in near month expiry contracts.

Market spread/combination order entry

The NEAT F&O trading system also enables to enter spread/combination trades. This enables the user to input two or three orders simultaneously into the market. These orders will have the condition attached to it that unless and until the whole batch of orders finds a counter match, they shall not be traded. This facilitates spread and combination trading strategies with minimum price risk.

Basket trading

In order to provide a facility for easy arbitrage between futures and cash markets, NSE introduced basket-trading facility. This enables the generation of portfolio offline order files in the derivatives trading system and its execution in the cash segment. A trading member can buy or sell a portfolio through a single order, once he determines its size. The system automatically works out the quantity of each security to be bought or sold in proportion to their weights in the portfolio.

Charges

The maximum brokerage chargeable by a TM in relation to trades effected in the contracts admitted to dealing on the F&O segment of NSE is fixed at 2.5% of the contract value in case of futures contracts and 2.5% of notional value of the contract $[(\text{Strike price} + \text{Premium}) * \text{Quantity}]$ in case of options contracts, which is exclusive of statutory levies. The transaction charges payable by a TM for the trades executed by him on the F&O segment are fixed at Rs. 2 per lakh of turnover (0.002%) (each side) or Rs.1 lakh annually, whichever is higher. The TMs contribute to Investor Protection Fund of F&O segment at the rate of Rs.10 per crore of turnover (0.0001%) (each side).

5.3.3 Corporate Actions Adjustment

The basic premise for any adjustment for corporate actions is that the value of the position of the market participants, on the cum and ex-dates for the corporate action, should continue to remain the same as far as possible. This will facilitate in retaining the relative status of positions viz. in-the-money, at-the-money and out-of-money. This will also address issues related to exercise and assignments.

The corporate actions may be broadly classified under stock benefits and cash benefits. The various stock benefits declared by the issuer of capital are Bonus, Rights, Merger/De-merger, Amalgamation, Splits, Consolidations, Hive-off, Warrants, and Secured Premium Notes (SPNs) among others. On the other hand, the cash benefit declared by the issuer of capital is cash dividend.

Time of Adjustment: Any adjustment for corporate actions would be carried out on the last day on which a security is traded on a cum basis in the underlying equities market, after the close of trading hours.

Adjustments may entail modifications to positions and/or contract specifications as listed below, such that the basic premise of adjustment laid down above is satisfied: (a) Strike Price (b) Position (c) Market Lot/multiplier. The adjustments would be carried out on any or all of the above, based on the nature of the corporate action. The adjustments for corporate

actions would be carried out on all open, exercised as well as assigned positions.

Methodology for adjustment:

The methodology to be followed for adjustment of various corporate actions to be carried out are as follows:

A. Bonus, Stock Splits and Consolidations

- **Strike Price:**
The new strike price shall be arrived at by dividing the old strike price by the adjustment factor as under.
- **Market Lot / Multiplier:**
The new market lot / multiplier shall be arrived at by multiplying the old market lot by the adjustment factor as under.
- **Position:**
The new position shall be arrived at by multiplying the old position by the adjustment factor as under.
- **Adjustment factor:**

Bonus - Ratio A:B	Adjustment factor : $(A+B)/B$
Stock Splits and Consolidations Ratio - A : B	Adjustment factor : A/B
Rights Ratio A : B, Premium-C Face Value-D Existing Strike Price : X	New Strike Price: $((B*X) + A*(C+D)) / (A+B)$ Existing Market Lot/Multiplier/Position : Y New issue size : $Y * (A+B)/B$

- The above methodology may result in fractions due to the corporate action e.g. a bonus ratio of 3:7. With a view to minimising fraction settlements, the following methodology is adopted:
 1. Compute value of the position before adjustment.
 2. Compute value of the position taking into account the exact adjustment factor.
 3. Carry out rounding off for the Strike Price and Market Lot.
 4. Compute value of the position based on the revised strike price and market lot.

The difference between 1 and 4 above, if any, is decided in the manner laid down by the relevant authority by adjusting Strike Price or Market lot, so that no forced closure of open position is mandated.

B. Dividends

- Dividends which are below 10% of the market value of the underlying stock would be deemed to be ordinary dividends and no adjustment in the Strike Price and futures price would be made for ordinary dividends. For extra-ordinary dividends, above 10% of the market value of the underlying security, the Strike Price would be adjusted.
- To decide whether the dividend is "extra-ordinary" (i.e. over 10% of the market price of the underlying stock.), the market price would mean the closing price of the scrip on the day previous to the date on which the announcement of the dividend is made by the Company after the meeting of the Board of Directors. However, in cases where the announcement of dividend is made after the close of market hours, the same day's closing price would be taken as the market price. Further, if the shareholders of the company in the AGM change the rate of dividend declared by the Board of Directors, then to decide whether the dividend is extra-ordinary or not would be based on the rate of dividend communicated to the exchange after AGM and the closing price of the scrip on the day previous to the date of the AGM.
- In case of declaration of " extra-ordinary " dividend by any company, the total dividend amount (special and / or ordinary) would be reduced from all the strike prices of the option contracts on that stock.
- The revised strike prices would be applicable from the ex-dividend date specified by the exchange.

C. Mergers

- On the announcement of the record date for the merger, the exact date of expiration (Last Cum-date) would be informed to members.
- After the announcement of the Record Date, no fresh expiry month contracts on Futures and Options would be introduced on the underlying, that will cease to exist subsequent to the merger.
- Un-expired contracts outstanding as on the last cum-date would be compulsorily settled at the settlement price. The settlement price shall be the closing price of the underlying on the last cum-date.
- GTC/GTD orders for the futures & options contracts on the underlying, outstanding at the close of business on the last cum-date would be cancelled by the Exchange.

The relevant authority may, on a case by case basis, carry out adjustments for other corporate actions in conformity with the above guidelines, including compulsory closing out, where it deems necessary.

5.3.4 Eligibility criteria for securities/indices traded in F&O

1. A stock on which stock option and single stock future is proposed to be introduced should conform with the following broad eligibility criteria:

- The stock should be chosen from amongst the top 500 stock in terms of average daily market capitalisation and average daily traded value in the previous six month on a rolling basis.
- The stock's median quarter-sigma order size over the last six months should be atleast Rs.5 Lakh. For this purpose, a stock's quarter-sigma order size shall mean the order size (in value terms) required to cause a change in the stock price equal to one-quarter of a standard deviation.

The Exchange should be guided by the following for the purpose of calculating quarter sigma order size in a stock:

- Quarter sigma order size should be calculated by taking four snapshots in a day from the order book of the stock in the past six months. These four snapshots should be randomly chosen from within four fixed ten-minutes windows spread through the day.
 - The sigma (standard deviation) or volatility estimate shall be the daily closing volatility estimate which is also used for day end initial margin calculation in derivative contracts on a stock. For stocks on which derivative contracts are not traded, the daily closing volatility estimate should be computed in the manner specified by Prof. J.R Varma Committee on risk containment measures for Index Futures. The daily closing volatility estimate value should be applied to the day's order book snapshots to compute quarter sigma order size.
 - The quarter sigma percentage should be applied to the average of the best bid and offer price in the order book snapshot to compute the order size to move price of the stock by quarter sigma.
 - The median order size to cause quarter sigma price movement should be determined separately for the buy side and the sell side. The average of the median order size for the buy and the sell side should be taken as the median quarter sigma order size.
 - The quarter sigma order size in a stock should be calculated on the 15th of each month, on a rolling basis, considering the order book snapshots in the previous six months. Similarly, the average daily market capitalisation and the average daily traded value should also be computed on the 15th of each month, on a rolling basis, to arrive at the list of top 500 stocks.
2. The number of eligible stocks 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 month. Consequently, the procedure for introducing and dropping stock on which option and future contracts are traded should be as follows:

- Options and futures may be introduced on new stocks when they meet the eligibility criteria.
 - If a stock fails to meet the aforesaid eligibility criteria for three months consecutively, then no fresh month contract shall be issued on that stock. However, the existing unexpired contracts may be permitted to trade till expiry and new strikes may also be introduced in the existing contract months.
3. For unlisted companies coming out with initial public offering, if the net public offer is Rs.500 crore or more, then the exchanges may consider introducing stock options and stock futures on such stocks at the time of its listing in the cash market.
 4. Derivative contracts on a new stock index should be permitted if the stocks contributing 90% weightage in the index are individually eligible for derivative trading as per the eligibility criteria. *This requirement should be applied only at the time of introduction of derivative contract on new indices.*

5.3.5 Products and Contract specifications

The F&O segment of NSE provides trading facilities for the following derivative products/instruments:

1. Index futures
2. Index options
3. Individual stock options
4. Individual stock futures
5. Interest rate futures

Index futures

NSE trades Nifty futures contracts having one-month, two-month and three-month expiry cycles. All contracts expire on the last Thursday of every month. Thus a January expiration contract would expire on the last Thursday of January and a February expiry contract would cease trading on the last Thursday of February. On the Friday following the last Thursday, a new contract having a three-month expiry would be introduced for trading. Thus, as shown in Figure 10.5 at any point in time, three contracts would be available for trading with the first contract expiring on the last Thursday of that month. Depending on the time period for which you want to take an exposure in index futures contracts, you can place buy and sell orders in the respective contracts.

The Instrument type 'FUTIDX' refers to 'Futures contract on index' and Contract symbol – 'NIFTY' denotes a 'Futures contract on Nifty index' and the Expiry date represents the last date on which the contract will be available for trading. Each futures contract has a separate limit order book. All passive orders are stacked in the system in terms of price-time priority

and trades take place at the passive order price (similar to the existing capital market trading system). The best buy order for a given futures contract will be the order to buy the index at the highest index level whereas the best sell order will be the order to sell the index at the lowest index level. Trading for NIFTY is for a minimum lot size of 200 units. Table 5.6 gives the contract specifications for Nifty futures.

Table 5.6 Contract specification: S&P CNX Nifty Futures

Underlying index	S&P CNX Nifty
Exchange of trading	National Stock Exchange of India Limited
Security descriptor	N FUTIDX NIFTY
Contract size	Permitted lot size shall be 200 and multiples thereof (minimum value Rs.2 lakh)
Price steps	Re. 0.05
Price bands	Not applicable
Trading cycle	The futures contracts will have a maximum of three month trading cycle - the near month (one), the next month (two) and the far month (three). New contract will be introduced on the next trading day following the expiry of near month contract.
Expiry day	The last Thursday of the expiry month or the previous trading day if the last Thursday is a trading holiday.
Settlement basis	Mark to market and final settlement will be cash settled on T+1 basis.
Settlement price	Daily settlement price will be the closing price of the futures contracts for the trading day and the final settlement price shall be the closing value of the underlying index on the last trading day.

Index Options

On NSE's index options market, contracts at different strikes, having one-month, two-month and three-month expiry cycles are available for trading. There are typically one-month, two-month and three-month options, each with five different strikes available for trading. Hence, at a given point in time there are minimum $3 * 5 * 2$ or 30 options contracts. Option contracts are specified as follows:

Instrument Type, Symbol, Date-Expiry month-Year, Strike price, and Option Type, (Call/Put-American/European).

For example: the European style call option contract on the Nifty index with a strike price of 1040 expiring on the 26th June 2003 is specified as 'FUTIDX, NIFTY, 26 JUN 2003 1040 CE'. Just as in the case of futures contracts, each option contract (for instance, the 26 JUN 2003 1040 CE) has its own order book and its own prices. All index options contracts are cash settled and expire on the last Thursday of the month. The clearing corporation does the novation. Just as in the case of futures, trading for NIFTY is in minimum market lot size of 200 units. The minimum tick for an index options contract is 0.05 paise. Table 5.7 gives the contract specifications for Nifty options.

Table 5.7 Contract specification: S&P CNX Nifty Options

Underlying index	S&P CNX Nifty
Exchange of trading	National Stock Exchange of India Limited
Security descriptor	N OPTIDX NIFTY
Contract size	Permitted lot size shall be 200 and multiples thereof (minimum value Rs.2 lakh)
Price steps	Re. 0.05
Price bands	Not applicable
Trading cycle	The options contracts will have a maximum of three month trading cycle - the near month (one), the next month (two) and the far month (three). New contract will be introduced on the next trading day following the expiry of near month contract.
Expiry day	The last Thursday of the expiry month or the previous trading day if the last Thursday is a trading holiday.
Settlement basis	Cash settlement on T+1 basis.
Style of option	European.
Strike price interval	Rs.10
Daily settlement price	Premium value (net)
Final settlement price	Closing value of the index on the last trading day.

Stock Futures

Trading in stock futures commenced on the NSE from November 2001. These contracts are cash settled on a T+1 basis. The expiration cycle for stock futures is the same as for index futures, index options and stock options. A new contract is introduced on the trading day following the expiry of the near month contract. Table 5.8 gives the contract specifications for stock futures.

Table 5.8 Contract specification: Stock futures

Underlying	Individual securities
Exchange of trading	National Stock Exchange of India Limited
Security descriptor	N FUTSTK
Contract size	100 or multiples thereof (minimum value of Rs.2 lakh)
Price steps	Re. 0.05
Price bands	Not applicable
Trading cycle	The futures contracts will have a maximum of three month trading cycle - the near month (one), the next month (two) and the far month (three). New contract will be introduced on the next trading day following the expiry of near month contract.
Expiry day	The last Thursday of the expiry month or the previous trading day if the last Thursday is a trading holiday. Settlement basis Mark to market and final settlement will be cash settled on T+1 basis.
Settlement price	Daily settlement price will be the closing price of the futures contracts for the trading day and the final settlement price shall be the closing price of the underlying security on the last trading day.

Stock Options

Trading in stock options commenced on the NSE from July 2001. These contracts are American style and are settled in cash. The expiration cycle for stock options is the same as for index futures and index options. A new contract is introduced on the trading day following the expiry of the near month contract. NSE provides a minimum of seven strike prices for every option type (i.e. call and put) during the trading month. There are at least three in-the-money contracts, three out-of-the-money contracts and one at-the-money contract available for trading. Table 5.9 gives the contract specifications for stock options.

Table 5.9 Contract specification: Stock options

Underlying	Individual securities available for trading in cash market
Exchange of trading	National Stock Exchange of India Limited
Security descriptor	N OPTSTK
Style of option	American.
Strike price interval	Between Rs.2.5 and Rs. 50 depending on the price of the underlying
Contract size	100 or multiples thereof (minimum value of Rs.2 lakh)
Price steps	Re. 0.05
Price bands	Not applicable
Trading cycle	The options contracts will have a maximum of three month trading cycle - the near month (one), the next month (two) and the far month (three). New contract will be introduced on the next trading day following the expiry of near month contract.
Expiry day	The last Thursday of the expiry month or the previous trading day if the last Thursday is a trading holiday.
Settlement basis	Daily settlement on T+1 basis and final option exercise settlement on T+2 basis
Daily settlement price	Premium value (net)
Final settlement price	Closing price of underlying on exercise day or expiry day
Settlement day	Last trading day

Interest Rate Futures

Interest Rate Futures contract on the F&O Segment of the Exchange was launched on June 24, 2003. Interest Rate Futures Contracts are contracts based on the list of underlying specified by the Exchange and approved by SEBI from time to time. Table 5.10 gives the contract specifications for Interest Rate Derivatives. From June 24, 2003, interest rate futures contracts on underlying, namely, Notional T-Bills and Notional 10 year bonds (coupon bearing and non-coupon bearing) are made available for trading on the F&O Segment of the Exchange.

The Futures contracts having face value of Rs 100 on notional ten year coupon bearing bond and notional ten year zero coupon bond would be based on price quotation and Futures contracts having face value of Rs. 100 on notional 91 days treasury bill would be based on Rs. 100 minus (-) the

relevant annualised yield. The underlying securities and their symbols for trading are as under:

S. No.	Symbol	Description
1	NSETB91D	Futures contract on Notional 91 day T bill
2	NSE10Y06	Futures contract on Notional 10 year coupon bearing bond.
3	NSE10YZC	Futures contract on Notional 10 year zero coupon bond.

Table 5.10 Contract specification: Interest Rate Futures

Contract underlying	Notional 10 year bond	Notional 10 year zero coupon bond	Notional 91 day T-Bill
	(6 % coupon)		
Contract descriptor	N FUTINT NSE10Y06 Date- Expiry Month-Year	N FUTINT NSE10YZC Date-Expiry Month-Year	N FUTINT NSETB91D Date-Expiry Month-Year
Exchange of trading:	National Stock Exchange of India Limited		
Contract Value	The minimum value of interest rate futures contract is Rs.2 lakh		
Lot size	The permitted lot size shall be 2000		
Price steps/Tick size	Re.0.01		
Expiry date	Last Thursday of the expiry month. If last Thursday is a trading holiday, the contract shall expire on previous trading day. Further, where the last Thursday falls on the annual or half-yearly closing dates of the bank, the contract shall expire on previous trading day.		
Trading cycle	The contracts shall be for a period of a maturity of one year with three months continuous contracts for the first three months and fixed quarterly contracts for the entire year.		
Price limits	Not applicable		
Settlement Price	As may be stipulated by NSCCL in this regard from time to time.		
Settlement Basis	Daily Mark-to-Market Settlement and Final settlement will be on T+1 basis		

Base Price & operating ranges:

Base price of the Interest rate future contracts on introduction of new contracts would be theoretical futures price computed based on previous

days' closing price of the notional underlying security. The base price of the contracts on subsequent trading days will be the closing price of the futures contracts. However, on such of those days when the contracts were not traded, the base price will be the daily settlement price of futures contracts. There will be no day minimum/maximum price ranges applicable for the futures contracts. However, in order to prevent / take care of erroneous order entry, the operating ranges for interest rate future contracts shall be kept at +/- 2% of the base price. In respect of orders which have come under price freeze, the members would be required to confirm to the Exchange that the order is genuine. On such confirmation, the Exchange at its discretion may approve such order.

5.4 CLEARING AND SETTLEMENT

5.4.1 Introduction

National Securities Clearing Corporation Limited (NSCCL) undertakes clearing and settlement of all trades executed on the futures and options (F&O) segment of the NSE. It also acts as legal counterparty to all trades on the F&O segment and guarantees their financial settlement. Clearing and settlement activities in the *F&O segment* are undertaken by NSCCL with the help of the following entities:

- **Clearing members:** Primarily, the Clearing Member (CM) performs the following functions:
 1. *Clearing:* Computing obligations of all his TM's i.e. determining positions to settle.
 2. *Settlement:* Performing actual settlement. Currently, all the Futures and Options contracts are cash settled.
 3. *Risk Management:* Setting position limits based on upfront deposits / margins for each TM and monitoring positions on a continuous basis.

In the F&O segment, some members, called **self clearing** members, clear and settle their trades executed by them only either on their own account or on account of their clients. Some others, called **trading member-cum-clearing member (TM-CM)**, clear and settle their own trades as well as trades of other trading members (TMs). Besides, there is a special category of members, called **professional clearing members (PCM)** who clear and settle trades executed by TMs. The members clearing their own trades and trades of others, and the PCMs are required to bring in additional security deposits in respect of every TM whose trades they undertake to clear and settle.

Clearing Member Eligibility Norms

- a. Net worth of atleast Rs.300 lakh. The net worth requirement for a CM who clears and settles only deals executed by him is Rs. 100 lakh.
 - b. Deposit of Rs. 50 lakh to NSCCL which forms the Base Minimum Capital (BMC) of the CM.
 - c. Additional incremental deposits of Rs.10 lakh to NSCCL for each additional TM in case the CM undertakes to clear and settle deals for other TMs.
- **Clearing banks:** Funds settlement takes place through clearing banks. NSCCL has empanelled 10 clearing banks. Every Clearing Member is required to open a separate bank account with any one of the empanelled clearing banks at the designated clearing bank branches for F&O segment. The clearing account is to be used exclusively for clearing & settlement operations.

SEBI, in order to further strengthen the norms in derivatives segment, has adopted the recommendations suggested by the Advisory Committee on Derivatives which include:

(i) Separation of Cash and Derivatives Segment of an Exchange and its clearing house/corporation in the following areas:

- Legal framework governing trading, clearing and settlement of the derivatives segment (Regulations and/or Bye-laws) shall be separated from cash market segment,
- TGF/SGF of the derivatives segment shall be separate from the TGF/SGF of cash market segment,
- Membership of the derivatives segment shall be separate from the cash market segment,
- The governing council/clearing council/executive committee of the derivatives segment shall also be separate from the cash market segment.

(ii) Functional, Operational and administrative modalities shall be separated at the discretion of the exchange.

5.4.2 Clearing mechanism

The first step in clearing process is working out open positions and obligations of clearing (self-clearing/trading-cum-clearing/professional clearing) members (CMs). The open positions of a CM is arrived at by aggregating the open positions of all the trading members (TMs) and all custodial participants (CPs) clearing through him, in the contracts which they have traded. The open position of a TM is arrived at by summing up his proprietary open position and clients' open positions, in the contracts which they have traded. While entering orders on the trading system, TMs identify

orders as either proprietary or client through 'Pro / Cli' indicator provided in the order entry screen. Proprietary positions are calculated on net basis (buy - sell) for each contract and that of clients are arrived at by summing together net positions of each individual client i.e., a buy trade is off-set by a sell trade and a sell trade is off-set by a buy trade. A TM's open position is the sum of proprietary open position, client open long position and client open short position.

5.4.3 Settlement mechanism

The settlement amount for a CM is netted across all their TMs/clients, with respect to their obligations on MTM, premium and exercise settlement.

Settlement of futures contracts on Index or Individual Securities

Futures contracts have two types of settlements, the MTM settlement which happens on a continuous basis at the end of each day, and the final settlement which happens on the last trading day of the futures contract.

MTM settlement: All futures contracts for each member are marked-to-market (MTM) to the daily settlement price of the relevant futures contract at the end of each day.

The CMs who have a loss are required to pay the mark-to-market (MTM) loss amount in cash which is in turn passed on to the CMs who have made a MTM profit. This is known as daily mark-to-market settlement. CMs are responsible to collect and settle the daily MTM profits/losses incurred by the TMs and their clients clearing and settling through them. Similarly, TMs are responsible to collect/pay losses/profits from/to their clients by the next day. The pay-in and pay-out of the mark-to-market settlement are affected on the day following the trade day (T+1). The mark to market losses or profits are directly debited or credited to the CMs clearing bank account. In case a futures contract is not traded on a day, or not traded during the last half an hour, a 'theoretical settlement price' for unexpired futures contracts is computed as per the following formula:

$$F = S * e^{rT}$$

where

F = Theoretical futures price

S = Value of the underlying index

r = Cost of financing (using continuously compounded interest rate) or rate of interest (MIBOR)

T = Time till expiration

e = 2.71828

After completion of daily settlement computation, all the open positions are reset to the daily settlement price. Such positions become the open positions for the next day.

Final settlement for futures: On the expiry day of the futures contracts, after the close of trading hours, NSCCL marks all positions of a CM to the final settlement price and the resulting profit/loss is settled in cash. Final settlement of future contracts is similar to the daily settlement process except for the method of computation of final settlement price. The final settlement profit / loss is computed as the difference between trade price or the previous day's settlement price, as the case may be, and the final settlement price of the relevant futures contract. Final settlement loss/profit amount is debited/ credited to the relevant CM's clearing bank account on the day following expiry day of the contract. Open positions in futures contracts cease to exist after their expiration day

Settlement prices for futures: Daily settlement price for an Index Futures Contract shall be the closing price of such Index Futures Contract on the trading day. The closing price for an index futures contract shall be calculated on the basis of the last half an hour weighted average price of such index futures contract or such other price as may be decided by the relevant authority from time to time.

Daily settlement price for a futures contract on an individual security shall be the closing price of such Futures Contract on the trading day. The closing price for each futures contract on individual security shall be calculated on the basis of the last half an hour weighted average price of such futures contract or such other price as may be decided by the relevant authority from time to time.

Final settlement price for an Index Futures Contract shall be the closing value of the relevant underlying Index in the Normal Market of the Capital Market segment of National Stock Exchange on the last trading day of such Futures Contract. The closing price shall be the last half an hour weighted average price of the relevant underlying index or such other price as may be decided by the relevant authority from time to time.

Final settlement price for a futures contract on an individual security shall be the closing price of the relevant underlying security in the Normal Market of the Capital Market segment of National Stock Exchange on the last trading day of such Futures Contract. The closing price shall be the last half an hour weighted average price of the relevant underlying security or such other price as may be decided by the relevant authority from time to time.

Settlement of options contracts on Index or Individual Securities

Options contracts have three types of settlements, daily premium settlement, interim exercise settlement in the case of option contracts on securities and final settlement.

Daily premium settlement: Buyer of an option is obligated to pay the premium towards the options purchased by him. Similarly, the seller of an option is entitled to receive the premium for the option sold by him. The premium payable amount and the premium receivable amount are netted across all option contracts to compute the net premium payable or receivable amount for each client for each option contract at the end of each day. Premium settlement is cash settled and settlement style is premium style. The CMs who have a premium payable position are required to pay the premium amount to NSCCL which is in turn passed on to the members who have a premium receivable position. This is known as daily premium settlement. CMs are responsible to collect and settle for the premium amounts from the TMs and their clients clearing and settling through them. The pay-in and pay-out of the premium settlement is on T+1 days (T = Trade day). The premium payable amount and premium receivable amount are directly debited or credited to the CMs clearing bank account.

Interim exercise settlement: Interim exercise settlement takes place only for option contracts on securities. An investor can exercise his in-the-money options at any time during trading hours, through his trading member. Interim exercise settlement is effected for such options at the close of the trading hours, on the day of exercise. Valid exercised option contracts are assigned to short positions in the option contract with the same series (i.e. having the same underlying, same expiry date and same strike price), on a random basis, at the client level. The CM who has exercised the option receives the exercise settlement value per unit of the option from the CM who has been assigned the option contract. The interim exercise settlement value is the difference between the strike price and the settlement price of the relevant option contract. Exercise settlement value is debited/ credited to the relevant CMs clearing bank account on T+2 day (T= exercise date). Interim Exercise settlement price for an option contract is the closing price of the relevant underlying security in the Normal Market of the Capital market segment of National Stock Exchange, on the day of exercise of the Option Contract. The closing price of the relevant underlying security shall be calculated on the basis of the last half an hour weighted average price of the relevant underlying security or such other price as may be decided by the relevant authority from time to time.

Final exercise settlement: Final exercise settlement is effected for all open long in-the-money strike price options existing at the close of trading hours, on the expiration day of an option contract. All such long positions are exercised and automatically assigned to short positions in option contracts with the same series, on a random basis. The investor who has long in-the-money options on the expiry date will receive the exercise settlement value per unit of the option from the investor who has been assigned the option contract. For index options contracts, exercise style is

European style, while for options contracts on individual securities, exercise style is American style. Final Exercise is Automatic on expiry of the option contracts.

Final settlement loss/ profit amount for option contracts on Index is debited/ credited to the relevant CMs clearing bank account on T+1 day (T = expiry day). On the other hand, final settlement loss/ profit amount for option contracts on Individual Securities is debited/ credited to the relevant CMs clearing bank account on T+2 day (T = expiry day). Open positions, in option contracts, cease to exist after their expiration day.

Final Exercise settlement price for an option contract shall be the closing price of the relevant underlying security in the Normal Market of the Capital market segment of National Stock Exchange, on the last trading day of the Options Contract. The closing price of the relevant underlying security shall be calculated on the basis of the last half an hour weighted average price of the relevant underlying security or such other price as may be decided by the relevant authority from time to time.

Exercise process: The period during which an option is exercisable depends on the style of the option. On NSE, index options are European style, i.e. options are only subject to automatic exercise on the expiration day, if they are in-the-money. As compared to this, options on securities are American style. In such cases, the exercise is automatic on the expiration day, and voluntary prior to the expiration day of the option contract, provided they are in-the-money. Automatic exercise means that all in-the-money options would be exercised by NSCCL on the expiration day of the contract. The buyer of such options need not give an exercise notice in such cases. Voluntary exercise means that the buyer of an in-the-money option can direct his TM/CM to give exercise instructions to NSCCL. In order to ensure that an option is exercised on a particular day, the buyer must direct his TM to exercise before the cut-off time for accepting exercise instructions for that day. Usually, the exercise requests will be accepted by the system till the close of exercise period. An option, which expires unexercised, becomes worthless. Some TMs may accept standing instructions to exercise, or have procedures for the exercise of every option, which is in-the-money at expiration. Once an exercise instruction is given by a CM to NSCCL, it cannot ordinarily be revoked. Exercise notices given by a buyer at anytime on a day are processed by NSCCL after the close of trading hours on that day. All exercise notices received by NSCCL from the NEAT F&O system are processed to determine their validity. Some basic validation checks are carried out to check the open buy position of the exercising client/TM and if option contract is in-the-money. Once exercised contracts are found valid, they are assigned.

Assignment process: The exercise notices are assigned in standardised market lots to short positions in the option contract with the same series (i.e. same underlying, expiry date and strike price) at the client level.

Assignment to the short positions is done on a random basis. NSCCL determines short positions, which are eligible to be assigned and then allocates the exercised positions to any one or more short positions. Assignments are made at the end of the trading day on which exercise instruction is received by NSCCL and notified to the members on the same day.

Exercise settlement computation: The exercise settlement price is the closing price of the underlying (index or security) on the exercise day (for interim exercise) or the expiry day of the relevant option contract (final exercise). The exercise settlement value is the difference between the strike price and the final settlement price of the relevant option contract. For call options, the exercise settlement value receivable by a buyer is the difference between the final settlement price and the strike price for each unit of the underlying conveyed by the option contract, while for put options it is difference between the strike price and the final settlement price for each unit of the underlying conveyed by the option contract. Settlement of exercises of options on securities is currently by payment in cash and not by delivery of securities. It takes place for in-the-money option contracts. The exercise settlement value for each unit of the exercised contract is computed as follows:

Call options = Closing price of the security on the day of exercise - Strike price

Put options = Strike price - Closing price of the security on the day of exercise

For final exercise, the closing price of the underlying security is taken on the expiration day. The exercise settlement by NSCCL would ordinarily take place on 2nd day following the day of exercise. Members may ask for clients who have been assigned to pay the exercise settlement value earlier.

Settlement of institutional deals

NSCCL provides a special facility to Institutions/Foreign Institutional Investors (FIIs)/Mutual Funds etc. to execute trades through any TM, which may be cleared and settled by their own CM. Such entities are called **custodial participants (CPs)**. To avail of this facility, a CP is required to register with NSCCL through his CM. A unique CP code is allotted to the CP by NSCCL. All trades executed by a CP through any TM are required to have the CP code in the relevant field on the F&O trading system at the time of order entry. Such trades executed on behalf of a CP are confirmed by their own CM (and not the CM of the TM through whom the order is entered), within the time specified by NSE on the trade day through the on-line confirmation facility. Till such time the trade is confirmed by CM of

concerned CP, the same is considered as a trade of the TM and the responsibility of settlement of such trade vests with CM of the TM. Once confirmed by CM of concerned CP, such CM is responsible for clearing and settlement of deals of such custodial clients.

FII's have been permitted to trade in all the exchange traded derivative contracts subject to compliance of the position limits prescribed for them and their sub-accounts, and compliance with the prescribed procedure for settlement and reporting. A FII/a sub-account of the FII, as the case may be, intending to trade in the F&O segment of the exchange, is required to obtain a unique Custodial Participant (CP) code allotted from the NSCCL. FII's/sub-accounts of FII's which have been allotted a unique CP code by NSCCL are only permitted to trade on the F&O segment. The FII/sub-account of FII ensures that all orders placed by them on the Exchange carry the relevant CP code allotted by NSCCL.

Settlement Procedure & Settlement Price of Interest rate Futures Contracts

Daily Mark to Market Settlement and Final settlement for Interest Rate Futures Contract:

- Daily Mark to Market settlement and Final Mark to Market settlement in respect of admitted deals in Interest Rate Futures Contracts shall be cash settled by debiting/ crediting of the clearing accounts of Clearing Members with the respective Clearing Bank.
- All positions (brought forward, created during the day, closed out during the day) of a F&O Clearing Member in Futures Contracts, at the close of trading hours on a day, shall be marked to market at the Daily Settlement Price (for Daily Mark to Market Settlement) and settled.
- All positions (brought forward, created during the day, closed out during the day) of a F&O Clearing Member in Futures Contracts, at the close of trading hours on the last trading day, shall be marked to market at Final Settlement Price (for Final Settlement) and settled.
- Daily Settlement Price shall be the closing price of the relevant Futures contract for the Trading day.
- Final settlement price for an Interest rate Futures Contract shall be based on the value of the notional bond determined using the zero coupon yield curve computed by National Stock Exchange or by any other agency as may be nominated in this regard.
- Open positions in a Futures contract shall cease to exist after its expiration day.

Daily Settlement Price: Daily settlement price for an Interest Rate Futures Contract shall be the closing price of such Interest Rate Futures Contract on the trading day. The closing price for an interest rate futures contract shall

be calculated on the basis of the last half an hour weighted average price of such interest rate futures contract. In absence of trading in the last half an hour, the theoretical price would be taken or such other price as may be decided by the relevant authority from time to time. Theoretical daily settlement price for unexpired futures contracts, shall be the futures prices computed using the (price of the notional bond) spot prices arrived at from the applicable ZCYC Curve. The ZCYC shall be computed by the Exchange or by any other agency as may be nominated in this regard from the prices of Government securities traded on the Exchange or reported on the Negotiated Dealing System of RBI or both taking trades of same day settlement (i.e. $t = 0$).

In respect of zero coupon notional bond, the price of the bond shall be the present value of the principal payment discounted using discrete discounting for the specified period at the respective zero coupon yield. In respect of the notional T-bill, the settlement price shall be 100 minus the annualized yield for the specified period computed using the zero coupon yield curve. In respect of coupon bearing notional bond, the present value shall be obtained as the sum of present value of the principal payment discounted at the relevant zero coupon yield and the present values of the coupons obtained by discounting each notional coupon payment at the relevant zero coupon yield for that maturity. For this purpose the notional coupon payment date shall be half yearly and commencing from the date of expiry of the relevant futures contract.

For computation of futures prices from the price of the notional bond (spot prices) thus arrived, the rate of interest may be the relevant MIBOR rate or such other rate as may be specified from time to time.

Final Settlement Price for mark to market settlement of interest rate futures contracts:

Final settlement price for an Interest rate Futures Contract on zero coupon notional bond and coupon bearing bond shall be based on the price of the notional bond determined using the zero coupon yield curve computed as explained above. In respect of notional T-bill it shall be 100 minus the annualised yield for the specified period computed using the zero coupon yield curve.

Settlement value in respect of notional T-bill: Since the T-bills are priced at 100 minus the relevant annualised yield, the settlement value shall be arrived at using the relevant multiplier factor. Currently it shall be 91/365

Settlement Schedule:

Product	Settlement	Schedule
Futures Contracts on Index & Individual Securities	Daily Mark-to-Market Settlement	Pay-in : T+1 working day at or after 11.30 a.m. Payout : T+1 working day at or after 12.00 p.m. (T is trade day)
Futures Contracts on Index & Individual Securities	Final Settlement	Pay-in : T+1 working day at or after 11.30 a.m. Payout : T+1 working day at or after 12.00 p.m. (T is expiration day of contract)
Interest Rate Futures Contracts	Daily Mark-to-Market Settlement	Pay-in : T+1 working day on or after 11.30 a.m. Payout : T+1 working day on or after 12.00 p.m. (T is trading day)
Interest Rate Futures Contracts	Final Settlement	Pay-in : T+1 working day on or after 11.30 a.m. Payout : T+1 working day on or after 12.00 p.m. (T is expiration day)
Options Contracts on Index & Individual Securities	Premium Settlement	Pay-in : T+1 working day at or after 11.30 a.m. Payout : T+1 working day at or after 12.00 p.m. (T is trade day)
Options Contracts on Index	Exercise & Final Settlement	Pay-in : T+1 working day at or after 11.30 a.m. Payout : T+1 working day at or after 12.00 p.m. (T is expiration day of contract)
Options Contract on Individual Securities	Interim Exercise Settlement	Pay-in : T+2 working day at or after 11.30 a.m. Payout : T+2 working day at or after 12.00 p.m. (T is exercise day)
Options Contract on Individual Securities	Exercise & Final Settlement	Pay-in : T+2 working day at or after 11.30 a.m. Payout : T+2 working day at or after 12.00 p.m. (T is expiration day)

5.4.4 Risk management

NSCCL has developed a comprehensive risk containment mechanism for the F&O segment. The salient features of risk containment mechanism on the F&O segment are:

1. The financial soundness of the members is the key to risk management. Therefore, the requirements for membership in terms of capital adequacy (net worth, security deposits) are quite stringent.
2. NSCCL charges an upfront initial margin for all the open positions of a CM. It specifies the initial margin requirements for each futures/options contract on a daily basis. It also follows value-at-risk (VaR) based margining through SPAN. The CM in turn collects the initial margin from the TMs and their respective clients.
3. The open positions of the members are marked to market based on contract settlement price for each contract. The difference is settled in cash on a T+1 basis.
4. NSCCL's on-line position monitoring system (PRISM) monitors a CM's open positions on a real-time basis. Limits are set for each CM based on his capital deposits. The on-line position monitoring system generates alerts whenever a CM reaches a position limit set up by NSCCL. Clearing members are automatically disabled after exceeding prescribed limits.
5. CMs are provided a trading terminal for the purpose of monitoring the open positions of all the TMs clearing and settling through him. A CM may set exposure limits for a TM clearing and settling through him. NSCCL assists the CM to monitor the intra-day exposure limits set up by a CM and whenever a TM exceed the limits, it stops that particular TM from further trading.
6. A member is alerted of his position to enable him to adjust his exposure or bring in additional capital. Position violations result in withdrawal of trading facility for all TMs of a CM in case of a violation by the CM.
7. A separate settlement guarantee fund for this segment has been created out of the capital of members. The fund had a balance of Rs. 1300.22 crore at the end of March 2003.

The most critical component of risk containment mechanism for F&O segment is the margining system and on-line position monitoring. The actual position monitoring and margining is carried out on-line through Parallel Risk Management System (PRISM). PRISM uses SPAN(r) (Standard Portfolio Analysis of Risk) system which is a portfolio based system, for the purpose of computation of on-line margins, based on the parameters defined by SEBI.

NSE-SPAN

The objective of NSE-SPAN is to identify overall risk in a portfolio of all futures and options contracts for each member. The system treats futures and options contracts uniformly, while at the same time recognising the unique exposures associated with options portfolios, like extremely deep out-of-the-money short positions, inter-month risk and inter-commodity risk.

As SPAN is used to determine performance bond requirements (margin requirements), its over-riding objective is to determine the largest loss that a portfolio might reasonably be expected to suffer from one day to the next day based on 99% VaR methodology.

SPAN considers uniqueness of option portfolios. The following factors affect the value of an option at a given point of time:

- i. Underlying market price.
- ii. Volatility (variability) of underlying instrument, and
- iii. Time to expiration.
- iv. Interest rate
- v. Strike price

As these factors change, the value of options maintained within a portfolio also changes. Thus, SPAN constructs scenarios of probable changes in underlying prices and volatilities in order to identify the largest loss a portfolio might suffer from one day to the next. It then sets the margin requirement to cover this one-day loss.

The complex calculations (e.g. the pricing of options) in SPAN are executed by NSCCL. The results of these calculations are called risk arrays. Risk arrays, and other necessary data inputs for margin calculation are provided to members daily in a file called the SPAN Risk Parameter file. Members can apply the data contained in the Risk Parameter files, to their specific portfolios of futures and options contracts, to determine their SPAN margin requirements.

Hence, members need not execute complex option pricing calculations, which are performed by NSCCL. SPAN has the ability to estimate risk for combined futures and options portfolios, and also re-value the same under various scenarios of changing market conditions.

Margins

(A) Initial margin: Initial margin shall be payable on all open positions of Clearing Members, upto client level, at any point of time, and shall be payable upfront by Clearing Members in accordance with the margin computation mechanism and/ or system as may be adopted by Clearing Corporation from time to time. In case of Interest rate Futures, presently, the initial margins would be based on the zero coupon yield curve computed at the end of the day as explained above with trades of same day settlement ($t=0$). However, in case of large deviation between the yields generated

using only $t=0$ trades and all trades, initial margins revised accordingly may be computed and collected by the Clearing corporation from the members at its discretion.

Initial Margin shall include SPAN margins, premium margin, assignment margin and such other additional margins, that may be specified by Clearing Corporation from time to time.

Computation of Initial Margin

Clearing Corporation will adopt SPAN (Standard Portfolio Analysis of Risk) system or any other system for the purpose of real time initial margin computation.

Initial margin requirements shall be based on 99% value at risk over a one day time horizon. Provided, however, in the case of futures contracts, whether on index, on individual securities or on Interest rate futures, where it may not be possible to collect mark to market settlement value, before the commencement of trading on the next day, the initial margin may be computed over a two day time horizon, applying the appropriate statistical formula. The methodology for computation of Value at Risk percentage will be as per the recommendations of SEBI from time to time.

Initial margin requirement for a member:

(a) For client positions - shall be netted at the level of individual client and grossed across all clients, at the Trading/ Clearing Member level, without any setoffs between clients.

(b) For proprietary positions - shall be netted at Trading/ Clearing Member level without any setoffs between client and proprietary positions.

For the purpose of SPAN Margin, various parameters shall be as specified hereunder or such other parameters as may be specified by the relevant authority from time to time:

Calendar Spread Charge: In the case of Futures and Options contracts on Index and Individual securities, the margin on calendar spread shall be calculated on the basis of delta of the portfolio consisting of futures and options contracts in each month.

For the Futures contracts on Interest rate, the margin on calendar spread shall be calculated at a flat rate of 0.125% per month of spread on the far month contract subject to a minimum margin of 0.25% and a maximum margin of 0.75% on the far side of the spread with legs upto 1 year apart.

A Calendar spread positions will be treated as non-spread (naked) positions in the far month contract, 3 trading days prior to expiration of the near month contract.

Short Option Minimum Charge:

Index Options: Short option minimum charge will be equal to 3% of the notional value of all short index option positions. Notional value, with

respect to an option contract, is computed as the product of the short open position in that option contract multiplied by the previous day's closing price of the underlying security, or such other price as may be specified by Clearing Corporation from time to time.

Options on individual securities: Short option minimum charge will be equal to 7.5 % of the notional value of all short positions in options on individual stocks. Notional value, with respect to an option contract, is computed as the product of the short open position in that option contract multiplied by the previous day's closing price of the underlying security, or such other price as may be specified by Clearing Corporation from time to time.

Net Option Value

Net Option Value is computed as the difference between the Long Option positions and the Short Option positions, valued at the last available closing price of the relevant option contract.

Minimum Percentage for Margins on Futures Contracts:

- The minimum margin percentage on index futures shall be 5% which will be scaled up by look ahead period as may be specified from time to time
- The minimum margin percentage on stock futures shall be 7.5% which will be scaled up by look ahead period as may be specified from time to time.
- The minimum percentage of margins for the Futures contract on the Notional 10 year bond (both coupon bearing and zero coupon) will be 2% and 0.2% for the futures on notional 91 day T-Bill which will be scaled up scaled up by look ahead period as may be specified from time to time

(B) Premium margin:

Premium Margin shall mean and include premium amount due to be paid to Clearing Corporation towards Premium settlement, at the client level.

Premium margin for a day shall be levied till the completion of pay-in towards the Premium Settlement.

Assignment Margin for option contracts on individual securities

Assignment Margin shall be levied on assigned positions of Clearing Members towards Interim and Final Exercise Settlement obligations for option contracts on individual securities, till such obligations are fulfilled.

Assignment margin shall be the Net Exercise Settlement Value payable by a Clearing Member towards Interim and Final Exercise Settlement and shall be deductible from the effective deposits of such Clearing Member available towards margins.

Such amount charged towards assignment margin will be available to the Clearing Member towards initial margins and exposure on the Exercise Settlement payin day

Exposure Limits (2nd line of defense)

Clearing Members shall be subject to Exposure limits in addition to initial margins. Liquid Networth of a Clearing member at any point of time should exceed the Exposure Limit as detailed hereunder:

Index Futures contracts: Exposure Limit shall be 33.33 times the liquid networth i.e. 3% of the notional value of the futures positions, based on the last available trading price of the relevant futures contract shall not exceed the liquid networth.

Short Index Options contracts: Exposure Limit shall be 33.33 times the liquid networth i.e. 3% of the notional value of the option positions, based on the last available closing price of the relevant underlying security shall not exceed the liquid networth.

Futures contracts on individual Securities: The Exposure limits which is higher of 5% or 1.5 standard deviation of the notional value of gross open position in futures on individual securities in a particular underlying shall be collected /adjusted from the liquid networth of a member on a real time basis. For this purpose, the standard deviation of daily logarithmic returns of prices in the underlying stock in the cash market in the last six months shall be computed on a rolling and monthly basis at the end of each month. The applicable exposure limits shall be intimated by NSCCL from time to time by way of circular.

Futures contracts on Interest rate futures: Exposure Limit shall be 100 times the liquid net worth i.e. 1% of the notional value of the gross open positions in Notional 10 year bond futures (both coupon bearing and zero coupon) and shall be 1000 times the liquid net worth i.e. 0.1% of the gross open positions in notional 91 day T-Bill futures.

Short Option contracts on individual Securities: The Exposure limits which is higher of 5% or 1.5 standard deviation of the gross short open positions in options on individual securities in a particular underlying shall be collected /adjusted from the liquid networth of a member on a real time basis. For this purpose, the standard deviation of daily logarithmic returns of prices in the underlying stock in the cash market in the last six months shall be computed on a rolling and monthly basis at the end of each month. The applicable exposure limits shall be intimated by NSCCL from time to time by way of circular.

Exposure limits in case of calendar spread positions in futures contract shall be treated as open position of one third of the value of the far month futures contract. However the spread positions shall be treated as a naked position in far month contract three trading days prior to expiry of the near month contract.

Trading Member-wise Position Limit

Index Futures and Option Contracts:

Each Trading Member shall ensure that his individual open interest does not exceed at anytime, including during trading hours, 15% of the open interest of all derivative contracts on the same underlying or Rs. 100 crore, whichever is higher, in all the futures and option contracts on the same underlying. Any clearing member or trading member, if fails to comply with this limit, shall be liable for action for violating the limit as specified hereinafter in item 7.

Futures and Option contracts on individual securities:

The trading member position limits shall be linked to market wide limits. For securities, in which the market wide position limit is less than or equal to Rs.250 crore, the trading member limit in such securities shall be 20% of the market wide position limit. For securities, in which the market wide position limit is greater than Rs.250 crore, the trading member position limit in such stocks shall be Rs.50 crore. The Trading member position limit shall be revised on a monthly basis and intimated by NSCCL from time to time.

The positions of all FIIs/Sub accounts shall be monitored at the end of the day for limits of 7.5 % of the open interest of all derivative contracts on the same underlying or Rs. 50 crore, whichever is higher, in all the futures and option contracts on the same underlying security, as per existing applicable position limits

Any clearing member, trading member, or FII, if fails to comply with this limit, shall be liable for action for violating the limit as specified hereinafter in item 7.

For futures contracts open interest shall be equivalent to the open positions in that futures contract multiplied by its last available closing price. For option contracts, open interest shall be equivalent to the open positions multiplied by the notional value. Notional value with respect to an option contract is computed as the product of the open position in that option contract multiplied by the last available closing price of the underlying.

Client Level Position Limits

The gross open position across all the derivative contracts on the specified underlying for each specific client shall not exceed higher of:

- 1% of the free float market capitalization (in terms of number of shares)
- OR

- 5% of the open interest in all derivative contracts in the same underlying stock (in terms of number of shares)

It shall be mandatory for the Clearing Members/ Trading Members to ensure that their individual clients trading/ clearing through them comply with the above limits.

Client wise position limits for Interest rate Futures Contracts:

Each Trading Member/ Clearing Member shall ensure that his clients do not exceed the specified position limit. The position limits shall be at the client level and for near month contracts and shall be 15% of the open interest or Rs. 100 crore, whichever is higher

Market Wide Position Limits for derivative contracts on underlying stocks

Market Wide Position Limits for futures and options contracts on individual securities shall be lower of:

- 30 times the average number of shares traded daily, during the previous calendar month, in the relevant underlying security in the underlying segment of the relevant Exchange or,
- 10% of the number of shares held by non-promoters in the relevant underlying security i.e. 10% of the free float in terms of the number of shares of a company

The relevant authority shall specify the market wide position limits on the last trading day of the previous month which shall be reckoned for this purpose during the next month.

5.5 MARKET OUTCOME

The performance of derivatives markets can be analysed on the basis of various parameters like prices, turnover, open interest and cost of carry. The interplay of prices, volumes and open interest indicates the health of the market. Generally, if prices, volumes and open interest are rising, the market is healthy. If the prices are rising, while volume and open interest are falling, then the market is weakening.

Turnover

The F&O segment reported a total turnover of Rs. 439855 crore during 2002-03 as against Rs. 1,01,925 crore during the preceding year. The turnover witnessed a sharp rise with the introduction of stock futures in November 2001. NSE recorded all time high turnover in Derivatives Segment on June 26, 2003 recorded - Rs. 5114.70 crore. The previous highest was Rs. 4582.10 crore recorded on June 25, 2003. S&P CNX Nifty futures

(Table:5.11)

recorded a volume of Rs. 516.67 crore. S&P CNX Nifty options recorded a volume of Rs. 88.83 crore, Options on individual securities recorded a volume of Rs. 1053.03 crore, Futures on Individual Securities recorded a volume of Rs.3426.06 crore and Interest futures recorded a volume of Rs. 30.11 crore. Futures on Individual Securities have recorded a new high in volumes. The previous high was Rs.2891.70 crore on June 25, 2003. The business growth of the F&O segment is presented in Table 5.11. The trading volumes in the F&O segment indicate that near month contracts are more popular than not-so-near month contracts; futures are more popular than options; contracts on securities are more popular than those on indexes; and call options are more popular than put options. The volumes are expected to pick up substantially as the ongoing reforms in the cash market are completed and the institutional bottlenecks like accounting/taxation issues are addressed. The F&O segment provides a nation-wide market.

Open Interest

Open interest is the total number of outstanding contracts that are held by market participants at the end of each day. Putting it simply, open interest is a measure of how much interest is there in a particular option or future. Increasing open interest means that fresh funds are flowing in the market, while declining open interest means that the market is liquidating.

Implied Interest Rate

In the futures market, implied interest rate or cost of carry is often used interchangeably. Cost of carry is more appropriately used for commodity futures, as by definition it means the total costs required to carry a commodity or any other good forward in time. The costs involved are storage cost, insurance cost, transportation cost, and the financing cost. In case of equity futures, the carry cost is the cost of financing minus the dividend returns. Assuming zero dividend, the only relevant factor is the cost of financing.

One could work out the implied interest rate incorporated in futures prices, which is the percentage difference between the future value of an index and the spot value, annualised on the basis of the number of days before the expiry of the contract. Carry cost or implied interest rate plays an important role in determining the price differential between the spot and the futures market. By comparing the implied interest rate and the existing interest rate level, one can determine the relative cost of futures' market price. Implied interest rate is also a measure of profitability of an arbitrage position. Theoretically, if the futures price is less than the spot price plus cost of carry or if the futures price is greater than the spot price plus cost of carry, arbitrage opportunities exist.

Nifty futures close prices for the near month contracts, which are most liquid, and the spot Nifty close values from June 2000 to June 2001. The difference between the future price and the spot price is called *basis*. As the time to expiration of a contract reduces, the basis reduces.

Implied Volatility

Volatility is one of the important factors, which is taken into account while pricing options. It is a measure of the amount and speed of price changes, in either direction. Everybody would like to know what future volatility is going to be. Since it is not possible to know future volatility, one tries to estimate it. One way to do this is to look at historical volatility over a certain period of time and try to predict the future movement of the underlying. Alternatively, one could work out implied volatility by entering all parameters into an option pricing model and then solving for volatility. For example, the Black Scholes model solves for the fair price of the option by using the following parameters – days to expiry, strike price, spot price, volatility of underlying, interest rate, and dividend. This model could be used in reverse to arrive at implied volatility by putting the current price of the option prevailing in the market.

Putting it simply, implied volatility is the market's estimate of how volatile the underlying will be from the present until the option's expiration, and is an important input for pricing options - when volatility is high, options premiums are relatively expensive; when volatility is low, options premiums are relatively cheap. However, implied volatility estimate can be biased, especially if they are based upon options that are thinly traded. Options trading was introduced at NSE only in June 2001. The data points are therefore quite limited to enable meaningful estimates of implied volatility.

Settlement and Risk Management

All derivative contracts are currently cash settled. During 2002-03, such cash settlement amounted to Rs. 2311 crore. The settlement of futures and options involved around Rs. 1786 crore and 525 crore respectively. The details of settlement of F&O segment is presented in Table 5.12. the Settlement Guarantee Fund of the F&O segment had a balance of Rs. 1300.22 crore at the end of March 2003.

Table 5.12 Settlement Statistics in F & O Segment (Rs. Crore)

Month/Year	Index / Stock Futures		Index / Stock Options		Total	SGF *
	MTM Settlement	Final Settlement	Premium Settlement	Exercise Settlement		
2002-2003	1737.9	45.76	331.21	195.88	2310.8	1300
Mar-03	187.89	3.84	33.84	19.63	245.21	1300
Feb-03	148.42	1.68	28.93	13.14	192.17	1378
Jan-03	218.42	2.99	38.39	22.94	282.74	1315
Dec-02	164.04	5.33	44.64	16.82	230.82	1074
Nov-02	110.93	8.68	33.71	35.34	188.66	984
Oct-02	128.24	7.79	25.8	16.64	178.47	842
Sep-02	119.83	1.44	23.31	13.46	158.05	822
Aug-02	102.1	2.88	20.46	13.89	139.33	819
Jul-02	160.88	1.7	23.6	10.67	196.85	725
Jun-02	124.05	3.44	19.7	10.35	157.54	714
May-02	166.54	1.84	21.53	14.35	204.26	682
Apr-02	106.56	4.15	17.3	8.65	136.66	655
2001-2002	505.25	21.93	164.76	93.95	785.88	648
Mar-02	103.62	1.99	17.01	6.81	129.42	648
Feb-02	108.87	12.21	24.4	8.86	154.34	-
Jan-02	112.53	2.17	30.57	17.75	163.02	-
Dec-01	78.94	3.76	17.47	8.21	108.38	-
Nov-01	28.38	0.71	24.55	20.21	73.85	-
Oct-01	11.27	0.1	17.96	11.42	40.75	-
Sep-01	33.69	0.5	15.62	13.91	63.72	-
Aug-01	4.59	0.14	9.83	5.06	19.62	-
Jul-01	6.7	0.14	5.88	1.43	14.15	-
Jun-01	4.85	0.01	1.47	0.28	6.61	-
May-01	3.78	0.11	-	-	3.89	-
Apr-01	8.04	0.09	-	-	8.13	-
2000-2001	84.08	1.93	-	-	86.01	-
Mar-01	33.56	0.06	-	-	33.62	-
Feb-01	16.14	0.51	-	-	16.65	-
Jan-01	11.94	0.11	-	-	12.05	-
Dec-00	9.82	0.69	-	-	10.5	-
Nov-00	4.65	0.07	-	-	4.72	-
Oct-00	3.42	0.27	-	-	3.69	-
Sep-00	2.11	0.13	-	-	2.24	-
Aug-00	0.76	0.03	-	-	0.79	-
Jul-00	1.46	0.04	-	-	1.5	-
Jun-00	0.22	0.01	-	-	0.23	-

* Settlement Guarantee Fund (SGF) at the end of the period

Model questions

Q. The underlying asset of a derivative contract can be _____.

- (a) only equity
- (b) only interest rate
- (c) only commodities
- (d) all of the above

correct answer: (d)

Q. The losses of option buyer are _____.

- (a) unlimited
- (b) limited to the extent of premium paid
- (c) generally larger than the premium paid
- (d) None of the above

Correct answer: (b)

Q. In the F&O trading system, execution priority of orders stored in the order book is based on:

- (a) Time price priority (i.e. first priority is given to the time of the order entry)
- (b) Price time priority (i.e. first priority is given to the price of the order entry)
- (c) Both price and time is given equal priority
- (d) The first order which comes to the system will get executed first irrespective of the price of the order.

Correct Answer: (b)

Q. The minimum tick for an index options contract is:

- | | |
|----------------|----------------|
| (a) 0.01 Paise | (b) 0.05 Paise |
| (c) 0.10 Paise | (d) 0.50 Paise |

Correct Answer: (b)

Q. The stock options contracts traded at NSE are of _____.

- | | |
|--------------------|--------------------|
| (a) American Style | (b) Asian Style |
| (c) Indian Style | (d) European Style |

Correct answer: (a)

Q. The trading cycle for Interest rate futures contracts may be described as:

- (a) The contracts with a maximum of three month trading cycle-the near month (one), the next month (two) and the far month (three).
- (b) The contracts with a maturity period of one year with three months continuous contracts for the first three months and fixed quarterly contracts for the entire year
- (c) The contracts with a maturity period of one year, with fixed quarterly contracts only.

(d) None of the above.

Correct answer: (b)

Q. Which of the following is false regarding the eligibility of a stock to be traded in the F&O segment?

- (a) The stock shall be chosen from amongst the top 500 stock in terms of average daily market capitalisation and average daily traded value in the previous six month on a rolling basis.
- (b) For a security to be added in the F&O segment that stock's median quarter-sigma order size over the last six months shall be at least Rs.5 lakh.
- (c) Once a security is introduced for trading in the derivatives segment, it will continue to be eligible for trading in derivatives segment, even if the median quarter-sigma order size of the security is less than Rs.5 lakh continuously.
- (d) For unlisted companies coming out with initial public offering, if the net public offer is Rs.500 crore or more, then the exchanges may consider introducing stock options and stock futures on such stocks at the time of its listing in the cash market.

Correct answer: (c)

Q. The security ABC Ltd is having a bonus issue in the ratio 1:1. The market lot of the security, in F&O segment, before the adjustment of the corporate action (bonus issue) is 100. What will be the new market lot of the security after adjustment for bonus issue?

- (a) 50
- (b) 100
- (c) 200
- (d) The market lot will depend on the closing price of the security on the last ex-date. Hence sufficient data is not given in the question.

Correct answer: (c)

Q. For which of the following derivative products/instruments trading facilities on the F&O segment of NSE are not provided currently?

- (a) Index options
- (b) Individual stock futures
- (c) Interest rate futures
- (d) Currency Swaps.

Current answer: (d)

Q. Which of the following order type/condition is not available in the F&O trading system at NSE?

- (a) Market If Touched (MIT)
- (b) Good Till Days/Date (GTD)
- (c) Immediate or Cancel (IOC)
- (d) Stop-Loss orders.

Correct answer: (a)

Q. Mr. Paul has placed a stop-loss buy order for the security XYZ Ltd, in the F&O trading system. The following are the details of the order: the trigger price is kept at Rs.1027.00 and the limit price is kept at Rs.1030.00. This order will be released into the system in which of the following scenarios:

- (a) The market price of the security reaches or exceeds Rs.1027.00
- (b) Only if the market price of the security reaches or exceeds Rs.1030.00
- (c) Only if the market price of the security falls below Rs.1027.00
- (d) The market price of the security reaches or exceeds Rs.1024.00

Correct answer: (a)

Q. Revenue securities Ltd., a trading member in F&O segment has executed a client trade in options segment. Given the following details of the trade, what is the maximum brokerage the trading member can charge from the client for the above trade?

The Strike price of the contract is 250,

Traded premium is 10 and

The traded quantity is 800.

- | | |
|-------------|-------------|
| (a) Rs.520 | (b) Rs.200 |
| (c) Rs.5000 | (d) Rs.5200 |

Correct answer: (d)

Q. Spot value of Nifty is 1240. An investor buys a one month Nifty 1255 call option for a premium of Rs 7. The option is said to be_____.

- | | |
|----------------------|---------------------|
| (a) in-the-money | (b) at-the money |
| (c) out-of-the-money | (d) above-the money |

Correct Answer: (c) out-of-the-money

Q. A stock is current selling at Rs.70. The call option to buy the stock at Rs. 65 costs Rs. 12. What is the time value of the option?

- | | |
|-----------|-----------|
| (a) Rs. 7 | (b) Rs. 5 |
| (c) Rs. 4 | (d) Rs. 2 |

Correct answer: (a)

CHAPTER 6:

REGULATORY FRAMEWORK

This chapter deals with legislative and regulatory provisions relevant for Securities Market in India.

Legislations

The four main legislations governing the securities market are: (a) the Securities Contracts (Regulation) Act, 1956, preventing undesirable transactions in securities by regulating the business of dealing in securities; (b) the Companies Act, 1956, which is a uniform law relating to companies throughout India; (c) the SEBI Act, 1992 for the protection of interests of investors and for promoting development of and regulating the securities market; and (d) the Depositories Act, 1996 which provides for electronic maintenance and transfer of ownership of dematerialised securities.

Rules and Regulations

The Government has framed rules under the SC(R)A, SEBI Act and the Depositories Act. SEBI has framed regulations under the SEBI Act and the Depositories Act for registration and regulation of all market intermediaries, for prevention of unfair trade practices, insider trading, etc. Under these Acts, Government and SEBI issue notifications, guidelines, and circulars, which need to be complied with by market participants. The self-regulatory organisations (SROs) like stock exchanges have also laid down their rules.

Regulators

The regulators ensure that the market participants behave in a desired manner so that the securities market continue to be a major source of finance for corporates and government and the interest of investors are protected. The responsibility for regulating the securities market is shared by Department of Economic Affairs (DEA), Department of Company Affairs (DCA), Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI) and Securities Appellate Tribunal (SAT).

6.1 SECURITIES CONTRACTS (REGULATION) ACT, 1956

The Securities Contracts (Regulation) Act, 1956 [SC(R)A] provides for direct and indirect control of virtually all aspects of securities trading and the running of stock exchanges and aims to prevent undesirable transactions in securities. It gives Central Government regulatory jurisdiction over (a) stock exchanges through a process of recognition and continued supervision, (b) contracts in securities, and (c) listing of securities on stock exchanges. All the three are discussed subsequently in this section. The SC(R)A, 1956 was enacted to prevent undesirable transactions in securities by regulating the business of dealing therein and by providing for certain other matters connected therewith. This is the principal Act, which governs the trading of securities in India. As a condition of recognition, a stock exchange complies with conditions prescribed by Central Government. Organised trading activity in securities takes place on a recognised stock exchange.

Key definitions:

1. Recognised Stock Exchange: 'recognised stock exchange' means a stock exchange which is for the time being recognised by the Central Government under Section 4 of the SC(R)A.
2. Stock Exchange: 'Stock Exchange' means any body of individuals, whether incorporated or not, constituted for the purpose of assisting, regulating or controlling the business of buying, selling or dealing in securities.
3. Securities: As per Section 2(h), the term 'securities' include:
 - (i) shares, scrips, stocks, bonds, debentures, debenture stock or other marketable securities of a like nature in or of any incorporated company or other body corporate, (ii) derivative, (iii) units or any other instrument issued by any collective investment scheme to the investors in such schemes, (iv) security receipt, (v) Government securities, (vi) such other instruments as may be declared by the Central Government to be securities, and (vii) rights or interests in securities.
4. Derivatives: As per section 2 (aa), 'Derivative' includes:
 - A. a security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security;
 - B. a contract which derives its value from the prices, or index of prices, of underlying securities.Further, Section 18A provides that notwithstanding anything contained in any other law for the time being in force, contracts in derivative shall be legal and valid if such contracts are (i) traded on a

recognised stock exchange; and (ii) settled on the clearing house of the recognised stock exchange, in accordance with the rules and bye-laws of such stock exchange.

5. Spot delivery contract: has been defined in Section 2(i) to mean a contract which provides for-
- (a) actual delivery of securities and the payment of a price therefor either on the same day as the date of the contract or on the next day, the actual period taken for the despatch of the securities or the remittance of money therefore through the post being excluded from the computation of the period aforesaid if the parties to the contract do not reside in the same town or locality;
 - (b) transfer of the securities by the depository from the account of a beneficial owner to the account of another beneficial owner when such securities are dealt with by a depository.

As mentioned earlier, the SC(R)A, 1956 deals with

- 1. stock exchanges, through a process of recognition and continued supervision,
- 2. contracts in securities, and
- 3. listing of securities on stock exchanges.

1. Recognition of stock exchanges

By virtue of the provisions of the Act, the business of dealing in securities cannot be carried out without a registration from SEBI. Any Stock Exchange which is desirous of being recognised has to make an application under Section 3 of the Act to SEBI, which is empowered to grant recognition and prescribe conditions. This recognition can be withdrawn in the interest of the trade or public.

SEBI is authorised to call for periodical returns from the recognised Stock Exchanges and make enquiries in relation to their affairs. Every Stock Exchange is obliged to furnish annual reports to SEBI. Recognised Stock Exchanges are allowed to make bylaws for the regulation and control of contracts but subject to the previous approval of SEBI and SEBI has the power to amend the said bylaws. The Central Government and SEBI have the power to supersede the governing body of any recognised stock exchange.

2. Contracts in Securities

Organised trading activity in securities takes place on a recognised stock exchange. If the Central Government is satisfied, having regard to the nature or the volume of transactions in securities in any State or area, that it is necessary so to do, it may, by notification in the Official Gazette, declare provisions of section 13 to apply to such State or area, and thereupon every contract in such State or area which is entered into after date of the notification otherwise than between members of a

recognised stock exchange in such State or area or through or with such member shall be illegal. The effect of this provision clearly is that if a transaction in securities has to be validly entered into, such a transaction has to be either between the members of a recognised stock exchange or through a member of a Stock Exchange.

3. Listing of Securities

Where securities are listed on the application of any person in any recognised stock exchange, such person shall comply with the conditions of the listing agreement with that stock exchange (Section 21). Where a recognised stock exchange acting in pursuance of any power given to it by its bye-laws, refuses to list the securities of any company, the company shall be entitled to be furnished with reasons for such refusal and the company may appeal to Securities Appellate Tribunal (SAT) against such refusal. (Section 22A)

6.2 Securities Contracts (Regulation) Rules, 1957

The Central Government has made Securities Contracts (Regulation) Rules, 1957, as required by sub-section (3) of the Section 30 of the Securities Contracts (Regulation) Act, 1956 for carrying out the purposes of that Act.

Contracts between members of recognised stock exchange

All contracts between the members of a recognised stock exchange shall be confirmed in writing and shall be enforced in accordance with the rules and bye-laws of the stock exchange of which they are members (Rule 9).

Maintenance/Preservation of Books of account and other documents

1. Every member of a recognised stock exchange shall maintain and preserve the following books of account and documents for a period of **five** years:
 - (a) Register of transactions (Sauda book).
 - (b) Clients' ledger.
 - (c) General ledger.
 - (d) Journals.
 - (e) Cash book.
 - (f) Bank pass-book.
 - (g) Documents register showing full particulars of shares and securities received and delivered.
2. Every member of a recognised stock exchange shall maintain and preserve the following documents for a period of **two** years:

- (a) Members' contract books showing details of all contracts entered into by him with other members of the same exchange or counter-foils or duplicates of memos of confirmation issued to such other members.
- (b) Counter-foils or duplicates of contract notes issued to clients.
- (c) Written consent of clients in respect of contracts entered into as principals. (Rule 15)

6.3 Securities and Exchange Board of India Act, 1992

Capital Issues (Control) Act, 1947

The Act had its origin during the war in 1943 when the objective was to channel resources to support the war effort. It was retained with some modifications as a means of controlling the raising of capital by companies and to ensure that national resources were channelled into proper lines, i.e., for desirable purposes to serve goals and priorities of the government, and to protect the interests of investors. Under the Act, any firm wishing to issue securities had to obtain approval from the Central Government, which also determined the amount, type and price of the issue.

As a part of the liberalisation process, the Act was repealed in May 1992 paving way for market determined allocation of resources. With this, Government's control over issues of capital, pricing of the issues, fixing of premia and rates of interest on debentures etc. ceased, and the office which administered the Act was abolished: the market was allowed to allocate resources to competing uses. However, to ensure effective regulation of the market, SEBI Act, 1992 was enacted to establish SEBI with statutory powers for (a) protecting the interests of investors in securities, (b) promoting the development of the securities market, and (c) regulating the securities market.

It can conduct enquiries, audits and inspection of all concerned and adjudicate offences under the Act. It has powers to register and regulate all market intermediaries and also to penalise them in case of violations of the provisions of the Act, Rules and Regulations made thereunder. SEBI has full autonomy and authority to regulate and develop an orderly securities market.

Its regulatory jurisdiction extends over companies listed on Stock Exchanges and companies intending to get their securities listed on any recognised stock exchange in the issuance of securities and transfer of securities, in addition to all intermediaries and persons associated with securities market. SEBI can specify the matters to be disclosed and the standards of disclosure required for the protection of investors in respect of issues; can issue

directions to all intermediaries and other persons associated with the securities market in the interest of investors or of orderly development of the securities market; and can conduct enquiries, audits and inspection of all concerned and adjudicate offences under the Act. In short, it has been given necessary autonomy and authority to regulate and develop an orderly securities market. All the intermediaries and persons associated with securities market, viz., stock brokers and sub-brokers, underwriters, merchant bankers, bankers to the issue, share transfer agents and registrars to the issue, depositories, depository participants, portfolio managers, debentures trustees, foreign institutional investors, custodians, venture capital funds, mutual funds, collective investments schemes, credit rating agencies, etc., shall be registered with SEBI and shall be governed by the SEBI Regulations pertaining to respective market intermediary.

Constitution of SEBI

The Central Government has constituted a Board by the name of SEBI under Section 3 of SEBI Act. The head office of SEBI is in Mumbai. SEBI may establish offices at other places in India. SEBI consists of the following members, namely:

- (a) a Chairman;
- (b) two members from amongst the officials of the Ministries of the Central Government dealing with Finance and administration of the Companies Act, 1956;
- (c) one member from amongst the officials of the Reserve Bank of India;
- (d) five other members of whom atleast three shall be whole-time members to be appointed by the Central Government.

The general superintendence, direction and management of the affairs of SEBI vests in a Board of Members, which exercises all powers and do all acts and things which may be exercised or done by SEBI.

The Chairman and the other members are from amongst the persons of ability, integrity and standing who have shown capacity in dealing with problems relating to securities market or have special knowledge or experience of law, finance, economics, accountancy, administration or in any other discipline which, in the opinion of the Central Government, shall be useful to SEBI.

Functions of SEBI

According to Section 11 of SEBI Act, 1992, SEBI has been obligated to protect the interests of the investors in securities and to promote the development of, and to regulate the securities market by such measures as it thinks fit. The measures may provide for:

- (a) regulating the business in stock exchanges and any other securities markets;

- (b) registering and regulating the working of stock brokers, sub-brokers, share transfer agents, bankers to an issue, trustees of trust deeds, registrars to an issue, merchant bankers, underwriters, portfolio managers, investment advisers and such other intermediaries who may be associated with securities markets in any manner;
- (c) registering and regulating the working of the depositories, participants, custodians of securities, foreign institutional investors, credit rating agencies and such other intermediaries as SEBI may, by notification, specify in this behalf;
- (d) registering and regulating the working of venture capital funds and collective investment schemes including mutual funds;
- (e) promoting and regulating self-regulatory organisations;
- (f) prohibiting fraudulent and unfair trade practices relating to securities markets;
- (g) promoting investors' education and training of intermediaries of securities markets;
- (h) prohibiting insider trading in securities;
- (i) regulating substantial acquisition of shares and take-over of companies;
- (j) calling for information from, undertaking inspection, conducting inquiries and audits of the stock exchanges, mutual funds, other persons associated with the securities market, intermediaries and self-regulatory organisations in the securities market;
- (k) calling for information and record from any bank or any other authority or board or corporation established or constituted by or under any Central, State or Provincial Act in respect of any transaction in securities which is under investigation or inquiry by the Board;
- (l) performing such functions and exercising such powers under the provisions of Securities Contracts (Regulation) Act, 1956, as may be delegated to it by the Central Government;
- (m) levying fees or other charges for carrying out the purpose of this section;
- (n) conducting research for the above purposes;
- (o) calling from or furnishing to any such agencies, as may be specified by SEBI, such information as may be considered necessary by it for the efficient discharge of its functions;
- (p) performing such other functions as may be prescribed.

According to Section 11A of SEBI Act, 1992, SEBI may, for the protection of investors,

- (a) specify, by regulations,
 - (i) the matters relating to issue of capital, transfer of securities and other matters incidental thereto; and
 - (ii) the manner in which such matters, shall be disclosed by the companies and
- (b) by general or special orders,

- (i) prohibit any company from issuing of prospectus, any offer document, or advertisement soliciting money from the public for the issue of securities,
- (ii) specify the conditions subject to which the prospectus, such offer document or advertisement, if not prohibited may be issued. (Section 11A).

According to Section 11B of SEBI Act, 1992, SEBI may issue directions to any person or class of persons referred to in section 12, or associated with the securities market or to any company in respect of matters specified in section 11A, if it is satisfied that it is necessary in the interest of investors, or orderly development of securities market or to prevent the affairs of any intermediary or other persons referred to in section 12 being conducted in a manner detrimental to the interests of investors or securities market or to secure the proper management of any such intermediary or person.

Registration of Intermediaries

The intermediaries associated with securities market shall buy, sell or deal in securities after obtaining a certificate of registration from SEBI, as required by Section 12:

- 1) Stock-broker,
- 2) Sub-broker,
- 3) Share transfer agent,
- 4) Banker to an issue,
- 5) Trustee of trust deed,
- 6) Registrar to an issue,
- 7) Merchant banker,
- 8) Underwriter,
- 9) Portfolio manager,
- 10) Investment adviser
- 11) Depository,
- 12) Depository participant
- 13) Custodian of securities,
- 14) Foreign institutional investor,
- 15) Credit rating agency,
- 16) Collective investment schemes,
- 17) Venture capital funds,
- 18) Mutual funds, and
- 19) Any other intermediary associated with the securities market.

6.4 SEBI (Stock Brokers & Sub-Brokers) Rules, 1992

In exercise of the powers conferred by section 29 of SEBI Act, 1992, Central Government has made SEBI (Stock-brokers and Sub-brokers) Rules, 1992.

In terms of Rule 2(e), "**Stock-broker**" means a member of a stock exchange. In terms of Rule 2(f), '**Sub-broker**' means any person not being a member of a stock exchange who acts on behalf of a stock-broker as an agent or otherwise for assisting the investors in buying, selling or dealing in securities through such stock brokers. A stock-broker or sub-broker shall not buy, sell, and deal in securities, unless he holds a certificate granted by SEBI (Rule 3).

Capital Adequacy Norms for Brokers

Each stockbroker is subject to capital adequacy requirements consisting of two components:

- (1) Base minimum capital, and
- (2) Additional or optional capital related to volume of business.

The amount of base minimum capital varies from exchange to exchange. The form in which the base minimum capital has to be maintained is also stipulated by SEBI. Exchange may stipulate higher levels of base minimum capital at their discretion.

Conditions for grant of certificate to stock-broker (Rule 4)

SEBI may grant a certificate to a stock-broker subject to the following conditions, namely:

- (a) he holds membership of any stock exchange,
- (b) he shall abide by the rules, regulations and bye-laws of the stock exchange or stock exchanges of which he is a member;
- (c) in case of any change in the status and constitution, the stock broker shall obtain prior permission of SEBI to continue to buy, sell or deal in securities in any stock exchange;
- (d) he shall pay the amount of fees for registration in the manner provided in the regulations; and
- (e) he shall take adequate steps for redressal of grievances of the investors within one month of the date of the receipt of the complaint and keep SEBI informed about the number, nature and other particulars of the complaints received from such investors.

Conditions of grant of certificate to sub-broker (Rule 5)

SEBI may grant a certificate to a sub-broker subject to the following conditions, namely:

- (a) he shall pay the fees in the manner provided in the regulations,

- (b) he shall take adequate steps for redressal of grievances of the investors within one month of the date of the receipt of the complaint and keep SEBI informed about the number, nature and other particulars of the complaints received,
- (c) in case of any change in the status and constitution, the sub- broker shall obtain prior permission of SEBI to continue to buy, sell or deal in securities in any stock exchange, and
- (d) he is authorised in writing by a stock-broker being a member of a stock exchange for affiliating himself in buying, selling or dealing in securities; provided such stock broker is entitled to buy, sell or deal in securities.

6.5 SEBI (Stock Brokers & Sub-Brokers) Regulations, 1992

In terms of regulation 2 (g), "small investor" means any investor buying or selling securities on a cash transaction for a market value not exceeding rupees fifty thousand in aggregate on any day as shown in a contract note issued by the stock-brokers.

Registration of Stock Broker

A stock broker applies in the prescribed format for grant of a certificate through the stock exchange or stock exchanges, as the case may be, of which he is admitted as a member. The stock exchange forwards the application form to SEBI as early as possible but not later than thirty days from the date of its receipt.

SEBI takes into account for considering the grant of a certificate all matters relating to buying, selling, or dealing in securities and in particular the following, namely, whether the stock broker:

- (a) is eligible to be admitted as a member of a stock exchange,
- (b) has the necessary infrastructure like adequate office space, equipment and manpower to effectively discharge his activities,
- (c) has any past experience in the business of buying, selling or dealing in securities,
- (d) is subjected to disciplinary proceedings under the rules, regulations and bye-laws of a stock exchange with respect to his business as a stock-broker involving either himself or any of his partners, directors or employees, and
- (e) is a fit and proper person.

SEBI on being satisfied that the stock-broker is eligible, grants a certificate to the stock-broker and sends intimation to that effect to the stock

exchange or stock exchanges, as the case may be. Where an application for grant of a certificate does not fulfill the requirements, SEBI may reject the application after giving a reasonable opportunity of being heard.

Fees by stock brokers

Every applicant eligible for grant of a certificate shall pay such fees and in such manner as specified in Schedule III; Provided that SEBI may on sufficient cause being shown permit the stock-broker to pay such fees at any time before the expiry of six months from the date on which such fees become due. Where a stock-broker fails to pay the fees, SEBI may suspend the registration certificate, whereupon the stock- broker shall cease to buy, sell or deal in securities as a stock- broker.

Appointment of Compliance Officer

Every stock broker shall appoint a Compliance Officer who shall be responsible for monitoring the compliance of the Act, rules and regulations, notifications, guidelines, instructions, etc., issued by SEBI or the Central Government and for redressal of investors' grievances. The compliance officer shall immediately and independently report to SEBI any non-compliance observed by him.

Code of conduct

The stock-broker holding a certificate at all times abides by the Code of Conduct as given hereunder:

I. General

1. *Integrity*: A stock-broker, shall maintain high standards of integrity, promptitude and fairness in the conduct of all his business.
2. *Exercise of Due Skill and Care*: A stock-broker, shall act with due skill, care and diligence in the conduct of all his business.
3. *Manipulation*: A stock-broker shall not indulge in manipulative, fraudulent or deceptive transactions or schemes or spread rumours with a view to distorting market equilibrium or making personal gains.
4. *Malpractices*: A stock-broker shall not create false market either singly or in concert with others or indulge in any act detrimental to the investors' interest or which leads to interference with the fair and smooth functioning of the market. A stock-broker shall not involve himself in excessive speculative business in the market beyond reasonable levels not commensurate with his financial soundness.
5. *Compliance with Statutory Requirements*: A stock-broker shall abide by all the provisions of the Act and the rules, regulations issued by the Government, SEBI and the stock exchange from time to time as may be applicable to him.

II. Duty to the investor

1. *Execution of Orders*: A stock-broker, in his dealings with the clients and the general investing public, shall faithfully execute the orders for

buying and selling of securities at the best available market price and not refuse to deal with a small investor merely on the ground of the volume of business involved. A stock-broker shall promptly inform his client about the execution or non-execution of an order, and make prompt payment in respect of securities sold and arrange for prompt delivery of securities purchased by clients.

2. *Issue of Contract Note:* A stock-broker shall issue without delay to his client a contract note for all transactions in the form specified by the stock exchange.
3. *Breach of Trust:* A stock-broker shall not disclose or discuss with any other person or make improper use of the details of personal investments and other information of a confidential nature of the client which he comes to know in his business relationship.
4. *Business and Commission:*
 - (a) A stock-broker shall not encourage sales or purchases of securities with the sole object of generating brokerage or commission.
 - (b) A stock-broker shall not furnish false or misleading quotations or give any other false or misleading advice or information to the clients with a view of inducing him to do business in particular securities and enabling himself to earn brokerage or commission thereby.
5. *Business of Defaulting Clients:* A stock-broker shall not deal or transact business knowingly, directly or indirectly or execute an order for a client who has failed to carry out his commitments in relation to securities with another stock-broker.
6. *Fairness to Clients:* A stock-broker, when dealing with a client, shall disclose whether he is acting as a principal or as an agent and shall ensure at the same time that no conflict of interest arises between him and the client. In the event of a conflict of interest, he shall inform the client accordingly and shall not seek to gain a direct or indirect personal advantage from the situation and shall not consider clients' interest inferior to his own.
7. *Investment Advice:* A stock-broker shall not make a recommendation to any client who might be expected to rely thereon to acquire, dispose of, retain any securities unless he has reasonable grounds for believing that the recommendation is suitable for such a client upon the basis of the facts, if disclosed by such a client as to his own security holdings, financial situation and objectives of such investment. The stock-broker should seek such information from clients, wherever he feels it is appropriate to do so.
8. *Investment Advice in publicly accessible media:*
 - (a) A stock broker or any of his employees shall not render, directly or indirectly, any investment advice about any security in the publicly accessible media, whether real - time or non real-time, unless a disclosure of his interest including the interest of his dependent family members and the employer including their long or short

position in the said security has been made, while rendering such advice.

(b) In case, an employee of the stock broker is rendering such advice, he shall also disclose the interest of his dependent family members and the employer including their long or short position in the said security, while rendering such advice.

9. *Competence of Stock Broker*: A stock-broker should have adequately trained staff and arrangements to render fair, prompt and competent services to his clients.

III. Stock-brokers vis-a-vis other stock-brokers

1. *Conduct of Dealings*: A stock-broker shall co-operate with the other contracting party in comparing unmatched transactions. A stock-broker shall not knowingly and willfully deliver documents which constitute bad delivery and shall co-operate with other contracting party for prompt replacement of documents which are declared as bad delivery.
2. *Protection of Clients Interests*: A stock-broker shall extend fullest co-operation to other stock-brokers in protecting the interests of his clients regarding their rights to dividends, bonus shares, right shares and any other rights related to such securities.
3. *Transactions with Stock-Brokers*: A stock-broker shall carry out his transactions with other stock-brokers and shall comply with his obligations in completing the settlement of transactions with them.
4. *Advertisement and Publicity*: A stock-broker shall not advertise his business publicly unless permitted by the stock exchange.
5. *Inducement of Clients*: A stock-broker shall not resort to unfair means of inducing clients from other stock- brokers.
6. *False or Misleading Returns*: A stock-broker shall not neglect or fail or refuse to submit the required returns and not make any false or misleading statement on any returns required to be submitted to the Board and the stock exchange.

Registration of Sub-Broker

An application by a sub-broker for the grant of a certificate is made in the prescribed format accompanied by a recommendation letter from a stock-broker of a recognised stock exchange with whom he is to be affiliated along with two references including one from his banker. The application form is submitted to the stock exchange of which the stock- broker with whom he is to be affiliated is a member.

The eligibility criteria for registration as a sub-broker are as follows:

- (i) in the case of an individual:
 - (a) the applicant is not less than 21 years of age,

- (b) the applicant has not been convicted of any offence involving fraud or dishonesty,
 - (c) the applicant has atleast passed 12th standard equivalent examination from an institution recognised by the Government, Provided that SEBI may relax the educational qualifications on merits having regard to the applicant's experience.
 - (d) the applicant is a fit and proper person.
- (ii) In the case of partnership firm or a body corporate the partners or directors, as the case may be, shall comply with the following requirements:
- (a) the applicant is not less than 21 years of age,
 - (b) the applicant has not been convicted of any offence involving fraud or dishonesty, and
 - (c) the applicant has atleast passed 12th standard equivalent examination from an institution recognised by the Government. Provided that SEBI may relax the educational qualifications on merits having regard to the applicant's experience.

The stock exchange on receipt of an application, verifies the information contained therein and certifies that the applicant is eligible for registration. The stock exchange forwards the application form of such applicants who comply with all the requirements specified in the Regulations to SEBI as early as possible, but not later than thirty days from the date of its receipt.

SEBI on being satisfied that the sub-broker is eligible, grants a certificate to the sub-broker and sends intimation to that effect to the stock exchange or stock exchanges as the case may be. SEBI grants a certificate of registration to the appellant subject to the terms and conditions as stated in Rule 5 of SEBI (Stock Brokers and Sub-brokers) Rules, 1992.

Where an application does not fulfill the requirements, SEBI may reject the application after giving a reasonable opportunity of being heard.

The sub-broker shall-

- (a) pay the fees as specified in Schedule III;
- (b) abide by the code of conduct specified in Schedule II; and
- (c) enter into an agreement with the stock-broker for specifying the scope of his authority and responsibilities.

Code of conduct

The sub-broker at all times abides by the Code of Conduct as given hereunder:

I. General

1. *Integrity*: A sub-broker, shall maintain high standards of integrity, promptitude and fairness in the conduct of all investment business.

2. *Exercise of Due Skill and Care:* A sub-broker, shall act with due skill, care and diligence in the conduct of all investment business.

II. Duty to the Investor

1. *Execution of Orders:* A sub-broker, in his dealings with the clients and the general investing public, shall faithfully execute the orders for buying and selling of securities at the best available market price. A sub-broker shall promptly inform his client about the execution or non-execution of an order and make payment in respect of securities sold and arrange for prompt delivery of securities purchased by clients.
2. *Issue of Purchase or Sale Notes :*
 - a) A sub-broker shall issue promptly to his clients purchase or sale notes for all the transactions entered into by him with his clients.
 - b) A sub-broker shall issue promptly to his clients scrip-wise split purchase or sale notes and similarly bills and receipts showing the brokerage separately in respect of all transactions in the specified form.
 - c) A sub-broker shall only split the contract notes client-wise and scrip-wise originally issued to him by the affiliated broker into different denominations.
 - d) A sub-broker shall not match the purchase and sale orders of his clients and each order must invariably be routed through a member-broker of the stock exchange with whom he is affiliated.
3. *Breach of Trust:* A sub-broker shall not disclose or discuss with any other person or make improper use of the details of personal investments and other information of a confidential nature of the client which he comes to know in his business relationship.
4. *Business and Commission:*
 - a) A sub-broker shall not encourage sales or purchases of securities with the sole object of generating brokerage or commission.
 - b) A sub-broker shall not furnish false or misleading quotations or give any other false or misleading advice or information to the clients with a view of inducing him to do business in particular securities and enabling himself to earn brokerage or commission thereby.
 - c) A sub-broker shall not charge from his clients a commission exceeding one and one-half percent of the value mentioned in the respective sale or purchase notes.
5. *Business of Defaulting Clients:* A sub-broker shall not deal or transact business knowingly, directly or indirectly or execute an order for a client who has failed to carry out his commitments in relation to securities and is in default with another broker or sub-broker.
6. *Fairness to Clients:* A sub-broker, when dealing with a client, shall disclose that he is acting as an agent and shall issue appropriate purchase/sale note ensuring at the same time, that no conflict of interest arises between him and the client. In the event of a conflict of interest, he shall inform the client accordingly and shall not seek to

gain a direct or indirect personal advantage from the situation and shall not consider clients' interest inferior to his own.

7. *Investment Advice*: A sub-broker shall not make a recommendation to any client who might be expected to rely thereon to acquire, dispose of, retain any securities unless he has reasonable grounds for believing that the recommendation is suitable for such a client upon the basis of the facts, if disclosed by such a client as to his own security holdings, financial situation and objectives of such investment. The sub-broker should seek such information from clients, wherever they feel it is appropriate to do so.
8. *Investment Advice in publicly accessible media*:
 - (a) A sub-broker or any of his employees shall not render, directly and indirectly any investment advice about any security in the publicly accessible media, whether real-time or non-real-time, unless a disclosure of his interest including his long or short position in the said security has been made, while rendering such advice.
 - (b) In case, an employee of the sub-broker is rendering such advice, he shall also disclose the interest of his dependent family members and the employer including their long or short position in the said security, while rendering such advice.
9. *Competence of Sub-broker*: A sub-broker should have adequately trained staff and arrangements to render fair, prompt and competent services to his clients and continuous compliance with the regulatory system.

III. Sub-Brokers vis-à-vis Stock Brokers

1. *Conduct of Dealings*: A sub-broker shall co-operate with his broker in comparing unmatched transactions. A sub-broker shall not knowingly and willfully deliver documents, which constitute bad delivery. A sub-broker shall co-operate with other contracting party for prompt replacement of documents, which are declared as bad delivery.
2. *Protection of Clients Interests*: A sub-broker shall extend fullest co-operation to his stock-broker in protecting the interests of their clients regarding their rights to dividends, right or bonus shares or any other rights relatable to such securities.
3. *Transactions with Brokers*: A sub-broker shall not fail to carry out his stock broking transactions with his broker nor shall he fail to meet his business liabilities or show negligence in completing the settlement of transactions with them.
4. *Legal Agreement between Brokers*: A sub-broker shall execute an agreement or contract with his affiliating brokers which would clearly specify the rights and obligations of the sub-broker and the principal broker.
5. *Advertisement and Publicity*: A sub-broker shall not advertise his business publicly unless permitted by the stock exchange.

6. *Inducement of Clients:* A sub-broker shall not resort to unfair means of inducing clients from other stock brokers.

IV. Sub-brokers vis-a-vis Regulatory Authorities

1. *General Conduct:* A sub-broker shall not indulge in dishonourable, disgraceful or disorderly or improper conduct on the stock exchange nor shall he willfully obstruct the business of the stock exchange. He shall comply with the rules, bye-laws and regulations of the stock exchange.
2. *Failure to give Information:* A sub-broker shall not neglect or fail or refuse to submit to SEBI or the stock exchange with which he is registered, such books, special returns, correspondence, documents, and papers or any part thereof as may be required.
3. *False or Misleading Returns:* A sub-broker shall not neglect or fail or refuse to submit the required returns and not make any false or misleading statement on any returns required to be submitted to SEBI or the stock exchanges.
4. *Manipulation:* A sub-broker shall not indulge in manipulative, fraudulent or deceptive transactions or schemes or spread rumours with a view to distorting market equilibrium or making personal gains.
5. *Malpractices:* A sub-broker shall not create false market either singly or in concert with others or indulge in any act detrimental to the public interest or which leads to interference with the fair and smooth functions of the market mechanism of the stock exchanges. A sub-broker shall not involve himself in excessive speculative business in the market beyond reasonable levels not commensurate with his financial soundness.

6.6 SEBI (Prohibition of Insider Trading) Regulations, 1992

Insider trading is prohibited as per SEBI (Insider Trading) Regulations, 1992.

The Key definitions:

- **'Dealing in securities'** means an act of subscribing, buying, selling or agreeing to subscribe, buy, sell or deal in any securities by any person either as principal or agent.
- **'Insider'** means any person who, is or was connected with the company or is deemed to have been connected with the company,

and who is reasonably expected to have access, to unpublished price sensitive information in respect of securities of a company, or who has received or has had access to such unpublished price sensitive information;

- A '**connected person**' means any person who-
 - (i) is a director, as defined in clause (13) of section 2 of the Companies Act, 1956 of a company, or is deemed to be a director of that company by virtue of sub-clause (10) of section 307 of that Act; or
 - (ii) occupies the position as an officer or an employee of the company or holds a position involving a professional or business relationship between himself and the company whether temporary or permanent and who may reasonably be expected to have an access to unpublished price sensitive information in relation to that company.
- A '**person is deemed to be a connected person**' if such person-
 - (i) is a company under the same management or group or any subsidiary company thereof within the meaning of sub-section (1B) of section 370, or sub-section (11) of section 372, of the Companies Act, 1956 or sub-clause (g) of section 2 of the Monopolies and Restrictive Trade Practices Act, 1969 as the case may be; or
 - (ii) is an intermediary as specified in section 12 of SEBI Act, 1992, Investment company, Trustee Company, Asset Management Company or an employee or director thereof or an official of a stock exchange or of clearing house or corporation;
 - (iii) is a merchant banker, share transfer agent, registrar to an issue, debenture trustee, broker, portfolio manager, Investment Advisor, sub-broker, Investment Company or an employee thereof, or, is a member of the Board of Trustees of a mutual fund or a member of the Board of Directors of the Asset Management Company of a mutual fund or is an employee thereof who has a fiduciary relationship with the company; or
 - (iv) is a member of the Board of Directors, or an employee, of a public financial institution as defined in Section 4A of the Companies Act, 1956; or
 - (v) is an official or an employee of a self regulatory organisation recognised or authorised by the Board of a regulatory body; or
 - (vi) is a relative of any of the aforementioned persons; or
 - (vii) is a banker of the company;
 - (viii) relatives of the connected person;
 - (ix) is a concern, firm, trust, Hindu Undivided Family, company or association of persons wherein any of the connected persons mentioned in sub-clause (i) of clause (c) of this regulation or any of the persons mentioned in sub-clauses (vi), (vii) or (viii) of this clause have more than 10% of the holding or interest

- **‘Price sensitive information’** means any information which relates directly or indirectly to a company and which if published is likely to materially affect the price of securities of company;

Explanation: - The following shall be deemed to be price sensitive information: -

- (i) periodical financial results of the company;
- (ii) intended declaration of dividends (both interim and final);
- (iii) issue of securities or buy-back of securities;
- (iv) any major expansion plans or execution of new projects;
- (v) amalgamation, mergers or takeovers;
- (vi) disposal of the whole or substantial part of the undertaking;
- (vii) any significant changes in policies, plans or operations of the company.

- **‘Unpublished’** means information which is not published by the company or its agents and is not specific in nature.

Explanation: Speculative reports in print or electronic media shall not be considered as published information.

Prohibition on dealing, communicating or counselling (Regulation 3)

No insider shall—

- either on his own behalf or on behalf of any other person, deal in securities of a company listed on any stock exchange when in possession of any unpublished price sensitive information;
- communicate, counsel or procure, directly or indirectly, any unpublished price sensitive information to any person who while in possession of such unpublished price sensitive information shall not deal in securities; Provided that nothing contained above shall be applicable to any communication required in the ordinary course of business or profession or employment or under any law.

Regulation 3A

No company shall deal in the securities of another company or associate of that other company while in possession of any unpublished price sensitive information.

Violation of provisions relating to insider trading (Regulation 4)

Any insider, who deals in securities in contravention of the provisions of regulation 3 or 3A shall be guilty of insider trading.

Policy on disclosures and internal procedure for prevention of insider trading:

Chapter IV of the Regulations deals with policy on disclosures and internal procedure for prevention of insider trading. Accordingly, all listed companies and organisations associated with securities markets including:

- (a) the intermediaries as mentioned in section 12 of the SEBI Act, 1992, asset management company and trustees of mutual funds;
- (b) the self regulatory organisations recognised or authorised by the Board;
- (c) the recognised stock exchanges and clearing house or corporations;
- (d) the public financial institutions as defined in Section 4A of the Companies Act, 1956; and
- (e) the professional firms such as auditors, accountancy firms, law firms, analysts, consultants, etc., assisting or advising listed companies, shall frame a code of internal procedures and conduct as near there to the Model Code specified in Schedule I of these Regulations.

Disclosures (Regulation 13)

Disclosure of interest or holding by directors and officers and substantial shareholders in a listed companies

Initial Disclosure

(1) Any person who holds more than 5% shares or voting rights in any listed company shall disclose to the company, the number of shares or voting rights held by such person, on becoming such holder, within 4 working days of: (a) the receipt of intimation of allotment of shares; or (b) the acquisition of shares or voting rights, as the case may be.

(2) Any person who is a director or officer of a listed company, shall disclose to the company, the number of shares or voting rights held by such person, within 4 working days of becoming a director or officer of the company.

Continual Disclosure

(3) Any person who holds more than 5% shares or voting rights in any listed company shall disclose to the company the number of shares or voting rights held and change in shareholding or voting rights, even if such change results in shareholding falling below 5%, if there has been change in such holdings from the last disclosure made under sub-regulation (1) or under this sub-regulation; and such change exceeds 2% of total shareholding or voting rights in the company.

(4) Any person who is a director or officer of a listed company, shall disclose to the company, the total number of shares or voting rights held and change in shareholding or voting rights, if there has been a change in such holdings from the last disclosure made under sub-regulation (2) or under this sub-regulation, and the change exceeds Rupees 5 lac in value or 25000 shares or 1% of total shareholding or voting rights, whichever is lower.

(5) The disclosure mentioned in sub-regulations (3) and (4) shall be made within 4 working days of; (a) the receipt of intimation of allotment of shares, or (b) the acquisition or sale of shares or voting rights, as the case may be.

Disclosure by company to stock exchanges

(6) Every listed company, within five days of receipt, shall disclose to all stock exchanges on which the company is listed, the information received under sub-regulations (1), (2), (3) and (4).

Code of Ethics

SEBI has advised stock exchanges to adopt the Code of Ethics for their directors and functionaries. This is aimed at improving the professional and ethical standards in the functioning of exchanges thereby creating better investors confidence in the integrity of the market.

6.7 SEBI (Prohibition of Fraudulent and Unfair Trade Practices Relating To Securities Markets) Regulations, 1995

The SEBI (Prohibition of Fraudulent and Unfair Trade Practices in relation to the Securities Market) Regulations, 1995 enable SEBI to investigate into cases of market manipulation and fraudulent and unfair trade practices. The regulations specifically prohibit fraudulent dealings, market manipulation, misleading statements to induce sale or purchase of securities, unfair trade practices relating to securities. SEBI can conduct investigation, *suo moto* or upon information received by it, by an investigating officer in respect of conduct and affairs of any person buying, selling, and otherwise dealing in securities. Based on the report of the investigating officer, SEBI can initiate action for suspension or cancellation of registration of an intermediary.

The term 'fraud' has been defined by Regulation 2(1)(c). Fraud includes any of the following acts committed by a party to a contract, or with his connivance, or by his agent, with intent to deceive another party thereto or his agent, or to induce him to enter into the contract:-

- (1) the suggestion, as to a fact, of that which is not true, by one who does not believe it to be true;
 - (2) the active concealment of a fact by one having knowledge or belief of the fact;
 - (3) a promise made without any intention of performing it;
 - (4) any other act fitted to deceive; and
 - (5) any such act or omission as the law specially declares to be fraudulent;
- and "fraudulent" shall be construed accordingly.

The regulation prohibits:

- (1) dealings in securities in a fraudulent manner,
- (2) market manipulation,
- (3) misleading statements to induce sale or purchase of securities, and
- (4) unfair trade practice relating to securities

Prohibition of certain dealings in securities

A person shall not buy, sell or otherwise deal in securities in a fraudulent manner.

Prohibition against Market Manipulation

For prohibition against market manipulation, Regulation 4 specifies that no person shall-

- (i) effect, take part in, or enter into, either directly or indirectly, transactions in securities, with the intention of artificially raising or depressing the prices of securities and thereby inducing the sale or purchase of securities by any person,
- (ii) indulge in any act, which is calculated to create a false or misleading appearance of trading on the securities market,
- (iii) indulge in any act which results in reflection of prices of securities based on transactions that are not genuine trade transactions,
- (iv) enter into a purchase or sale of any securities, not intended to effect transfer of beneficial ownership but intended to operate only as a device to inflate, depress, or cause fluctuations in the market price of securities,
- (v) pay, offer or agree to pay or offer, directly or indirectly, to any person any money or money's worth for inducing another person to purchase or sell any security with the sole object of inflating, depressing, or causing fluctuations in the market price of securities.

Prohibition of misleading statements to induce sale or purchase of securities

According to Regulation 5(1), no person shall make any statement, or disseminate any information which –

- (a) is misleading in a material particular; and
- (b) is likely to induce the sale or purchase of securities by any other person or is likely to have the effect of increasing or depressing the market price of securities, if when he makes the statement or disseminates the information-
 - (i) he does not care whether the statement or information is true or false; or
 - (ii) he knows, or ought reasonably to have known that the statement or information is misleading in any material particular.

According to Regulation 5(2), nothing in this sub-regulation shall apply to any general comments made in good faith in regard to –

- (a) the economic policy of the Government,
- (b) the economic situation in the country,
- (c) trends in the securities markets, or
- (d) any other matter of a similar nature.

whether such comments be made in public or in private.

Prohibition on unfair trade practice relating to securities (Regulation 6)

No person shall:

- (a) in the course of his business, knowingly engage in any act, or practice which would operate as a fraud upon any person in connection with the purchase or sale of, or any other dealing in, any securities;
- (b) on his own behalf or on behalf of any person, knowingly buy, sell or otherwise deal in securities, pending the execution of any order of his client relating to the same security for purchase, sale or other dealings in respect of securities;
Nothing contained in this clause shall apply where according to the clients instructions, the transaction for the client is to be effected only under specified conditions or in specified circumstances;
- (c) intentionally and in contravention of any law for the time being in force delays the transfer of securities in the name of the transferee or the dispatch of securities or connected documents to any transferee;
- (d) indulge in falsification of the books, accounts and records (whether maintained manually or in computer or in any other form);
- (e) when acting as an agent, execute a transaction with a client at a price other than the price at which the transaction was executed by him, whether on a stock exchange or otherwise, or at a price other than the price at which it was off-set against the transaction of another client.

6.8 The Depositories Act, 1996

The Depositories Act, 1996 was enacted to provide for regulation of depositories in securities and for matters connected therewith or incidental thereto. It came into force from 20th September, 1995.

The terms used in the Act are defined as under:

- (1) "**Beneficial owner**" means a person whose name is recorded as such with a depository.
- (2) "**Depository**" means a company, formed and registered under the Companies Act, 1956 and which has been granted a certificate of registration under **sub-section (1A) of section 12** SEBI Act, 1992.
- (3) "**Issuer**" means any person making an issue of securities.
- (4) "**Participant**" means a person registered as such under sub-section (1A) of section 12 of SEBI Act, 1992.
- (5) "**Registered owner**" means a depository whose name is entered as such in the register of the issuer.

Agreement between depository and participant: A depository shall enter into an agreement in the specified format with one or more participants as its agent.

Services of depository: Any person, through a participant, may enter into an agreement, in such form as may be specified by the bye-laws, with any depository for availing its services.

Surrender of certificate of security: Any person who has entered into an agreement with a depository shall surrender the certificate of security, for which he seeks to avail the services of a depository, to the issuer in such manner as may be specified by the regulations. The issuer, on receipt of certificate of security, shall cancel the certificate of security and substitute in its records the name of the depository as a registered owner in respect of that security and inform the depository accordingly. A depository shall, on receipt of information enter the name of the person in its records, as the beneficial owner.

Registration of transfer of securities with depository: Every depository shall, on receipt of intimation from a participant, register the transfer of security in the name of the transferee. If a beneficial owner or a transferee of any security seeks to have custody of such security, the depository shall inform the issuer accordingly.

Options to receive security certificate or hold securities with depository: Every person subscribing to securities offered by an issuer shall have the option either to receive the security certificates or hold securities with a depository. Where a person opts to hold a security with a depository, the issuer shall intimate such depository the details of allotment of the security, and on receipt of such information the depository shall enter in its records the name of the allottee as the beneficial owner of that security.

Securities in depositories to be in fungible form: All securities held by a depository shall be dematerialised and shall be in a fungible form.

Rights of depositories and beneficial owner: A depository shall be deemed to be the registered owner for the purposes of effecting transfer of ownership of security on behalf of a beneficial owner. The depository as a registered owner shall not have any voting rights or any other rights in respect of securities held by it. The beneficial owner shall be entitled to all the rights and benefits and be subjected to all the liabilities in respect of his securities held by a depository.

Pledge or hypothecation of securities held in a depository: A beneficial owner may with the previous approval of the depository create a pledge or hypothecation in respect of a security owned by him through a depository. Every beneficial owner shall give intimation of such pledge or hypothecation to the depository and such depository shall thereupon make entries in its records accordingly. Any entry in the records of a depository shall be evidence of a pledge or hypothecation.

Furnishing of information and records by depository and issuer:

Every depository shall furnish to the issuer information about the transfer of securities in the name of beneficial owners at such intervals and in such manner as may be specified by the bye-laws. Every issuer shall make available to the depository copies of the relevant records in respect of securities held by such depository.

Option to opt out in respect of any security: If a beneficial owner seeks to opt out of a depository in respect of any security he shall inform the depository accordingly. The depository shall on receipt of intimation make appropriate entries in its records and shall inform the issuer. Every issuer shall, within thirty days of the receipt of intimation from the depository and on fulfillment of such conditions and on payment of such fees as may be specified by the regulations, issue the certificate of securities to the beneficial owner or the transferee, as the case may be.

Depository to indemnify loss in certain cases: Any loss caused to the beneficial owner due to the negligence of the depository or the participant, the depository shall indemnify such beneficial owner. Where the loss due to the negligence of the participant is indemnified by the depository, the depository shall have the right to recover the same from such participant.

Securities not liable to stamp duty

As per Section 8-A of Indian Stamp Act, 1899:

- (a) an issuer, by the issue of securities to one or more depositories shall, in respect of such issue, be chargeable with duty on the total amount of security issued by it and such securities need not be stamped;
- (b) where an issuer issues certificate of security under sub-section (3) of Section 14 of the Depositories Act, 1996, on such certificate duty shall be payable as is payable on the issue of duplicate certificate under the Indian Stamp Act, 1899;
- (c) transfer of registered ownership of shares from a person to a depository or from a depository to a beneficial owner shall not be liable to any stamp duty;
- (d) the transfer of beneficial ownership of shares, such shares being shares of a company formed and registered under the Companies Act, 1956 or a body corporate established by a Central Act dealt with by a depository, shall not be liable to duty under Article 62 of Schedule I of the Indian Stamp Act, 1899;
- (e) transfer of beneficial ownership of units, such units being units of mutual fund including units of the Unit Trust of India, dealt with by a depository shall not be liable to duty under Article 62 of Schedule I of the Indian Stamp Act, 1899;
- (f) transfer of beneficial ownership of debentures, such debentures being debentures of a company formed and registered under the Companies

Act, 1956 or a body corporate established by a Central Act, dealt with a depository, shall not be liable to duty under Article 27 of Schedule I of the Indian Stamp Act, 1899.

6.9 Indian Contract Act, 1872

Contract

According to section 2(h) of the Indian Contract Act, 1872, a contract is an agreement enforceable by law. Therefore, there has to be an agreement to create a contract and secondly, it has to satisfy certain requirements mentioned in section 10 of the Act, i.e., the agreement has to be between parties competent to contract, with their free consent, for a lawful object and with lawful consideration, and it should not have been declared as void agreement.

Standard Form Contracts

With an enormous increase in commercial transactions, the concept of Standard Form Contracts has come into existence. Various business organisations like insurance companies, airways, securities market regulator, other businessmen etc. generally get the terms of the contract printed on a standard form and the other side is simply required to agree to the same, or sometimes to sign in token of his having agreed to the terms of the contract so drafted. A standard form contract is a pre-established record of legal terms regularly used by a business entity or firm in transactions with customers. The record specifies the legal terms governing the relationship between the firm and another party. The firm requires the other party to accept the record without amendment and without expecting the other party to know or understand its terms. A Standard Form Contract is effective upon acceptance.

Agency contract

An agent is a person employed to do any act for another or to represent another in dealings with third persons, as per section 182 of the Indian Contract Act, 1872. The person for whom such act is done, or who is so represented, is called the Principal. Principal is bound by the acts done by an agent or the contracts entered into by him on behalf of the principal in the same manner, as if the acts had been done or the contracts had been entered into by the principal himself, in person.

An agent has a dual capacity: one, he serves as a connecting link between his principal and the third person, and second, he can have a contractual relationship with his principal.

An agent, having an authority to do an act, has authority to do every lawful thing which is necessary in order to do such act. An agent having authority

to carry on a business, has authority to do every lawful thing necessary for the purpose, or usually done in the course, of conducting such business.

Sub-agent

A sub-agent is a person employed by, and acting under the control of, the original agent in the business of the agency. Though the general rule is against delegation of authority by an agent or the appointment of a sub-agent, there could be such an appointment in exceptional situations recognised by law. Thus, when any act does not need personal performance by the agent himself, or the principal agrees to the appointment of a sub-agent, or the ordinary custom of trade permits the same, or the nature of the business of agency so warrants, nature of the agency so warrants, a sub-agent may be validly appointed by an agent.

When a sub-agent has been properly appointed the position of various parties is as under:

- (i) The principal is, so far as regards third persons, represented by the sub-agent, and is bound by and responsible for his acts, as if he were an agent originally appointed by the principal.
- (ii) The agent is responsible to the principal for the acts of the sub-agent.
- (iii) The sub-agent is responsible for his acts to the agent, but not to the principal except in case of fraud or willful wrong.

6.10 The Companies Act, 1956

There are two types of Companies, viz., Private and Public.

Private company means a company which has a minimum paid-up capital of one lakh rupees or such higher paid-up capital as may be prescribed and by its articles:

- (a) restricts the right to transfer its shares, if any;
- (b) limits the number of its members to fifty;
- (c) prohibits any invitation to the public to subscribe for any shares in or debentures of the company;
- (d) prohibits any invitation or acceptance of deposits from persons other than its members, directors or their relatives

Public company means a company which

- (a) is not a private company;
- (b) has a minimum paid-up capital of five lakh rupees or such higher paid-up capital, as may be prescribed;
- (c) is a private company which is a subsidiary of a company which is not a private company.

The minimum number of persons required to form a public company is seven and the minimum number of persons required to form a private company is two.

Shares

The shares or debentures or other interest of any member in a company shall be moveable property, transferable in the manner provided by the articles of the company (Section 82). A certificate, under common seal of the company, specifying any shares held by any member shall be prima facie evidence of the title of the member to such shares (Section 84).

Buy-back of securities (Section 77A)

A company may purchase its own shares or other specified securities out of:

- (a) free reserves; or
- (b) the securities premium account; or
- (c) the proceeds of any shares or other specified securities.

Conditions to be satisfied for buy-back

The following conditions must be satisfied by the company before buying-back its own shares or other specified securities:

- (i) the buy-back must be authorised by its articles;
- (ii) a special resolution shall be passed in general meeting of the company authorising the buy-back;
- (iii) the buy-back shall be equal to or less than 25% of the total paid-up capital and free reserves of the company
- (iv) the ratio of debt owed by the company is not more than twice the capital and its free reserves after such buy-back
- (v) all the shares or other specified securities for buy-back are fully paid-up;
- (vi) the buy-back of listed securities is in accordance with SEBI Regulations;
- (vii) the buy-back of un-listed securities is in accordance with guidelines prescribed by Central Government;

Every buy-back shall be completed within twelve months from the date of passing the special resolution or a resolution passed by the Board.

Share Capital

According to section 86, the share capital of a company limited by shares shall be of two kinds only, namely:

- (a) equity share capital with voting rights; or with differential rights as to dividend, voting or otherwise, and
- (b) preference share capital.

As per section 85, preference share capital means, with reference to any company limited by shares that part of the share capital of the company which fulfils both the following requirements, namely:

(a) that as respects dividends, it carries or will carry a preferential right to be paid a fixed amount or an amount calculated at a fixed rate, which may be either free of or subject to income tax, and

(b) that as respect capital, it carries or will carry, on a winding-up or repayment of capital, a preferential right to be repaid the amount of the capital paid-up or deemed to have been paid-up, whether or not there is a preferential right to the payment of either or both of the following amounts, namely:

(i) any money remaining unpaid, in respect of the amounts specified in clause (a), up to the date of the winding-up or repayment of capital, and

(ii) any fixed premium or premium on any fixed scale, specified in the memorandum or articles of the company.

Equity share capital means all share capital which is not preference share capital.

Every listed public company, making initial public offer of any security for a sum of rupees of ten crores or more, shall issue the same only in dematerialized form by complying with the requisite provisions of the Depositories Act, 1996.

No allotment shall be made of any shares in or debentures of a company in pursuance of a prospectus issued generally, and no proceedings shall be taken on applications made in pursuance of a prospectus so issued, until the beginning of the fifth day after that on which the prospectus is first so issued or such later time, if any, as may be specified in the prospectus.

Every company intending to offer shares or debentures to the public for subscription by the issue of a prospectus shall, before such issue, make an application to one or more recognised stock exchanges for permission for the shares or debentures intending to be so offered to be dealt with in the stock exchange or each such stock exchange.

Transfer of shares (Section 108)

A company shall register a transfer of shares in, or debentures of, the company, if a proper instrument of transfer duly stamped and executed by or on behalf of the transferor and by or on behalf of the transferee and specifying the name, address and occupation, if any, of the transferee, has been delivered to the company along with the certificate relating to the shares or debentures, or if no such certificate is in existence, along with the letter of allotment of the shares or debentures.

Section 108, however, does not apply to transfer of securities effected by the transferor and the transferee both of whom are entered as beneficial owners in the records of a depository.

As per section 111A, the shares or debentures and any interest therein of a public limited company are freely transferable.

Annual Return (Sections 159 & 160)

Every Company shall within sixty days from the day on which the Annual General Meeting is held, prepare and file Annual Return with Registrar of Companies.

Annual General Meeting (Section 166)

Every company shall in each year hold in addition to any other meetings a general meeting as its annual general meeting and shall specify the meeting as such in the notices calling it; and not more than fifteen months shall elapse between the date of one annual general meeting of a company and that of the next:

Provided that a company may hold its first annual general meeting within a period of not more than eighteen months from the date of its incorporation; and if such general meeting is held within that period, it shall not be necessary for the company to hold any annual general meeting in the year of its incorporation or in the following year:

Provided further that the Registrar may, for any special reason, extend the time within which any Annual General Meeting (not being the first annual general meeting) shall be held, by a period not exceeding three months.

Every annual general meeting shall be called for a time during business hours, on a day that is not a public holiday, and shall be held either at the registered office of the company or at some other place within the city, town or village in which the registered office of the company is situate.

A general meeting of a company may be called by giving not less than twenty-one days' notice in writing.

Dividend (Section 205)

Dividend shall be declared or paid by a company for any financial year

- (a) out of the profits of the company for that year arrived at after providing for depreciation in accordance with the provisions of section 205 (2) of the Act, or
- (b) out of the profits of the company for any previous financial year or years arrived at after providing for depreciation in accordance with those provisions and remaining undistributed, or
- (c) out of both (a and b above), or
- (d) out of moneys provided by the Central Government or a State Government for the payment of dividend in pursuance of a guarantee given by that Government.

The amount of dividend shall be deposited in a separate bank account within five days from the date of declaration of dividend. The dividend shall be paid within thirty days from the date of its declaration.

Investor Education and Protection Fund (Section 205C)

The Central Government notified the establishment of a Fund called the Investor Education and Protection Fund. The fund shall be credited with:

- (a) amounts in the unpaid dividend accounts of companies,
- (b) application moneys received by companies for allotment of any securities and due for refund,
- (c) matured deposits with companies,
- (d) matured debentures with companies,
- (e) the interest accrued on the amounts referred to in clauses a to d,
- (f) grants and donations given to the Fund by the Central Government, State Governments, companies or any other institutions for the purposes of the Fund; and
- (g) the interest or other income received out of the investments made from the Fund:

Provided that no such amounts referred to in clauses (a) to (d) shall form part of the Fund unless such amounts have remained unclaimed and unpaid for a period of seven years from the date they became due for payment.

The Investor Education and Protection Fund shall be utilised for promotion of awareness amongst the investors and for the protection of the interests of investors in accordance with such rules as may be prescribed.

6.11 Public Debt Act, 1944

The Public Debt Act, 1944 relates to Government securities and to the management by the Reserve Bank of India of the public debt of the Government

'Government security' means,

(a) a security, created and issued, by the Government, for the purpose of raising a public loan, and having one of the following forms, namely:

- (i) stock transferable by registration in the books of the Reserve Bank of India; or
- (ii) A promissory note payable to order; or
- (iii) A bearer bond payable to bearer; or
- (iv) a form prescribed in this behalf.

(b) any other security created and issued by the Government in such form and for such of the purposes of the Public Debt Act as may be prescribed;

Transfer of Government Securities

A transfer of Government security shall be made only in the manner prescribed for the making of transfers of securities of the class to which it belongs, and no transfer of a Government security shall be valid if it (a) does not purport to convey the full title to the security, or (b) is of such a nature as to affect the manner in which the security was expressed by the Government to be held.

Power to make Rules

The Central Government may, subject to the condition of previous publication, by notification in the Official Gazette, make rules to carry out the purposes of the Public Debt Act.

6.12 Income Tax Act, 1961

The Income-tax Act, 1961 has been enacted to consolidate and amend the law relating to income-tax. It deals with matters relating to levy and collection of taxes on income. There are many provisions in the Income-tax Act which have a direct or indirect bearing on the financial securities market. Some key provisions having bearing on the financial markets are lucidly stated in the following paragraphs. The reader is also expected to refer to the relevant provisions of Income-tax Act, 1961 for the complete text of the provisions, proper understanding and interpretation thereof.

BASICS CONCEPTS**Charge of income-tax**

Income-tax is generally chargeable for any assessment year in respect of total income of the previous year of every person. Further tax is also required to be deducted at source or paid in advance under certain provisions of this Act (*section 4*).

"Assessment year" means the period of twelve months commencing on 1st day of April every year (*clause 9 of section 2*).

"Previous year" generally means the financial year immediately preceding the assessment year (*section 3*).

For the purpose of this Act, a "person" includes-

- an individual,
- a Hindu undivided family,
- a company,
- a firm,
- an association of persons or a body of individuals,
- a local authority,
- every artificial juridical person, not falling above.

(*clause 31 of section 2*)

"Assessee" means a person by whom any tax or any other sum of money is payable under this Act and includes every person in respect of whom any proceedings under this Act has been taken for the assessment of his income,

loss or refund or income, loss or refund of any other person in respect of which he is assessable. (*clause 7 of section 2*)

Heads of income (*section 14*)

The income should be classified under the following heads of income for the purpose of computation of total income and charge of income-tax thereon–

1. Salaries
2. Income from house property
3. Profits and gains of business or profession
4. Capital gains
5. Income from other sources

Computation of total income for determining tax liability

Taxable income is determined separately under each of the heads of income, as applicable to the assessee, after deducting allowable expenditures or other amounts and setting off of current year or earlier year's losses therefrom, as per the provisions of the Act. "Gross Total Income" is the summation of income under various heads of income. Certain deductions are allowable from the Gross Total Income to determine the "Total Income". Tax is calculated on the Total Income as per the prescribed rates. Certain specified rebates are provided which reduce the Tax liability. Surcharge is levied on the tax liability, as applicable, to arrive at the total tax liability of the assessee.

It may be noted that loss under certain heads of income can be set off against income under the same head of income or other heads of income as allowable under various provisions of the Act. Certain losses which cannot be set off in any particular year due to insufficiency of income can be carried forward and set off against income in subsequent year as per specific provision of the Act.

In order not to digress from the regulatory framework part only certain provisions affecting income from business or profession, income chargeable under the head capital gains and income from other sources (especially interest and dividend) has been considered.

NON-TAXABLE INCOME

Incomes which do not form part of Total Income

Section 10 of this Act specifies the incomes which should not to be included as income while computing the total income of a person subject to fulfillment of certain conditions. Some of the incomes pertaining to securities transactions which do not form a part of total income are given below–

Income arising from the transfer of a unit of the Unit Scheme, 1964 Income arising from the transfer of a capital asset, being a unit of the Unit Scheme, 1964 referred to in Schedule I to the Unit Trust of India (Transfer of Undertaking and Repeal) Act, 2002 and where the transfer of such assets takes place on or after the 1st day of April, 2002 (*clause 33 of section 10*).

Dividend income referred to in section 115-O (*clause 34 of section 10*).

Income received in respect of units of a Mutual Fund specified under clause 23D of section 10 (*Sub-clause (a) of clause 35 of section 10*).

Income received in respect of units from the Administrator of the specified undertaking. For the purpose of this clause, the "Administrator" means the Administrator as referred to in clause (a) of section 2 of the Unit Trust of India (Transfer of Undertaking and Repeal) Act, 2002 (*sub-clause (b) of clause 35 of section 10*).

Income received in respect of units from the specified company (*sub-clause (c) of clause 35 of section 10*).

Income arising from the transfer of a long-term capital asset, being an eligible equity share in a company purchased on or after the 1st day of March, 2003 and before the 1st day of March, 2004 and held for a period of twelve months or more. For the purpose of this clause, "eligible equity share" means (1) an equity share in a company being a constituent of BSE-500 Index on the Stock Exchange, Mumbai as on the 1st day of March, 2003 and the transactions of purchase and sale of such equity share are entered into on a recognized stock exchange in India, or (2) any equity share in a company allotted through a public issue on or after the 1st day of March, 2003 and listed in a recognized stock exchange in India before the 1st day of March, 2004 and the transaction of sale of such share is entered into on a recognized stock exchange in India (*clause 36 of section 10*).

Income of Investor Protection Fund which is set up by recognized stock exchanges in India and notified in the Official Gazette by the Central Government. However, if any income is shared with the recognized stock exchange, the same is chargeable to income-tax (*clause 23EA of section 10*).

EXPENDITURE NOT ALLOWABLE

Expenditure incurred in relation to income not includible in total income

For the purposes of computing the total income, deduction is not allowed in respect of expenditure incurred by the assessee in relation to income which does not form part of the total income (*section 14A*).

For example, if an investor takes a loan to invest in units of mutual funds and earns tax-free dividends from the units of mutual fund, the interest expenditure on the loan taken for investing in the mutual fund scheme will not be an allowable expenditure.

PROVISIONS RELATING TO SPECULATION

Speculative Transactions

"Speculative Transaction" means a transaction in which a contract for the purchase or sale of any commodity, including stocks and shares, is periodically or ultimately settled otherwise than by the actual delivery or transfer of the commodity or scrips.

However the following contracts are not deemed to be speculative transactions for the purpose of this clause -

- (a) a contract in respect of raw materials or merchandise entered into by a person in the course of his manufacturing or merchandise business to guard against loss through future price fluctuations in respect of his contracts for actual delivery of goods manufactured by him or merchandise sold by him; or
- (b) a contract in respect of stocks and shares entered into by a dealer or investor therein to guard against loss in his holdings of stocks and shares through price fluctuations; or
- (c) a contract entered into by a member of a forward market or a stock exchange in the course of any transaction in the nature of jobbing or arbitrage to guard against loss which may arise in the ordinary course of his business as such member. *(clause 5 of section 43)*

Thus, hedging transactions are not deemed to be speculative transactions. However, the burden of proof is upon the assessee to show that the transactions are merely hedging transactions.

It should be noted that it is important to identify a speculation income / loss in view of the restrictive provisions regarding setting off and carry forward of such losses in the event of inadequacy of profits under other heads of income.

Speculation Business

As per explanation 2 to clause 28, where speculative transactions carried on by an assessee are of such a nature as to constitute a business, the business should be deemed to be distinct and separate from any other business and referred to as "speculation business".

Further, as per explanation to section 73, where any part of the business of a company consists in purchase and sale of shares of other companies, such companies shall be deemed to be carrying on a speculation business to the extent to which the business consists of the purchase and sale of such

shares. This explanation does not apply to investment companies and companies whose principal business is of banking or granting loans / advances.

Speculation loss of any assessment year is allowed to be set off only against the profits and gains of another speculation business in the same assessment year. But, if a speculation loss could not be set off from the income of another speculation business in the same assessment year, it is allowed to be carried forward to be claimed as a set off in the subsequent year, but only against the income of any speculation business in that year. Such loss can be carried forward for eight assessment years immediately succeeding the assessment year for which the loss was first computed (*section 73*).

INCOME CHARGEABLE UNDER THE HEAD OF CAPITAL GAINS

Capital Gains

Any profits or gains arising from the transfer of a capital asset effected in the previous year subject to deductions and adjustments under other provisions is chargeable to income-tax under the head "Capital gains", and is deemed to be the income of the previous year in which the transfer took place (*section 45*).

"Capital asset" means property of any kind held by an assessee, whether or not connected with his business or profession, but does not include-

1. any stock-in-trade, consumable stores or raw materials held for the purposes of his business or profession;
2. personal effects, that is to say, movable property (including wearing apparel and furniture, but excluding jewellery) held for personal use by the assessee or any member of his family dependent on him.
3. agricultural land in India
4. 6 1/2 per cent. Gold Bonds, 1977, or 7 per cent. Gold Bonds, 1980 or National Defence Gold Bonds, 1980 issued by the Central Government;
5. Special Bearer Bonds, 1991, issued by the Central Government;
6. Gold Deposit Bonds issued under the Gold Deposit Scheme, 1999 notified by the Central Government;

(*clause 14 of section 2*)

"Transfer", in relation to a capital asset, includes

1. the sale, exchange or relinquishment of the asset,
2. the extinguishment of any rights therein,
3. the compulsory acquisition thereof under any law,
4. in a case where the asset is converted by the owner thereof into, or is traded by him, as stock-in-trade of a business carried on by him, such conversion or treatment,
5. any transaction involving the allowing of the possession of any immovable property to be taken or retained in part performance of a

contract of the nature referred to in section 53A of the Transfer of Property Act, 1882,

6. any transaction (whether by way of becoming a member of, or acquiring shares in a co-operative society, company or other association of persons or by way of any agreement or any arrangement or in any other manner whatsoever) which has the effect of transferring, or enabling the enjoyment of any immovable property.

(clause 47 of section 2)

Transactions not regarded as Transfers

Section 47 of this Act pertains to transactions which are not regarded as transfers. Instances of transactions which are not regarded as transfers are given below –

1. Any transfer of a capital asset under a gift or will or an irrevocable trust. However, this does not apply to shares, debentures or warrants allotted by a company directly or indirectly to its employees under Employees' Stock Option Plan or Scheme.
2. Any transfer of capital asset by a company to its subsidiary company where the parent company or its nominees hold the whole of the share capital of the subsidiary company, and the subsidiary company is an Indian company.
3. Any transfer of a capital asset by a subsidiary company to the holding company and the whole of the share capital of the subsidiary company is held by the holding company and the holding company is an Indian company.
4. Any transfer of a capital asset or intangible asset by a firm or a company in the business carried on by the firm, or any transfer of a capital asset to a company in the course of demutualization or corporatisation of a recognized stock exchange in India as a result of which an association of persons or body of individuals is succeeded by such company subject to certain conditions.
5. Any transfer of a capital asset being a membership right held by a member of a recognized stock exchange in India for acquisition of shares and trading or clearing rights acquired by such member in that recognized stock exchange in accordance with a scheme for demutualisation or corporatisation which is approved by SEBI.

The exemption from certain transactions from being regarded as transfers is however subject to fulfillment of specified conditions provided for in section 47 and section 47A.

Types of Capital Gains

Capital gains can either be short term capital gains or long term capital gains.

"Short term capital gain" means capital gain arising from the transfer of a short term capital asset (*clause 42B of section 2*).

"Short term capital asset" means a capital asset held by an assessee for not more than thirty-six months immediately preceding the date of its transfer. However, the following assets are considered short term capital asset if the same are held by an assessee for not more than twelve months immediately preceding the date of its transfer –

1. shares held in a company or any other security listed in a recognised stock exchange in India, or
2. units of the Unit Trust of India established under the Unit Trust of India Act, 1963, or
3. units of a Mutual Fund specified under clause (23D) of section 10 (*clause 42A of section 2*).

"Long term capital gain" means capital gain arising from the transfer of a long-term capital asset (*clause 29B of section 2*).

"Long term capital asset" means a capital asset which is not a short term capital asset (*clause 29A of section 2*).

Computation of Capital Gains

The capital gains on short term capital assets is computed by deducting the following from the full value of consideration received or accruing as a result of transfer of the capital asset –

1. Expenditure incurred wholly and exclusively in connection with such transfer
2. The cost of acquisition of the asset and the cost of any improvement thereto. (*section 48*)

The capital gains on long term capital assets is computed in the same way as mentioned above but instead of reducing the cost of acquisition of the asset and the cost of any improvement thereto, the indexed cost of acquisition and the indexed cost of any improvement is considered (*second proviso to section 48*).

Indexed cost of acquisition or improvement means an amount which bears to the cost of acquisition or improvement the same proportion as cost inflation index for the year in which the asset is transferred bears to the cost inflation index for the first year in which the asset was held by the assessee or for the year beginning on 1-4-1981, whichever is later. The cost inflation index (CII) is notified by the Central Government every year (*explanation (iv) to section 48*). The cost inflation index notified for the financial year 2003-2004 is 463.

Specific provisions pertaining to determination of cost of acquisition / cost of improvement

However, it should be noted that for the purpose of computation of long term capital gain / loss arising out of transfer of bonds or debenture other

than capital indexed bonds issued by the Government, the cost of acquisition and improvements cannot be indexed (*third proviso to section 48*).

It may be noted that "first-in-first-out" (FIFO) method is to be applied for the purpose of computation of capital gains in respect of securities held in dematerialised form. Further, where an investor has more than one security account in the depository system, FIFO method will be applied account wise (*clause 2A to section 45*).

The cost of acquisition of rights entitlement in the hands of security holder is Nil. The cost of acquisition of rights shares in the hands of security holder is the amount actually paid by him for acquiring the rights shares. The cost of acquisition of rights shares to the person who buys the rights entitlement from a security holder is the cost paid by him to the company for acquiring the shares plus the amount paid to the person renouncing the rights (*sub-clause (aa) of clause 2 to section 55*).

The cost of acquisition of bonus shares or any other financial assets allotted without payment and on the basis of holding of any other financial asset is taken as Nil (*sub-clause (aa) of clause 2 to section 55*).

Capital Gains Exemptions

The Act provides for exemption from taxation of long term capital gains under various provisions.

Section 54EC provides for exemption of tax on capital gains arising from transfer of a long term capital asset, if the gains are invested in a long term specified asset within a period of 6 months from the date of transfer or sale of the original asset. If the cost of the long term specified asset is less than the capital gain, then, capital gain proportionate to part of capital gain invested will be exempt. After availing the exemption, the assessee has to retain the long term specified asset for a minimum period of three years from the date of its acquisition. Long term specified asset for the purpose of this section are redeemable bonds issued by National Bank for Agricultural and Rural Development, National Highway Authority of India, Rural Electrification Corporation Ltd., National Housing Bank and Small Industries Development Bank of India.

Section 54ED provides for exemption of tax on capital gains arising from transfer of long term capital asset, being listed securities or units of a mutual fund specified under section 10(23D) or of the Unit Trust of India, if the gains are invested in acquiring equity shares of an eligible issue of capital. If the cost of the long term specified asset is less than the capital gain, then, capital gain proportionate to part of capital gain invested will be exempt. After availing the exemption, the assessee has to retain the long term specified asset for a minimum period of one year from the date of its acquisition. Eligible issue of capital means an issue of equity shares for public subscription made by an Indian public company.

Short term capital gain is taxed alongwith other income at normal rates. Long term capital gain is taxed at special rate of 20% subject to certain exceptions. It is further provided that the income-tax on long term capital gains on listed securities / units, considering indexed cost of acquisition and improvement is subjected to a maximum of 10% of capital gains on the said securities / units computed without indexation of cost. (*section 112*)

Where the gross total income of an assessee includes any income arising from the transfer of along term capital asset, the gross total income shall be reduced by the amount of such income and the deduction under Chapter VI-A shall be allowed as if the gross total income as so reduced were the gross total income of the assessee.

Where the total income of an assessee includes any income arising from the transfer of a long-term capital asset, the total income shall be reduced by the amount of such income and the rebate under section 88 shall be allowed from the income-Tax on the total income as so reduced.

Set off and Carry-forward of losses under the head "Capital Gains"

Loss relating to short term capital asset is to be set off against gains from long term capital assets and / or gains from any other short term capital assets in the same assessment year. (*clause 2 of section 70*). Unabsorbed loss relating to short-term capital asset can be carried forward for eight succeeding assessment years and set off against income from capital assets, both long-term and short-term. (*clause 2 of section 74*).

Loss relating to long term capital asset is to be set off only against gains from long term capital assets in the same assessment year (*clause 3 of section 74*). Unabsorbed loss relating to long-term capital asset can be carried forward for eight succeeding assessment years and set off only against long term capital gains (*clause 2 of section 74*).

Numerical Examples pertaining to Capital Gains

Example 1: Mr. P purchased a residential house on 1-6-1997 for Rs. 10,00,000. He sold the same for Rs. 15,00,000 on 1-6-2003. The cost inflation index for the financial 1997-98 and 2003-04 are 331 and 463 respectively. What is the indexed cost of acquisition of the residential house?

Indexed cost of acquisition of the house = Rs. 10,00,000 * 463 / 331
= Rs. 13,98,792

Example 2: In Example 1, if Mr. P has paid Rs. 30,000 to the broker for the purpose of brokering the deal, what is the long term capital gain chargeable to capital gains tax.

		Rs.
Sale price		15,00,000
Less :		
Indexed cost of acquisition	13,98,792	
Expenditure in connection with the sale	20,000	
	-----	14,18,792

Long-term capital gain		81,208

Example 3: Mr. X purchased 100 shares of ABC Ltd. for Rs. 10,000 on 1-10-2000. ABC Ltd. made a rights offer in the ratio of 1:2 at the rate of Rs. 150 per share (i.e. Rs. 10 face value plus Rs. 140 premium, per share) on 1-2-2003. Rights shares were allotted on 1-5-2003. What is the cost of obtaining entitlement of rights shares?

Cost of obtaining entitlement of rights shares in respect of shares already held in the company is Nil.

Example 4: In Example 3, what is the cost of acquisition of rights shares?

Mr. X is entitled to 50 shares under the rights issue. The amount payable per share is Rs. 150. Thus the cost of acquisition of rights shares is Rs. 50 x 150 = Rs. 7,500.

Example 5: In Example 3, if the original shares as well as rights shares were received and held in dematerialized form of which 100 shares have been sold on 1-8-2003, shares from which lot would be considered to have been sold under the provisions of income-tax act?

Original 100 shares purchased on 1-10-2000 would be considered to have been sold under FIFO basis.

Example 6: Continuing from example 3, what is the capital gain tax payable under section 112 if 100 shares are sold by Mr. X at Rs. 175 on 1-8-2003? (Cost inflation index of financial year 2000-01 was 406 and of financial year 2003-04 is 463)

	Considering indexed cost of acquisition	Without indexing cost of acquisition
	Rs.	Rs.
Sale proceeds of 100 shares	17,500	17,500
Less :		
Cost of acquisition	---	10,000
Indexed cost of acquisition (10000 x 463 / 406)	11,404	---
Long-term capital gain	6,096	7,500
Tax @ flat rate of 10%		750
Tax @ flat rate of 20%	1,219	

Since income-tax on long term capital gains on listed securities, considering indexed cost of acquisition and improvement is subject to a maximum of 10% of capital gains on the said securities / units computed without indexation of cost, the tax payable by Mr. X is Rs. 750.

Example 7: In Example 3, If Mr. X renounced the rights entitlement in favour of Mr. Y at a price of Rs. 5 per share, what would be Mr. X's capital gain and what would be the cost of acquisition of the shares for Mr. Y?

Mr. X is entitled to 50 shares of ABC Ltd. Since Mr. X sells his rights entitlement for Rs. 5 per share, the short-term capital gain earned by Mr. X is Rs. 250.

The cost of acquisition of 50 shares of ABC Ltd. to Mr. Y is the aggregate of price paid for obtaining rights entitlement plus the purchase price of shares.

Price paid for obtaining rights entitlement	Rs. 250
Purchase price of shares (50 shares * Rs. 150)	Rs. 7,500

	Rs. 7,750
	=====

Example 8: Mr. A purchased 1000 shares of XYZ Ltd. on 1-6-1987 for Rs. 45,000. He was allotted 1000 bonus shares of the said company on 1-12-2002. He sold a lot of 1000 shares of XYZ Ltd. on 1-7-2003 for Rs. 1,40,000. What will be his capital gain tax considering that Mr. A was allotted bonus shares in dematerialised form? (Cost inflation index: financial year 1987-88 = 150, financial year 2002-03 = 447 and financial year 2003-04 = 463)

	Considering indexed cost of acquisition (in Rs.)	Without indexing cost of acquisition (in Rs.)
Sale proceeds of 1000 shares	140,000	140,000
Less :		
Cost of acquisition	---	45,000
Indexed cost of acquisition (45000 x 463 / 150)	1,38,900	---
Long-term capital gain	1,100	95,000
Tax @ flat rate of 10%		9,500
Tax @ flat rate of 20%	220	

Since the tax liability considering a flat rate of 20% after indexing cost of acquisition is less than tax liability at a flat rate of 10% without indexation of cost of acquisition, tax liability of Mr. A is Rs. 220.

Example 9: In example 8, if Mr. A sells his 1000 bonus shares also at a price of Rs. 140 per share on 1-7-2003 what would be his capital gains?

The cost of acquisition of bonus shares is to be taken as 'nil'. Since bonus shares are held for less than a year, the gain of Rs. 1,40,000 representing sale proceeds on the bonus shares would be considered as short term capital gain.

Example 10: Mr. S purchased 1000 shares of LMN Ltd. on 1-6-2000 at a total cost of Rs. 25,000. He sold the same for Rs. 1,25,000 on 1-3-2003. Of the sale proceeds, he invested Rs. 50,000 in acquiring equity shares of an eligible issue of capital on 1-5-2003. What will be his capital gain chargeable to tax? (Cost inflation index: financial year 2000-01 = 406 and financial year 2003-04 = 463)

Long term capital gain = Rs. 1,00,000

Invested in eligible issue of capital = Rs. 50,000

Capital gain exempt under section 54ED

= capital gain x specified investment / capital gain

= Rs. 1,00,000 x 50,000 / 1,00,000

= Rs. 50,000

Therefore, long term capital gains chargeable to tax = Rs 1,00,000 – Rs 50,000 = Rs. 50,000

Example 11: Mr. B bought 10 bonds of Rs. 1,00,000 each of PQR Ltd. on 1-1-1999 for Rs. 9,90,000. He sold the same on 1-1-2003 for Rs. 10,35,000. What is his capital gain chargeable to tax? (Cost inflation index: financial year 1998-99 = 351 and financial year 2002-03 = 447)

Cost of acquisition of bonds and debentures cannot be indexed for the purpose of computing capital gains. Therefore, the capital gains chargeable to tax is Rs. 45,000 (Rs. 10,35,000 – Rs. 9,90,000)

Example 12: For the financial year 2002-03, salary income of Mr. K was Rs. 5,00,000, short term capital loss was Rs. 25,000 and long term capital gain was Rs. 10,000. What is the total income chargeable to tax for the financial year and whether any loss is required to be carried forward?

Short term capital loss can be set off against long term capital gain in the same year. Thus, short term capital loss to the extent of Rs. 15,000 would be unabsorbed short term capital loss carried forward to next year. The total income chargeable to tax would be Rs. 5,00,000.

Example 13: For the financial year 2002-03, salary income of Mr. Z was Rs. 5,00,000, short term capital gain was Rs. 25,000 and long term capital loss was Rs. 10,000. What is the total income chargeable to tax for the financial year and whether any loss is required to be carried forward?

Long term capital loss can be set off only against any other long term capital gain in the same year. Since the net long term capital loss of Rs. 10,000

cannot be set off against income from any other head, the same would be unabsorbed long term capital loss carried forward to next year. The total income chargeable to tax would be Rs. 5,25,000 (salary income plus short term capital gain).

Example 14: *For the assessment year 2003-04, unabsorbed long term capital loss income of Mr. K was Rs. 5,00,000. State the assessment year till which this loss can be carried forward and set off against long term capital gain of any succeeding year?*

Unabsorbed capital loss (both short-term and long-term) for any assessment year can be carried forward for eight succeeding years. Therefore unabsorbed loss can be set off against long term capital gain in succeeding assessment years upto 2011-12.

DIVIDEND AND INTEREST INCOME

Dividend Income

The term "dividend" has a wide meaning in the Income-tax Act and has been comprehensively defined under clause 22 of section 2.

Dividend is deemed to be the income of the previous year in which it is declared, distributed or paid. The date of accrual of the dividend is taken as the date on which it is declared at the annual general meeting of the company. Interim dividend is deemed to be the income of the year in which the amount of such dividend is unconditionally made available by the company to its shareholders (*section 8*).

Tax on distributed profits of domestic companies

In respect of dividend declared, distributed or paid by a domestic company on or after 1-4-2003, additional income-tax at the rate of 12.50% as income-tax plus surcharge at the rate of 2.50% of the income-tax is payable by such company (*section 115-O*). This amount is thereafter not taxable as income in the hands of the shareholder.

Dividends declared by Mutual Funds

Post any dividend declaration, the Net Asset Value of the scheme is expected to fall to the extent of the dividend declared and distribution tax. Prior to April 1, 2001, there were cases of dividend stripping in an attempt to evade tax. The modus-operandi was that investors would buy units just prior to the record date for declaration of dividend so that it will yield tax-free dividend. Thereafter, the investor would immediately dispose off the units on the ex-dividend date which would result into short-term loss. Thus the assessee would get tax-free dividend and at the same time he would become entitled to the short-term loss, without actually having to stay invested in the fund. The finance ministry recognized this loophole and

plugged the same by introducing Section 94(7) with effect from April 1, 2001.

Section 94(7) of the Income Tax Act provides that in order to claim a set off of any capital loss that arises as a result of fall in the NAV due to declaration of dividend, the investor will have to stay invested in the fund for at least 3 months. Thus, the investor cannot claim a set-off of a capital loss arising out of dividend declaration to the extent of dividend declaration unless he stays invested in the fund for at least 3 months prior to the record date or for at least 3 months after the record date.

Numerical Examples pertaining to dividends from Mutual Funds:

Example 15: *Mr. C purchased 10,000 units of a mutual fund at a net asset value price of Rs. 15 per unit on 1-1-2003. The mutual fund paid a dividend of Rs. 3 per unit (record date: 1-5-2003). Mr. C sold all the units at a net asset value of Rs. 13 per unit on 1-6-2003. What is the capital loss suffered by Mr. C and what extent of the same can be set off?*

$$\begin{aligned}\text{Capital loss} &= (15 \times 10,000) - (13 \times 10,000) \\ &= 15,000 - 13,000 \\ &= \text{Rs. } 20,000.\end{aligned}$$

This capital loss cannot be set off since the units have been sold within 3 months after the record date.

Example 16: *In example 15, if Mr. C sold all the units at a net asset value of Rs. 11 per unit on 1-6-2003. What is the capital loss suffered by Mr. C and what extent of the same can be set off?*

$$\begin{aligned}\text{Capital loss} &= (15 \times 10,000) - (11 \times 10,000) \\ &= 15,000 - 11,000 \\ &= \text{Rs. } 40,000.\end{aligned}$$

$$\text{Dividend earned} = 3 \times 10,000 = \text{Rs. } 30,000$$

This capital loss cannot be set off to the extent of dividend earned since the units have been sold within 3 months after the record date. However, capital loss to the extent of Rs. 10,000 (i.e. Rs. 40,000 – Rs. 30,000) can be set off against any other short term or long term capital gain during the year.

Interest on securities

Interest on securities means:

1. interest on any security of the Central Government or a State Government,
2. interest on debentures or other securities for money issued by or on behalf of a local authority or a company or a corporation established by a Central, State or provincial Act.

Income from interest on securities is chargeable under the head "Profits and gains of business or profession", if the securities are held as stock-in-trade. If they are held as investment, the interest therefrom will be chargeable under the head "Income from other sources".

Any person paying interest on securities is liable to deduct tax at source at specified rates. However, deduction of tax is not required on interest payable on any security of the Central Government or State Government. Deduction of tax is also not required on interest payable in certain other cases as per provisions of this Act.

OTHER PROVISIONS

Deductions to be made in computing total income

Chapter VI-A of the Act specifies the deductions to be made from the total income of an assessee. Of the various provisions in this chapter, the sections which have a bearing on the financial markets are as follows:

1. Amount paid or deposited in previous year by an individual assessee to effect or keep in force a contract for any annuity plan of LIC or any other insurer for receiving pension is deductible from the gross total income. This deduction is subject to an amount of Rs. 10,000. (section 80CCC)
2. Dividend received from any co-operative society and interest earned on government securities, National Savings Certificates, various deposit schemes of Post Office, deposits with a banks and co-operative society, notified debentures of any co-operative society or institution or any public sector company, etc. These incomes are deductible from the gross total income for the purpose of arriving at the total income for determination of tax liability subject to limit specified in the Act. (section 80L)

Rebate to be allowed in computing income-tax

After computing the income-tax on the total income, rebate is allowed under sections 88, 88B and 88C.

Under section 88, a rebate of tax is allowed on the eligible amount spent / contributed by an individual or a Hindu undivided family towards subscription to mutual fund units, subscription to equity shares or debentures, etc. The contributions made for the purpose of claiming this rebate are subject to various conditions and the amount of rebate allowed is also subject to certain income criteria specified in the Act.

Permanent Account Number

Clause 5 of section 139 of the Act provides for quoting of permanent account number in all documents pertaining to specified transactions, class of transactions or different class of persons as prescribed by the Central Board of Direct Taxes from time to time. It has also been provided that a

person should intimate General Index Register Number till allotment of permanent account number.

Accordingly, sub-rule (e) of rule 114B of the Income-tax Rules, 1962 requires every person entering into a contract of a value exceeding one lakh rupees for sale or purchase of securities to quote permanent account number or General Index Register Number.

A DISCUSSION ON TAX ON DERIVATIVES

The income-tax Act does not have any specific provision regarding taxability from derivatives. Hence we restrict ourselves to a discussion on the topic of taxability of derivatives. The reader may keep track of the developments in this regard as and when they occur.

The only provisions which have an indirect bearing on derivative transactions are sections 73(1) and 43(5). Section 73(1) provides that any loss, computed in respect of a speculative business carried on by the assessee, shall not be set off except against profits and gains, if any, of speculative business. Section 43(5) of the Act defines a speculative transaction as a transaction in which a contract for purchase or sale of any commodity, including stocks and shares, is periodically or ultimately settled otherwise than by actual delivery or transfer of the commodity or scrips. It excludes the following types of transactions from the ambit of speculative transactions:

1. A contract in respect of stocks and shares entered into by a dealer or investor therein to guard against loss in his holding of stocks and shares through price fluctuations; and
2. A contract entered into by a member of a forward market or a stock exchange in the course of any transaction in the nature of jobbing or arbitrage to guard against loss which may arise in ordinary course of business as such member.

From the above, it appears that a transaction is speculative, if it is settled otherwise than by actual delivery. The hedging and arbitrage transactions, even though not settled by actual delivery are considered non-speculative. A transaction to be speculative, therefore, requires that:

1. the transaction is in commodities, shares, stock or scrips,
2. the transaction is settled otherwise than by actual delivery,
3. the participant has no underlying position, and
4. the transaction is not for jobbing/arbitrage

In the absence of a specific provision, it is apprehended that the derivatives contracts, particularly the index futures which are essentially cash-settled, may be construed as speculative transactions and therefore the losses, if any, will not be eligible for set off against other income of the assessee and

will be carried forward and set off against speculative income only up to maximum of eight years.

The fact, however, is that derivative contracts are not for purchase/sale of any commodity, stock, share or scrip. Derivatives are a special class of securities under the SC(R)A, 1956 and do not in any way resemble any other type of securities like share, stocks or scrips. Derivative contracts, particularly index futures are cash-settled, as these cannot be settled otherwise. As explained earlier, derivative contracts are entered into by hedgers, speculators and arbitrageurs. A derivative contract has any of these two parties and hence some of the derivative contracts, not all, have an element of speculation. At least one of the parties to a derivative contract is a hedger or an arbitrageur. It would, therefore, be unfair to treat derivative transactions as speculative. Otherwise it would be a penalty on hedging which the Securities Laws (Amendment) Act, 1999 seeks to promote. In view of these difficulties in applying the existing provisions, it is desirable to clarify or make special provision for derivatives of securities.

Section 43 is relevant in case of contracts where actual delivery is possible, but these are settled otherwise than by actual delivery. This provision cannot be applied to derivatives, particularly index futures, which can be settled only by cash. There cannot be actual delivery. Hence the actual delivery for a contract to be non-speculative cannot be applied to derivatives contracts.

As emphasised by the L C Gupta Committee, the futures market should have speculative appeal. This means, the speculators have to be treated equitably, that is at least at par with hedgers, if not better. All types of participants need to be provided level playing field so that the market is competitive and efficient. As regards taxability, the law should not treat income of the hedger, speculators and arbitrageurs differently. Income of all the participants from derivatives needs to be treated uniformly.

Further, a transaction is considered speculative, if a participant enters into a hedging transaction in scrips outside his holdings. It is possible that an investor does not have all the 30 or 50 stocks represented by the index. As a result an investor's losses or profits out of derivatives transactions, even though they are of hedging nature in real sense, it is apprehended, may be treated as speculative. This is contrary to capital asset pricing model which states that portfolios in any economy move in sympathy with the index although the portfolios do not necessarily contain any security in the index. The index futures are, therefore, used even for hedging the portfolio risk of non-index stocks. An investor who does not have the index stocks can also use the index futures to hedge against the market risk as all the portfolios have a correlation with the overall movement of the market (i.e. the index).

In view of the practical difficulties in administration of tax for different purposes of the same transaction, inherent nature of derivative contract requiring its settlement otherwise than by actual delivery, need to promote level playing field to all parties to derivatives contracts, and the need to promote derivatives markets, it is suggested that the exchange-traded

derivatives contracts are exempted from the purview of speculative transactions. These must, however be taxed as normal business income. This would be fiscally more prudent.

Model Questions

1. Every member of a recognised stock exchange shall maintain and preserve the Register of transactions (Sauda book) for a period of _____ years.

(a) five; (b) three;
(c) two; (d) seven

Correct Answer: (a)

2. The intermediaries and persons associated with securities market shall be registered with _____.

(a) DCA; (b) MoF;
(c) SEBI; (d) ROC

Correct Answer: (c)

3. As per the provisions of SEBI (Prohibition of Insider Trading) Regulations, any person who holds more than _____ shares or voting rights in any listed company shall make such disclosure to the company.

(a) 10 %; (b) 5%;
(c) 2%; (d) 3%.

Correct Answer: (b)

4. The minimum paid-up capital of private company is Rs. 1 lakh.

(a) 10 lakh; (b) 5 lakh;
(c) 1 lakh; (d) 2 lakh

Correct Answer: (c)

5. The minimum paid-up capital of public company is Rs. _____.

(a) 10 lakh; (b) 5 lakh;
(c) 1 lakh; (d) 2 lakh

Correct Answer: (b)

6. "Assessment year" means _____.

(a) the period of twelve months commencing on 1st day of April every year
(b) the period of twelve months commencing on 1st day of January every year
(c) the 1st day of January every year
(d) the 1st day of April every year

Correct Answer: (a)

7. "Short term capital asset" in relation to shares and units of UTI & mutual funds means a capital asset held by an assessee _____
- (a) for more than twelve months immediately preceding the date of its transfer.
 - (b) for more than thirty six months immediately preceding the date of its transfer.
 - (c) for not more than twelve months immediately preceding the date of its transfer.
 - (d) for not more than thirty six months immediately preceding the date of its transfer.

Correct Answer: (c)

8. Permanent account number or General Index Register Number is required to be quoted by every person entering into a contract of value_____.
- (a) exceeding Rs. 10,000/-
 - (b) exceeding Rs. 50,000/-
 - (c) exceeding Rs. 1,00,000/-
 - (d) none of the above

Correct Answer: (c)

9. Mr. A purchased 100 shares of XYZ Ltd. for Rs. 10,00,000/- on 1st January, 2001. He sold the same for Rs. 12,00,000/- on 1st January, 2003. The income of Rs. 2,00,000 (without considering indexation) earned by him is his _____.
- (a) short term capital gain
 - (b) long term capital gain
 - (c) speculation gain
 - (d) income from other sources

Correct Answer: (b)

10. Loss relating to long term capital asset is to be set off _____.
- (a) against gains from short term or long term capital assets in the same assessment year
 - (b) only against gains from long term capital assets in the same assessment year
 - (c) against income from any other heads of income in the same assessment year
 - (d) none of the above

Correct Answer: (b)

CHAPTER 7: MATHEMATICS AND STATISTICS

7.1 MEASURES OF CENTRAL TENDENCY

An average is a value that is typical, or representative, of a set of given data. Since such typical values tend to lie centrally within a set of data arranged according to magnitude, averages are also called measures of central tendency.

7.1.1 Mean

Mean is an average value of a set of the values. It indicates the central value of the overall population. It equals to the sum of all the values over (divided by) the number of observations. It is also known as arithmetic mean. The arithmetic mean, or briefly the mean, of a set of N numbers $X_1, X_2, X_3, \dots, X_N$ is denoted by $\bar{X}$ (read "X bar") and is defined as:

$$\bar{X} = \frac{X_1 + X_2 + X_3 + \dots + X_N}{N} = \frac{\sum_{j=1}^N X_j}{N} = \frac{\sum X}{N}$$

Example 1: The arithmetic mean of the numbers 8, 3, 5, 12, and 10 is

$$\bar{X} = \frac{8+3+5+2+12+10}{5} = \frac{38}{5} = 7.6$$

7.1.2 The weighted Arithmetic mean

The mean is computed either without weights or with weights. The weighted mean refer to assigning the weights ($w_1, w_2, \dots, w_n$) to each value ($X_1, X_2, X_3, \dots, X_N$) multiplying them and summing such values. Each weight depends on the significance or importance attributed to each value. In this case,

$$\bar{X} = \frac{w_1X_1 + w_2X_2 + \dots + w_nX_n}{w_1 + w_2 + \dots + w_n} = \frac{\sum wX}{\sum w}$$

is called the weighted arithmetic mean.

Example 2: If a final examination in a course, is weighted 3 times as much as each of the two internal assignments and a student has a final examination grade of 85 and internal assignment grades of 70 and 90, the mean grade is:

$$\bar{X} = \frac{(1)(70) + (1)(90) + (3)(85)}{1+1+3} = \frac{415}{5} = 83$$

Thus, it is simply sum of weighted value of each observation.

7.1.3 Geometric Mean

Geometric Mean (GM) is theoretically considered to be the best average in measuring returns from securities.

The geometric mean, G, of a set on N positive numbers $X_1, X_2, X_3, \dots, X_n$ is

the Nth root of the product of the numbers:

$$G = \sqrt[N]{X_1 X_2 X_3 \dots X_n}$$

Example 3: The geometric mean of the numbers 2, 4, and 8 is:

$$G = \sqrt[3]{(2)(4)(8)} = \sqrt[3]{64} = 4.$$

If there are two items, square root is taken; if there are three items, then cube root and so on. Geometric mean can be computed through logarithmic method or by using a calculator.

7.1.4 Variance and Standard Deviation

Variance: The occurrence of an event may deviate from the mean or an expected value. The spread of such occurrences around the expected value can be measured by variance. Thus, variance equals to average of squares of the deviation of each value from the mean. It may be expressed as:

$$\text{Variance} = s^2 = \text{OR } \sigma^2 = \frac{\sum_{j=1}^N (X_j - \bar{X})^2}{N} = \frac{\sum (X - \bar{X})^2}{N} = \frac{\sum x^2}{N}$$

where x represents the deviations of each of the numbers X_j from the mean

$\bar{X}$.

Standard deviation has been used as a proxy measure for risk of a security. It measures the fluctuations around mean returns. It equals to the positive square root of variance.

$$\text{Standard deviation} = \sqrt{\text{Variance}} = \sigma / S = \sqrt{\frac{\sum_{j=1}^N (X_j - \bar{X})^2}{N}} = \sqrt{\frac{\sum (X - \bar{X})^2}{N}}$$

Where it is necessary to distinguish the standard deviation of a population from the standard deviation of a sample drawn from this population, we often use the symbol 's' for the letter and 'σ' (lower case Greek sigma) for the former. Thus, 's²' and 'σ²' would represent the *sample variance* and *population variance*, respectively. Sometimes the standard deviation of a sample's data is defined with (N-1) replacing N in the denominations in above equations because the resulting value represents a better estimate for the standard deviation of a population from which the sample is taken. For large values of N (certainly N>30), there is practically no difference between the two definitions.

Example 5: The stock returns of the company A for past five years are 10%, 20% 5%, 30% and 35%. What is the standard deviation of the returns for the returns of the company A?

$$\bar{X} = \frac{10 + 20 + 5 + 30 + 35}{5} = 20$$

$$\sigma = \sqrt{\frac{\sum_{j=1}^N (X_j - \bar{X})^2}{N}}$$

$$\sigma = \sqrt{\frac{[(10 - 20)]^2 + [(20 - 20)]^2 + [(5 - 20)]^2 + [(30 - 20)]^2 + [(35 - 20)]^2}{5}}$$

$$\sigma = \sqrt{\frac{(-10)^2 + (0)^2 + (-15)^2 + (10)^2 + (15)^2}{5}} = \sqrt{\frac{100 + 0 + 225 + 100 + 225}{5}} =$$

$$\sqrt{\frac{650}{5}}$$

$$\sigma = \sqrt{130} = 11.40$$

7.1.5 Coefficient of Variation

The actual dispersion/variation as determined by standard deviation, is called absolute dispersion. Relative dispersion, on the other hand gives feel

about absolute dispersion relative to mean/average. In other words, If the absolute dispersion is the standard deviation (σ) and average is the mean

($\bar{X}$), then the relative dispersion is called 'coefficient of dispersion' or 'coefficient of variation' (V). It is given by:

$$V = \frac{\sigma}{\bar{X}}$$

It is generally expressed as a percentage.

Example 6: Security A gives a return of 12% with a dispersion of 4%, while security B gives a return of 20% with a dispersion of 5%. Which security is more risky?

Coefficient of Variation for Security A = $(4/12) = 0.33$ or 33% and

Coefficient of Variation for Security B = $(5/20) = 0.25$ or 25%. Therefore, the security A is more risky in relation to its return.

7.1.6 Covariance

Covariance describes the nature of relationship between two variables/securities. If X and Y are two securities, then the covariance between the two securities is given by the following formula:

$$\text{cov}_{xy} = \frac{[(X_i - \bar{X})(Y_i - \bar{Y})]}{N} \quad \text{where } i = (1, 2, 3, \dots, n)$$

When two securities are combined, if rates of return of two securities move together, their interactive risk/covariance is said to be positive and vice versa. If rates of return are independent, then the covariance is zero.

7.1.7 Coefficient of Correlation

Coefficient of correlation is another measure designed to indicate the similarity or dissimilarity in the behaviour of two variables (here two securities x and y). The total variation consists of explained variation as well as unexplained variation. The ratio of the explained variation to the total variation is called the 'co-efficient of determination'. Since the ratio is always non-negative, it is denoted by ρ^2 . The quantity ρ_{xy} is called the coefficient of correlation and is given by:

$$\rho_{xy} = \frac{\text{cov}_{xy}}{\sigma_x \sigma_y}$$

where, σ_x = standard deviation of x

σ_y = standard deviation of y

It ranges between -1 and +1 (+1 perfectly correlated, 0 uncorrelated and -1 perfectly negatively correlated).

7.1.8 Normal Distribution

A distribution function is often used to define a behaviour of a population (values in a population). A function can be discrete (Binomial, Poisson etc.) or continuous (Normal, Gaussian etc.). The Normal distribution is a continuous probability distribution function defined in terms of mean and standard deviation. The shape of a normal distribution is a symmetrical and bell-shaped curve. The mean, median and mode are the same under normal distribution. The probability of any value falling within any range can be determined. With $\pm 1\sigma$ from the mean, there will be a 68.5% probability of an outcome occurring, with $\pm 2\sigma$ from the mean there will be a 95% probability, and with $\pm 3\sigma$ deviation from the mean, there will be a 99% probability. The stock price over a period of time tends to follow a pattern which is similar to the normal distribution.

Example : A stock is at Rs.1000 on day 1. The total risk ' σ ' of the stock is 3% per day. What range of prices would be observed on day 2 with 99% probability?

At 99% probability, the value can lie anywhere between $\pm 3\sigma$ from the mean. That is, the price can vary from $1000 - (3 * 3\% * 1000) = 1000 - 90 = \text{Rs.}910$

to $1000 + (3 * 3\% * 1000) = 1000 + 90 = \text{Rs.}1090$

Hence, the price can vary between Rs.910 to Rs.1090 on the next day.

7.2 RETURN AND RISK

Return and risk are the two key determinants of security prices or values. This calls for an explicit and quantitative understanding of the concepts.

7.2.1 Return and Risk of a Single Asset

Return on an investment/asset for given period, say a year, consists of annual income (dividend) receivable plus change in market price. Symbolically,

$$\text{Rate of Return (R)} = \frac{Yd_t + (P_t - P_{t-1})}{P_{t-1}}$$

Where,

Yd_t = annual income/cash dividend at the end of time period 't'.

P_t = security price at time period 't' which is closing/ending price.

P_{t-1} = security price at time period 't-1' which is opening/beginning price.

For example, for a security if price at the beginning of the year is Rs. 50.00; dividend receivable at the end of the year is Rs. 2.50; and price at the end of the year is Rs. 55.00 then, the rate of return on this security is:

$$\frac{2.50 + (55.00 - 50.00)}{50} = 0.15 = 15\% .$$

The rate of return of 15 per cent has two components:

(i) Current yield i.e annual income ÷ opening/beginning price = $2.50 \div 50.00 = .05 = 5\%$ and

(ii) Capital gains/loss yield, i.e. (end price-opening price) ÷ opening/beginning price = $(Rs.55 - Rs. 50) \div Rs. 50 = 0.1 = 10\%$

Risk may be described as variability/fluctuation/deviation of actual return from expected return from a given asset/investment. Higher the variability, greater is the risk. In other words, the more certain the return from an asset, lesser is the variability and thereby lesser is the risk.

Types of Risks:

The risk of a security can be broadly classified into two types such as systematic risk and unsystematic risk. Standard deviation has been used as a proxy measure for total risk.

Systematic Risk

Systematic Risk refers to that portion of total variability (/risk) in return caused by factors affecting the prices of all securities. Economic, political, and sociological changes are the main sources of systematic risk. Though it affects all the securities in the market, the extent to which it affects a security will vary from one security to another. Systematic risk can not be diversified. Systematic risk can be measured in terms of Beta (β), a statistical measure. The beta for market portfolio is equal to one by definition. Beta of one ($\beta=1$), indicates that volatility of return on the security is same as the market or index; beta more than one ($\beta>1$) indicates that the security has more unavoidable risk or is more volatile than market as a whole, and beta less than one ($\beta<1$) indicates that the security has less systematic risk or is less volatile than market.

Unsystematic risk

Unsystematic Risk refers to that portion of total risk that is unique or peculiar to a firm or an industry, above and beyond that affecting securities markets in general. Factors like consumer preferences, labour strikes, management capability etc. cause unsystematic risk (/variability of returns) for a company's stock. Unlike systematic risk, the unsystematic risk can be reduced/avoided through diversification. Total risk of a fully diversified

portfolio equals to the market risk of the portfolio as its specific risk becomes zero.

Measurement of Risk for a Single Asset:

The statistical measures of a risk of an asset are: (a) Standard Deviation and (b) Co-efficient of variation.

(a) *Standard Deviation of Return*: Standard deviation, as discussed earlier, is the most common statistical measure of risk of an asset from the expected value of return. It represents the square root of average squared deviations of individual returns from the expected return. Symbolically,

$$\sigma = \sqrt{\sum_{i=1}^n \frac{(R_i - \bar{R})^2}{N}}$$

(b) *Co-efficient of variation*: is a measure of risk per unit of expected return. It converts standard deviation of expected values into relative values to enable comparison of risks associated with assets having different expected values. The coefficient of variation (CV) is computed by dividing the standard deviation of return, σ_R , for an asset by its expected value, $\bar{R}$. Symbolically,

$$CV = \frac{\sigma_R}{\bar{R}}$$

The larger the CV, the larger the relative risk of the asset.

7.2.2 Return and Risk of a portfolio

Investors prefer investing in a portfolio of assets (combination of two or more securities/assets) rather than investing in a single asset. The expected returns on a portfolio is a weighted average of the expected returns of individual securities or assets comprising the portfolio. The weights are equal to the proportion to amount invested in each security to the total amount.

For example, when a portfolio consists of two securities, its expected return is:

$$\bar{R}_P = w_1 \bar{R}_1 + (1 - w_1) \bar{R}_2$$

where,

$\bar{R}_P$ = Expected return on a portfolio

w_1 = proportion of portfolio invested in security 1

$(1 - w_1)$ = proportion of portfolio invested in security 2.

In general, expected return on a portfolio consisting of 'n' securities is expressed as:

$$\bar{R}_P = \sum_{i=1}^n w_i \bar{R}_i$$

Illustration: What is the portfolio return, if expected returns for the three assets such as A, B, and C, are 20%, 15% and 10% respectively, assuming that the amount of investment made in these assets are Rs. 10,000, Rs. 20,000, and Rs. 30,000 respectively.

Weights for each of the assets A, B, and C respectively may be calculated as follows:

Total Amount invested in the portfolio of 3 assets (A, B, and C) = Rs. 10,000 + Rs. 20,000 + Rs.30,000 = Rs. 60,000.

Weight for the asset A	= 10000/60000	= 1/6 = 0.1667
Weight for the asset B	= 20000/60000	= 1/3 = 0.3333
Weight for the asset C	= 30000/60000	= 1/2 = 0.5

Given expected returns for the three assets A, B, and C, as 20%, 15% and 10% respectively, Returns on Portfolio
 = (0.1667*0.20)+(0.3333*0.15)+(0.5*0.10)
 = 0.13334*100 =13.33%

Measurement of Risk for a portfolio

According to the Modern Portfolio Theory, *while the expected return of a portfolio is a weighted average of the expected returns of individual securities (or assets) included in the portfolio, the risk of a portfolio measured by variance(or standard deviation) is **not** equal to the weighted average of the risk of individual securities included in the portfolio.* The risk of a portfolio not only depends on variance/risk of individual securities but also on co-variances between the returns on the individual securities.

Given the covariance between the returns on the individual securities, the portfolio variance consisting of 'n' securities is calculated as:

$$\text{Var}(R_p) = \sigma_p^2 = \sum_{a=1}^n \sum_{b=1}^n w_a w_b \text{Cov}(R_a, R_b) \quad (7.1)$$

Since the covariance between two variables is the product of their standard deviations multiplied by their co-efficient of correlation, covariance between the returns on two securities, [Cov(R_a, R_b)] may be expressed as:

$$\text{Cov}(R_a, R_b) = \rho_{ab} \sigma_a \sigma_b$$

where,

ρ_{ab} = coefficient of correlation between R_a and R_b

σ_a = standard deviation of R_a

σ_b = standard deviation of R_b

Hence, in case co-variances are not known and correlation co-efficients are given, the Portfolio variance (σ_p^2) can be calculated with following formula:

$$\sigma_p^2 = \sum_{a=1}^n \sum_{b=1}^n w_a w_b \rho_{ab} \sigma_a \sigma_b$$

(7.1a)

Portfolio with Two Securities:

Assuming a portfolio consisting of two securities (i.e. $n=2$), Portfolio Variance for the two securities is calculated by substituting $n=2$ in the formula (7.1) as follows:

$\text{Var}(R_p) =$

$$\sigma_p^2 = w_1 w_1 \rho_{1,1} \sigma_1 \sigma_1 + w_1 w_2 \rho_{1,2} \sigma_1 \sigma_2 + w_2 w_1 \rho_{2,1} \sigma_2 \sigma_1 + w_2 w_2 \rho_{2,2} \sigma_2 \sigma_2 \quad (7.2)$$

The first and the last terms can be simplified. Clearly the return on a security is perfectly (positively) correlated with itself. Thus, $\rho_{1,1}=1$, as does $\rho_{2,2}=1$. Because $\rho_{2,1}=\rho_{1,2}$, the second terms can be combined. The result is:

$$\text{Portfolio Variance, } \text{Var}(R_p) = \sigma_p^2 = w_1^2 \sigma_1^2 + w_2^2 \sigma_2^2 + 2 w_1 w_2 \rho_{1,2} \sigma_1 \sigma_2$$

OR substituting $\rho_{1,2} \sigma_1 \sigma_2$ by $\text{Cov}(1, 2)$, we get,

$$\text{Var}(R_p) = \sigma_p^2 = w_1^2 \sigma_1^2 + w_2^2 \sigma_2^2 + 2 w_1 w_2 \text{Cov}(1, 2)$$

Portfolio Risk (standard deviation) $\sigma_p = \sqrt{\text{Portfolio Variance}}$

Illustration: The standard deviation of the *two securities* (a, b) are 20% and 10% respectively. The two securities in the portfolio are assigned equal weights. If their correlation coefficient is +1, 0 or -1 what is the portfolio risk?

(i) When the correlation is +1

$$\begin{aligned} \text{Portfolio Variance} &= 0.5^2 * 0.2^2 + 0.5^2 * 0.1^2 + 2 * 0.5 * 0.5 * \text{Cov}(a, b) \\ &= 0.25 * 0.04 + 0.25 * 0.01 + 2 * 0.25 * 1 * 0.2 * 0.1 \\ &= 0.0100 + 0.0025 + 2 * 0.25 * 1 * 0.02 \\ &= 0.0100 + 0.0025 + 0.0100 \\ &= 0.0225 \end{aligned}$$

$$\text{Portfolio Risk (Standard Deviation)} = \sqrt{\text{Portfolio Variance}} = 0.15$$

(ii) When the correlation is 0

$$\begin{aligned}\text{Portfolio Variance} &= 0.5^2 \cdot 0.2^2 + 0.5^2 \cdot 0.10^2 + 2 \cdot 0.5 \cdot 0.5 \cdot \text{Cov}(a, b) \\ &= 0.0100 + 0.0025 + 0 \\ &= 0.0125\end{aligned}$$

$$\text{Portfolio Risk (Standard Deviation)} = \sqrt{\text{Portfolio Variance}} = 0.1118$$

(iii) When the correlation is -1

$$\begin{aligned}\text{Portfolio Variance} &= 0.5^2 \cdot 0.2^2 + 0.5^2 \cdot 0.10^2 + 2 \cdot 0.5 \cdot 0.5 \cdot \text{Cov}(a, b) \\ &= 0.0100 + 0.0025 + (-0.0100) \\ &= 0.0025\end{aligned}$$

$$\text{Portfolio Risk (Standard Deviation)} = \sqrt{\text{Portfolio Variance}} = 0.05$$

Portfolio with Three Securities:

Illustration:

Consider the following three securities and the relevant data on each:

	Security1	Security2	Security3
Expected return	10	12	8
Standard deviation	10	15	5
Correction coefficients:			
Stocks 1, 2 = .3			
2, 3 = .4			
1, 3 = .5			

The proportion (weights) assigned to each of the securities as security 1= 0.2; security 2=0.4; and security 3=0.4. What is portfolio risk?

Using the formula for portfolio risk (equation 7.1) and expanding it for N = 3, we get:

$$\begin{aligned}\sigma_p^2 &= W_1^2 \sigma_1^2 + W_2^2 \sigma_2^2 + W_3^2 \sigma_3^2 + 2W_1 W_2 \rho_{1,2} \sigma_1 \sigma_2 + 2W_1 W_3 \rho_{1,3} \sigma_1 \sigma_3 \\ &\quad + 2W_2 W_3 \rho_{2,3} \sigma_2 \sigma_3\end{aligned}$$

Capital Asset Pricing Model

Portfolio Theory developed by Harry Markowitz is essentially a normative approach as it prescribes what a rational investor should do. On the other hand, Capital Asset Pricing Model (CAPM) developed by William Sharpe and others is an exercise in positive economics as it is concerned with (i) what is the relationship between risk and return for efficient portfolio? and (ii) What

is the relationship between risk and return for an individual security? CAPM assumes that individuals are risk averse.

CAPM describes the relationship/trade-off between risk and expected/required return. It explains the behaviour of security prices and provides mechanism to assess the impact of an investment in a proposed security on risks and return of investors' overall portfolio. The CAPM provides framework for understanding the basic risk-return trade-offs involved in various types of investment decisions. It enables drawing certain implications about risk and the size of risk premiums necessary to compensate for bearing risks.

Using beta (β) as the measure of nondiversifiable risk, the CAPM is used to define the required return on a security according to the following equation:

$$R_s = R_f + \beta_s (R_m - R_f)$$

Where:

R_s = the return required on the investment

R_f = the return that can be earned on a risk-free investment (e.g. Treasury bill)

R_m = the average return on all securities (e.g., S&P 500 Stock Index)

β_s = the security's beta (systematic) risk

It is easy to see the required return for a given security increases with increases in its beta.

Application of the CAPM can be demonstrated. Assume a security with a beta of 1.2 is being considered at a time when the risk-free rate is 4 percent and the market return is expected to be 12 percent. Substituting these data into the CAPM equation, we get

$$\begin{aligned} R_s &= 4\% + [1.20 * (12\% - 4\%)] \\ &= 4\% + [1.20 * 8\%] \\ &= 4\% + 9.6\% = 13.6\% \end{aligned}$$

The investor should therefore require a 13.6 percent return on this investment a compensation for the non-diversifiable risk assumed, given the security's beta of 1.2. If the beta were lower, say 1.00, the required return would be 12 percent $[4\% + [1.00 * (12\% - 4\%)]]$; and if the beta had been higher, say 1.50, the required return would be 16 percent $[4\% + [1.50 * (12\% - 4\%)]]$. Thus, CAPM reflects a positive mathematical relationship between risk and return, since the higher the risk (beta) the higher the required return.

7.3 FUNDAMENTAL ANALYSIS

Fundamental analysis is an examination of future earnings potential of a company, by looking into various factors that impact the performance of the company. The prime objective of a fundamental analysis is to value the stock and accordingly buy and sell the stocks on the basis of its valuation in the market. The fundamental analysis consists of economic, industry and company analysis. This approach is sometimes referred to as a top-down method of analysis.

7.3.1 Valuation of a Stock

Dividend Discount Model

According to Dividend Discount Model (DDM), the value of a stock is equal to the present value of all future cash flows in the form of dividends plus the present value of the sale price expected when the equity share is sold. The DDM assumes that the a constant amount of dividend is paid annually and that the first dividend is received one year after the equity share is bought. If investors expect to hold an equity share for one year, then the current price of the share can be calculated as:

$$P_0 = \frac{D_1}{(1+r)} + \frac{P_1}{(1+r)}$$

Where

P_0 = Current price/market price of the share today

D_1 = Dividend expected at end of year 1

r = required rate of return/discount rate

P_1 = market price/expected price of share at end of year 1

Illustration

In future, a company is expected to consistently pay dividend of 15% p.a on its share par value of Rs. 100. If the investors' required rate of return on the share is 12%, What would be the current theoretical value (sell price) of the share now?

Given, Dividend = D_1 = Rs. 15; r = 12%; P_1 = 100 the current price (P_0) will be:

$$P_0 = \frac{D_1}{(1+r)} + \frac{P_1}{(1+r)} = \frac{15}{1.12} + \frac{100}{1.12} = \text{Rs. } 102.68$$

Constant Growth DDM:

Constant Growth DDM presumes that the dividend per share is growing at constant rate (g). The value of the share (P_0) can be calculated as:

$$P_0 = \frac{D_1}{r - g}$$

Where,

D_1 = Dividend per share at the end of first year.

r = Expected rate of return/Discount rate

g = Constant growth rate

Illustration: In future, company is expected to pay dividend of 15% p.a with growth rate of 5% on its share par value of Rs. 100. If the required rate of return on the share is 12%, What is the theoretical value of the share?

$$P_0 = \frac{15}{(0.12 - 0.05)} = \frac{15}{0.07} = \text{Rs.}214.29$$

7.3.2 Economic Analysis

It is important to analyse the economic activity in which all the companies operate. The economic activity affects profits of a company, investor's attitude as well as expectations and, value of a security.

Economic Indicators*Global Economy*

The top-down analysis of a company starts with global and domestic economy. The globalization affects a company's prospects of exports, price competition, and exchange rate.

Domestic Economy

GDP is the measure of the total production of goods and services in an economy. Growing GDP indicates an expanding economy. An Indian economy is affected by both agricultural production as well as industrial production and services. The good and normal monsoon indicates a good and normal agricultural production and increasing income of farmers and agricultural labour. Industrial production statistics reveals the status of industrial activity in the country.

Employment: Unemployment rate is the percentage of the total labour force in the country. The unemployment rate indicates how the economy operates at full capacity.

Inflation is the rate at which the general level of prices is rising. High rate of inflation indicates economy is operating with full associated with demand for

goods and services exceed production capacity. The government should try to trade-off between inflation rate and unemployment rate to increase the employment as well as decrease the inflation rate.

Interest Rates: As interest rate determines the present value of cash flows, high interest rate affects demand for housing and high-value consumer durables. The real interest rate is an important factor for business activity.

Budget Deficit: The budget deficit is the difference between government spending and revenues. Higher budget deficit indicates higher government borrowing which pressure up interest rates. The excessive government borrowing will crowd out private borrowing if the borrowing is unchecked. Fiscal deficit is budget deficit plus borrowing. Higher fiscal deficit indicates higher government spending on unproductive spending.

Other Factors: Money supply, Fiscal Policy, Monetary Policy, Manufacturing and trade sales, Labour productivity, Index of consumer expectations, New acquisition of plants and machinery by corporates, Stock prices, Personal income, Tax collections by the government, FII investments, FDI investments, Credit off takes etc.

7.3.3 Industry Analysis

Recessions or expansions in economic activity may translate into falling or rising stock markets with different relative price changes among industry groups. For the analyst, industry analysis calls for insight into (1) the key sectors or subdivisions of overall economic activity that influence particular industries, and (2) the relative strength or weakness of particular industry or other groupings about economic activity.

Major Classifications

The industry can be classified by product and services in the categories like Basic Industries, Capital Goods, Consumer Durables, Consumer Non-Durables, Consumer Services, Energy, Financial Services, Health Care, Public Utilities, Technology, Transportation etc.

Classification based on Business Cycles: Industry can be classified on the basis of its reaction to upswings and downswings of the economy which is known as business cycles. General classifications of the industry based on the business cycles are growth industry, cyclical industry, defensive industry, and cyclical-growth industry.

- *Growth industry:* The major characteristics of a growth industry are higher rate of expansion, growth in earnings, and independent of the business cycles. Often associated with technological changes or innovative means of carrying out things. Between 40's and 60's, industries like photography, colour television, computers,

pharmaceuticals, office equipments were growth industries. Communication equipments, Software, genetic engineering, and environmental/waste management are the recent growth industries.

- *Cyclical industry*: It is most likely to benefit from a period of economic prosperity and suffer from economic recession. Consumer durables are the major cyclical industry.
- *Defensive industry*: is likely to get least affected during the periods of economic downswing as consists of items necessary for existence. The demand for these products is considered to be counter cyclical. Food processing industry, consumer non-durables fall in the category of defensive industry.

Other Factors: Past Sales and Earnings Performance, Government policy and regulation toward industry, Labour conditions, Competitive conditions, Industry life cycle, International investing community attitude, Industry share price etc.

7.4 TECHNICAL ANALYSIS

In fundamental analysis, a value of a stock is predicted with risk-return framework based on economic environment. An alternative approach to predict stock price behaviour is known as technical analysis. It is frequently used as a supplement rather than as a substitute to fundamental analysis. Technical analysis is based on notion that security prices are determined by the supply of and demand for securities. It uses historical financial data on charts to find meaningful patterns, and using the patterns to predict future prices.

Edwards and Magee formulate the basic assumptions underlying technical analysis:

- The interaction of supply and demand determines the market value of the security.
- The various factors, both rational and irrational factors, govern the supply and demand of the securities.
- Stock price tend to move in trend which persist for an appreciable length of time.
- Changes in trend are caused by shifts in supply and demand.
- Shifts in supply and demand can be detected sooner or later in charts of market action.
- Some chart patterns tend to repeat themselves.

However, the fundamental analysis estimates the intrinsic value of a security, while technical analysis seeks to estimate security prices rather than values.

7.4.1 Dow Theory

The ideas of Charles H. Dow, the first editor of the Wall Street Journal, form the basis of technical analysis today. According to the hypothesis of Dow, the stock market does not perform on random basis but is influenced by three cyclical trends, namely, (a) Primary trend, (b) secondary or intermediate trend, and (3) Tertiary or minor trend. The general market direction can be predicted by following these trends. The primary trends are the long-term movement of prices, lasting from several months to several years. They are commonly called bear or bull markets. Secondary trends are caused by short-term deviations of prices from the underlying trend line. They last only a few months. The secondary trend acts as a restraining force on the primary trend, tending to correct deviations from its general boundaries. Minor trends are daily fluctuations in either directions (bull or bear) which are of little analytical value. In terms of bull and bear markets the trends are described as follows:

- The first phase of a bull market is the accumulation phase. This is when prices are depressed and financial reports don't look good. However, farsighted investors use this period of depressed prices to take advantage and buy shares.
- The second phase of the bull market is characterized by increased activity, rising prices, and better financial reports. This is the period where the large gains are made. At this point, the market becomes vulnerable to a reversal.
- The first phase of a bear market is the distribution phase. This is where farsighted investors see the uninformed investors scrambling to buy shares. The farsighted investors begin to sell shares. Oversupply leads to weakening prices and profits are harder to come by.
- The second phase of the bear market is characterized by near panic selling. Prices accelerate to the downside and more and more people begin to liquidate their holdings.
- The third phase of the bear market is characterized by further weakening and erosion of prices. Lesser quality issues erase the gains of the previous bull market. The news is full of bad market news.

The second part of the Dow Theory is that the Industrial Average and the Railroad Average must corroborate each other's direction for there to be a reliable market direction signal. Dow created the Industrial Average, of top blue chip stocks, and a second average of top railroad stocks (now the Transport Average). He believed that the behavior of the averages reflected the hopes and fears of the entire market. The behavior patterns that he observed apply to markets throughout the world. (at the time of Dow's writing there was only the Railroad Average. In 1969, Dow Jones & Company broadened this to include truckers and airlines so that today it

would be confirmation by the Industrial Average and the Transportation Average). According to Dow theory, large active stocks will generally reflect the market averages. However, individual issues may deviate from the broad averages because of circumstances peculiar to them.

The logic behind the makeup of the specific averages is that both the industrials and the transports are independent of each other. Yet, for the industrials to get their products to market, they must use the transports. When the industrials are doing well, the transports will do well. However, when one sector is doing substantially better than the other, a divergence is taking place. This demonstrates that one sector is much stronger than the other; and if it continues, without the other sector catching up, a major reversal in the market will take place.

Dow Theory also specifies that closing prices should only be used. This is because closing prices reflect the price level at which informed investors are willing to carry positions overnight.

Thus, Dow theory is used to indicate reversals and trends in the markets as well as individual security. The basic tenet of Dow theory is that there is a positive relationship between trend and volume of shares traded.

7.4.2 Charts

Charting represents a key activity for a technical analyst during individual stock analysis. The probable future performance of a stock can be predicted and evolving and changing patterns of price behaviour can be detected based on historical price-volume information of the stock. Technical analysis involves three basic types of charts. They are (a) Line charts, (b) Bar charts, and (3) Point and figure charts. The line charts indicate the lines which are used to connect successive days' prices. The Bar charts indicate vertical bars representing each day's price movement. Each bar spans the distance from the day's highest price to the lowest price with a small cross on the bar marks the closing price. Point and figure charts are more complex than line and bar charts. Point and figure chart are not only used to detect reversals in a trend, but also used to forecasts the price, called price targets. The only significant price changes are posted to point and figure charts. Three or five point price changes as posted for high prices securities, only one point changes are posted follow prices securities. While line and bar charts have two dimensions with vertical column indicating trading day, point and figure chart represents each column as a significant reversals instead of a trading day.

7.5 FINANCIAL STATEMENT ANALYSIS

Financial statement consists of Balance Sheet, Profit and Loss Account, Sources and Uses of Funds Statements, and Auditors' Notes to the Financial statements. The Balance sheet shows the financial position of the firm at a particular point of time. The profit and loss account (Income Statement) shows the financial performance of the firm over a period of time. The sources and uses of funds statements reflect the flow of funds through the business during a given period of time.

7.5.1 Balance Sheet

The balance sheet of a company, according to the Companies Act, should be either in account form or the report form.

Balance Sheet: Account Form

Liabilities	Assets
Share Capital	Fixed Assets
Reserves and Surplus	Investments
Secured loans	Current Assets, loans and Advances
Unsecured loans	Miscellaneous expenditure
Current liabilities and provisions	

Liabilities:

- Share Capital: Share capital has been divided into equity capital and preference capital. The share capital represents the contribution of owners of the company. Equity capital does not have fixed rate of dividend. The preference capital represents contribution of preference shareholders and has fixed rate of dividend.
- Reserves and Surplus: The reserves and surpluses are the profits retained in the company. The reserves can be divided into revenue reserves and capital reserves. Revenue reserves represent accumulated retained earnings from the profits of business operations. Capital reserves are those gained which are not related to business operations. The premium on issue of shares and gain on revaluation of assets are examples of the capital reserves.
- Secured and Unsecured Loans: Secured loans are the borrowings against the security. They are in the form of debentures, loans from financial institutions and loans from commercial banks. The unsecured loans are the borrowings without a specific security. They are fixed deposits, loans and advances from promoters, inter-corporate borrowings, and unsecured loans from the banks.
- Current Liabilities and Provisions: They are amounts due to the suppliers of goods and services brought on credit, advances payments received, accrued expenses, unclaimed dividend, provisions for taxes, dividends, gratuity, pensions, etc.

Assets:

- Fixed Assets: These assets are acquired for long-terms and are used for business operation, but not meant for resale. The land and buildings, plant, machinery, patents, and copyrights are the fixed assets.
- Investments: The investments are the financial securities either for long-term or short-term. The incomes and gains from the investments is not from the business operations.
- Current Assets, Loans, and Advances: This consists of cash and other resources which can be converted into cash during the business operation. Current assets are held for a short-term period. The current assets are cash, debtors, inventories, loans and advances, and pre-paid expenses.
- Miscellaneous Expenditures and Losses: The miscellaneous expenditures represent certain outlays such as preliminary expenses and pre-operative expenses not written off. Though loss indicates a decrease in the owners' equity, the share capital can not be reduced with loss. Instead, Share capital and losses are shown separately on the liabilities side and assets side of the balance sheet.

Balance Sheet: Report Form**I. Sources of Funds**

1. Shareholders' Funds
 - (a) Share Capital
 - (b) Reserves & surplus
2. Loan Funds
 - (a) Secured loans
 - (b) Unsecured loans

II. Application of Funds

- (i) Fixed Assets
- (ii) Investments
- (iii) Current Assets, loans and advances
 - Less: Current liabilities and provisions
 - Net current assets
- (iv) Miscellaneous expenditure and losses

7.5.2 Profit and Loss Account

Profit and Loss account is the second major statement of financial information. It indicates the revenues and expenses during particular period of time. The period of time is an accounting period/year, April-March. The profit and loss account can be presented broadly into two forms: (i) usual account form and (ii) step form. The accounting report summarizes the revenue items, the expense items, and the difference between them (net income) for an accounting period.

Mere statistics/data presented in the different financial statements do not reveal the true picture of a financial position of a firm. Properly analyzed and interpreted financial statements can provide valuable insights into a firm's performance. To extract the information from the financial statements, a number of tools are used to analyse such statements. The most popular tool is the Ratio Analysis.

7.5.3 Ratio Analysis

Financial ratio is a quantitative relationship between two items/variables. Financial ratios can be broadly classified into three groups: (I) Liquidity ratios, (II) Leverage/Capital structure ratio, and (III) Profitability ratios.

(I) Liquidity ratios

Liquidity refers to the ability of a firm to meet its financial obligations in the short-term which is less than a year. Certain ratios which indicate the liquidity of a firm are: (i) Current Ratio, (ii) Acid Test Ratio, (iii) Turnover Ratios. It is based upon the relationship between current assets and current liabilities.

$$(i) \text{ Current ratio} = \frac{\text{Current.Assets}}{\text{Current.Liabilities}}$$

The current ratio measures the ability of the firm to meet its current liabilities from the current assets. Higher the current ratio, greater the short-term solvency (i.e. larger is the amount of rupees available per rupee of liability).

$$(ii) \text{ Acid-test Ratio} = \frac{\text{Quick.Assets}}{\text{Current.Liabilities}}$$

Quick assets are defined as current assets excluding inventories and prepaid expenses. The acid-test ratio is a measurement of firm's ability to convert its current assets quickly into cash in order to meet its current liabilities. Generally speaking 1:1 ratio is considered to be satisfactory.

(iii) Turnover Ratios:

Turnover ratios measure how quickly certain current assets are converted into cash or how efficiently the assets are employed by a firm. The important turnover ratios are:

- Inventory Turnover Ratio,
- Debtors Turnover Ratio,
- Average Collection Period,
- Fixed Assets Turnover and
- Total Assets Turnover

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

Where, the cost of goods sold means sales minus gross profit. 'Average Inventory' refers to simple average of opening and closing inventory. The inventory turnover ratio tells the efficiency of inventory management. Higher the ratio, more the efficient of inventory management.

$$\text{Debtors' Turnover Ratio} = \frac{\text{Net Credit Sales}}{\text{Average Accounts Receivable (Debtors)}}$$

The ratio shows how many times accounts receivable (debtors) turn over during the year. If the figure for net credit sales is not available, then net sales figure is to be used. Higher the debtors turnover, the greater the efficiency of credit management.

$$\text{Average Collection Period} = \frac{\text{Average Debtors}}{\text{Average Daily Credit Sales}}$$

Average Collection Period represents the number of days' worth credit sales that is locked in debtors (accounts receivable).

Please note that the *Average Collection Period* and the *Accounts Receivable (Debtors) Turnover* are related as follows:

$$\text{Average Collection Period} = \frac{365 \text{ Days}}{\text{Debtors Turnover}}$$

Fixed Assets turnover ratio measures sales per rupee of investment in fixed assets. In other words, how efficiently fixed assets are employed. Higher ratio is preferred. It is calculated as follows:

$$\text{Fixed Assets turnover ratio} = \frac{\text{Net Sales}}{\text{Net Fixed Assets}}$$

Total Assets turnover ratio measures how efficiently all types of assets are employed.

$$\text{Total Assets turnover ratio} = \frac{\text{Net Sales}}{\text{Average Total Assets}}$$

(II) Leverage/Capital structure ratios

Long term financial strength or soundness of a firm is measured in terms of its ability to pay interest regularly or repay principal on due dates or at the time of maturity. Such long term solvency of a firm can be judged by using leverage or capital structure ratios. Broadly there are two sets of ratios:

First, the ratios based on the relationship between borrowed funds and owner's capital which are computed from the balance sheet. Some such ratios are: Debt to Equity and Debt to Asset ratios. The second set of ratios which are calculated from Profit and Loss Account are: The interest coverage ratio and debt service coverage ratio are coverage ratio for leverage risk.

(i) Debt-Equity ratio reflects relative contributions of creditors and owners to finance the business.

$$\text{Debt-Equity ratio} = \frac{\text{Debt}}{\text{Equity}}$$

The desirable/ ideal proportion of the two components (high or low ratio) varies from industry to industry.

(ii) Debt-Asset Ratio: Total debt comprises of long term debt plus current liabilities. The total assets comprise of permanent capital plus current liabilities.

$$\text{Debt-Asset Ratio} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

The second set or the coverage ratios measure the relationship between proceeds from the operations of the firm and the claims of outsiders.

$$\text{(iii) Interest Coverage ratio} = \frac{\text{Earnings Before Interest and Taxes}}{\text{Interest}}$$

Higher the interest coverage ratio better is the firm's ability to meet its interest burden. The lenders use this ratio to assess debt servicing capacity of a firm.

(iv) Debt Service Coverage Ratio (DSCR) is a more comprehensive and apt to compute debt service capacity of a firm. Financial institutions calculate the average DSCR for the period during which the term loan for the project is repayable. The Debt Service Coverage Ratio is defined as follows:

$$\frac{\text{Profit after tax} + \text{Depreciation} + \text{Other Noncash Expenditure} + \text{Interest on term loan}}{\text{Interest on term loan} + \text{Repayment of term loan}}$$

(III) Profitability ratios

Profitability and operating/management efficiency of a firm is judged mainly by the following profitability ratios:

$$\text{(i) Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Net Sales}}$$

$$(ii) \text{ Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Net Sales}}$$

Some of the profitability ratios related to investments are:

$$(iii) \text{ Return on Total Assets} = \frac{\text{Net Income}}{\text{Average Total Assets}}$$

$$(iv) \text{ Return on Capital Employed} = \frac{\text{Net Profit}}{\text{Capital Employed}}$$

(Here, Capital Employed = Fixed Assets + Current Assets - Current Liabilities)

$$\begin{aligned} &\text{Return on Shareholders' Equity} \\ &= \frac{\text{Net Income After Tax}}{\text{Average Total Shareholders' Equity or Net Worth}} \end{aligned}$$

(Net worth includes Shareholders' equity capital plus reserves and surplus)

A common (equity) shareholder has only a residual claim on profits and assets of a firm, i.e., only after claims of creditors and preference shareholders are fully met, the equity shareholders receive a distribution of profits or assets on liquidation. A measure of his well being is reflected by return on equity. There are several other measures to calculate return on shareholders' equity:

(i) *Earnings Per Share (EPS)*: EPS measures the profit available to the equity shareholders per share, that is, the amount that they can get on every share held. It is calculated by dividing the profits available to the shareholders by number of outstanding shares. The profits available to the ordinary shareholders are arrived at by net profits after taxes and preference dividend.

It indicates the value of equity in the market.

$$\text{EPS} = \frac{\text{Net Profit}}{\text{Number of Ordinary Shares Outstanding}}$$

$$(ii) \text{ Price-earnings ratios} = \text{P/E Ratio} = \frac{\text{Market Price per Share}}{\text{EPS}}$$

Illustration:

Balance Sheet of ABC Co. Ltd. as on March 31, 2003
(Rs. in Crore)

Liabilities	Amount	Assets	Amount
Share Capital (1,00,00,000 equity shares of Rs.10 each)	16.00	Fixed Assets (net)	60.00
Reserves & Surplus	22.00	Current Assets:	23.40
Secured Loans	21.00	Cash & Bank	0.20
Unsecured Loans	25.00	Debtors	11.80
Current Liabilities & Provisions	16.00	Inventories	10.60
		Pre-paid expenses	0.80
		Investments	16.60
Total	100	Total	100

Profit & Loss Account of ABC Co. Ltd.
for the year ending on March 31, 2003:

Particulars	Amount	Particulars	Amount
Opening Stock	13.00	Sales (net)	105.00
Purchases	69.00	Closing Stock	15.00
Wages and Salaries	12.00		
Other Mfg. Expenses	10.00		
Gross Profit	16.00		
Total	120.00	Total	120.00
Administrative and Personnel Expenses	1.50	Gross Profit	16.00
Selling and Distribution Expenses	2.00		
Depreciation	2.50		
Interest	1.00		
Net Profit	9.00		
Total	16.00	Total	16.00
Income Tax	4.00	Net Profit	9.00
Equity Dividend	3.00		
Retained Earning	2.00		
Total	9.00	Total	9.00

Market price per equity share - Rs. 20.00

Current Ratio = Current Assets / Current Liabilities
= 23.40/16.00 = 1.46

Quick Ratio = Quick Assets / Current Liabilities
= Current Assets - (inventory + prepaid expenses) / Current Liabilities
= $[23.40 - (10.60 + 0.8)] / 16.00 = 12.00 / 16.00 = 0.75$

Inventory Turnover Ratio = Cost of goods sold / Average Inventory
= (Net Sales - Gross Profit) / [(opening stock + closing stock) / 2]
= $(105 - 16) / [(15 + 13) / 2] = 89 / 14 = 6.36$

Debtors Turnover Ratio = Net Sales / Average account receivables (Debtors)
= $105 / 11.80 = 8.8983$

Average Collection period = 365 days / Debtors turnover
= $365 \text{ days} / 8.8983 = 41 \text{ days}$

Fixed Assets Turnover ratio = Net Sales / Net Fixed Assets
= $105 / 60 = 1.75$

Debt to Equity Ratio = Debt / Equity
= $(21.00 + 25.00) / (16.00 + 22.00) = 46 / 38 = 1.21$

Gross Profit Ratio = Gross Profit / Net Sales
= $16.00 / 105.00 = 0.15238$ or 15.24%

Net Profit Ratio = Net Profit / Net Sales
= $9 / 105.00 = 0.0857$ or 8.57 %

Return on Shareholders' Equity = Net Profit after tax / Net worth
= $5.00 / (16.00 + 22.00) = 0.13157$ or 13.16%

Model Questions

Q. Security A gives a return of 10% with a Dispersion of 4%, while security B gives a return of 18% with a dispersion of 6%. Which security is more risky?

- (a) Security A
- (b) Security B
- (c) Both securities are equally risky
- (d) Neither of the securities are risky

Correct Answer: *Security A (refer to section 7.1.5)*

Q. How much is the correction coefficient between the companies A and B, If their covariance are 20 and their standard deviations respectively are 6 and 5?

- (a) 1.5
- (b) 0.67
- (c) >0.67
- (d) <1.5

Correct Answer: (b) 0.67 (*refer to section 7.1.7*)

Q. The market prices of the security A are Rs. 130 and Rs. 110 at the end of the month and at the end of the last month respectively. What is the total return on the security A for the current month, assuming there is no dividend?

- (a) 20%
- (b) 30%
- (c) 18.18%
- (d) 33%

Correct Answer: (c) 18.18% (*refer to section 7.2.1*)

Q. The standard deviation of two securities "A" and "B" are 15 % and 20%, And their correction coefficient is 0.5. What is the portfolio risk for both the Securities, if the investment are made equally?

- (a) 15.21%
- (b) 15%
- (c) 20%
- (d) 17.5%

Correct Answer: (a) 15.21% (*refer to section 7.2.2*)

Q. Calculate the expected returns for a company under Capital Asset Pricing Model, assuming that risk free return is 8% p.a., its beta is 1.5 and market Return is 20% p.a.?

- (a) 22%
- (b) 26%
- (c) 30%
- (d) 38%

Correct Answer: (b) 26% (*refer to sub-section of 7.2.2 on Capital Asset Pricing Module*)

Q. If the company pays dividend of Rs. 25 every year and the expected return for the investor is 20%, What is the theoretical value of share of the company?

- (a) Rs. 125
- (b) Rs. 100
- (c) Rs. 75
- (d) Rs. 250

Correct Answer: (a) Rs.125 (*refer to section 7.3.1*)

CHAPTER 8: CORPORATE FINANCE

8.1 COST OF CAPITAL

Capital like any other factor of production involves a cost. The cost of capital is an important element in capital expenditure management. The cost of capital of a company is the average cost of various components of capital of all long term sources of finance. Understanding the concept of the Cost of capital is very helpful in making investment and financing decision. For e.g. if a company is in need of Rs.30 crore, cost of capital will be the major factor determining whether the same should be financed by debt or equity capital. There are three types of capital costs, namely, (i) Cost of Debt, (ii) Cost of preferred Shares and (iii) Cost of Equity.

8.1.1 *Cost of Debt*

The debt capital can be broadly classified as Perpetual Debt Capital or redeemable debt capital. The cost of perpetual debt capital (Kdp) is calculated by

$$Kdp = \frac{I}{SV}(1 - tx)$$

Where

I = Annual Interest Rate

SV = Sales proceed of the bond/debenture

tx = tax rate

Kdp is the tax adjusted cost of capital (i.e. the cost of debt is on after tax basis). To calculate before tax cost of debt (1-tx) will not be considered.

The cost of debt is generally the lowest among all sources partly because the risk involved is low but mainly because interest paid on debt is tax deductible.

8.1.2 *Cost of Preference Shares*

The preference capital can be broadly classified as perpetual preference capital or redeemable preference capital. The cost of perpetual preference capital (Kpsp) is calculated by

$$Kpsp = \frac{d(1 + tx)}{p(1 - f)}$$

Where

d = constant annual dividend

p = expected sale price of preference share
 f = floatation cost
 tx = Tax on preference dividend

K_{psp} is the tax adjusted cost of preference capital. To calculate before tax cost of preference capital (1+tx) will not be considered.
 It may be noted that while assessing tax liability, the preference dividend paid to the preference shareholders is not allowed as a deductible item of expense.

8.1.3 Cost of Equity

There are two approaches to compute cost of equity capital: (1) Dividend growth Model approach which is discussed in this section and (2) Capital Asset Pricing Model which is discussed in section 7.2.2 of the previous chapter of this book.

Dividend growth Model approach: Dividend growth Model approach assumes that the price of equity stock depends ultimately on the dividend expected from it.

Dividend Growth Model:

$$K_e = \frac{D}{P_e} + g$$

Where

K_e = Cost of Equity Capital

D = Dividend

g = rate at which dividends are expected to grow

P_e = Price of equity shares

Illustration:

Stock price of XYZ Ltd. is trading at Rs. 66. The firm is expected to declare dividend of Rs. 7 per share and is expected to grow at rate of 10 per cent per year. What is the cost of equity under dividend growth model?

$$K_e = \frac{D}{P_e} + g$$

$$\begin{aligned} K_e &= (7/66) + .10 \\ &= .10606 + .10 \\ &= .20606 \times 100 = 20.61\% \end{aligned}$$

8.1.4 The Weighted Average Cost of Capital

The weighted average cost of capital is the weighted average of the after-tax costs of each of the sources of capital used by a firm to finance a project where the weights reflect the proportion of total financing raised from each source.

$$K_{wacc} = W_d K_d (1 - T_c) + W_{ps} K_{ps} + W_e K_e$$

W = Weight

K_d = cost of Debt Capital

K_{ps} = Cost of Preference Share Capital

K_e = Cost of Equity capital

Illustration:

What is the average cost of capital of XYZ Ltd.?, if the cost of capital from each source such as debt, preferred stock and equity is 7%, 16% and 23% respectively and being financed with 40% from the debt, 10% from the preferred stock and 50% from the equity.

$$K_{wacc} = 40\% * 7\% + 10\% * 16\% + 50\% * 23\% = 15.9\%$$

8.2 CAPITAL STRUCTURE

The objective of the firm is to maximize shareholder's wealth or in other words the value of the firm. The main sources of finance for a firm are equity and debt. The question arises is what should be the proportion of the equity and debt so that the shareholders wealth is maximized. It may be noted that the value of the firm and the cost of capital is inversely related i.e. the value of the firm is maximized when the cost of capital is minimized and vice versa.

8.2.1 Net Income Approach

Under the net income approach, the cost of debt capital (k_d) and the cost of equity capital (k_e) remain unchanged, when the degree of leverage varies meaning

$$k_o = k_d \left(\frac{B}{B + S} \right) + k_e \left(\frac{S}{B + S} \right)$$

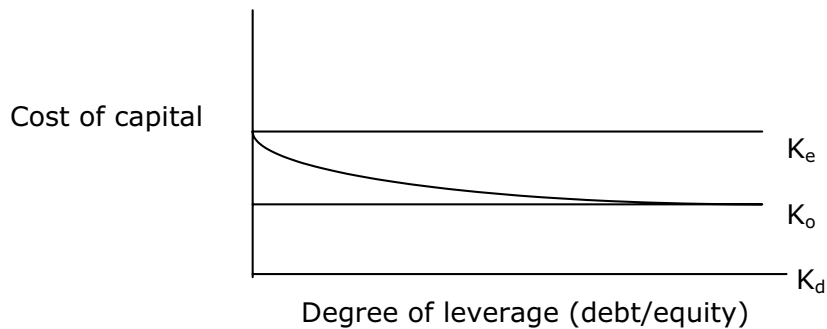
Where K_o = Overall Capitalisation rate for the firm

K_d = Cost of Debt Capital

K_e = Cost of Equity Capital

B = Market value of the Debt

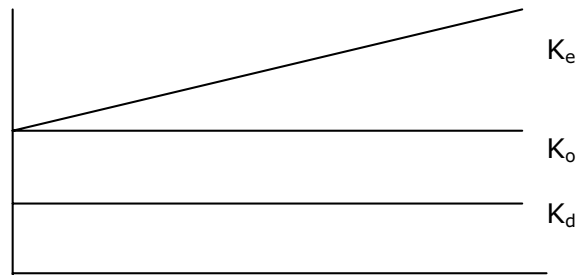
S = Market value of the Equity



As leverage increases, the overall cost of capital decreases, because the weight of debt capital which is relatively a cheaper means of finance in the capital structure increases.

8.2.2 *Net Operating Income Approach*

Under net operating income approach, the overall capitalization rate and the cost of debt remains constant for all degrees of leverage. The reason for the same being that the market capitalizes the firm as a whole at a rate which is independent of its debt-equity ratio.



The market value of the firm depends on its net operating income and business risk and not on change in degree of leverage. An increase in use of debt fund is offset by the higher equity capitalization rate. This approach was advocated by David Durand. Modigliani and Miller advanced the proposition that the cost of capital of a firm is independent of its capital structure.

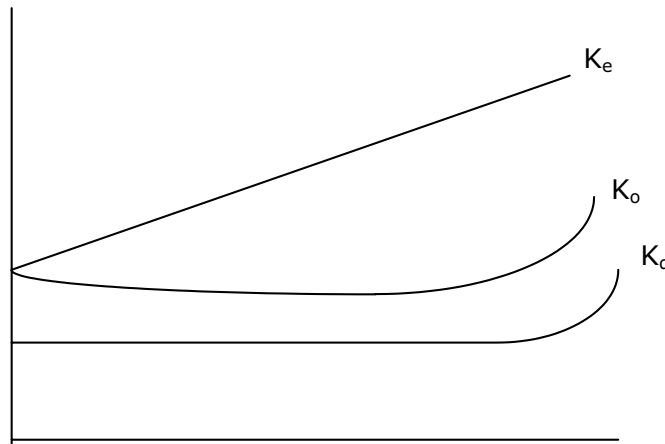
8.2.3 *Traditional Approach*

The Traditional approach is the midway between the Net Income and Net Operating Income Approaches. The crux of the traditional view relating to leverage and valuation is that through proper use of debt and equity proportions, a firm can increase its value and thereby reduce the overall

cost of capital. The rationale behind the same is that debt is a comparatively cheaper source of funds to equity.

The main propositions of the traditional approach are:

- o The Cost of debt capital remains constant up to a certain degree of leverage but rises afterwards at an increasing rate.
- o The Cost of equity capital remains constant or rises only gradually up to a certain degree of leverage and rises sharply afterwards
- o The average cost of capital decreases up to a certain point, remains constant for moderate increase in leverage afterwards, and rises beyond certain point.



8.2.4 Modigliani and Miller Approach

The Modigliani and Miller (MM) thesis relating to the relationship between the capital structure, cost of capital and valuation is similar to the NOI approach. The MM approach maintains that the weighted average cost of capital does not change with the change in cost of capital (or degree of leverage). The basic propositions of the theory are:

1. The overall cost of capital and the value of the firm are independent of its capital structure. The cost of capital and the value of the firm are constant for all degrees of leverage. The total value is given by capitalizing the expected stream of operating earnings at a discount rate appropriate to its risk class.
2. The expected return on equity is equal to the expected rate of return on assets plus a premium. The premium is equal to the debt-equity ratio times the difference between the expected return on assets and the expected return on debt.

3. The cut off rate (of expected return) for investment purposes is completely independent of the way in which the investments are financed.

The MM theory assumes that:

1. The Capital Markets are perfect. The information is perfect and is readily available to the investors. Securities are infinitely divisible. Investors are free to buy and sell. There are no transaction costs. Investors are rational
2. The expectations of the investors about the future operating earnings are identical
3. The business risk is equal among all firms within similar operating environment.
4. Dividend payout ratio is 100 percent (The entire earnings are distributed as dividend)
5. There are no taxes.

8.3 CAPITAL BUDGETING

Capital expenditures typically involve a current or future outlay of funds in expectation of stream of benefits extending far in future. The basic characteristics of the same are: (a) They have long term consequences. (b) They involve substantial outlays (c) They may not be reversed. Capital budgeting decisions are of utmost importance in financial decision making as they affect the profitability and competitive position of the firm.

Capital budgeting involves the following phases.

- Identification of projects
- Assembling of proposed projects
- Decision making
- Preparation of capital budget and appropriations
- Implementation
- Performance evaluation of projects

In order to evaluate the project the following five methods are adopted.

- Net Present Value
- Benefit-Cost Ratio
- Internal rate of return
- Payback period
- Accounting rate of return

8.3.1 Net Present Value

Net present value of a project is the sum of the present values of all the cash flows associated with it. The cash flows can be positive or negative.

$$NPV = \frac{CF_0}{(1+r)^0} + \frac{CF_1}{(1+r)^1} + \dots + \frac{CF_n}{(1+r)^n} = \sum_{t=0}^n \frac{CF_t}{(1+r)^t}$$

Where NPV = Net present value
 CF = Cash flow occurring at the end of the year t (t=0, 1..., n)
 N = Life of the Project
 r = Discount rate or required rate of return

The project is feasible or acceptable if the net present value is positive. The project is rejected if the net present value is negative. It is indifferent, if the net present value is zero. Similarly if there are various projects to be evaluated the project which has the highest NPV will get the highest rank and the project that has the lowest NPV will get the lowest rank

Illustration:

A firm requires an initial cash outlay of Rs. 10000, yields the following set of annual cash flows. The required rate of return of the firm is 10% p.a. What is its Net Present Value of the firm?

Year	After-tax Cash flows
1	Rs.4000
2	Rs.3000
3	Rs.3000
4	Rs.1000
5	Rs. 2000

Year	Cash flows	Present Value Factor: $1/(1+r)^t$	Present Value(2)*(3)
(1)	(2)	(3)	(4)
0	-10000	1	-10000
1	4000	0.909091	3636.364
2	3000	0.826446	2479.339
3	3000	0.751315	2253.944
4	1000	0.683013	683.0135
5	2000	0.620921	1241.843
Net Present Value:			294.503

The Advantages of the NPV method are:

1. It takes into account the time value of money with changing discount rate.
2. It can be used to evaluate mutually exclusive projects.

3. It takes into consideration the total benefits arising out of the project over its lifetime.

The *disadvantages* being:

1. It does not take into account the life of the project and may not give dependable result for projects having different lives.
2. The NPV method is an absolute method and may not give dependable results in case the projects have different outlays.

8.3.2 Benefit-Cost Ratio

Cost Benefit Ratio (BCR), also known as profitability index (PI), measures the present value of the returns per rupee invested.

BCR = Present value of inflows/Initial Investments

PI = Present value of cash inflows/Present value of cash outflows

Using the BCR the project may be accepted when BCR is greater than 1 and may be rejected if the BCR is less than 1. When BCR equals 1 the firm is indifferent to the project. PI is the superior method than BCR in terms as it can be used in projects where outflows occur beyond the current period.

Illustration:

A firm requires an initial cash outlay of Rs.10000, yields the following set of annual cash flows. The required rate of return of the firm is 10% p.a. What is its Benefit-Cost Ratio?

Using the same illustration as in NPV calculation, where NPV=294.503, we can calculate BCR as follows:

$$\begin{aligned}\text{BCR} &= \text{Present value of inflows/Initial Investments} \\ &= 294.503/10000 = 0.029\end{aligned}$$

Since the BCR is less than 1 it is better to reject the project.

Advantages

1. BCR method is superior to NPV method as it evaluates the project in relative rather than in absolute terms.
2. Two projects having different cash outlays and lifetime can be evaluated.
3. It also takes into account the important elements of capital budgeting such as time value of money, totality of the benefits and so on.

8.3.3 Internal Rate of Return

Internal rate of return (IRR) is the discount rate which makes its net present value equal to zero. It is the discount rate which equates the present value of the future benefits with the initial outlay.

$$0 = \frac{CF_0}{(1+r)^0} + \frac{CF_1}{(1+r)^1} + \dots + \frac{CF_n}{(1+r)^n} = \sum_{t=0}^n \frac{CF_t}{(1+r)^t}$$

Where, CF = Cash flow

r = Discount rate or required rate of return

n = Life of the Project

It may be noted that the discount rate is not known while calculating the IRR. In IRR calculation the NPV is set to zero to determine the discount rate that satisfies the condition. The calculation of r is a trial and error process. Different values are tried as r till the condition is satisfied.

Illustration:

A firm requires an initial cash outlay of Rs. 10000, yields the following set of annual cash flows. What is the required rate of return of the firm for these cash flows?

Year	After-tax Cash flows
1	Rs.4000
2	Rs.3000
3	Rs.3000
4	Rs.1000
5	Rs. 2000

Year	Cash flows	Present Value Factor is assumed to be 11.3675%	Present Value(2)*(3)
(1)	(2)	(3)	(4)
0	-10000	1	-10000
1	4000	0.897928	3591.712
2	3000	0.806275	2418.824
3	3000	0.723977	2171.93
4	1000	0.650079	650.079
5	2000	0.583724	1167.448
Net Present Value:			-0.0063

Therefore, the Internal Rate of Return is 11.367%

Advantage of the IRR method is apart from taking into account the important elements of capital budgeting such as time value of money, totality of the benefits and so on, it does not take use the concept of required return or the cost of the capital. It itself provides a rate of return which is indicative of profitability of the proposal.

The disadvantages being:

1. It involves tedious calculations.

2. IRR may not give dependable results while evaluating mutually exclusive projects as the project with Highest IRR will be selected. However in practice it may not turned out to be the same
3. IRR assumes that all intermediate cash flows are reinvested at IRR. This is not the case in practice

8.3.4 Payback Period

The payback period is the number of years required to recover the initial project cost. Shorter the payback period, more desirable is the project.

Payback period = Number of years required to equal cash flows with initial project cost.

Illustration:

A firm requires an initial cash outlay of Rs. 10000, yield the following set of annual cash flows, what is its payback period?

Year	After-tax Cash flows
1	Rs.4000
2	Rs.3000
3	Rs.3000
4	Rs.1000
5	Rs. 2000

Its payback period is 3 years as the firm is able to recover the initial outlay of Rs. 10000 only in the 3rd year.

Advantages

1. it is simple in concept and application
2. it emphasizes on the early recovery of the project cost it may be useful for the firms which are looking for liquidity

Disadvantages

1. It does not take into account the time value of money.
2. It ignores cash flows beyond the payback period. Projects which have substantial inflows in the later part are ignored.
3. It concentrates only on capital recovery and not on profitability

8.3.5 Accounting Rate of Return

$$\text{Accounting rate of return} = \frac{\text{Profit After Tax}}{\text{Book Value of the Investment}}$$

Higher the accounting rate of return, the better the project. Generally projects which returns equal to or greater than pre specified cut of return are accepted.

As it is evident that though ARR is easy to calculate and apply, it does not take into account time value of money and is based on the accounting profit and not cash flows.

8.4 TIME VALUE OF MONEY

One of the most important principles in all of finance is the relationship between value of a rupee today and value of rupee in future. This relationship is known as the 'time value of money'. A rupee today is more valuable than a rupee tomorrow. This is because current consumption is preferred to future consumption by the individuals, firms can employ capital productively to earn positive returns and in an inflationary period, rupee today represents greater purchasing power than a rupee tomorrow. The time value of the money may be computed in the following circumstances.

- (a) Future value of a single cash flow
- (b) Future value of an annuity
- (c) Present value of a single cash flow
- (d) Present value of an annuity

8.4.1 Future Value of a Single Cash Flow

For a given present value (PV) of money, future value of money (FV) after a period 't' for which compounding is done at an interest rate of 'r', is given by the equation

$$FV = PV (1+r)^t$$

This assumes that compounding is done at discrete intervals. However, in case of continuous compounding, the future value is determined using the formula

$$FV = PV * e^{rt}$$

Where 'e' is a mathematical function called 'exponential' the value of exponential (e) = 2.7183. The compounding factor is calculated by taking natural logarithm (log to the base of 2.7183).

Example 1: Calculate the value of a deposit of Rs.2,000 made today, 3 years hence if the interest rate is 10%.

By discrete compounding:

$$FV = 2,000 * (1+0.10)^3 = 2,000 * (1.1)^3 = 2,000 * 1.331 = \text{Rs. } 2,662$$

By continuous compounding:

$$FV = 2,000 * e^{(0.10 * 3)} = 2,000 * 1.349862 = \text{Rs. } 2,699.72$$

Example 2: Find the value of Rs. 70,000 deposited for a period of 5 years at the end of the period when the interest is 12% and continuous compounding is done.

$$\text{Future Value} = 70,000 * e^{(0.12*5)} = \text{Rs. } 1,27,548.827.$$

The future value (FV) of the present sum (PV) after a period 't' for which compounding is done 'm' times a year at an interest rate of 'r', is given by the following equation:

$$FV = PV (1+(r/m))^{mt}$$

Example 3: How much a deposit of Rs. 10,000 will grow at the end of 2 years, if the nominal rate of interest is 12 % and compounding is done quarterly?

$$\text{Future value} = 10,000 * \left(1 + \frac{0.12}{4}\right)^{4*2} = \text{Rs. } 12,667.70$$

8.4.2 Future Value of an Annuity

An annuity is a stream of equal annual cash flows. The future value (FVA) of a uniform cash flow (CF) made at the end of each period till the time of maturity 't' for which compounding is done at the rate 'r' is calculated as follows:

$$\begin{aligned} \text{FVA} &= CF*(1+r)^{t-1} + CF*(1+r)^{t-2} + \dots + CF*(1+r)^1 + CF \\ &= CF \left(\frac{(1+r)^t - 1}{r} \right) \end{aligned}$$

The term $\left(\frac{(1+r)^t - 1}{r} \right)$ is referred as the Future Value Interest factor for an annuity (FVIFA). The same can be applied in a variety of contexts. For e.g. to know accumulated amount after a certain period,; to know how much to save annually to reach the targeted amount, to know the interest rate etc.

Example 4: Suppose, you deposit Rs.3,000 annually in a bank for 5 years and your deposits earn a compound interest rate of 10 per cent, what will be value of this series of deposits (an annuity) at the end of 5 years? Assume that each deposit occurs at the end of the year.

Future value of this annuity is:

$$= \text{Rs. } 3000*(1.10)^4 + \text{Rs. } 3000*(1.10)^3 + \text{Rs. } 3000*(1.10)^2 + \text{Rs. } 3000*(1.10) + \text{Rs. } 3000$$

$$\begin{aligned}
&= \text{Rs. } 3000 * (1.4641) + \text{Rs. } 3000 * (1.3310) + \text{Rs. } 3000 * (1.2100) + \text{Rs. } 3000 * (1.10) \\
&+ \text{Rs. } 3000 \\
&= \text{Rs. } 18315.30
\end{aligned}$$

Example 5: You want to buy a house after 5 years when it is expected to cost 40 lakh how much should you save annually, if your savings earn a compound return of 12 %?

$$FVIFA_{t=5, r=12\%} = \left(\frac{(1 + 0.12)^5 - 1}{0.12} \right) = 6.353$$

The annual savings should be:
 $4000000 / 6.353 = 6,29,623.80$

In case of continuous compounding, the future value of annuity is calculated using the formula: $FVA = CF * (e^{rt} - 1)/r$.

8.4.3 Present Value of a Single Cash Flow

Present value of (PV) of the future sum (FV) to be received after a period 't' for which discounting is done at an interest rate of 'r', is given by the equation

In case of discrete discounting: $PV = FV / (1+r)^t$

Example 6: What is the present value of Rs.5,000 payable 3 years hence, if the interest rate is 10 % p.a.

$$PV = 5000 / (1.10)^3 \text{ i.e. } = \text{Rs. } 3756.57$$

In case of continuous discounting: $PV = FV * e^{-rt}$

Example 7: What is the present value of Rs. 10,000 receivable after 2 years at a discount rate of 10% under continuous discounting?

$$\text{Present Value} = 10,000 / (\exp^{(0.1*2)}) = \text{Rs. } 8187.297$$

8.4.4 Present Value of an Annuity

The present value of annuity is the sum of the present values of all the cash inflows of this annuity.

Present value of an annuity (in case of discrete discounting)

$$PVA = FV [\{ (1+r)^t - 1 \} / \{ r * (1+r)^t \}]$$

The term $[(1+r)^t - 1 / r*(1+r)^t]$ is referred as the Present Value Interest factor for an annuity (PVIFA).

Example 8: What is the present value of Rs. 2000/- received at the end of each year for 3 continuous years

$$\begin{aligned} &= 2000*[1/1.10]+2000*[1/1.10]^2+2000*[1/1.10]^3 \\ &= 2000*0.9091+2000*0.8264+2000*0.7513 \\ &= 1818.1818+1652.892562+1502.629602 \\ &= \text{Rs. } 4973.704 \end{aligned}$$

Example 9: Assume that you have taken housing loan of Rs.10 lakh at the interest rate of Rs.11 percent per annum. What would be your equal annual installment for repayment period of 15 years?

Loan amount = Installment (A) *PVIFA $n=15$, $r=11\%$

$$\begin{aligned} 10,00,000 &= A* [(1+r)^t - 1 / r*(1+r)^t] \\ 10,00,000 &= A* [(1.11)^{15} - 1 / 0.11(1.11^{15})] \\ 10,00,000 &= A* 7.19087 \\ 10,00,000/7.19087 &= A \\ A &= \text{Rs. } 1,39,065.24 \end{aligned}$$

Present value of an annuity (in case of continuous discounting) is calculated as:

$$PV_a = FV_a * (1-e^{-rt})/r$$

Model Questions

Q. Calculate the weighted average cost of capital for a company, if the cost of capital from sources such as equity, preferred stock and debt is 20%, 18% and 15% respectively and being financed with 50% from equity capital, 10% from Preference capital and remaining 40% from Debt capital.

- | | |
|------------|------------|
| (a) 17.25% | (b) 17.67% |
| (c) 17.50% | (d) 17.80% |

Correct Answer : (d) 17.80% (*refer to section 8.1.4*)

Q. Suppose your annual savings are Rs. 30,000. You opt for pension fund that offers compounded interest rate of 10% annually. How much will your PF account have after 25 Years if you are contributing your savings to the PF at the end of every year?

- (a) 29,50,412 (b) 3,25,041
(c) 32,50,412 (d) 2,95,041

Correct Answer : (a) 29,50,412 (*refer to section 8.4.2*)

Q. Calculate the value 5 years hence of a deposit of Rs. 1,000 made today if the interest rate is 8% (compounded annually).

- (a) Rs. 1,400 (b) Rs. 1,469
(c) Rs. 1,000 (d) Rs. 1,040

Correct Answer : (b) Rs. 1,469 (*refer to section 8.4.1*)

Q. What is the present value of Rs. 1,000 payable 3 years hence if the interest rate is 9% per annum?

- (a) Rs. 715 (b) Rs. 1,295
(c) Rs. 1,000 (d) Rs. 772

Correct Answer : (d) Rs. 772 (*refer to section 8.4.3*)

Q. What is the present value of Rs. 12,000 receivable after 3 years at a discount rate of 10% under continuous discounting?

- (a) Rs. 8889.80 (b) Rs. 12000.90
(c) Rs. 10000.20 (d) Rs. 98880.80

Correct Answer : (a) Rs. 8889.8