

# Indian Securities Market

## A Review

This is a guide map only and it has no connection with the correctness on National and International Boundaries.





**Defining benchmarks, setting standards**

A Review

# Indian Securities Market

Volume X 2007

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This publication reviews  
the developments in the  
securities market in India

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**NATIONAL STOCK EXCHANGE OF INDIA LIMITED**

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# Indian Securities Market A Review

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## Abbreviations

ADB	Asian Development Bank
ADRs	American Depository Receipts
AIFIs	All India Financial Institutions
ALBM	Automated Lending and Borrowing Mechanism
ALBRS	Automated Lending and Borrowing under Rolling Settlement
AMC	Asset Management Company
AMFI	Association of Mutual Funds in India
ASC	Accounting Standards Committee
ASE	Ahmedabad Stock Exchange
ATM	At-The-Money
ATs	Alternative Trading system
B2B	Business-to-Business
BIFR	Board for Industrial and Financial Reconstruction
BIS	Bank for International Settlement
BLESS	Borrowing and Lending Securities Scheme
BMC	Base Minimum Capital
BSE	The Stock Exchange, Mumbai
CBDT	Central Board of Direct Taxes
CC	Clearing Corporation
CDs	Certificate of Deposits
C&D	Corporatisation and Demutualisation
CH	Clearing House
CCIL	Clearing Corporation of India Limited
CDSL	Central Depository Services (India) Limited
CFM	Carry Forward Margin
CFRS	Carry Forward under Rolling Settlement
CIMC	Collective Investment Management Company
CISs	Collective Investment Schemes
CIVs	Collective Investment Vehicles
CLA	Central Listing Authority
CLF	Collateralised Lending Facility



CM	Clearing Member
CM Segment	Capital Market Segment of NSE
CMIE	Centre for Monitoring Indian Economy
COSI	Committee on Settlement Issues
COTI	Committee of Trade Issues
CP	Custodial Participant
CPs	Commercial Papers
CPSS	Committee on Payment and Settlement Issues
CRAs	Credit Rating Agencies
CRISIL	The Credit Rating Information Services of India Limited
CRR	Cash Reserve Ratio
CSD	Collateral Security Deposit
CSE	Calcutta Stock Exchange
DCA	Department of Company Affairs
DDBs	Deep Discount Bonds
DEA	Department of Economic Affairs
DFIs	Development Financial Institutions
DIP	Disclosure and Investor Protection
DNS	Deferred Net Settlement
DPs	Depository Participants
DRR	Debenture Redemption Reserve
DSCE	Debt Securities Convertible into Equity
DvP	Delivery versus Payment
ECBs	External Commercial Bodies
ECNS	Electronic communication Networks
EDGAR	Electronic Data Gathering, Analysis and Retrieval
EDIFAR	Electronic Data Information Filing and Retrieval
EFT	Electronic Fund Transfer
ELN	Equity Linked Notes
ELSS	Equity Linked Saving Schemes
EPS	Earning Per Share
ETFs	Exchange Traded Funds
FIA	Futures Industry Association
F&O	Futures and Options
FCCBs	Foreign Currency Convertible Bonds
FCDs	Fully Convertible Debentures
FDI	Foreign Direct Investment



FDRs	Foreign Deposit Receipts
FDs	Fixed Deposits
FEMA	Foreign Exchange Management Act
FIBV	International World Federation of Stock Exchanges
FII	Foreign Institutional Investment
FIIIs	Foreign Institutional Investors
FIMMDA	Fixed Income Money Markets and Derivatives Association
FIs	Financial Institutions
FMCG	Fast Moving Consumer Goods
FMPs	Fixed Maturity Plans
FoFs	Fund of Funds
FPOs	Further Public Offerings
FRAs	Forward Rate Agreements
FSAP	Financial Sector Assessment Program
FVCIs	Foreign Venture Capital Investors
GDP	Gross Domestic Product
GDRs	Global Deposit Receipts
GDRs	Gross Domestic Savings
GNP	Gross National Product
GOI	Government of India
G-Sec	Government Securities
GSO	Green Shoe Option
i-BEX	ICICI Securities Bond Index
ICAI	Institute of Chartered Accountants of India
ICICI	Industrial Credit and Investment Corporation of India Limited.
ICSE	Inter-Connected Stock Exchange of India Limited
IBRD	International Bank for Reconstruction and Development
IDBI	Industrial Development Bank of India
IDRs	Indian Depository Receipts
IEPF	Investors Education and Protection Fund
IFC	International Finance Corporation
IFSD	Interest Free Security Deposit
IIM	Indian Institute of Management
IISL	India Index Services and Products Limited
IMF	International Monetary Fund
IOSCO	International Organisation of Securities Commission
IDFC	Infrastructure Development Finance Corporation



IPF	Investor Protection Fund
IPOs	Initial Public Offers
IRDA	Insurance Regulatory and Development Authority
IRS	Interest Rate Swap
ISIN	International Securities Identification Number
ISSA	International Securities Services Association
IT	Information Technology
ITM	In-The-Money
JPC	Joint Parliamentary Committee
LAF	Liquidity Adjustment Facility
LIC	Life Insurance Corporation of India Limited
MCFS	Modified Carry Forward System
MFs	Mutual Funds
MFSS	Mutual Fund Service System
MIBID	Mumbai Inter-bank Bid Rate
MIBOR	Mumbai Inter-bank Offer Rate
MMMF	Money Market Mutual Fund
MNCs	Multi National Companies
MOU	Memorandum of Understanding
MoF	Ministry of Finance
MTM	Mark-To-Market
NASDAQ	National Association of Securities Dealers Automated Quotation System
NAV	Net Asset Value
NBFCs	Non-Banking Financial Companies
NCAER	National Council for Applied Economic Research
NCDs	Non-convertible Debentures
NCDS	Non-convertible Debt Securities
NCFM	NSE's Certification in Financial Markets
NDS	Negotiated Dealing System
NEAT	National Exchange for Automated Trading
NGOs	Non-Government Organisations
NIBIS	NSE's Internet-based Information System
NIC	National Informatics Centre
NPAs	Non Performing Assets
NRIs	Non Resident Indians
NSCCL	National Securities Clearing Corporation of India Limited
NSDL	National Securities Depository Limited



NSE	National Stock Exchange of India Limited
OCBs	Overseas Corporate Bodies
OECLOB	Open Electronic Consolidated Limit Order Book
OLTL	On-line Trade Loading
OPMS	On-line Position Monitoring System
ORS	Order Routing System
OSL	Open Strata Link
OTC	Over the Counter
OTCEI	Over the Counter Exchange of India Limited
OTM	Out-of the-Money
P/E	Price Earning Ratio
PAN	Permanent Account Number
PCDs	Partly Convertible Debentures
PCM	Professional Clearing Member
PDAI	Primary Dealers Association of India
PDO	Public Debt Office
PDs	Primary Dealers
PFI	Public Finance Institution
PFRDA	Pension Fund Regulatory Development Authority
PRI	Principal Return Index
PRISM	Parallel Risk Management System
PSUs	Public Sector Undertakings
PV	Present Value
QIBs	Qualified Institutional Buyers
RBI	Reserve Bank of India
ROCs	Registrar of Companies
RTGS	Real Time Gross Settlement
SA	Stabilising Agent
SAT	Securities Appellate Tribunal
SBTS	Screen Based Trading System
SCMRD	Society for Capital Market Research and Development
S&P	Standard and Poor's
SAT	Securities Appellate Tribunal
SC(R)A	Securities Contracts (Regulation) Act, 1956
SC(R)R	Securities Contracts (Regulation) Rules, 1957
SCBs	Scheduled Commercial Banks
SDs	Satellite Dealers



SEBI	Securities and Exchange Board of India
SEC	Securities Exchange Commission
SGF	Settlement Guarantee Fund
SGL	Subsidiary General Ledger
SGX-DT	The Singapore Exchange Derivatives Trading Limited
SIPC	Securities Investor Protection Corporation
SLB	Securities Lending and Borrowing
SLR	Statutory Liquidity Ratio
SPAN	Standard Portfolio Analysis of Risks
SDL	State Development Loans
SPICE	Sensex Prudential ICICI Exchange Traded Fund
SPV	Special Purpose Vehicle
SROs	Self Regulatory Organisations
SSS	Securities Settlement System
STA	Share Transfer Agent
STP	Straight Through Processing
STRIPS	Separate Trading of Registered Interest and Principal of Securities
SUS 99	Special Unit Scheme 99
T-Bills	Treasury Bills
TDS	Tax Deducted at Source
TM	Trading Member
TRI	Total Return Index
UIN	Unique Identification Number
UTI	Unit Trust of India
VaR	Value at Risk
VCFs	Venture Capital Funds
VCUs	Venture Capital Undertakings
VSAT	Very Small Aperture Terminal
WAN	Wide Area Network
WAP	Wireless Application Protocol
WDM	Wholesale Debt Market Segment of NSE
YTM	Yield to Maturity
ZCYC	Zero Coupon Yield Curve



## Securities Market in India – An Overview

### Introduction

The securities market has essentially three categories of participants, *viz.*, the issuer of securities, the investors in the securities and the intermediaries. The issuers are the borrowers or deficit savers, who issue securities to raise funds. The investors, who are surplus savers, deploy their savings by subscribing to these securities. The intermediaries are the agents who match the needs of users and suppliers of funds for a commission. These intermediaries function to help both the issuers and investors to achieve their respective goals. There are large variety and number of intermediaries providing various services in the Indian securities market (Table 1-1). This process of mobilisation of resources is carried out under the supervision and

**Table 1-1: Market Participants in Securities Market**

Market Participants	Number as on March 31	
	2006	2007
Securities Appellate Tribunal (SAT)	1	1
Regulators*	4	4
Depositories	2	2
<b>Stock Exchanges</b>		
With Equities Trading	23	22
With Debt Market Segment	2	2
With Derivative Trading	2	2
Brokers	9,339	9,443
Corporate Brokers	3,933	4,076
Sub-brokers	23,479	27,894
FIIIs	882	996
Portfolio Managers	132	158
Custodians	11	11
Registrars to an issue & Share Transfer Agents	83	82
Primary Dealers	17	17
Merchant Bankers	130	152
Bankers to an Issue	60	47
Debenture Trustees	32	30
Underwriters	57	45
Venture Capital Funds	80	90
Foreign Venture Capital Investors	39	78
Mutual Funds	38	40
Collective Investment Schemes	0	0

\* DCA, DEA, RBI & SEBI.

Source: SEBI





overview of the regulators. The regulators develop fair market practices and regulate the conduct of issuers of securities and the intermediaries. They are also in charge of protecting the interests of the investors. The regulator ensures a high service standard from the intermediaries and supply of quality securities and non-manipulated demand for them in the market.

## Market Segments

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 creation and sale of new securities, while the secondary market deals in securities previously issued. The securities issued in the primary market are issued by public limited companies or by government agencies. The resources in this kind of market are mobilized either through the public issue or through private placement route. It is a public issue if anybody and everybody can subscribe for it, whereas if the issue is made available to a selected group of persons it is termed as private placement. There are two major types of issuers of securities, the corporate entities who issue mainly debt and equity instruments and the government (central as well as state) who issue debt securities (dated securities and treasury bills).

The secondary market enables participants who hold securities to adjust their holdings in response to changes in their assessment of risks and returns. Once the new securities are issued in the primary market they are traded in the stock (secondary) market. The secondary market operates through two mediums, namely, the over-the-counter (OTC) market and the exchange-traded market. OTC markets are informal markets where trades are negotiated. Most of the trades in the 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 other option is to trade using the infrastructure provided by the stock exchanges. The exchanges in India follow a systematic settlement period. All the trades taking place over a trading cycle (day=T) are settled together after a certain time (T+2 day). The trades executed on exchanges are cleared and settled by a clearing corporation. The clearing corporation acts as a counterparty and guarantees settlement. A variant of the secondary market is the forward market, where securities are traded for future delivery and payment. A variant of the forward market is Futures and Options market. Presently only two exchanges viz., National Stock Exchange of India Ltd. (NSE) and Bombay Stock Exchange (BSE) provides trading in the Futures & Options.

## International Scenario

Global integration, the widening and intensifying of links, between high-income and developing countries, have accelerated over the years. The correlation of global markets over a period of time is presented in (Table 1- 2).

**Table 1-2: Correlation of Global Markets (July 1990 to July 2007)**

	Nifty 50	Singapore	Taiwan TAI	Nasdaq	Hang Seng	Nikkie 225	FTSE 100	S & P 500	CAC 40	Dow Jones
Nifty	1.00									
Singapore	0.19	1.00								
Taiwan TAI	0.12	0.27	1.00							
Nasdaq	0.05	0.16	0.09	1.00						
Hang Seng	0.18	0.62	0.24	0.14	1.00					
Nikkie 225	0.14	0.38	0.24	0.13	0.38	1.00				
FTSE 100	0.11	0.29	0.12	0.36	0.31	0.25	1.00			
S&P 500	0.03	0.14	0.07	0.84	0.12	0.12	0.42	1.00		
CAC 40	0.12	0.29	0.14	0.38	0.30	0.25	0.77	0.43	1.00	
Dow Jones	0.03	0.15	0.06	0.71	0.13	0.12	0.41	0.94	0.43	1.00

Over the past few years, the financial markets have become increasingly global. The descriptive statistics of the major markets in terms of daily returns is presented in (Table 1-3), which shows that the markets are increasingly getting interlinked.

**Table 1-3: Descriptive Statistics of Daily Returns (July 1990 to July 2007)**

	Nifty 50	Singapore STI	Taiwan TAI	Nasdaq	Hang Seng	Nikkie 225	FTSE 100	S & P 500	CAC 40	Dow Jones
Mean	0.08	0.03	0.03	0.05	0.06	-0.004	0.03	0.04	0.03	0.04
Median	0.10	0.03	0.01	0.12	0.06	-0.02	0.04	0.05	0.04	0.05
Maximum	12.85	16.03	7.88	14.17	18.82	13.24	6.08	5.73	7.25	6.35
Minimum	-12.24	-9.22	-9.25	-9.67	-13.70	-6.98	-5.72	-6.87	-7.39	-7.18
Std. Dev	1.74	1.27	1.74	1.51	1.58	1.46	1.01	0.99	1.31	0.98
Skewness	0.04	0.40	-0.05	0.16	0.25	0.30	-0.05	-0.03	-0.02	-0.14
Kurtosis	5.73	11.95	2.70	6.31	11.09	3.57	3.19	3.87	2.92	4.62

Cross border capital flows have shifted from public transfers to primarily private sector flows. Indian market has gained from foreign inflows through investment of Foreign Institutional Investors (FIIs) route. During 2006-07, cumulative net investments by FIIs amounted to US \$ 51,967 million.

Following the implementation of reforms in the securities industry in the past years, Indian stock markets have stood out in the world ranking. As may be seen from (Table 1-4), India posted a turnover ratio of 93.1 %, which was quite comparable to the other developed markets. As per Standard and Poor's Fact Book 2007, India ranked 15th in terms of market capitalization (18th in 2004 and 17th in 2005) and 18th in terms of total value traded in stock exchanges and 21st in terms of turnover ratio as of December 2006.



Table 1-4: International Comparison: end December 2006

Particulars	USA	UK	Japan	Germany	Singapore	Hong-kong	China	India
No. of listed Companies	5,133	2,913	3,362	656	461	1,165	1,440	4,796
Market Capitalisation (\$ Bn.)	19,426	3,794	4,726	1,638	276	1,715	2,426	819
Market Capitalisation Ratio (%)	150.44	166.95	94.97	56.96	230.74	892.69	106.90	101.84
Turnover (\$ Bn.)	33,268	4,242	6,252	2,487	184	831	1,635	638
Turnover Ratio (%)	182.8	123.8	132.1	173.9	62.2	60.0	102.0	93.1

Market Capitalisation Ratio is computed as a percentage of GNI 2005  
Source: S&P Global Stock Market Factbook, 2007

A comparative study of concentration of market indices and index stocks in different world markets is presented in the (Table 1-5). It is seen that the index stocks share of total market capitalization in India is 81.6% whereas US index accounted for 89.5%. The ten largest index stocks share of total market capitalization is 32.2% in India and 13.4% in case of US.

Table 1-5: Market Concentration in the World Index as on End 2006

(In Percent)

Market	Index Stocks Share of Total Market Capitalization	10 largest Index Stocks Share of total Market Capitalization
Japan	99.9	20.1
Singapore	97.5	52.7
France	92.6	39.6
Germany	89.0	42.6
Italy	99.6	52.7
United Kingdom	96.2	35.2
United States	89.5	13.4
India	81.6	32.2

Note: Data is for the S&P CNX 500 Index for India  
Source: S&P Global Stock Market Factbook, 2007

The stock markets worldwide have grown in size as well as depth over the years. As can be observed from (Table 1-6), the turnover of all markets taken together have grown from US \$ 39.61 trillion in 2004 to US \$ 67.91 trillion in 2006. It is significant to note that US alone accounted for about 48.99 % of worldwide turnover in 2006. Despite having a large number of companies listed on its exchanges, India accounted for a meager 0.94% in total world turnover in 2006. The market capitalization of all listed companies taken together on all markets stood at US \$ 54.19 trillion in 2006 (US \$ 43.68 trillion in 2005). The share of US in worldwide market capitalization decreased from 38.85 % as at end-2004 to 35.84 % as at end 2006, while Indian listed companies accounted for 1.51% of total market capitalization in 2006.



**Table 1-6: Market Capitalisation and Turnover for Major Markets**

(US \$ million)

Country/Region	Market Capitalisation (end of period)			Turnover		
	2004	2005	2006	2004	2005	2006
<b>Developed Markets</b>	<b>33,399,791</b>	<b>36,544,888</b>	<b>43,736,409</b>	<b>35,597,626</b>	<b>41,859,092</b>	<b>59,685,209</b>
Australia	776,403	804,074	1,095,858	514,249	616,115	826,285
Japan	3,678,262	4,736,513	4,726,269	3,430,420	4,997,414	6,252,470
UK	2,815,928	3,058,182	3,794,310	3,707,191	4,167,020	4,242,082
USA	16,323,726	16,970,865	19,425,855	19,354,899	21,509,979	33,267,643
<b>All Emerging Markets</b>	<b>4,948,364</b>	<b>7,135,963</b>	<b>10,458,582</b>	<b>4,020,111</b>	<b>5,594,642</b>	<b>8,226,944</b>
China	639,765	780,763	2,426,326	748,274	586,301	1,635,121
India	387,851	553,074	818,879	379,085	433,900	638,484
Indonesia	73,251	81,428	138,886	27,561	41,900	48,831
Korea	428,649	718,180	835,188	638,891	1,202,976	1,340,122
Malaysia	190,011	181,236	235,356	59,878	49,976	66,904
Philippines	28,948	40,153	68,382	3,664	6,951	11,243
Taiwan	441,436	515,980	654,858	718,619	618,207	894,553
<b>World Total</b>	<b>38,348,155</b>	<b>43,680,851</b>	<b>54,194,991</b>	<b>39,617,737</b>	<b>47,453,734</b>	<b>67,912,153</b>
<b>US as % of World</b>	<b>42.57</b>	<b>38.85</b>	<b>35.84</b>	<b>48.85</b>	<b>45.33</b>	<b>48.99</b>
<b>India as % of World</b>	<b>1.01</b>	<b>1.27</b>	<b>1.51</b>	<b>0.96</b>	<b>0.91</b>	<b>0.94</b>

Source: S&P Global Stock Market Factbook, 2007

According to the 'World Development Indicators 2007, World Bank' there has been an increase in market capitalization as percentage of Gross Domestic Product (GDP) in some of the major country groups as is evident from (Table 1-7). The increase, however, has not been uniform across countries. The market capitalization as a percentage of GDP was the highest at 112.9% for the high income countries as at end 2005 and lowest for middle income countries at 49.5%. Market capitalisation as percentage of GDP in India stood at 68.6 % as at end 2005. The turnover ratio, which is a measure of liquidity, was 122.2 % for high-income countries and 96.6 % for low-income countries. The total number of listed companies stood at 28,733 for high-income countries, 11,141 for middle-income countries and 6,177 for low-income countries as at end 2006.

### Shareholding pattern

In the interest of transparency, the issuers are required to disclose shareholding pattern on a quarterly basis. (Table 1-8) presents the sector wise shareholding pattern of the companies listed on NSE at end March 2007. It is observed that on an average the promoters held 54.94 % of the total shares while non-promoters holding was 43.05 %. Individuals held 13.78 % and the institutional holdings (FIIs, MFs, VCFs- Indian and Foreign ) accounted for 14.64 %.

### Households

According to the RBI data, the household sector accounted for 84.8 % of gross domestic savings in Fixed income investment instruments during 2006-07; which has increased in comparison to 83.9% in 2005-06 (Table 1-9).

In fiscal 2006-07, the household sector has invested 55.7 % of financial savings in deposits, 24.2 % in insurance/provident funds, 4.9 % in small savings, and 6.5 % in securities market including government securities , units of mutual funds and other securities (out of which



Table 1-7: Select Stock Market Indicators

Markets	Market Capitalisation as % of GDP					Turnover Ratio (%)					Listed Domestic Companies							
	1990	2000	2002	2003	2004	2005	1990	2001	2003	2004	2005	2006	1990	2001	2003	2004	2005	2006
<b>High Income</b>	51.6	120.6	83.4	100.1	108.9	112.9	59.4	129.9	137.9	110.1	114.0	122.2	17,747	25,548	23,097	27,594	28,001	28,733
<b>Middle Income</b>	19.4	41.2	35.3	44.5	43.7	49.5	78.3	84.9	44.1	60.9	41.6	75.3	4,231	15,364	13,307	14,456	14,117	11,141
<b>Low &amp; Middle Income</b>	18.8	38.7	33.3	43.5	43.8	50.1	70.7	90.1	57.8	72.4	53.7	78.2	7,677	23,097	20,629	22,444	20,873	17,263
East Asia & Pacific	16.4	48.3	40.4	53.5	41.0	41.3	118.1	149.9	72.7	103.5	50.0	123.1	774	3,486	3,132	3,582	3,794	3,525
Europe & Central Asia	2.2	20.5	22.7	29.7	32.8	45.8	--	83.1	53.6	37.9	59.0	68.5	110	8,220	6,781	7,776	7,023	4,490
Latin America & Caribbean	7.7	34.0	27.4	33.2	39.6	44.6	29.8	26.9	21.7	22.0	26.1	29.2	1,734	1,567	1,381	1,468	1,525	1,342
Middle East & N. Africa	27.4	34.8	26.1	47.3	37.1	49.1	--	22.3	19.6	64.4	16.5	27.0	817	1,596	1,585	1,803	1,627	1,078
South Asia	10.8	27.0	22.7	39.8	48.7	60.4	54.0	161.6	180.3	131.2	120.6	108.7	3,231	7,159	6,839	6,909	6,000	5,954
Sub-Saharan Africa	52.3	102.3	47.3	105.9	129.6	137.0	--	22.5	23.7	39.3	27.6	32.6	1,011	1,069	911	906	904	874
<b>Low Income</b>	9.8	23.6	22.6	37.3	44.5	54.2	53.8	121.3	139.6	130.5	107.6	96.6	3,446	7,733	7,322	7,988	6,756	6,122
<b>India</b>	12.2	32.4	25.7	46.5	56.1	68.6	65.9	191.4	14.1	115.5	93.6	96.4	2,435	5,795	5,644	4,730	4,763	4,796
<b>World</b>	48.0	105.1	74.6	89.7	96.3	99.6	57.2	122.3	123.0	72.4	53.7	78.2	25,424	48,645	47,576	50,038	48,874	49,946

Source: World Development Indicators 2007, World Bank.



Table 1-8: Shareholding Pattern at the end of March 2007 of Companies Listed on NSE

Category	(In per cent)										Shares held by Custodians and against which Depository Receipts have been issued
	Promoters					Non-Promoters					
	Indian Promoters	Foreign Promoters	Financial Institutions/Banks/Central Government/State Government(s)/Insurance Companies	Foreign Institutional Investors	Mutual Funds	Venture Capital Funds including Foreign Venture Capital investors	Others	Bodies Corporate	Non-Institutional Individuals	Others	
Banks	43.79	1.02	4.76	18.41	3.59	0.59	0.54	8.27	13.27	0.79	4.98
Engineering	24.31	2.80	11.00	11.45	10.24	0.00	0.35	8.44	22.53	7.89	0.99
Finance	37.76	2.43	10.20	18.18	2.06	0.00	3.17	6.70	16.81	2.54	0.13
FMCG	16.27	16.19	13.92	11.91	7.97	0.00	0.00	3.61	14.79	14.64	0.69
Information Technology	40.84	6.00	2.02	14.53	2.82	2.69	0.34	6.19	17.52	3.19	3.86
Infrastructure	80.63	1.15	2.98	7.15	1.18	0.04	0.00	2.00	4.24	0.53	0.10
Manufacturing	44.70	9.98	6.85	9.57	3.79	0.16	0.09	5.95	15.44	1.95	1.51
Media & Entertainment	39.05	5.64	2.17	15.20	5.93	0.00	0.00	7.75	21.31	2.82	0.14
Petrochemicals	57.78	8.18	5.06	5.83	1.46	0.00	0.87	5.50	10.53	0.60	4.19
Pharmaceuticals	40.44	8.20	4.88	11.17	3.41	0.24	0.46	6.12	21.04	2.38	1.67
Services	47.07	4.19	6.87	13.09	5.22	0.63	0.05	6.35	14.30	2.02	0.22
Telecommunication	56.72	3.17	3.31	11.17	1.62	4.37	0.00	3.20	10.11	5.47	0.86
Miscellaneous	41.85	2.44	3.54	8.19	3.39	0.00	1.51	10.56	24.12	3.06	1.33
Number of shares	68,334,436,907	9,761,459,460	8,310,322,815	15,315,196,488	4,592,805,206	900,411,486	599,878,277	7,954,533,698	19,583,655,537	3,929,016,831	2,854,112,978
% to total number of shares	48.08	6.87	5.85	10.78	3.23	0.63	0.42	5.60	13.78	2.76	2.01

Source:NSE



the investment in Gilts has been 0.2 %) Thus, the fixed income bearing instruments are the most preferred assets of the household sector.

**Table 1-9: Savings of Household Sector in Financial Assets**

(In per cent)

Financial Assets	2002-03 (P)	2003-04 (P)	2004-05 P	2005-06 P	2006-07#
<b>Currency</b>	<b>8.9</b>	<b>11.2</b>	<b>8.5</b>	<b>8.7</b>	<b>8.6</b>
<b>Fixed income investments</b>	<b>86.9</b>	<b>81.6</b>	<b>85.4</b>	<b>83.9</b>	<b>84.8</b>
Deposits	40.9	38.8	37	47.4	55.70
Insurance/Provident/Pension Funds	31.1	27.3	28.9	24.2	24.20
Small Savings	14.9	15.5	19.5	12.3	4.9
<b>Securities Market</b>	<b>4.2</b>	<b>7.5</b>	<b>6.0</b>	<b>7.2</b>	<b>6.5</b>
Mutual Funds	1.3	1.2	0.4	3.6	4.80
Government Securities	2.5	7.5	4.9	2.4	0.2
Other Securities	0.4	-1.2	0.7	1.2	1.50
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

P: Provisional Figures

# Preliminary Estimates

Source: RBI.

## Primary Market

An aggregate of Rs. 3,951,560 million (US \$ 90,653 million) were raised by the government and corporate sector during 2006-07 as against Rs. 3,165,120 million (US \$ 70,951 million) during the preceding year. Government raised about 51 % of the total resources, with central government alone raising nearly Rs. 1,793,730 million (US \$ 41,150 million) (Table 1-10).

### Corporate Securities

The average annual capital mobilisation from the primary market has grown manifold since the last two-three decades. Data in (Table 1-10) shows that there is a high preference for raising resources in the primary market through private placement route. Private placements accounted for 81.80 % of total resources mobilized through domestic issues by corporate sector during 2006-07.

The Indian market is getting integrated with the global market, though in a limited way through Euro Issues, since they were permitted access in 1992. Indian companies have raised about Rs. 170,050 million i.e US \$ 3,901 million during 2006-07 through American Depository Receipts (ADRs)/Global Depository Receipts (GDRs), an increase of 49.80 % as compared with Rs. 113,520 million ( US \$ 2,545 million) during 2005-06.

FII's had net cumulative investments of US \$ 51.97 billion as at end of March 2007 in the Indian Market. There were 996 FII's registered with SEBI as of end March 2007.

It appears that more and more people prefer mutual funds (MFs) as their investment vehicle. This change in investor behaviour is induced by the evolution of a regulatory framework for MFs, tax concessions offered by government and preference of investors for passive investing. Starting with an asset base of Rs. 250 million in 1964, the total

Table 1-10: Resource Mobilisation from the Primary Market

Issues	1996-97 (Rs. mn.)	1997-98 (Rs. mn.)	1998-99 (Rs. mn.)	1999-00 (Rs. mn.)	2000-01 (Rs. mn.)	2001-02 (Rs. mn.)	2002-03 (Rs. mn.)	2003-04 (Rs. mn.)	2004-05 (Rs. mn.)	2005-06 (Rs. mn.)	2006-07 (Rs. mn.)	2006-07 (US \$ mn.)
<b>Corporate Securities</b>	<b>371,470</b>	<b>421,250</b>	<b>601,920</b>	<b>724,500</b>	<b>783,956</b>	<b>744,032</b>	<b>752,411</b>	<b>748,500</b>	<b>1,086,500</b>	<b>1,347,650</b>	<b>1,949,580</b>	<b>44,725</b>
Domestic Issues	338,720	377,380	590,440	689,630	741,986	720,612	718,147	717,520	1,052,970	1,234,130	1,779,530	40,824
Public Issues	188,060	76,390	93,650	77,040	63,620	71,120	48,667	78,510	218,920	269,400	323,820	7,429
Non-Govt. Public Companies	104,100	31,380	50,130	51,530	48,900	56,920	18,777	36,750	134,820	211,540	316,000	7,249
PSU Bonds	33,940	29,820	--	--	--	--	--	--	--	--	--	--
Govt. Companies	6,500	430	--	--	--	3,500	--	1,000	26,840	3,730	--	--
Banks & FIs	43,520	14,760	43,520	25,510	14,720	10,700	29,890	40,760	57,260	54,130	7,820	179
Private Placement	150,660	300,990	496,790	612,590	678,360	649,500	669,480	639,010	834,050	964,730	1,455,710	33,396
Euro Issues	55,940	40,090	11,480	34,870	41,970	23,420	34,264	30,980	33,530	113,520	170,050	3,901
<b>Government Securities</b>	<b>426,880</b>	<b>673,860</b>	<b>1,060,670</b>	<b>1,133,360</b>	<b>1,284,830</b>	<b>1,525,080</b>	<b>1,819,790</b>	<b>1,981,570</b>	<b>1,456,020</b>	<b>1,817,470</b>	<b>2,001,980</b>	<b>45,928</b>
Central Government	361,520	596,370	939,530	996,300	1,151,830	1,338,010	1,511,260	1,476,360	1,065,010	1,600,180	1,793,730	41,150
State Governments	65,360	77,490	121,140	137,060	133,000	187,070	308,530	505,210	391,010	217,290	208,250	4,777
<b>Total</b>	<b>798,350</b>	<b>1,095,110</b>	<b>1,662,590</b>	<b>1,857,860</b>	<b>2,068,786</b>	<b>2,269,112</b>	<b>2,572,201</b>	<b>2,730,070</b>	<b>2,542,520</b>	<b>3,165,120</b>	<b>3,951,560</b>	<b>90,653</b>

---Nil/ Negligible

Source: RBI





assets under management at the end of March 2007 has risen to Rs. 3,263,880 million (US \$ 74,877 million). The resources mobilized by the MFs have increased from Rs. 112,440 million in 1993-94 to Rs. 939,850 million ( US \$ 21,561 million) in 2006-07.

### *Government Securities*

The primary issues of the Central Government have increased manifold during the decade of 1990s from Rs. 89,890 million in 1990-91 to Rs. 1,793,730 million (US \$ 41,150 million) in 2006-07. The issues by state governments have also increased from Rs. 25,690 million in 1990-91 to Rs. 505,210 million ( US \$ 11,643 million) in 2003-04. Thereafter, the issues by the State Government have been witnessing a decrease, mobilizing Rs.208,250 million (US \$ 4,777 million) in 2006-07 against Rs.217,290 million (US \$ 4,871 million) in 2005-06.

The central government mobilized Rs.1,460,000 million (US \$ 33,494 million) through the issue of dated securities and Rs.333,730 million (US \$ 7,656 million) through the issue of 364-day Treasury Bills. After meeting repayment liabilities of Rs. 390,840 million (US\$ 8,966 million) for dated securities and redemption of T-bills of Rs.290,190 million (US \$ 6,657 million) , net market borrowing of Central Government amounted to Rs. 1,112,700 million (US \$ 25,526 million) for the year 2006-07.

The state governments collectively raised Rs 208,250 million (US \$ 4,777 million) during 2006-07 as against Rs.217,290 million ( US \$ 4,871 million) in the preceding year. The net borrowings of State Governments in 2006-07 amounted to Rs. 142,740 million (US \$ 3,275 million).

Along with growth of the market, the investor base has also widened. In addition to banks and insurance companies, corporates and individual investors are also investing in government securities. The weighted average cost of borrowing has increased to 7.89 % in 2006-07. The maturity structure of government debt is also changing. About 46 % of primary issues were raised through securities with maturities above 5 years and up to 10 years. As a result the weighted average maturity of dated securities increased to 14.75 years in 2006-07.

## **Secondary Market**

### *Corporate Securities*

Exchanges in the country, offer screen based trading system. There were 9,443 trading members registered with SEBI as at end March 2007 (Table 1-11).

The market capitalization has grown over the period indicating more companies using the trading platform of the stock exchange. The All-India market capitalization was around Rs. 35,488,081 million (US \$ 814,134 million) at the end of March 2007. The market capitalization ratio is defined as market capitalisation of stocks divided by GDP. It is used as a measure to denote the importance of equity markets relative to the GDP. It is of economic significance since market is positively correlated with the ability to mobilize capital and diversify risk. The All- India market capitalisation ratio increased to 86.02 % in 2006-07 from 85.6 % in 2005-06. NSE Market Capitalisation ratio was 81.62 % during 2006-07 while BSE Market Capitalisation ratio was 85.93 %.

Table 1-11: Secondary Market - Selected Indicators

At the End of Financial Year	Capital Market Segment of Stock Exchanges							Non-Repo Government Sec. Turnover					Derivatives		
	No. of Brokers	No. of Listed Companies	S&P CNX Nifty	Sensex	Market Capitalisation (Rs. Mn)	Market Capitalisation (US \$ Mn)	Market Capitalisation Ratio (%)	Turnover (US \$ mn)	Turnover Ratio (%)	On WDM Segment of NSE (Rs. mn)	On SGL (Rs. Mn)	On WDM Segment of NSE (US \$ Mn)	Turnover on SGL (US \$ Mn)	Turnover (Rs. Mn)	Turnover (US \$ Mn)
1995-96	8,476	9,100	985.30	3366.61	5,722,570	--	47.00	2,273,680	--	92,433	295,300	--	--	--	--
1996-97	8,867	9,890	968.85	3360.89	4,883,320	--	34.60	6,461,160	--	381,023	939,210	--	--	--	--
1997-98	9,005	9,833	1116.65	3892.75	5,898,160	--	37.70	9,086,810	--	975,152	1,610,900	--	--	--	--
1998-99	9,069	9,877	1078.05	3739.96	5,740,640	135,295	34.10	10,233,820	178.30	904,158	1,875,310	21,309	44,197	--	--
1999-00	9,192	9,871	1528.45	5001.28	11,926,300	273,410	84.70	20,670,310	173.30	2,915,915	4,564,910	66,847	104,651	--	--
2000-01	9,782	9,954	1148.20	3604.38	7,688,630	164,851	54.50	28,809,900	374.71	4,124,958	5,721,456	88,442	122,673	40,180	861
2001-02	9,687	9,644	1129.55	3469.35	7,492,480	153,534	36.36	8,958,180	119.56	9,269,955	12,119,658	189,958	248,354	1,038,480	21,280
2002-03	9,519	9,413	978.20	3048.72	6,319,212	133,036	28.49	9,689,098	153.33	10,305,497	13,923,834	216,958	293,133	4,423,333	93,123
2003-04	9,368	--	1771.90	5590.60	13,187,953	303,940	52.25	16,209,326	122.91	12,741,190	17,013,632	293,643	392,110	21,422,690	493,724
2004-05	9,128	--	2035.65	6492.82	16,984,280	388,212	54.41	16,668,960	98.14	8,493,250	12,608,667	194,131	288,198	25,641,269	586,086
2005-06	9,335	--	3402.55	11280.00	30,221,900	677,469	85.58	23,901,030	79.09	4,508,016	7,080,147	101,054	158,712	48,242,590	1,081,430
2006-07	9,443	--	3821.55	13,072.10	35,488,081	814,134	86.02	29,014,715	81.76	2,053,237	3,982,988	47,103	91,374	74,152,780	1,701,142

Note: Turnover figures for the respective year.

-- Not Available.

Source: SEBI & NSE.



Table 1-12: Growth and Distribution of Turnover on Stock Exchanges

Sr. No.	Stock Exchanges	2000-01 (Rs. Mn)	2001-02 (Rs. Mn)	2002-03 (Rs. Mn)	2003-04 (Rs. Mn)	2004-05 (Rs. Mn)	2005-06 (Rs. Mn)	2006-07 (Rs. Mn)	2006-07 (US\$ Mn)
1	NSE	17,704,580	15,622,830	21,265,445	45,462,793	45,744,186	68,693,315	95,206,640	2,184,139
2	BSE	10,016,190	3,093,156	3,165,516	5,146,730	5,357,913	8,160,830	10,167,917	233,263
3	Calcutta	3,550,354	270,747	65,399	19,275	27,150	28,000	6,940	159
4	Delhi	838,711	58,280	111	34	0	0	0	0
5	Ahmedabad	540,352	148,435	154,586	45,445	80	0	0	0
6	Uttar Pradesh	247,467	252,373	147,634	117,510	53,430	14,860	7,990	183
7	Ludhiana	97,322	8,566	0	0	0	0	0	0
8	Pune	61,705	11,710	18	0	3	0	0	0
9	Bangalore	60,328	703	0	1	0	0	0	0
10	Hyderabad	9,778	413	46	20	140	890	920	21
11	ICSE/ISE	2,331	554	648	1	0	0	0	0.3
12	Cochin	1,866	0	0	0	0	0	0	0
13	OTCEI	1,259	38	1	158	0	0.1	0	0
14	Madras	1,092	241	0	1,009	270	50	12	0
15	Madhya Pradesh	24	235	0	0	0	0	0	0
16	Magadh	16	0	5	1	0	910	0	0
17	Vadodara	9	101	25	1	0	0	0	0
18	Gauhati	0	1	1	0	0	0	0	0
19	Bhubaneswar	0	0	0	0	0	0	0	0
20	Coimbatore	0	266	0	0	0	0	0	0
21	Jaipur	0	0	0	0	0	0	0	0
22	SKSE	0	0	0	0	0	0	0	0
<b>Total</b>		<b>33,133,385</b>	<b>19,468,650</b>	<b>24,799,434</b>	<b>50,792,977</b>	<b>51,183,172</b>	<b>76,898,855</b>	<b>105,390,419</b>	<b>2,417,766</b>

Note: Turnover means total value of transactions of securities in all market segments of an Exchange. For NSE and BSE, all three segments viz. CM, F&O and WDM are included.

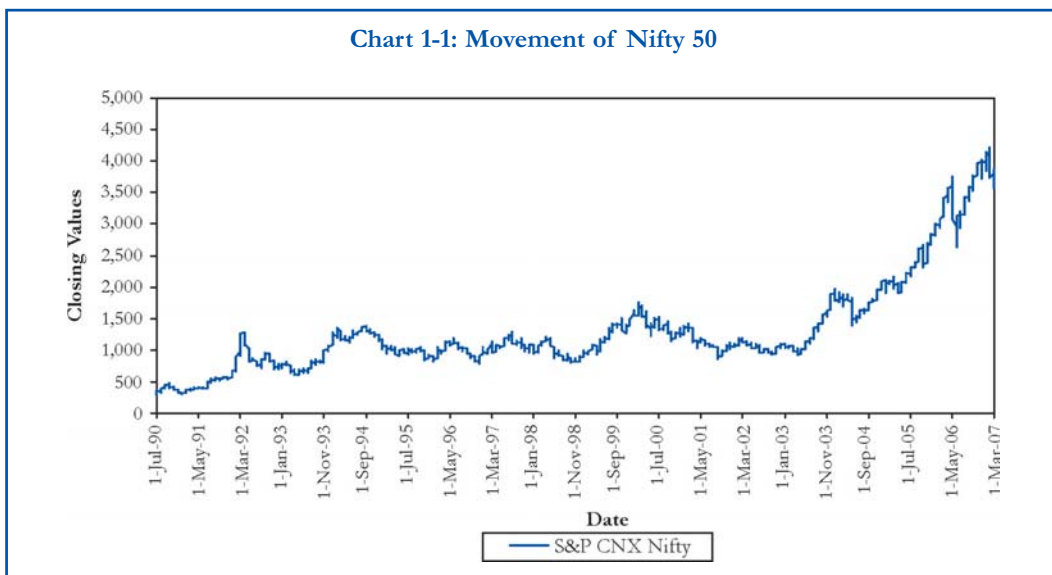
Source: SEBI



The trading volumes on stock exchanges have been witnessing phenomenal growth over the past years. The trading volume, which peaked at Rs.28,809,900 million (US \$ 617,708 million) in 2000-01, posted a substantial fall of 68.91 % to Rs.8,958,180 million (US \$ 183,569 million) in 2001-02. However, from 2002-03 the trading volumes picked up. It stood at Rs.9,689,098 million (US \$ 203,981 million) in 2002-03 and further witnessed a year-on-year increase of 67.29 % in 2003-04 standing at Rs.16,209,326 million (US \$ 373,573 million). The upsurge continued and in 2006-07, the turnover showed an increase of 21.40 % to Rs.29,014,715 million (US \$ 665,628 million) from Rs.23,901,030 million (US \$ 535,777 million) in 2005-06.

The relative importance of various stock exchanges in the market has undergone dramatic changes over a decade. The increase in turnover took place mostly at the big stock exchanges. The NSE yet again registered as the market leader with 90.34 % of total turnover (volumes on all segment) in 2006-07. Top 2 stock exchanges accounted for 99.98 % of turnover, while the rest 20 stock exchanges had negligible volumes during 2006-07 (Table 1-12).

The movement of the Nifty 50, the most widely used indicator of the market, is presented in Chart 1-1. The index movement has been responding to changes in the government's economic policies, the increase in FII inflows, etc. However, the year 2006-07 witnessed a favourable movement in the Nifty 50 Index, wherein it registered its all time high of 4224.25 in February 07, 2007. The point-to-point return of Nifty 50 was 12.31 % for 2006-07.



### Government Securities

The trading in non-repo government securities has been declining considerably since 2004-05. The aggregate trading volumes in central and state government dated securities on SGL declined from Rs. 7,080,147 million (US \$ 158,712 million) in 2005-06 to Rs.3,982,988 million (US \$ 91,374 million) in 2006-07 (Table 1-11).



## Derivatives Market

The number of instruments available in derivatives has been expanded. To begin with, SEBI only approved trading in index futures contracts based on Nifty 50 Index and BSE-30 (Sensex) Index. This was followed by approval for trading in options based on these indices and options on individual securities and also futures on interest rates derivative instruments (*91-day Notional T-bills and 10-year Notional 6% coupon bearing as well as zero coupon bonds*). On NSE, there are futures and options based on benchmark index Nifty 50, CNX IT Index, Bank Nifty Index, CNX Nifty Junior, CNX 100 and Nifty Midcap 50 as well as futures and options on 221 single stocks as of December 2007. On BSE, Futures and Options are based on BSE 30 Sensex, BSE Teck, BSE Bankex, BSE Oil & Gas, BSE PSU, BSE Metal and BSE FMCG, as well as futures and options on 91 single stocks.

The mini derivative (futures and options) contracts on Nifty 50 and Sensex were introduced for trading on January 1, 2008. The total exchange traded derivatives witnessed a trading value of Rs.74,152,780 million (US \$ 1,701,142 million) during 2006-07 as against Rs. 48,242,592 million (US \$ 1,081,430 million) during the preceding year. NSE proved itself as the market leader contributing 99.20 % of the total turnover in 2006-07 in India. Not only in Indian scenario, but also in the global market NSE has created a niche for itself in terms of derivatives trading in various instruments (discussed in detail with statistics in chapter 7 on derivatives of this publication).

## Regulatory Framework

The four main legislations governing the securities market are (a) the SEBI Act, 1992 (b) the Companies Act, 1956 (c) the Securities Contracts (Regulation) Act, 1956, and (d) the Depositories Act, 1996. A brief about these legislations is given below:

**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 by measures it thinks fit.

The measure provide for :

- a) Regulating the business in stock exchanges and other securities markets.
- b) Registering and regulating the working of stock brokers, sub-brokers, share transfer agents, bankers to an issue, trustee of trust deeds, registrar 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, custodian of securities, foreign institutional investors, credit rating agencies and such other intermediaries as SEBI, notification may specify.
- d) Registering and regulating the working of venture capital funds and collective investment schemes, including mutual funds.
- e) Promoting and regulating self-regulatory organizations.
- 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 in shares and takeover of companies.



- j) Calling of 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 organization 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 transactions in securities which is under investigation or inquiry by SEBI.
- l) Performing such functions and exercising such powers under the provisions of the Securities Contracts (Regulation) Act, 1956 (42 of 1956), as may be delegated to it by the central government.
- m) Levying fees or other charges for carrying out the purposes of this section.
- n) Conducting research for 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.

Under the act, SEBI may regulate or prohibit issue of prospectus, offer document or advertisement soliciting money for issue of securities. For the protection of investors, by regulations SEBI can take up specific matters relating to issue of capital, transfer of securities and other matter incidental and the manner in which such matters should be disclosed by the companies. The act also empowers SEBI to specify the requirements for listing and transfer of securities to protect the interest of the investors.

Further, the act also provides for:

- a) Regulations for registration of stock broker, sub-brokers, share transfer agents,
- b) Prohibition of manipulative and deceptive devices, insider trading and substantial acquisition of securities or control
- c) Grants by the Central government
- d) Accounts and audit
- e) Penalty for failure to furnish information, return etc.
- f) Establishment of Securities Appellate Tribunals (SAT), Procedures and powers of the SAT.

**Securities Contracts (Regulation) Act, 1956:** It provides for direct and indirect control of virtually all aspects of the securities trading including the running of stock exchanges. The objective of the act is to prevent undesirable transactions in securities by regulating the business of dealing.

It gives the 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 the requirements prescribed by the Central Government. The stock exchanges frame their own listing regulations in consonance with the minimum listing criteria set out in the Rules.

*Recognition of Stock Exchanges:* By virtue of Securities Contracts (Regulation) Act 1956, provisions relating to application of recognition of stock exchanges, grant of recognition to stock exchange, procedure of corporatisation and demutualization of stock



exchanges, withdrawal of recognition to stock exchange have been made. This act also empowers the Central government to call for periodical returns and make direct enquiries. The annual reports to be furnished to Central Government by stock exchanges.

The act also defines power of recognized stock exchange to make rules restricting voting rights, bye-laws etc. Further, under the act, the power of central government to direct rules to be made and powers of SEBI to make or amend bye-laws of recognized stock exchanges have been laid down. The SCRA (1956) empowers the central government to supersede governing body of recognized stock exchange and vests with the Central Government the power to suspend business of recognized stock exchanges.

The Securities Contracts (Regulation) Amendment Act, 2007, amended the Securities Contract (Regulation) Act, 1956 to provide a legal framework for trading in securitized debt including mortgage backed debt, was passed in May 2007. The Act, inter alia provides for a) including securitization certificates or instruments under the definition of securities and b) obtaining approval from SEBI for issue of securitization certificate or instrument and procedure thereof. Further, the act provides provisions for contracts and options in securities, listing of securities, penalties and procedures and various miscellaneous aspects.

*Contracts and Options in Securities:* If the Central Government is satisfied regarding the nature or the volume of transactions in securities in any state/states or area that it is necessary to do so, it may, by notification in the Official gazette, declare provisions of section 13 i.e 'contracts in notified areas illegal in certain circumstances' to apply to such State/States or area and thereupon every contract in such State or States or area which is entered into after the date of the notification otherwise than between members of a recognized stock exchange or recognized stock exchanges in such State/States/area or through or with such member would be illegal. Provided, that any contract entered into between members of two or more recognized stock exchanges in such State or States or area would be subject to such terms and conditions as may be stipulated by the respective stock exchanges with prior approval of SEBI and require prior permission from the respective stock exchanges with prior approval of SEBI.

As per section 13 A of SCRA (1956), a stock exchange can establish additional trading floor with prior approval of the SEBI in accordance with the terms and conditions stipulated by SEBI.

*Listing of Securities:* When securities are listed on the application of any person in any recognized stock exchange, such persons should comply with the conditions of the listing agreement with that stock exchange. The act also provides conditions of listing, delisting of securities, right of appeal against refusal of stock exchanges to list securities of public companies, right of appeal to SAT against refusal of stock exchange to list securities of public companies, procedures and powers of SAT, Right to legal representation.

*Penalties and Procedures:* The act also provides various cases when a person is liable for penalties such as when there is failure to:

- a) Furnish information, return, etc.
- b) Enter into agreements with clients
- c) Redress investor's grievances
- d) Segregate securities or moneys of client or clients
- e) Comply with provision of listing and delisting conditions etc.



**Depositories Act, 1996:** The Depositories Act, 1996 provides for the establishment of depositories for securities to ensure transferability of securities with speed, accuracy and security. The act provides the rights and obligations of depositories, participants, issuers and beneficial owners.

- 1) A depository is required to enter into an agreement with one or more participants as its agents.
- 2) Any person through a participant can enter into an agreement as specified by bye-laws with any depository for availing its services.
- 3) Any person who enters into an agreement with depository should surrender the certificate of security for which he requires the services of a depository to the issuer in such a manner as may be specified by the regulations.
- 4) After the issuer receives the certificate of security, he should 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. After receiving the information, the depository should enter the name of the person who has entered into agreement, as the beneficial owner in its records.
- 5) After receiving intimation from the participant, every depository should register the transfer of security in the name of the transferee. If a beneficial owner or a transferee of a security seeks to have custody of such security the depository should inform the issuer accordingly.
- 6) The persons which subscribes to securities offered by the issuer would have the option either to receive the security certificates or hold securities with a depository. Even if a person decides to hold a security with a depository, the issuer would intimate such depository the details of allotment of the security and after receiving such information the depository should enter in its records the name of the allottee as the beneficial owner of the security.
- 7) All securities held by a depository should be dematerialized and be in a fungible form.
- 8) The depositories should be deemed to be the registered owner for the purpose of effecting transfer of ownership of security on behalf of a beneficial owner. Further, the depository as a registered owner should not have any voting rights or other rights in the securities held by it. The Beneficial owner should be entitled to all the rights and benefits and be subjected to all the liabilities in respect of his securities held by a depository.
- 9) The depository is required to maintain a register and an index of beneficial owners.
- 10) A Beneficial owner, with the prior approval of the depository create a pledge or hypothecation of securities owned by him through a depository. Further, the BO is required to intimate the depository regarding the pledge and accordingly the depositories make entries in its records.
- 11) The depositories are required to furnish 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.
- 12) If the Beneficial Owner opts out of a depository in respect of any security then it has to be informed to the depository.





**Companies Act, 1956:** It deals with issue, allotment and transfer of securities and various aspects relating to company management. It provides for standards of disclosure in the public issues, 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.

## Rules, Regulations & Regulators

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

The regulator has to ensure that the market participants abide by and adhere to the rules and regulations prescribed to them. This in turn would ensure that the securities market continues to be a major source of finance for corporate and government and also protect the interest of investors.

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

Most of the powers under the SCRA are exercisable by DEA, while a few others by SEBI. The powers of DEA under SCRA are also con-currently exercised by SEBI. The regulation 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 with the 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 the SEBI. All rules 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.

## Reforms in Indian Securities Markets

### *Corporate Securities Market*

During the last decade, there have been substantial regulatory, structural, institutional and operational changes in the securities industry. These have been brought in with the objective of improving market efficiency, enhancing transparency, preventing unfair trade practices and bringing the Indian market up to the international standards. The following paragraphs list the principal reform measures undertaken since 1992.



**SEBI Act, 1992:** It created the securities market regulator, the SEBI, with the main objective and 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 corporate in the issuance of capital and transfer of securities, in addition to all intermediaries and persons associated with securities market. The courts have upheld the powers of SEBI to impose monetary penalties and to levy fees from market intermediaries.

Enactment of the SEBI Act was 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 SCRA.

**DIP Guidelines:** With the repeal of the Capital Issues (Control) Act, 1947 in May 1992, Government's control over issue of capital, pricing of the issues, fixing of premia and rates of interest on debentures etc. ceased. Thereafter, the market has been allowed to allocate resources among the competing uses. In the interest of investors, SEBI issued the Disclosure and Investor Protection (DIP) guidelines. These guidelines contain a substantial body of requirements for issuers/intermediaries, with a broad intention to ensure that all the concerned entities observe high standards of integrity and fair dealing. The guidelines cast a responsibility on the lead managers to issue a due diligence certificate, stating that they have examined the prospectus 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 in terms of their track record of distributable profits and net worth.

**Screen Based Trading:** Prior to setting up of NSE, the trading on stock exchanges in India used to take place through an open outcry system. This system did not allow immediate matching or recording of trades. This was time consuming and imposed limits on trading. In order to provide efficiency, liquidity and transparency, NSE introduced a nation-wide on-line fully-automated screen based trading system (SBTS). In this system a member can punch into the computer, quantities of securities and the prices at which he desires to transact and the transaction is executed as soon as it finds a matching sale or buy order from a counter party. 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. Given the efficiency and cost effectiveness delivered by the NSE's trading system, it became the leading stock exchange in the country in its very first year of operation. This forced the other stock exchanges to adopt SBTS. As a result, open out-cry system has disappeared from India. Today, India can boast that almost 100% trading takes place through electronic order matching.

Technology has been harnessed to carry the trading platform to the premises of brokers. NSE carried the trading platform further to the PCs in the residence of investors through the internet. This has made a huge difference in terms of equal access to investors in a geographically vast country like India.

**Trading Cycle:** Initially, the trading cycle varied from 14 days for specified securities to 30 days for others and settlement took another fortnight. 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. The settlement period has been reduced progressively from T+5 to T+3 days. Currently T+2 day settlement cycle is being followed.

**Derivatives Trading:** To assist market participants to manage risks better through hedging, speculation and arbitrage, SCRA was amended in 1995 to lift the ban on options in securities. However, trading in derivatives took off much later after the suitable legal and regulatory framework was out in place. The market presently offers index futures and index options on Nifty 50, CNX IT, Bank Nifty, Nifty Junior, CNX 100, Nifty Midcap 50, BSE 30 Sensex, BSE Teck, BSE Bankex, BSE Oil & Gas, BSE PSU, BSE Metal and BSE FMCG, and single stock futures and options and futures in interest rate products like notional 91-day T-Bills and notional 10-year bonds. BSE also has weekly options on 4 stocks and BSE Sensex.

The mini derivative (futures and options) contracts on Nifty 50 and Sensex were introduced for trading on January 1, 2008.

**Demutualisation:** Historically, brokers owned, controlled and managed the stock exchanges. In case of disputes, integrity of the exchange suffered. Therefore, regulators focused on reducing the dominance of trading members in the management of stock exchanges and advised them to reconstitute their governing councils to provide for at least 50% non-broker representation. The Securities and Exchange Board of India (SEBI), has approved and notified the Corporatisation and Demutualisation Scheme of 19 Stock Exchanges. This is a major step for modernisation of securities markets. India is the only country, which achieved this corporatisation and demutualisation in the shortest possible time. NSE and OTECI, was the first exchanges in India to adopt a pure demutualised governance structure where ownership, management and trading are with three different sets of people. This completely eliminates any conflict of interest and helped NSE to aggressively pursue policies.

**Depositories Act:** The earlier settlement system gave rise to settlement risk. This was due to the time taken for settlement and due to the physical movement of paper. Further, the transfer of shares in favour of the purchaser by the company also consumed considerable amount of time. 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 and accuracy. This act brought in changes by (a) making securities of public limited companies freely transferable subject to certain exceptions; (b) dematerialising of securities in the depository mode. In order to promote dematerialisation, the regulator has been promoting settlement in demat form in a phased manner in an ever-increasing number of securities. The stamp duty on transfer of demat securities has been waived. There are two depositories in India, viz. NSDL and CDSL. They have been set up to provide instantaneous electronic transfer of securities. At the end of March 2007, the number of companies connected to NSDL and CDSL were 6,483 and 5,589 respectively. The number of dematerialised securities increased to

233.95 billion at the end of March 2007 from 201.9 billion at the end of March 2006. The value of dematerialised securities was Rs. 34,365 billion (US \$ 788 billion) and the number of investor accounts was 10,271,490 as at the end March 2007. All actively traded scrips are held, traded and settled in demat form. Demat settlement accounts for over 99.9% 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 securities issued should 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.

**Risk Management:** With a view to avoid any kind of market failures, the regulator/exchanges have developed a comprehensive risk management system. This system 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 detect and prevent price manipulations. The clearing corporation has also put in place a system which tracks online real time client level portfolio based upfront margining. 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. As a part of the risk management system, index based market wide circuit breakers have also been put in place.

The anonymous electronic order book ushered in by the NSE did not permit members to assess credit risk of the counter-party necessitated some innovation in this area. To address this concern, NSE had set up the first clearing corporation, viz. National Securities Clearing Corporation Ltd. (NSCCL), which commenced its operations in April 1996. The NSCCL assured the counterparty risk of each member and guaranteed financial settlement. NSCCL established a Settlement Guarantee Fund (SGF). The SGF provides a cushion for any residual risk and operates like a self-insurance mechanism wherein members contribute to the Fund. In event of failure of a trading member to meet his obligations, the fund is utilized to the extent required for successful completion of the settlement. This has eliminated counter-party risk of trading on the Exchange.

**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 that critical data should be disclosed in the specified formats regarding all the concerned market participants. 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.

DEA, DCA, the SEBI and the stock exchanges have set up investor grievance cells for redressal of investor grievance. The exchanges maintain investor protection funds to take care of investor claims. The 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. In January 2003, SEBI launched a nation-wide Securities Market Awareness Campaign that aims at educating investors about the risks associated with the market as



well as the rights and obligations of investors. The NSE have also taken special measures for educating the investors, it conducts seminars, workshops and comes out with advertisement both in print and electronic media to communicate to the investors.

**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. Further, foreign companies are allowed to tap the domestic stock markets.

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. 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. The 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.

RBI permitted two-way fungibility for ADRs/GDRs, which meant that the investors (foreign institutional or domestic) who holds ADRs/GDRs can cancel them with the depository and sell the underlying shares in the market. The company can then issue fresh ADRs to the extent of the shares cancelled. Previously, once a company issued ADR/GDR and if the holder wanted to obtain the underlying equity shares of the Indian Company, then, such ADR/GDR would be converted into shares of the Indian Company. Once such conversion took place, it was not possible to reconvert the equity shares into ADR/GDR.

### *Government Securities Market*

The Government securities market has witnessed significant transformation in the nineties. There have been major institutional and operational changes in the government securities market. In the primary market, securities are issued through the auction system at market related rates. They are issued across maturities to develop a yield curve from short to long end, which is used as a benchmark. Also, the types of bonds issued have diversified include floating rate bonds, capital index bonds, zero coupon bonds. Further, non-competitive bids are accepted from retail investors in order to widen investor base. The reforms in the secondary market include setting up a system of primary dealers, who provide with two way quotes for transactions in securities, setting up of Clearing Corporation of India as the central clearing agency wherein delivery versus payment (DvP) system is used for settlement, and negotiated dealing screen for reporting of all the trades. Further, to facilitate retail investors to invest in government securities, RBI permitted select entities to provide custody (Constituent SGL) accounts. 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/set-ups have been made operational the Negotiated Dealing System (NDS) and the Clearing Corporation of India Limited (CCIL). NDS, interalia, facilitates screen based negotiated dealing for secondary market transactions in government securities and money market instruments, online reporting of transactions 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. Initially, the settlement of trades was carried out on individually, that is, irrespective of counterparties each trade was settled separately. Further, there was no central agency to guarantee the trades. Therefore, the CCIL was set up to facilitate settlement using the higher versions of Delivery versus Payment mechanism. It began by settling the securities on gross basis and settlement of funds on net basis. Subsequently, both the securities and funds are settled on net basis. It also, acts as a central counterparty for clearing and settlement of government securities transactions done on NDS. Recently, RBI also introduced an electronic order matching system in the Indian gilts market as a part of NDS which is referred to as the NDS-OM. This system is purely order driven, has anonymous order matching, provides timely information both pre-trade and post trade, allows straight-through processing, allows traders to set their preferences in terms of orders, facilitates trading by members on behalf of their constituents and provides a precise audit trail of transaction especially in light of the extant guidelines of sale of government securities and DvP III mode of settlements.

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.

### *Research in Securities Market*

In order to deepen the understanding and to assist in policy-making, SEBI has been promoting high quality research in the Indian capital market. Its monthly bulletin carries research articles pertaining to issues in the capital market. In order to improve market efficiency further and to set international benchmarks in the securities industry, NSE also administers a scheme called the NSE Research Initiative. The objective of this initiative is to foster research to better design market microstructure. The NSE Research Initiative has so far come out with 44 Working Papers.

### *Testing and Certification*

With a view to improve the quality of intermediation, a system of testing and certification has been used in some of the developed and developing markets. This ensures that a person dealing with financial products has a minimum knowledge about them, the markets and regulations. As a result, not only the intermediaries benefit due to the improvement in the quality of their services, but also the career prospectus of the certified professionals is better. Thus, the confidence of the investors in the market increases.

NSE has evolved a testing and certification mechanism known as the 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, testing, assessing, scores reporting and certifying is fully automated. It tests practical knowledge and skills, that are required to operate in financial markets. A certificate is awarded to those personnel who qualify the tests, which indicates that they have a proper understanding of the market and skills to service different constituents of the market. It offers 14 securities market related modules.



## Role of NSE in Indian Securities Market

National Stock Exchange of India (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 time, 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 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. Settlement risks have been eliminated with NSE's innovative endeavours 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 2006-07, it accounted for over 90 % of total trading value (debt, derivatives and equity) in the stock exchanges and 67% 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.

NSEs *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.

NSEs *Futures & Options* segment provides trading of a wide range of derivatives like Index Futures, Index Options, Stock Options and Stock Futures. The dimensions of these segments are presented below:

#### Market Segments - Selected Indicators

Segment	At the end of March 2007			2006-07		1995-96 to 2006-07
	No. of Members	No. of Securities Available	Market Capitalisation (Rs. mn.)	Trading Volume (Rs. mn.)	Market Share (%)	Annual Compound Growth Rate (%)
CM	1,002	1,084 <sup>a</sup>	33,673,500	19,452,865	67	35.78
WDM	63	3,252	17,848,006	2,191,065	52 <sup>b</sup>	30.35
F&O	845	13,041 <sup>c</sup>	--	73,562,712 <sup>d</sup>	99	--
Total	1,009 <sup>e</sup>	17,377	51,521,505	95,206,642	90 <sup>f</sup>	--

a. Excludes suspended securities.

b. Share in SGL

c. 3 nifty index futures, 3 CNX IT futures, 3 bank nifty, 334 nifty index options, 462 stock futures, 360 CNX IT options, 458 bank nifty options, 11,400 stock options and 18 interest rate futures contracts.

d. includes notional turnover [(strike price + premium) × quantity] in index options and stock options.

e. Do not add up to total because of multiple membership.

f. Share in turnover on all exchanges.

#### Achievements/Milestones

Month/Year	Event
November 1992	Incorporation
April 1993	Recognition as a stock exchange.
June 1994	WDM segment goes live.
November 1994	CM segment goes live through VSAT.
March 1995	Establishment of Investor Grievance Cell.
April 1995	Establishment of NSCCL, the first Clearing Corporation.
July 1995	Establishment of Investor Protection Fund.
October 1995	Became largest stock exchange in the country.





Month/Year	Event
April 1996	Commencement of clearing and settlement by NSCCL.
April 1996	Launch of S&P CNX Nifty.
June 1996	Establishment of Settlement Guarantee Fund.
November 1996	Setting up of National Securities Depository Ltd., first depository in India, co-promoted by NSE.
November 1996	'Best IT Usage' award by Computer Society of India.
December 1996	Commencement of trading/settlement in dematerialised securities.
December 1996	Dataquest award for 'Top IT User'.
December 1996	Launch of CNX Nifty Junior.
November 1997	'Best IT Usage' award by Computer Society of India.
May 1998	Promotion of joint venture, India Index Services & Products Limited (IISL) (along with CRISIL) for index services.
May 1998	Launch of NSE's Web-site : <a href="http://www.nseindia.com">www.nseindia.com</a> .
July 1998	Launch of 'NSE's Certification Programme in Financial Markets'. (NCFM)
August 1998	'CYBER CORPORATE OF THE YEAR 1998' award.
April 1999	'CHIP Web Award' by CHIP magazine.
October 1999	Setting up of NSE.IT Ltd.
January 2000	Launch of NSE Research Initiative.
February 2000	Internet Trading in CM segment.
June 2000	Commencement of Derivatives Trading (in Index Futures).
September 2000	Launch of Zero Coupon Yield Curve.
June 2001	Commencement of Trading in Index Options
July 2001	Commencement of Trading in Options on Individual Securities
November 2001	Commencement of Trading in Futures on Individual Securities
December 2001	Launch of NSE VAR for Government Securities
January 2002	Launch Exchange Traded Funds (ETFs).
May 2002	NSE wins the Wharton-Infosys business Transformation Award in the organization-wide transformation category
October 2002	Launch of Government Securities Index
January 2003	Launch of Retail Debt of Government Securities
June 2003	Launch of Exchange Traded Interest Rate derivatives on Notional 91 day T-bills and Notional 10 year bonds
August 2003	Launch of Futures and Options on CNX IT Index
June 2004	Launch of STP Interoperability
August 2004	Launch of NSE electronic interface for listed companies
March 2005	'India Innovation Award' by EMPI Business School, New Delhi
June 2005	Launch of Futures & Options on BANK Nifty Index
August 2006	Setting up of NSE Infotech Services Ltd.
December 2006	'Derivative Exchange of the Year', by Asia Risk magazine
January 2007	Launch of NSE - CNBC TV 18 media centre
March 2007	NSE, CRISIL announce launch of IndiaBondWatch.com
March 2007	Launch of Gold BeES- Exchange Traded Fund (ETF).
June 2007	Launch of Futures & Options on CNX 100 and CNX Nifty Junior contracts.
October 2007	Launch of Futures & Options on Nifty Midcap 50 contracts
January 2008.	Launch of Mini derivatives (Futures & Options) Contracts on Nifty 50.



## Technology and Application Systems in NSE

Technology has been the backbone of the Exchange. Providing the services to the investing community and the market participants using technology at the cheapest possible cost has been its main thrust. NSE chose to harness technology in creating a new market design. It believes that technology provides the necessary impetus for the organisation to retain its competitive edge and ensure timeliness and satisfaction in customer service. In recognition of the fact that technology will continue to redefine the shape of the securities industry, NSE stresses on innovation and sustained investment in technology to remain ahead of competition. 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 2,737 VSATs from nearly 266 cities spread all over the country. The list of towns and cities and the state-wise distribution of VSATs as at end March 2007 is presented in Table 1-13.

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%. 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. 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.

The various application systems that NSE uses for its trading as well clearing and settlement and other operations form 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 6 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 15,000 users and handle more than 3 million trades daily. 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



Table 1-13: List of Cities and VSATs at the end of March 2007

LIST OF CITIES AND VSATs AT THE END OF MARCH 2007			
STATES	LIST OF TOWNS AND CITIES	TOTAL NO. OF CITIES.	TOTAL NO. OF VSATS
ANDHRA PRADESH	Amalapuram, Anantapur, Ankapalle, Bhimavaram, Chirala, Cuddapah, Eluru, Gajuwaka, Gudiwada, Guntur, *Hyderabad, Kakinada, Kukatpally, Kurnool, Narsapur, Nellore, Ongole, Palakol, Iduguralla, Rajamundry, Secunderabad, Srikakulam, Tadepalligudem, Tanuku, Tenali, Tirupathi, Vijayawada, Vizag, Vizianagaram, Warangal, Chilakaluripeta,	31	159
ASSAM	*Guwahati, Silchar	2	6
BIHAR	Begusarai, Bhagalpur, Muzaffarpur, *Patna, Sitamarhi,	5	19
CHHATTISGARH	Bilaspur, Raipur	2	9
DELHI	*Delhi	1	527
GOA	Panaji, Mapusa, Margao	3	7
GUJARAT	*Ahmedabad, Anand *Baroda, Bharuch, Bhavnagar, Bhuj, Botad, Dhoraji, Dhrangadhra, Gandhidham, Gandhinagar, Jamnagar, Junagadh, Kadi, Mehsana, Nadiad, Navsari, Patan, Petlad, *Rajkot, Surajkaradi, Savarkundla, Surat, Surendranagar, Unjha, Valsad, Vapi, Visnagar, Keshod,	29	181
HARYANA	Ambala, Bahadurgarh, Bhiwani, Fatehabad, Faridabad, Ganaur, Gohana, Gurgaon, Hissar, Jagadhri, Jind, Kaithal, Karnal, Kurukshetra, Panchkula, Panipat, Rewari, Rohtak, Sirsa, Sonapat, Yamuna Nagar,	21	107
HIMACHAL PRADESH	Shimla.	1	1
JAMMU & KASHMIR	Jammu, Srinagar	2	5
JHARKHAND	Bokaro Steel City, Dhanbad, Giridih, Ranchi, Jamshepur	5	21
KARNATAKA	Arsikere, *Bangalore, Bellary, Hassan, Hubli, Kumta, *Mangalore, Manipal, Mysore, Sagar, Shimoga, Udupi	12	86
KERALA	Angamaly, Calicut, Ernakulam, Gurusvayur, Irinjalakuda, Kannur, Kasargod, *Kochi, Kodungallore, Kollam, Kottayam, Muvattupuzha, Pala, Palakad, Pathanamthitta, Thalassery, Thiruvalla, Thrissur, Thodupuzha, Thiruvananthapuram (Trivandrum)	20	75
MADHYA PRADESH	Bhilai, Bhopal, Gwalior, *Indore, Jabalpur, Nagda, Neemuch, Ratlam, Satna, Ujjain	10	72
MAHARASHTRA	Ahmednagar, Akola, Amravati, Ichalkaranji, Jalgaon, Kolhapur, Kopargaon, *Mumbai, Nagpur, Nashik, *Pune, Solapur,	12	682
ORISSA	*Bhubaneswar, Berhampur, Cuttack, Rourkela, Jeypore, Jaraka	6	9
PUNJAB	Amritsar, Bathinda, Chandigarh, Fazilka, Hoshiarpur, Jalandhar, Khanna, *Ludhiana, Mansa, Moga, Mohali, Muktasar, Nabha, Pathankot, Patiala, Barnala, Kotkapura, Batala, Kapurthala, Faridkot	20	89
RAJASTHAN	Ajmer, Alwar, Bhilwara, Bikaner, Falna, *Jaipur, Jodhpur, Kota, Udaipur, Sujangarh, Makrana, Nokha, Beawar, Sadarsahar, Sri Ganganagar, Kankroli, Pali	17	124
TAMIL NADU	*Chennai, *Coimbatore, Erode, Karaikal, Karaikudi, Karur, Kumbakonam, Madurai, Nagercoil, Namakkal, Neyveli, Salem, Sivakasi, Thanjavur, Tirunelveli, Trichy, Tuticorin, Hosur, Vellore, Gobichettipalayam, Gudiyatham, Dharapuram, Pollachi,	23	174
UNION TERRITORY	Pondicherry,	1	1
UTTAR PRADESH	Agra, Aligarh, Allahabad, Bagraich, Bareilly, Chandausi, Gorakhpur, Ghaziabad, Jhansi, Kurja, *Kanpur, Lucknow, Mathura, Meerut, Moradabad, Muzaffarnagar, Modinagar, Rishikesh, Roorkee, Renukoot, Saharanpur, Varanasi, Bulandshar, Kashipur, Hapur, Rampur, Sahibabad, Haldwani, Baghpat, Mirzapur	30	138
UTTARANCHAL	Dehradun, Haridwar, Nainital, Rudrapur, Ramnagar, Sitarganj	6	13
WEST BENGAL	Asansol, *Kolkata, Siliguri, Durgapur, Raniganj, Paschim Medinipur, Burdwan	7	232
<b>TOTAL</b>		<b>266</b>	<b>2,737</b>

\*Indicates cities which have a Regional Stock Exchange

Source: NSE



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 stocks 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.
- (vi) **Surveillance system** offers the users a facility to comprehensively monitor the trading activity and analyse the trade data online and offline.

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. The system also tracks online real time client level portfolio base upfront margining and monitoring.
  - (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.

## International Initiatives

### *Regulatory Issues arising from Exchange Evolution:*

In November 2006, IOSCO released a report of the Technical Committee of the International Organisation of Securities Commissions. The report is discussed briefly below.

The trend for exchanges to demutualize, and, in many cases, obtain exchange listings has continued. The changes in exchange ownership have highlighted certain regulatory issues. However, demutualization is only one aspect of the changing environment for exchanges. Many exchanges, whether demutualized or not, are operating in a more competitive environment. Exchanges have been more active in seeking ways to expand their business, whether by developing or competing for products and services, by expanding their reach to participants beyond their home borders, or by seeking mergers with, or acquisitions of, other market operators. Several key issues relating to the operation of exchanges, and the development and structure of their business are still emerging.

The fact-finding exercise among SC2 (The Jurisdiction of SC2 members are Australia, Brazil, Canada (Ontario and Quebec), France, Germany, Hongkong, India, Italy, Japan, Malaysia, Mexico, Singapore, Spain, Switzerland, United Kingdom, United States of America) members revealed that:

- 1) All exchanges continue to perform all or some of the regulatory functions traditionally assigned to them;
- 2) Most securities regulatory authorities have taken steps, either through modified regulation or enhanced oversight, to ensure that exchanges continue to perform regulatory functions in a proper manner;

- 3) The steps taken have tended to be customised and pragmatic, based on an assessment of the particular circumstances in a jurisdiction; and
- 4) When exchanges have decided to self-list, all the jurisdictions of SC2 members have considered specific measures and taken appropriate steps to deal with the particular conflicts and issues that arise.

As exchanges have evolved, there are a number of additional issues that regulatory authorities have been considering. As noted, the paper on 'Technical Committee of the International Organisation of Securities Commissions', discusses emerging issues resulting from increased competition, extension of exchange activities, cross-border activity and affiliations and outsourcing, among others. The main questions that arise are as follows:

- (i) Do the existing regulatory requirements for exchange licensing/registration and operation continue to be adequate and easily adaptable to the emerging issues or are new tools necessary?
- (ii) How should the new business activities of exchanges be considered and included in the regulatory framework?

The answers to these questions are often far from straightforward. Some touch on much larger issues relating to the future of exchanges, the relationship between exchange regulation and exchange branding, the desirability of competing standards, and the case for a more functional rather than institutional approach to market regulation. However, it is clear that regulatory authorities must at least have the ability to identify regulatory concerns arising from market developments and clearly developed principles for determining what, if any, measures are appropriate in a particular situation.

### *Recommendations of the report:*

- 1) Regulatory authorities should have adequate arrangements to enable them to keep the changing market environment under review and to identify emerging issues in a timely fashion. These arrangements should include ongoing dialogue with exchanges (which could include regular meetings with exchange boards and/or management or specific reporting obligations) to help ensure an understanding of their businesses and practices. To promptly evaluate the impact of any changes, regulatory authorities need to be in a position to obtain up-to-date information about any developments or changes to exchange operations. In some cases, in addition to the dialogue with exchanges there may be a need for regulators to hold discussions with key stakeholders, including users of exchange services, to determine if the new initiatives or activities of exchanges require regulatory responses.
- 2) Regulatory authorities should assess whether the changes being made by exchanges require any adjustments to the regulatory framework for an individual exchange or for exchanges generally, and should address any such need for changes promptly. Various approaches have been described in the IOSCO paper of 'Technical Committee of the International Organisation of Securities Commissions' like governance arrangements, separation of functions within an exchange, restrictions on ownership, oversight arrangements (i.e. increased oversight, special self-listing arrangements and the addition of specific terms and conditions to authorization documents such as those relating to minimum capital or financial viability more



generally) and transfer/removal of functions. These approaches should be considered as regulators seek to re-evaluate their own regulatory scheme. In making any adjustments, new tools may become necessary and a survey of actions taken by supervisors in other jurisdictions may be of assistance as these issues are constantly evolving.

- 3) It has been emphasized that regulatory authorities should carefully assess the impact on resources of any changes to the regulatory model for exchanges, and ensure that the core regulatory obligations and operational functions of exchanges are appropriately organized and sufficiently resourced. This assessment should include the impact on both financial and human resources (e.g. sufficient funding, number of people and expertise) of any changes to functions performed by exchanges. While regulatory authorities may be able to address some issues through existing supervisory powers or by developing modified supervisory arrangements with exchanges, there may be circumstances (when permitted by the legislative structure) where a regulatory function is transferred to a different entity. In the case of transfer of functions it is especially important to carefully consider and analyze the impact on resources at the entity to which they have been transferred, whether at the regulatory authority, other exchange or SRO or other entity as well as whether the appropriate systems are in place to perform the regulatory function.
- 4) Securities regulatory authorities should be prepared to share relevant information concerning cross-border activity. With increased cross-border activities, whether by exchanges or competing infrastructure providers, regulatory authorities should consider whether all necessary information sharing arrangements are in place to facilitate the exchange of relevant information. There may be a need to obtain information for market oversight purposes or more generally (for example, information on listing processes, settlement procedures or trading systems).
- 5) Regulatory authorities should consider competition issues that may arise in connection with the evolution of exchanges as discussed above where such evolution impacts market integrity, efficiency or investor protection. This is an important consideration given the complex competition issues that may be raised by market structure developments and their interaction with market integrity and investor protection.

### *World Federation of Exchanges Derivatives Market Survey 2006*

The World Federation of Exchanges conducted a survey on 'trading of derivative products' in 2006 for the International Option Markets Association (IOMA) derivatives exchanges. The survey covered 49 exchanges.

Some of the findings of the survey are mentioned below:

- 1) A new historic record of 11.6 billion derivative contracts were transacted in 2006 on exchanges worldwide, with 5 billion futures and 6.6 billion options traded.
- 2) In the last four years, from 2002-2006, the average annual growth rate of the number of traded contracts reached 14 % for options and 22 % for futures. The sharp increase in number of contracts was attributed to futures.
- 3) In 2006, the rate of growth of futures reached the same exceptional level as in 2003 i.e. 29 %. It remained stable at 10 % for options compared to 2005.



- 4) In 2006, the contracts volumes increased for all products. The growth of all types of products accelerated. It was found that equity products are the most actively traded ones in terms of number of contracts. Equity products accounted for 63 % of all derivative contracts in terms of number of contracts traded. The year 2006 was marked by a sharp increase in the number of stock and index futures traded whereas the volume of index options remained stable. OTC trading in equity-linked derivatives was much less significant than on other derivatives segment.
- 5) In Index options market, the Korea Exchange accounted for 74 % of the global volume in 2006 against 79 % in 2005. Among the two major findings of the WFE trading survey, one was that trading of index option is still gaining popularity but Index options are an apparent exception. However, this is due to the relative decline of the KOSPI 200 options. Excluding the KOSPI 200 options, index options volumes increased by 30%.
- 6) In Stock options market, the Americas was reinforced by a strong increase in trading volumes, at a rate of growth of almost 25 %. Among the option that appear in the top 20 most actively traded equity options, five are listed on ISE, five on Eurex, four on Sao Paulo SE and three on Euronext.liffe.
- 7) The volume of trading in stock futures almost doubled in 2006. National Stock Exchange of India was the most active exchange in the world for stock futures trading, where more than 100 million contracts were traded. Regarding the stock futures, the most important finding of the survey was that it was confirmed that stock futures met the need of a growing number of market participants. Trading volumes in stock futures represented more than 10 % of stock options trading volumes and newcomers from all regions, except North America were expanding the use of these products.
- 8) The Americas kept their dominant position over other regions in terms of number of contracts traded in Index futures. In the Americas, CME concentrated 90 % of the number of traded contracts.
- 9) A total of 3.2 billion interest rate derivatives were traded on-exchange in 2006, an increase of 26% over 2005.
- 10) CME and Euronext.liffe remain the two leader on the Short term Interest Rates (STIR) derivative market but with a very important growth of its turnover on STIR futures (+156%). In Asia, volumes of STIR options traded on Tokyo Financial Exchange were very small in 2005 but they were multiplied by 96 in 2006.
- 11) CBOT and Eurex still represented most of the global trading in long-term interest rate derivatives in 2006. Trading volume increased 13 % on the CBOT and 11 % on Eurex.
- 12) Currency Derivatives remained a small segment of organized derivatives markets. BM&F, the Tel Aviv Stock Exchange and CME accounted for 92 % of the total volume of currency options trades in 2006. Only one Stock Exchange started trading currency options in 2006, i.e. MexDer, but at present the volumes are low. CME and BM&F accounted for 79 % of the currency futures trades. The volume of trades in European time zone remained far behind the Americas. In Asia, the turnover was very low compared to Europe and Americas. The Tokyo Financial Exchange stopped trading currency futures in 2006.





- 13) Commodity Derivative markets accelerated in 2006. Most of the energy derivatives concentrated on two exchanges: ICE Futures and NYMEX. In 2006, 192 million energy futures and 54 million energy options were traded on NYMEX while 93 million futures were traded on ICE Futures. Metal derivatives performed well during 2006. Driven by copper, base metal prices on LME in Europe and COMEX in the US topped in May 2006 as a result of strong Chinese and global demand, supply issues and low levels of stockpiles. Agricultural derivatives remained very active and bullish during the year. Intense activity on the commodity derivatives market due to the diversification of the market participants.
- 14) All in all, the year 2006 was an exceptional year for all segments of derivatives trading according to the WFE Derivatives Trading Survey.

## Primary Market

### Introduction

The issuers issue fresh securities through public issues as well as private placements. The resources, raised by them from domestic as well as international markets, are presented in (Table 2-1). During 2006-07, a total of Rs. 3,951,560 million (US \$ 90,653 million) were mobilized (increase of 24.89% over the previous year) by both the government and corporate sector from the primary market through public issues and private placement. This chapter presents developments in primary market for corporate securities in India, both equity and debt, while the primary market for government securities is discussed separately in Chapter 6.

**Table 2-1: Resource Mobilisation by Government and Corporate Sector**

Issues	(Rs. mn.)		(US \$ mn.)	
	2005-06	2006-07	2005-06	2006-07
<b>Corporate Securities</b>	<b>1,347,650</b>	<b>1,949,580</b>	<b>30,210</b>	<b>44,725</b>
Domestic Issues	1,234,130	1,779,530	27,665	40,824
Public Issues	269,400	323,820	6,039	7,429
Non-Govt. Public Companies	211,540	316,000	4,742	7,249
PSU Bonds	--	--	--	--
Govt. Companies	3,730	--	83.61	--
Banks & FIs	54,130	7,820	1,213	179
Private Placement	964,730	1,455,710	21,626	33,396
Euro Issues	113,520	170,050	2,545	3,901
<b>Government Securities</b>	<b>1,817,470</b>	<b>2,001,980</b>	<b>40,741</b>	<b>45,928</b>
Central Government	1,600,180	1,793,730	35,870	41,150
State Governments	217,290	208,250	4,871	4,777
<b>Total</b>	<b>3,165,120</b>	<b>3,951,560</b>	<b>70,951</b>	<b>90,653</b>

Source: RBI

-- : Nil/Negligible

After a long period of subdued activity, there were signs of revival in the public issues in 2003-04 and this state was maintained till the year 2006-07. This trend was further reinforced by the high confidence showed by the retail investors and the high rate of return given by the public issues. The private placement market accounted for 81.80% of the total resources mobilized domestically, whereas the public issues accounted for 18.20%. The resources raised by Indian corporates from the international capital market through the issuance of FCCBs, GDRs and ADRs have increased significantly (49.80%) during 2006-07 raising Rs. 170,050 million (US \$ 3,901 million) as against Rs. 113,520 million (2,545 million) in the previous year.

### Policy Developments

In order to refine the primary market design, various measures have been taken by, RBI and SEBI. This section throws light on the policy measures initiated during the financial year 2006-07 and April 2007 to June 2007.



## Initiatives From SEBI

### *I. DIP Guidelines.*

#### **LOCK-IN ON PRE-IPO SHARES BEFORE INITIAL PUBLIC OFFERING (IPO) HELD BY VENTURE CAPITAL FUNDS AND FOREIGN VENTURE CAPITAL INVESTORS**

In order to make Indian primary market more efficient and transparent the Lock-in on pre-IPO shares before Initial Public Offering (IPO) held by Venture Capital Funds and Foreign Venture Capital Investors has been adopted.

Earlier pre-issue shares of an unlisted company making an Initial Public Offering (IPO) were not required to be locked in, if the same were held by Venture Capital Funds (VCFs) or Foreign Venture Capital Investors (FVCIs) registered with SEBI. It has now been decided to restrict the benefit of this exemption from lock-in to the following:

- Shares held by VCFs or FVCIs registered with SEBI, for a period of at least one year as on the date of filing draft prospectus with SEBI; If the shares being held by the Venture Capital Fund or Foreign Venture Capital Investors have been acquired on conversion of convertible instruments at any time before the date of filing draft prospectus with the Board, then the period during which the convertible instruments were held by the Venture Capital Fund or the Foreign Venture Capital Investors as fully paid up, would be included for purpose of calculation of this period.
- Shares issued to SEBI registered VCFs/ FVCIs upon conversion of convertible instruments during the period of one year prior to the date of filing draft prospectus with SEBI, provided that the period of holding such convertible instruments as fully paid up, together with the period of holding shares resulting from conversion, by the VCFs and FVCIs, is at least one year as on the date of filing the draft prospectus with SEBI. Convertible Instruments would be deemed to be fully paid if the entire amount payable thereon has been paid and no further payment is envisaged to be made at the time of their conversion.

The amendment regarding lock-in would be applicable to all offer documents, which are yet to be registered with the Registrar of Companies. Shares should be locked in as per the provisions, if any, in SEBI (Venture Capital Funds) Regulations, 1996 or SEBI (Foreign Venture Capital Investors) Regulations, 2000, as the case may be.

#### **PRE-ISSUE PUBLICITY**

- Presently, the SEBI (DIP) Guidelines 2000 do not contain specific provisions on pre-issue publicity made during the period prior to filing draft offer document with SEBI. In order to regulate pre-issue publicity by companies proposing to make a public or rights issue, it has been decided to introduce provisions such as, ensuring that publicity made during the period commencing from the date of approval of the issue by the Board of Directors of the issuer company till the allotment of shares in the issue is consistent with the past practices and does not contain projections, estimates or any information extraneous to the offer document.



## GUIDELINES ON ADVERTISEMENT

- All public communications and publicity material, including corporate and product advertisements of the issuer company, interviews by its promoters, directors, duly authorized employees or representatives of the issuer company, documentaries about the issuer company or its promoters, periodical reports and press releases, issued or published in any media during the period commencing from the date of the meeting of the Board of Directors of the issuer company in which the public or rights issue, as the case may be, is approved till the date of filing draft offer document with SEBI, should be consistent with its past practices.
- Provided that where such public communication or publicity material is not consistent with the past practices of the issuer company, it should be prominently displayed or announced in such public communication or publicity material that the issuer company is proposing to make a public or rights issue of securities, as the case may be, in the near future and is in the process of filing a draft offer document with SEBI.
- All public communications and publicity material, including corporate and product advertisements of the issuer company, interviews by its promoters, directors, duly authorized employees or representatives of the issuer company, documentaries about the issuer company or its promoters, periodical reports and press releases, issued or published in any media during the period commencing from the date of filing draft offer document with SEBI till the date of allotment of securities offered in the issue, should comply with the following:
  - o It should be prominently displayed or announced in such public communication or publicity material that the issuer company is proposing to make a public or rights issue of securities, as the case may be and has filed a draft offer document with SEBI or has filed the Red Herring Prospectus / Prospectus with the Registrar of Companies or the Letter of Offer with the Designated Stock Exchange, as the case may be.
  - o It should further be stated in such public communication or publicity material that the draft offer document, Red Herring Prospectus or final offer document, as the case may be, is available on SEBI website at [www.sebi.gov.in](http://www.sebi.gov.in) as well as on the Lead Managers' websites.
  - o Such public communication or publicity material should contain only factual information and should not contain projections, estimates, conjectures, etc.
  - o Such public communication or publicity material should also not contain any information which is extraneous to the draft offer document filed with SEBI or the Red Herring Prospectus / Prospectus filed with the Registrar of Companies or the Letter of Offer filed with Designated Stock Exchange, as the case may be.
- No product advertisement of an issuer company should contain any reference, directly or indirectly, to the performance of the issuer company during the above periods.
- The issuer company should make prompt, true and fair disclosure of all material developments taking place during the period mentioned hereunder, relating to its business and securities and also relating to the business and securities of its subsidiaries, group companies, etc., which may have a material effect on the issuer company, by issuing



public notices in all the newspapers in which the issuer company had issued pre-issue advertisement.

- o In case of a fixed price public issues, between the date of filing final prospectus with the Registrar of Companies and the date of allotment of securities offered in the public issue.
- o In case of a book built issue, between the date of filing the Red Herring Prospectus with the Registrar of Companies and the date of allotment of the securities offered in the issue.
- o In case of a rights issue, between the date of filing the Letter of Offer with the Designated Stock Exchange and the date of allotment of the securities offered in the rights issue.

## ***II. Amendments to Clause 32 of Equity Listing Agreement***

The extant Clause 32 of the Equity Listing Agreement requires listed companies to supply a copy of the complete and full Balance Sheet, Profit and Loss Account and Directors' report to each shareholder and upon application to any member of the Exchange. This requirement was stipulated at a time when information dissemination was at the barest minimum and the Annual Report of the company containing the Balance Sheet and the Profit and Loss Account was the only mean through which the shareholders of the company could keep themselves informed about the affairs of the company. In the context of changes brought about in the market scenario, SEBI has reviewed the existing provisions of Clause 32 of the Equity Listing Agreement, particularly in the light of the need to contain rising cost of compliance and the measures taken to enhance disclosures which has enabled availability of information about listed companies in public domain such as the website of the company, of the stock exchanges, of the Common Filing Platform website jointly maintained by BSE and NSE i.e. [www.corpfiling.co.in](http://www.corpfiling.co.in) etc.

In view of this, SEBI has decided to amend Clause 32 of the Equity Listing Agreement to align it with the provisions of Section 219(iv) of the Companies Act i.e. to permit listed companies to send a statement containing the salient features of the (i) Balance Sheet, (ii) the Profit and Loss Account and (iii) the Auditors' Report instead of sending full Balance Sheet and Annual Report.

Accordingly the first and second paragraphs of Clause 32 of the Equity Listing Agreement relating to sending of annual reports by listed companies to their shareholders are amended. The other provisions of Clause 32 of the Equity Listing Agreement pertaining to turnover and income etc. from new activities, cash flow statement to be given along with the Profit and Loss Account has remained unchanged.

## ***III. External Commercial borrowings (ECB)***

The maximum amount of ECB which could be raised by an eligible borrower under the Automatic Route was USD 500 million during a financial year with minimum average maturity period of 5 years.

With a view to liberalising the ECB guidelines, it has been decided that henceforth, corporates can avail ECB of an additional amount of USD 250 million with average maturity of more



than 10 years under the approval route, over and above the existing limit of USD 500 million under the automatic route, during a financial year. Other ECB criteria such as end-use, all-in-cost ceiling, recognised lender, etc. need to be complied with. Prepayment and call/put options, however, would not be permissible for such ECB up to a period of 10 years.

Further, with a view to providing greater flexibility to the corporates in managing their liquidity and interest costs, prepayment of ECB up to USD 300 million, as against the existing limit of USD 200 million, has been allowed by AD Category - I banks without prior approval of the Reserve Bank subject to compliance with the minimum average maturity period as applicable to the loan.

#### *IV. Review of External Commercial Borrowings (ECB) Policy*

A review of the ECB guidelines has been undertaken keeping in view the current macroeconomic situation and the experience gained so far by the Reserve Bank in administering the ECB policy.

Henceforth, ECB more than USD 20 million per borrower company per financial year would be permitted only for foreign currency expenditure for permissible end-uses of ECB. Accordingly, borrowers raising ECB more than USD 20 million shall park the ECB proceeds overseas for use as foreign currency expenditures for permissible end-uses and shall not remit the funds to India. The above modifications would be applicable to ECB exceeding USD 20 million per financial year both under the Automatic Route and under the Approval Route

ECB up to USD 20 million per borrowing company per financial year would be permitted for foreign currency expenditures for permissible end-uses under the Automatic Route and these funds would be parked overseas and not be remitted to India. Borrowers proposing to avail ECB up to USD 20 million for Rupee expenditure for permissible end-uses would require prior approval of the Reserve Bank under the Approval Route. However, such funds would be continued to be parked overseas until actual requirement in India.

All other aspects of ECB policy such as eligible borrower, USD 500 million limit per borrower company per financial year under the Automatic route, recognised lender, average maturity period, all-in-cost-ceiling, prepayment, refinancing of existing ECB and reporting arrangements remain unchanged.

These conditions will not apply to borrowers who have already entered into loan agreement and obtained loan registration numbers from the Reserve Bank. Borrowers who have taken verifiable and effective steps wherein the loan agreement has been entered into to avail of ECB under the previous dispensation, and not obtained the loan registration number, may apply to the Reserve Bank through their Authorised Dealer.

## **Market Design**

The primary market is governed by the provisions of the Companies Act, 1956, which deals with issues, listing and allotment of securities. Additionally the SEBI (Disclosure and Investor Protection) guidelines issued under the securities law prescribes a series of eligibility and disclosure norms to be complied by the issuer, promoter for accessing the market. However, in this section we only discuss the market design as stipulated in the SEBI (DIP) guidelines.



## *DIP Guidelines, 2000*

Disclosure and Investor Protection (DIP) Guidelines of SEBI, was issued in June 1992. SEBI has since then been issuing clarifications/amendments to these guidelines from time to time, in order to streamline the public issue process. The guidelines apply to all public issues, offer for sale, and rights issues by listed and unlisted companies. This section attempts to highlight some of the important clauses in the guideline in a precise manner.

### **Eligibility Norms**

Any company issuing securities has to satisfy the following conditions at the time of filing the draft offer document and the final offer document with SEBI and Registrar of Companies (RoCs)/Designated Stock Exchange respectively.

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).

For a rights issue, filing of offer document is mandatory where the aggregate value of securities, including premium, if any, exceeds Rs. 50 lakh. The letter of offer has to be filed with the Board through an eligible Merchant Banker, at least 21 days prior to the filing of the Letter of Offer with Regional Stock Exchange (RSE). Further, the company must enter into an agreement with the depository for dematerialisation of its securities and should give an option to subscribers/shareholders/investors to receive the security certificates either in physical or in dematerialised form. An unlisted company can make an IPO of equity shares or any other security, which may be converted into equity shares, only if it has a track record of profitability and required net worth and net tangible assets. Some of the conditions are specified hereunder: (i) it has net tangible assets of at least Rs. 3 crore in each of the preceding 3 full years, of which not more than 50% is held in monetary assets; provided that if more than 50% of the net tangible assets are held in monetary assets, the company has made firm commitments to deploy such excess monetary assets in its business/project ; (ii) it has a net worth of at least Rs. 1 crore in each of the preceding 3 full years; (iii) it has a track record of distributable profits in terms of section 205 of the Companies Act, 1956, for at least 3 out of the immediately preceding 5 years; Provided further that extraordinary items shall not be considered for calculating distributable profits in terms of section 205 of Companies Act, 1956; (iv) the aggregate of the proposed issue and all previous issues made in the same financial year in terms of size (offer through offer document plus firm allotment plus promoters contribution through the offer document) does not exceed five times its pre-issue net worth and (v) in case the company has changed its name within the last one year, at least 50% of the revenue for the preceding one full year is earned by the company from the activity suggested by the new name.

Even if the above mentioned conditions are not satisfied, an unlisted company can still make an IPO on compliance of the guidelines as specified: (a)(i) issue should be made through the book building process with at least 50% of net offer to public being allotted to the QIBs, if not, then the full subscription monies has to be refunded, OR (a)(ii) the project should have at least 15% participation by FIs/SCBs of which at least 10% should come from the appraiser. In addition, at least 10% of the issue size should be allotted to QIBs, otherwise, the full subscription monies would be refunded; AND (b)(i) minimum post-issue face value capital of



the company should be Rs. 10 crore, OR (b)(ii) there should be compulsory market making for at least 2 years from the date of listing subject to certain conditions as specified in the guidelines.

For a listed company the aggregate of the proposed issue and all previous issues made in the same financial year in terms of issue size should not exceed 5 times its pre-issue net worth. In case of the change in name of the issuer company within the last 1 year, the revenue accounted for by the activity suggested by the new name should not be less than 50% of its total revenue in the preceding one full year period.

### **Exemption from Eligibility Norms**

Banking companies including Private banks set up under clauses (c) of section 5 of the Banking Regulation Act, 1949 and which has received license from the Reserve Bank of India are exempt from the requirement of eligibility norms.

Infrastructure companies are exempt from the requirement of eligibility norms if their project has been appraised by a public financial institution (PFI) or Infrastructure Development Finance Corporation (IDFC) or Infrastructure Leasing and Financing Services Ltd. (IL&FS) or a bank which was earlier a PFI and not less than 5% of the project cost is financed by any of the institutions referred above, jointly or individually, by way of loan and/or subscription to equity or a combination of both.

### **Credit Rating for Debt Instruments**

No public issue or rights issue of debt instruments (whether convertible or not) can be made unless (a) A credit rating of not less than investment grade is obtained from not less than two credit rating agencies registered with SEBI, all the credit ratings, including the rejected ones, needs to be disclosed. (b) The company is not in the list of willful defaulters of RBI. (c) company has not defaulted on payment of interest or repayment of principal of debentures issued to the public, if any for a period more than 6 months.

Allotment of non-convertible debt instrument should not be made by an issuer company pursuant to a public issue if the proposed allottees are less than fifty (50) in number. In such a case the company should forthwith refund the entire subscription amount received. If there is a delay beyond 8 days after the company becomes liable to pay the amount, the company shall pay interest @ 15% to the investors.-

In case the credit rating is obtained from more than two credit rating agencies, all the credit rating/s including the unaccepted credit ratings, would be disclosed. All the credit ratings obtained during the three (3) years preceding the public or rights issue of debt instrument (including convertible instruments) for any listed security of the issuer company should be disclosed in the offer document.

### **Pricing of Issues**

The companies, including the eligible infrastructure companies, have the freedom to price their equity shares or any security convertible into equity in public or rights issues as the case may be. The banks however, can price their shares subject to the approval by the RBI. A company (listed or unlisted) should issue shares to applicants in the firm allotment category at a different price from the one at which the net offer to the public is made. That is, at a higher price than at which the securities are offered to the public.





In case of initial public offerings by unlisted company, if the issue price is Rs. 500 or more, the issuer company shall have the discretion to fix the face value below Rs. 10 per share, subject to the condition that the face value shall in no case be less than Rs. 1 per share. However, in case the issue price is less than Rs. 500 per share, the face value shall be Rs. 10 per share.

### **Price Band**

The Issuer company can mention a price band of 20% (cap in the price band should not be more than 20% of the floor price) in the offer documents filed with the Board and actual price can be determined at a later date before filling of the offer document with the ROCs. If the Board of Directors has been authorized to determine the offer price within a specified price band such price would be determined by a Resolution to be passed by the Board of Directors. In case of listed companies the Merchant Bankers should ensure that a 48 hours notice of the meeting of the Board of Directors for passing resolution for determination of price is given to the Designated Stock Exchange. In case of a public issue by a listed issuer company, issue price or price band may not be disclosed in the draft prospectus filed with the Board. In case of a rights issue, issue price or price band may not be disclosed in the draft letter of offer filed with the Board. The issue price may be determined any time before fixation of the record date, in consultation with the Designated Stock Exchange. The final offer document should contain only one price and one set of financial projections, if applicable.

### **Contribution of Promoters and lock-in**

The promoters' contribution in case of public issues by unlisted companies 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 share holding to the extent of 20% of the post-issue capital. For a composite issue, the promoters' contribution should either be 20% of the proposed public issue or 20% of the post-issue capital. At least one day prior to the opening of the issue the promoters should bring in the full amount of the promoters contribution including premium which should be kept in an escrow account with a Scheduled Commercial Bank and the said contribution/ amount should be release to the company along with the public issue proceed. Except for (i) public issue of securities which have been listed for at least 3 years and has a track record of dividend payment for at least 3 immediate preceding years, (ii) companies wherein no identifiable promoter or promoter group exists, and (iii) rights issues.

The minimum promoters' contribution should be locked in for a period of 3 years in case of all types of issues. However, in case of public issue of an unlisted company if the promoters' contribution exceeds the required minimum, then the excess is locked in for a period of one year. The lock-in period starts from the date of allotment in the proposed public issue and the last date of the lock-in is to be reckoned as three years from the date of commencement of commercial production or the date of allotment in the public issue whichever is later. In case of pre-issue share capital of unlisted company, the entire pre-issue share capital, other than that locked in as minimum promoters contribution, is locked for a period of one year from the date of allotment. 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.

### Pre-Issue Obligations

The lead merchant banker has to exercise due diligence and satisfy himself about all aspects of offering, veracity and adequacy of disclosures in the offer document. The liability of the merchant banker will continue even after the completion of issue process.

The lead merchant banker has to pay the requisite fee in accordance with the Securities and Exchange Board of India (Merchant bankers) Rules and Regulations, 1992 along with draft offer document filed with the Board.

Each company issuing securities through public or rights issue has to enter into a Memorandum of Understanding with the lead merchant banker, which specifies their mutual rights, liabilities and obligations.

- The lead merchant banker responsible for drafting of the offer documents has to submit to the Board the copy of the MOU entered into with the issuer company and the draft of the offer document.
- In case a public or rights issue is managed by more than one merchant banker the rights, obligation and responsibilities of each merchant banker shall be demarcated as specified in *schedule II*
- In case of under subscription of an issue, the Lead Merchant Banker responsible for underwriting arrangements should invoke underwriting obligations and ensure that the underwriters pay the amount of development and the same should be incorporated in the inter se allocation of responsibilities (*schedule II*) accompanying the due diligence certificate submitted by the Lead Merchant Banker to the Board.
- The lead Merchant Banker should furnish to the Board a due diligence certificate as specified in *schedule III A* along with the draft offer document..

The Merchant Banker appointed should not lead manage the issue if he is a promoter or a director or associate of the issuer company provided the securities he holds of the issuer company are listed or proposed to be listed on the Over the Counter Exchange of India (OTCEI) and the Market Makers have either been appointed or proposed to be appointed as per the offer document.

The lead merchant bankers should satisfy themselves about the ability of the underwriters to discharge their under writing obligations. In respect of every underwritten issue, the lead merchant banker(s) should undertake a minimum underwriting obligation of 5% to the total underwriting commitment of Rs.25 lakhs whichever is less. The outstanding underwriting commitments of a merchant banker should not exceed 20 times its net worth at any point of time. In respect of an underwritten issue, the lead merchant banker should ensure that the relevant details of underwriters are included in the offer document.

The draft offer documents filed with the Board should be made public for a period of 21 days from the date of filing the offer document with the Board and filed with the stock exchanges where the securities are proposed to be listed. Further, the draft offer documents should be put on the websites of the lead managers/syndicate members associated with the issue and also ensure that the contents of documents hosted on the websites are the same as that of their printed versions.

Twenty-one days after the draft offer document has been made public, the lead merchant banker should file a statement with the Board giving a list of complaints received, a statement



as to whether it is proposed to amend the draft offer document or not, and highlighting those amendments.

The lead manager should also ensure that the issuer company has entered into agreements with all the depositories for dematerialization of securities.

The merchant banker has to appoint a compliance officer who will directly liaise between the Board and the issuer company with regard to compliance of various laws, rules, regulations and other directives issued by the Board.

### **Post-Issue Obligations**

Subsequent to the post issue, the lead merchant banker should ensure that the post-issue monitoring reports are submitted irrespective of the level of subscription. Also, the merchant banker should be associated with allotment, refund and dispatch and also monitor the redressal of investor grievances arising therefrom.

In a public issue, the Managing Director of the Designated Stock Exchange along with the post issue Lead Merchant Banker and the Registrars to the Issue would be responsible for the finalization of allotment in a fair and proper manner.

Allotment should be on proportionate basis within the specified categories rounded off to the nearest integer subject to the minimum allotment being equal to the minimum application size as fixed and disclosed by the issuer. The proportionate basis of allotment of securities in an issue that is oversubscribed should be subject to the reservation for retail individual investors i.e a minimum of 50% of the net offer of securities to the public should initially be made available for allotment to retail individual investors as the case may be. The balance net offer of securities to the public should be made available for allotment to individual applicants other than retail individual investors and other investors including corporate bodies/institutions irrespective of the number of shares, debentures, etc. applied for. The unsubscribed portion of the net offer to any one of these categories should be made available for allotment to applicants in the other category if so required.

The lead merchant banker should ensure that the dispatch of share certificates/refund orders and demat credit is completed and the allotment and listing documents submitted to the stock exchanges within 2 working days of finalization of the basis of allotment.

### **Book Building**

Book building is a price discovery mechanism based on the bids received at various prices from the investors, for which demand is assessed and then the price of the securities is discovered. The issuer proposing to issue capital through book-building has two options, viz., 75% book building route and 100% book building route. In case of issue of securities through the first route, 75% of the net offer to the public is made through book-building process and 25% at the price determined by book-building. In this case not more than 50% should be available for allocation to QIBs and not less than 25% to non-QIBs. In case of under subscription in any category, the unsubscribed portions can be allocated to the bidders in other categories.

Besides, book building also requires that: issuer should provide indicative floor price and no ceiling price, bids to remain open for at least 3 working days and not more than 7 working days which may be extended to a maximum of 10 working days in case the price band is revised. Only electronic bidding is permitted, bids are submitted through syndicate members, investors can bid at any price, retail investors have option to bid at cut off price, bidding



demand is displayed at the end of every day, the lead manager analyses the demand generated and determines the issue price in consultation with the issuer, etc.

### **e-IPOs**

A company proposing to issue capital to public through the on-line system of the stock exchanges has to enter into an agreement with the Stock Exchange(s). SEBI registered brokers should be appointed for the purpose of accepting applications and placing orders with the company. The issuer company should also appoint a Registrar to the Issue having electronic connectivity with the Exchanges. The issuer company can apply for listing of its securities on any Exchange other than the Exchange through which it has offered its securities. The lead manager co-ordinates all the activities amongst various intermediaries connected in the issue/system.

### **Credit Rating**

Credit rating agencies (CRA) can be promoted by public financial institutions, scheduled commercial banks, foreign banks operating in India, by any body corporate having continuous minimum net worth of Rs.100 crore for the previous five years. Further, foreign credit rating agencies recognized by or under any law for the time being in force in the country of its incorporation, having at least five years experience in rating securities can also operate in the country. The SEBI (Credit Rating Agencies) Regulations, 1999 cover the rating of the securities listed and not fixed deposits, foreign exchange, country ratings and real estates.

For debt securities with issue size greater than or equal to or exceeds Rs. 100 crore, two ratings from different CRAs are required. The issuer should disclose in the offer documents all the ratings it has got during the previous 3 years for any of its listed securities, irrespective of whether it has been accepted or not. CRAs should continuously monitor the securities rated by them and disseminate any changes in its ratings, along with its history through websites, press releases etc.

### **Merchant Banking**

The merchant banking activity in India is governed by SEBI (Merchant Bankers) Regulations, 1992. Consequently, all the merchant bankers have to be registered with SEBI. The details about them are presented in the table below:

<b>Category of Merchant Banker</b>	<b>Permitted Activity</b>	<b>Net worth (Rs. Million)</b>
Category I	To carry on activity of the issue management, to act as adviser, consultant, manager, underwriter, portfolio manager	50.00
Category II	To act as adviser, consultant, co-manager, underwriter, portfolio manager	5.00
Category III	To act as underwriter, adviser, consultant to an issue	2.00
Category IV	To act only as adviser or consultant to an issue	Nil

Only a corporate body other than a non-banking financial company having necessary infrastructure, with at least two experienced persons employed can apply for registration as a



merchant banker. The applicant has to fulfill the capital adequacy requirements, with prescribed minimum net worth. The regulations cover the code of conduct to be followed by merchant bankers, responsibilities of lead managers, payments of fees and disclosures to SEBI.

### *Demat issues*

SEBI has mandated that all new IPOs compulsorily should be traded in dematerialised form only. Further, the section 68B of the Companies Act, 1956, requires that every listed public company making IPO of any security for Rs. 10 crore or more should issue the same only in dematerialised form. The investors, however, would have the option of either subscribing to securities in physical or dematerialised form.

### *Private Placement*

The private placement involves issue of securities, debt or equity, to selected 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). Since these securities are allotted to a few sophisticated and experienced investors, the stringent public disclosure regulations and registration requirements are relaxed. The Companies Act, 1956, states that an offer of securities to more than 50 persons is deemed to be public issue.

## Market Outcome

### *Public Issues*

The year 2006-07 witnessed an upsurge in the primary market activity of the total resource mobilisation of public issues. This is mainly because of sharp economic recovery, political stability and a buoyant secondary market. The total resources mobilized increased from Rs 273,820 million (US \$ 6,138 million) in 2005-06 to Rs. 335,080 million (US \$ 7,687 million) in 2006-07. The increase in the total resources mobilized was primarily due to an extensive increase in resources raised through IPOs. Though the number of issuers in IPO has dropped to 77 as compared to 79 issuers, the total resource mobilized has increased to Rs. 285,040 million (US \$ 6,539 million) in 2006-07 as against Rs.109,360 million (US \$ 2,451 million) in the preceding year, an increase of 160.64 %. (Table 2-2)

**Table 2-2: Resource Mobilisation from Public Issues**

Issue	2005-06		2006-07		(Amount in US \$. mn.)	
	Number	Amount	Number	Amount	Amount	Amount
IPOs	79	109,360	77	285,040	2,451	6,539
Issues by Listed Companies	60	164,460	47	50,040	3,687	1,148
Public Issues	24	123,580	8	12,930	2,770	297
Rights Issues	36	40,880	39	37,110	916	851
<b>Total</b>	<b>139</b>	<b>273,820</b>	<b>124</b>	<b>335,080</b>	<b>6,138</b>	<b>7,687</b>

Source: SEBI

On the other hand, the public issues of listed companies witnessed a considerable decline of 90 % in the resources mobilized, from Rs.123, 580 million (US \$ 2,770 million) in

2005-06 to Rs. 12,930 million (US \$ 297 million) in the current year. The number of issuers dropped to 8 as compared to 24 issuers in 2005-06. In case of Rights issues, the resources mobilized too underwent a decrease from Rs. 40,880 million (US \$ 916 million) in the preceding year to Rs. 37,110 million (US \$ 851 million) in 2006-07 a drop of 9.22 % (Table 2-2)

Most of the issues were made by private sector companies. Of the 124 issuers which tapped the market in 2006-07, 122 issues were by private sector issuers. They mobilized around 94.69% of the total resources raised. The public sector companies came out with 2 issues mobilizing 5.31% to the total resources mobilized (Table 2-3). The joint sector has not been making any issue of capital for the past few years.

**Table 2-3: Sector-wise Distribution of Resources Mobilised by Public Equity Issues**

Sector	(Rs. mn)				(US \$. mn.)	
	2005-06		2006-07		2005-06	2006-07
	Number	Amount	Number	Amount	Amount	Amount
Private	131	201,990	122	317,280	4,528	7,279
Joint	--	--	--	--	--	--
Public	8	71,830	2	17,790	1,610	408
<b>Total</b>	<b>139</b>	<b>273,820</b>	<b>124</b>	<b>335,070</b>	<b>6,138</b>	<b>7,687</b>

-- Nil

Source: SEBI

During 2006-07, there were 27 mega issues (Rs.3000 million and above), the largest issue being that of Reliance Petroleum Ltd. (Rs. 81,010 million/ US \$ 1,858 million), followed by Cairn India Ltd. (Rs. 52,610 million /US \$ 1,207 million). The average size of an issue was Rs. 2,702 million (US \$ 61.99 million) in 2006-07 as against Rs 1,970 million (US \$ 44.16 million) in 2005-06.

As per the Prime Annual report 2006-07, the response to public issues has been good in the year 2006-07. Though 26 % of the public issues failed to elicit response (less than 1.5 times) as 33% of issues were subscribed over 10 times. (Table 2-4). The most subscribed issues during 2006-07 was by Shobha Developers Ltd, which was over- subscribed 113.82 times followed by, Mindtree Consulting Ltd. which was over subscribed 102.43 times.

**Table 2-4: Response to Public Issues**

Times Subscribed	(% of issues)	
	2005-06	2006-07
< 1.5	2	26
1.5 - 3	12	16
3 - 10	28	25
> 10	58	33
	<b>100</b>	<b>100</b>

Source: Prime Annual Report

In the previous years, debentures have been pre-dominant in the public issues. However, since 2003-04 there has been a reversal in this trend. The share of debt in resource mobilization through public issues was only 16.1% in 2004-05 (Table 2-5). The year 2005-06 had seen a striking change completely eliminating the share of debt in the resource mobilization through



public issue which has also recurred in the year 2006-07. The amount raised through equity issues has been the highest ever in the history of the Indian capital market starting from the year 2005-06 accounting for 100%.

**Table 2-5: Resources Mobilised through Debt and Equity (Public Issues)**

Year	Percentage Share	
	Equity	Debt
1995-96	72.39	27.61
1996-97	55.99	44.01
1997-98	41.17	58.83
1998-99	15.34	84.66
1999-00	58.41	41.59
2000-01	52.79	47.21
2001-02	16.88	83.12
2002-03	18.00	82.00
2003-04	80.47	19.53
2004-05	83.96	16.04
2005-06	100.00	0.00
2006-07	100.00	0.00

*Source:* Prime Annual Report

The Banks and Financial Institutions (FIs) had assumed a dominant role in fund mobilization in the early 2000's. However, the year 2006-07 saw a significant fall in the resources raised from 45.43 % in 2005-06 to 6.53 % (Table 2-6). A turnaround in the resources raised through the Telecom industry was noticed in the 2006-07 accounting for 8.94 % in comparison to the previous year where its contribution was nil. The Finance and Cement & Construction industry too witnessed a turnaround, raising 8.25 % and 8.20 % respectively of the total fund mobilization in 2006-07.

**Table 2-6: Industry-wise Resource Mobilisation by Public Equity Issues**

Industry	Percentage Share	
	2005-06	2006-07
Banking/FIs	45.43	6.53
Cement & Construction	3.73	8.20
Chemical	0.47	0.44
Entertainment	2.59	3.64
Finance	3.01	8.25
Information Technology	3.29	6.20
Paper & Pulp	0.66	0.05
Telecom	0.00	8.94
Textile	2.82	3.17
Others	38.00	54.58
<b>Total</b>	<b>100.00</b>	<b>100.00</b>

*Source:* SEBI

### *Euro Issues*

Indian companies raise resources from international markets through the issue of Foreign Currency Convertible Bonds (FCCBs), GDRs and ADRs. GDRs/ADRs are similar to Indian shares and are traded on overseas stock exchanges. In India, they are reckoned as part of foreign direct investment and hence, need to conform to the existing FDI policy. During 2006-07, there was a significant spurt in the resources mobilised through Euro issues, that increased to Rs. 170,050 million (US\$ 3,901 million) as against Rs. 113,520 million (US\$ 2,545 million) raised during 2005-06 (Table 2-1).

### *Performance of IPOs*

During 2006-07, seventy five (75) IPOs were listed on NSE which belonged to various different sectors. There was an appreciation in the market price on the first day of trading of 44 IPOs. The price of Nissan Copper Limited rose by a whopping 235.64% followed by Cambridge Technology Enterprises Limited (165.53 %) and Global Broadcast News Limited (102.36%). Around 31 IPOs showed negative returns on the first day of listing/trading and 48 IPOs showed negative returns by the year end March 2007 as compared to their issue price. (Table 2-7).

**Table 2-7: Performance of IPOs Listed on NSE during April 01, 2006 to March 31, 2007**

Sl. No.	Name of Company	Date of Listing	Issue Price (Rs.)	Close Price on first day of Trading (Rs.)	Close Price as at end-March, 2007 (Rs.)	Price Appreciation/Depreciation on first day of Trading (%)	Price Appreciation/Depreciation at end-March 2007 (%)
1	Solar Explosives Limited	03-Apr-06	190	264.60	113.45	39.26	-40.29
2	Gallantt Metal Limited	04-Apr-06	10	14.35	9.60	43.50	-4.00
3	Adhunik Metaliks Limited	05-Apr-06	37	41.95	34.85	13.38	-5.81
4	Malu Paper Mills Limited	05-Apr-06	30	32.45	28.65	8.17	-4.50
5	Shivalik Global Limited	10-Apr-06	60	82.55	33.75	37.58	-43.75
6	Uttam Sugar Mills Limited	10-Apr-06	340	416.30	108.20	22.44	-68.18
7	Kewal Kiran Clothing Limited	13-Apr-06	260	243.45	178.45	-6.37	-31.37
8	Rohit Ferro-Tech Limited	13-Apr-06	30	30.40	26.95	1.33	-10.17
9	Sun TV Limited	24-Apr-06	875	1464.65	1514.40	67.39	73.07
10	Godawari Power And Ispat limited	25-Apr-06	81	103.15	109.15	27.35	34.75
11	R Systems International Limited	26-Apr-06	250	249.65	132.70	-0.14	-46.92
12	Emkay Share and Stock Brokers Limited	28-Apr-06	120	136.75	61.70	13.96	-48.58
13	Lokesh Machines Limited	05-May-06	140	227.40	111.35	62.43	-20.46
14	Plethico Pharmaceuticals Limited	05-May-06	300	419.15	327.30	39.72	9.10
15	Kamdheni Ispat Limited	09-May-06	25	45.40	26.85	81.60	7.40
16	Reliance Petroleum Limited	11-May-06	60	85.40	71.55	42.33	19.25

*Contd...*





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Table 2-7: Performance of IPOs Listed on NSE During April 01, 2006 to March 31, 2007

Sl. No.	Name of Company	Date of Listing	Issue Price (Rs.)	Close Price on first day of Trading (Rs.)	Close Price as at end-March, 2007 (Rs.)	Price Appreciation/Depreciation on first day of Trading (%)	Price Appreciation/Depreciation at end-March 2007 (%)
17	Deccan Aviation Limited	12-Jun-06	148	99.10	92.25	-33.04	-37.67
18	Unity Infraprojects Limited	12-Jun-06	675	470.90	443.80	-30.24	-34.25
19	Prime Focus Limited	20-Jun-06	417	326.15	419.15	-21.79	0.52
20	Allcargo Global Logistics Limited	23-Jun-06	675	669.60	1059.65	-0.80	56.99
21	GMR Infrastructure Limited	21-Aug-06	210	210.40	360.30	0.19	71.57
22	Tech Mahindra Limited	28-Aug-06	365	554.25	1427.10	51.85	290.99
23	Voltamp Transformers Limited	20-Sep-06	345	416.45	602.95	20.71	74.77
24	Atlanta Limited	25-Sep-06	150	192.30	269.50	28.20	79.67
25	Action Construction Equipment Limited	26-Sep-06	130	193.65	182.35	48.96	40.27
26	HOV Services Limited	27-Sep-06	200	180.30	199.95	-9.85	-0.03
27	Gwalior Chemical Industries Limited	04-Oct-06	81	93.85	56.55	15.86	-30.19
28	Fiem Industries Limited	19-Oct-06	137	121.55	102.10	-11.28	-25.47
29	Hanung Toys and Textiles Limited	20-Oct-06	95	96.70	118.15	1.79	24.37
30	JHS Svendgaard Laboratories Limited	21-Oct-06	58	56.95	29.30	-1.81	-49.48
31	Global Vectra Helicorp Limited	27-Oct-06	185	187.50	243.20	1.35	31.46
32	Development Credit bank	27-Oct-06	26	47.45	69.15	82.50	165.96
33	Accel Frontline Limited	30-Oct-06	75	70.50	60.50	-6.00	-19.33
34	Info Edge (India) Limited	21-Nov-06	320	592.55	677.20	85.17	111.63
35	Lanco Infratech Limited	27-Nov-06	240	241.40	158.60	0.58	-33.92
36	Parsavnath Developers Limited	30-Nov-06	300	526.40	259.00	75.47	-13.67
37	Blue Bird (India) Limited	11-Dec-06	105	94.65	61.90	-9.86	-41.05
38	L. T. Overseas Limited	18-Dec-06	56	53.20	45.75	-5.00	-18.30
39	Ruchira Papers Limited	20-Dec-06	23	21.05	13.25	-8.48	-42.39
40	Sobha Developers Limited	20-Dec-06	640	926.65	803.40	44.79	25.53
41	Ess Dee Aluminium Limited	28-Dec-06	225	238.30	276.00	5.91	22.67
42	XL Telecom Limited	28-Dec-06	150	135.35	104.20	-9.77	-30.53
43	Nissan Copper Limited	29-Dec-06	39	130.90	44.05	235.64	12.95
44	Pyramid Saimira Theatre Limited	05-Jan-07	100	157.70	269.75	57.70	169.75
45	Cairn India Limited	09-Jan-07	160	137.40	132.15	-14.13	-17.41
46	Shree Ashtavinayak Cine Vision Limited	10-Jan-07	160	225.40	144.80	40.88	-9.50

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Table 2-7: Performance of IPOs Listed on NSE During April 01, 2006 to March 31, 2007

Sl. No.	Name of Company	Date of Listing	Issue Price (Rs.)	Close Price on first day of Trading (Rs.)	Close Price as at end-March, 2007 (Rs.)	Price Appreciation/ Depreciation on first day of Trading (%)	Price Appreciation/ Depreciation at end-March 2007 (%)
47	Lumax Auto Technologies Limited	16-Jan-07	75	110.70	71.10	47.60	-5.20
48	Autoline Industries Limited	31-Jan-07	225	257.15	220.90	14.29	-1.82
49	Akruti Nirman Limited	07-Feb-07	540	563.45	406.70	4.34	-24.69
50	Cambridge Technonoly Enterprises Limited	07-Feb-07	38	100.90	54.85	165.53	44.34
51	Global Broadcast News Limited	08-Feb-07	250	505.90	534.70	102.36	113.88
52	Pochiraju Industries Limited	09-Feb-07	30	49.65	24.25	65.50	-19.17
53	Technocraft Industries (India) Limited	12-Feb-07	105	100.05	94.05	-4.71	-10.43
54	Cinemax India Limited	14-Feb-07	155	152.30	127.90	-1.74	-17.48
55	House of Pearl Fashions Limited	15-Feb-07	550	469.95	336.90	-14.55	-38.75
56	Redington India Limited	15-Feb-07	113	163.70	137.00	44.87	21.24
57	Firstsource Solutions Limited	22-Feb-07	64	79.55	72.25	24.30	12.89
58	Power Finance Corporation Limited	23-Feb-07	85	111.65	104.30	31.35	22.71
59	C &C Construction Limited	26-Feb-07	291	241.45	169.80	-17.03	-41.65
60	Transwarranty Finance Limited	26-Feb-07	52	47.45	37.10	-8.75	-28.65
61	SMS Pharmaceutical Limited	28-Feb-07	380	359.25	279.05	-5.46	-26.57
62	Indian Bank	01-Mar-07	91	98.35	90.20	8.08	-0.88
63	Broadcast Initiative Limited	07-Mar-07	120	70.40	60.60	-41.33	-49.50
64	Evinix Accessories Limited	07-Mar-07	120	74.05	84.80	-38.29	-29.33
65	MindTree Consulting Limited	07-Mar-07	425	621.20	830.80	46.16	95.48
66	Orient Trimex Limited	07-Mar-07	48	29.70	23.60	-38.13	-50.83
67	Indus Fila Limited	08-Mar-07	170	133.85	150.85	-21.26	-11.26
68	Euro Ceramics Limited	09-Mar-07	165	119.15	122.45	-27.79	-25.79
69	IDEA Cellular Limited	09-Mar-07	75	85.70	94.60	14.27	26.13
70	Mudra Lifestyle Limited	09-Mar-07	90	63.95	59.80	-28.94	-33.56
71	Page Industries Limited	16-Mar-07	360	271.80	296.60	-24.50	-17.61
72	Raj Television Network Limited	16-Mar-07	257	226.00	206.55	-12.06	-19.63
73	AMD Metplast Limited	19-Mar-07	75	77.90	71.35	3.87	-4.87
74	Abhishek Mills Ltd	19-Mar-07	100	91.25	61.05	-8.75	-38.95
75	Astral Poly Technik Limited	20-Mar-07	115	105.35	82.90	-8.39	-27.91

Source: NSE



### *Book Building through On-line IPO System*

Book building is basically a process used in IPO for efficient price discovery, wherein during the period when the offer 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 endeavor to continuously improve the Indian securities market, NSE has offered an infrastructure for conducting online IPOs through book building. It helps to discover prices as well as demand for the security to be issued through a process of bidding. The advantages are: (a) the investor parts with money only after the allotment (b) it eliminates refunds except in case of direct applications and (c) it reduces the time taken to process the issue. Till March 2007, 199 issuers have used the NSE online IPO system for making IPO issues.

### *Debt Issues*

Government and corporate sector collectively raised a total of Rs. 2,925,532 million (US \$ 67,115 million) from primary market during 2006-07. About 68.43% has been raised by the Government, while the balance by the corporate sector through private placement (Table 2-8).

**Table 2-8: Resources Raised from Debt Markets**

Issuer	(Rs. mn.)		(US\$. mn.)	
	2005-06	2006-07	2005-06	2006-07
Corporate	818,466	923,552	18,347	21,187
Public Issues	0	0	0	0
Private Placement*	818,466	923,552	18,347	21,187
Government	1,817,470	2,001,980	40,741	45,928
<b>Total</b>	<b>2,635,936</b>	<b>2,925,532</b>	<b>59,088</b>	<b>67,115</b>

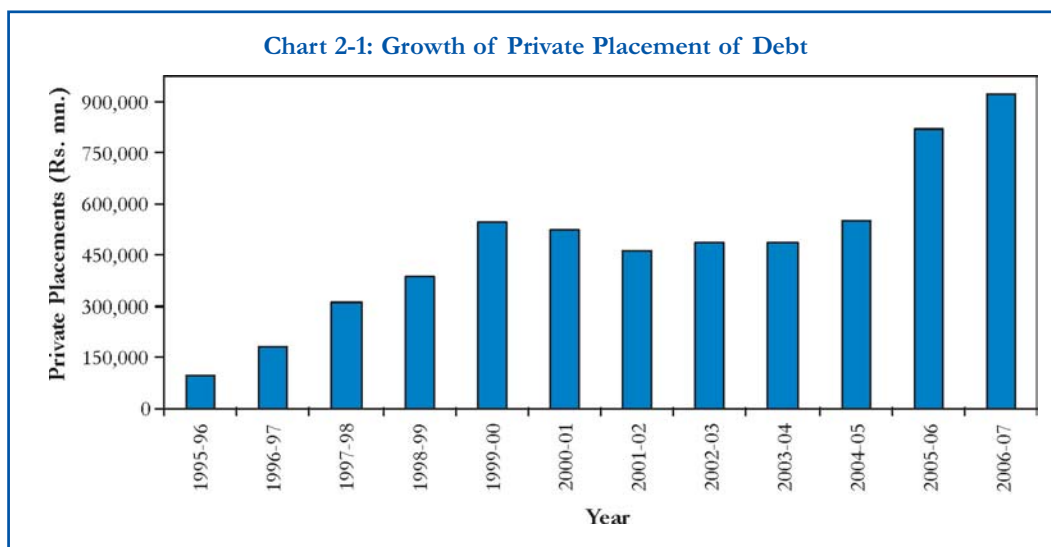
\* Only debt placements with a tenor and put / call option of 1 year or more.

Source: Prime Annual Report (for corporate debt) & RBI Annual Report 2006-07 (for Government debt).

### *Private Placement of Debt*

According to Prime Database estimates, a total of 97 issuers (institutional and corporates) raised Rs. 923,552 million (US \$ 21,187 million) through 498 privately placed issues in 2006-07. 230 issues out of 498 were made by the government/banking sector units, which together mobilized 84.26 % of the total. The amount raised through the private placement of debt issues have been on an increasing trend over the past few years (Chart 2-1).

Mostly, debt securities were privately placed. Though, there were some instances of private placements of equity shares, there is no comprehensive data coverage of this. 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 the share of equity in total private placements as rather insignificant. Some idea, however, can be derived from the equity shares issued by NSE-listed companies on



private placement basis. A total of 207 companies privately placed equities mobilizing around Rs. 122,166 million (US \$ 2,803 million) during 2006-07 (Annexure 2-1)

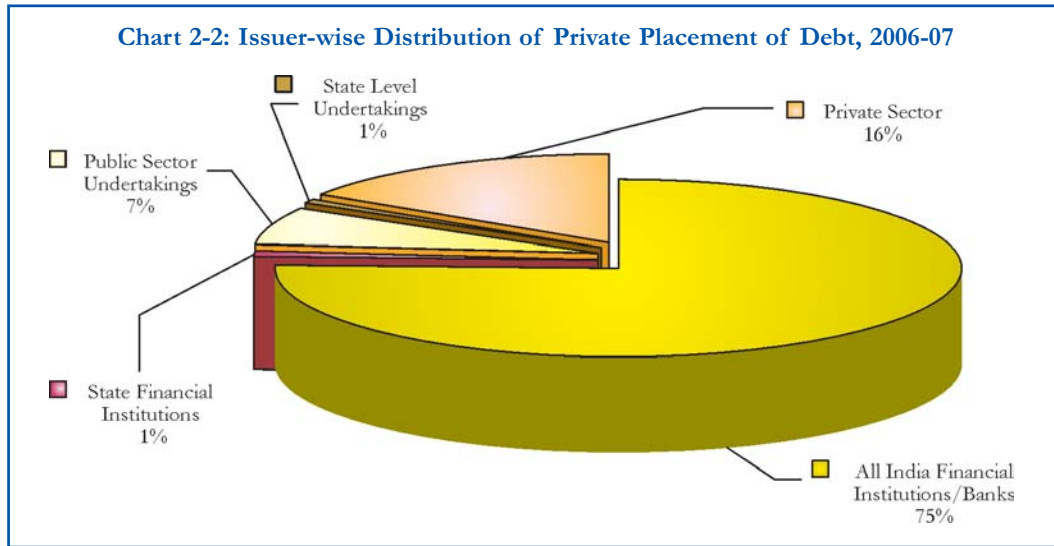
Of the 498 debt private placements, 230 were from the government/banking sector, mobilizing 84.26 % (Rs.778,147million/ US \$ 17,852 million) of the total resources. The All India Financial Institutions (AIFIs) & Banks continued to top the list with 75.46 % (Rs. 696,928 million/ US \$ 15,988 million), followed by the Private Sector with 15.74 % share (Rs. 145,405 million/ US \$ 3,336 million) (Table 2-9 and Chart 2-2). By number of issues, the All India financial institutions dominated with 202 placements.

**Table 2-9: Issuer-wise Distribution of Private Placement of Debt**

Issuer	Issue Amount (Rs. mn.)	Issue Amount (US \$ mn.)	% of Issue Amount
	2006-07	2006-07	2006-07
All India Financial Institutions/ Banks	696,928	15,988	75.46
State Financial Institutions	11,920	273	1.29
Public Sector Undertakings	61,783	1,417	6.69
State Level Undertakings	7,517	172	0.81
Private Sector	145,405	3,336	15.74
<b>Total</b>	<b>923,552</b>	<b>21,187</b>	<b>100.00</b>

Source: Prime Annual Report





Sectoral distribution shows that the banking continued to dominate the private placement market, raising 66.61 % in 2006-07 followed by financial sector, which accounted for 23.24 % during the year (Table 2-10).

**Table 2-10: Sectoral Distribution of Resources Mobilised by Private Placement**

Sector	Percentage Share
	2006-07
Banking	66.61
Financial Services	23.24
Power	7.31
Roads & Highways	0.63
Travel/Transportation	0.44
Telecommunications	0.42
Others	1.34
<b>Total</b>	<b>100.00</b>

Source: Prime Annual Report

The maturity profile of issues in the private placement market ranged between 12 months to 240 months during 2006-07. The largest number of placements was for 36 months (94 placements) and 120 months (79 placements). A total of 58 offers had put option, while 105 offers had call option.

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 498 debt private placements deals during 2006-07, 468 issues (94%) went for credit rating while 30 did not.



Private placement accounted for 78.70 % of total resources mobilized by the corporate sector from the primary market (Table 2-11). For the year 2006-07 the share of public issues was nil.

**Table 2-11: Resources Raised by Corporate Sector**

Year	Public Equity Issues	Debt Issues			Total Resource Mobilisation (2+5)	Total Resource Mobilisation	Share (%) of Private placement in		Share (%) of Debt in Total Resource Mobilisation (5/6*100)
		Public Issues	Private Placements*	Total (3+4)			Total Debt (4/5*100)	Total Resource Mobilisation (4/6*100)	
	(Rs. mn)	(Rs. mn)	(Rs. mn)	(Rs. mn)	(Rs. mn)	(US \$ mn)			
1	2	3	4	5	6		7	8	9
1995-96	88,820	29,400	100,350	129,750	218,570	-----	77.34	45.91	59.36
1996-97	46,710	69,770	183,910	253,680	300,390	-----	72.50	61.22	84.45
1997-98	11,320	19,290	309,830	329,120	340,450	-----	94.14	91.01	96.67
1998-99	5,040	74,070	387,480	461,550	466,580	10,996	83.95	83.05	98.92
1999-00	29,750	46,980	547,010	593,990	623,740	14,299	92.09	87.70	95.23
2000-01	24,790	41,390	524,335	565,725	590,520	12,661	92.68	88.79	95.80
2001-02	10,820	53,410	462,200	515,610	526,430	10,788	89.64	87.80	97.94
2002-03	10,390	46,930	484,236	531,166	541,556	11,353	91.16	89.42	98.08
2003-04	178,210	43,240	484,279	527,519	705,729	16,265	91.80	68.62	74.75
2004-05	214,320	40,950	551,838	592,788	807,108	18,448	93.09	68.37	73.45
2005-06	236,760	0.00	818,466	818,466	1,055,226	23,654	100.00	77.56	77.56
2006-07	249,930	0.00	923,552	923,552	1,173,482	26,921	100.00	78.70	78.70

\*Data from 2000-01 onwards include only issues with a tenor and put/call option of 1 year or more, while data for earlier years include all privately placed debt issues irrespective of tenor.

Source: Prime Annual Report

### Corporate Debt

During 2006-07, the corporates raised a total of Rs. 923,552 million (US \$ 21,187 million) through debt issues, solely arising from private placements since the share of public issues was nil. This year too the privately placed debt issues attained the maximum limit of 100 %. The share of debt in the total collection had been increasing over the years, in the year 2002-03 the share of debt stood at 98 %. However, in the subsequent years it has been witnessing a decrease and dropped down to 79 % in 2006-07 (Table 2-11).



**Annexure 2-1: Details of Private Placements Issues by NSE-listed Companies during the period April 01, 2006 to March 31, 2007 and listed on the Capital Market segment of the Exchange.**

Sr. No.	Company Name	Number of Securities issued	Funds Raised (Rs. Mn.)	Funds Raised (US \$ Mn)	Par Value (Rs.)	Par Value (US \$.)	Issue Price (Rs.)	Issue Price (US \$)
1	Adlabs Films Limited	3,800,000	666	15	5.00	0.11	175.20	4.02
2	Ahmednagar Forgings Ltd	7,570,000	1219	28	10.00	0.23	161.00	3.69
3	Ahmednagar Forgings Ltd	1,650,000	266	6	10.00	0.23	161.00	3.69
4	Allsec Technologies Limited	3,021,685	786	18	10.00	0.23	260.00	5.96
5	Alok Industries Limited	1,400,000	85	2	10.00	0.23	61.00	1.40
6	Alok Industries Limited	9,747,540	595	14	10.00	0.23	61.00	1.40
7	Amtek Auto Ltd	5,300,000	1643	38	2.00	0.05	310.00	7.11
8	Amtek India Limited	26,917,810	3957	91	2.00	0.05	147.00	3.37
9	Apar Industries Limited	3,445,978	638	15	10.00	0.23	185.00	4.24
10	Apollo Hospitals Enterprise Ltd	1,039,965	348	8	10.00	0.23	334.15	7.67
11	Aptech Limited	3,900,000	218	5	10.00	0.23	56.00	1.28
12	Asian Electronics Ltd	440,000	106	2	10.00	0.23	240.00	5.51
13	Asian Electronics Ltd	1,905,000	457	10	10.00	0.23	240.00	5.51
14	Amit Spinning Industries Limited	13,079,667	110	3	5.00	0.11	8.41	0.19
15	Aurionpro Solutions Limited	312,438	41	1	10.00	0.23	132.00	3.03
16	Aurobindo Pharma Ltd	1,000,000	375	9	5.00	0.11	375.00	8.60
17	Aurobindo Pharma Ltd	1,500,000	563	13	5.00	0.11	375.00	8.60
18	Axis-IT&T Limited	322,421	3	0	5.00	0.11	10.08	0.23
19	Bhagyanagar India Limited	500,000	20	0	2.00	0.05	40.00	0.92
20	Bhushan Steel Limited	500,000	105	2	10.00	0.23	210.00	4.82
21	Bhushan Steel Limited	1,200,000	240	6	10.00	0.23	200.00	4.59
22	Bhartiya International Limited	440,000	44	1	10.00	0.23	100.00	2.29
23	Bhartiya International Limited	500,000	85	2	10.00	0.23	170.00	3.90
24	Bpl Limited	17,000,000	731	17	10.00	0.23	43.02	0.99
25	Cambridge Solutions Limited	1,025,227	226	5	10.00	0.23	220.00	5.05
26	Centurion Bank of Punjab Limited	127,623,376	2457	56	1.00	0.02	19.25	0.44
27	Centurion Bank of Punjab Limited	69,920,000	1346	31	1.00	0.02	19.25	0.44
28	Centurion Bank of Punjab Limited	75,000,000	1841	42	1.00	0.02	24.54	0.56
29	Cranes Software International Limited	1,000,000	110	3	2.00	0.05	110.00	2.52
30	Crest Animation Studios Limited	3,385,518	406	9	10.00	0.23	120.00	2.75
31	Cybertech Systems And Software Ltd.	1,500,000	19	0	10.00	0.23	12.60	0.29
32	Dalmia Cement (Bharat) Ltd	4,470,588	1173	27	2.00	0.05	262.43	6.02
33	Eastern Silk Industries Limited	2,018,650	505	12	10.00	0.23	250.16	5.74
34	Eastern Silk Industries Limited	281,350	70	2	10.00	0.23	250.16	5.74
35	Everest Kanto Cylinder Limited	1,896,900	920	21	10.00	0.23	485.00	11.13

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Sr. No.	Company Name	Number of Securities issued	Funds Raised (Rs. Mn.)	Funds Raised (US \$ Mn)	Par Value (Rs.)	Par Value (US \$.)	Issue Price (Rs.)	Issue Price (US \$)
36	Elder Pharmaceuticals Limited	500,000	100	2	10.00	0.23	200.00	4.59
37	Elder Pharmaceuticals Limited	150,000	30	1	10.00	0.23	200.00	4.59
38	Elder Pharmaceuticals Limited	450,000	90	2	10.00	0.23	200.00	4.59
39	Emco Limited	300,000	86	2	10.00	0.23	285.00	6.54
40	Essar Steel Limited	215,000,000	3870	89	10.00	0.23	18.00	0.41
41	Essar Steel Limited	61,110,000	1100	25	10.00	0.23	18.00	0.41
42	Eveready Industries India Limited	500,000	48	1	5.00	0.11	95.00	2.18
43	Eveready Industries India Limited	440,000	42	1	5.00	0.11	95.00	2.18
44	Fedders Lloyd Corporation Ltd	10,000,000	300	7	10.00	0.23	30.00	0.69
45	Four Soft Limited	4,312,855	273	6	5.00	0.11	63.30	1.45
46	Geodesic Information Systems Limited	522,000	123	3	2.00	0.05	235.00	5.39
47	Geodesic Information Systems Limited	300,000	49	1	2.00	0.05	162.00	3.72
48	Geometric Software Solutions Co. Limited	3,867,075	455	10	2.00	0.05	117.66	2.70
49	GHCL Limited	2,000,000	130	3	10.00	0.23	65.10	1.49
50	Gkw Ltd	8,500,000	85	2	10.00	0.23	10.00	0.23
51	Gkw Ltd	21,500,000	215	5	10.00	0.23	10.00	0.23
52	Goldiam International Limited	550,000	73	2	10.00	0.23	133.00	3.05
53	Greaves Cotton Limited	1,600,000	122	3	10.00	0.23	76.00	1.74
54	Greenply Industries Ltd	2,347,000	268	6	5.00	0.11	114.00	2.62
55	Greenply Industries Ltd	670,000	76	2	5.00	0.11	114.00	2.62
56	Gtc Industries Ltd	800,000	80	2	10.00	0.23	100.00	2.29
57	Gujarat NRE Coke Ltd.	4,950,000	990	23	10.00	0.23	200.00	4.59
58	Gujarat NRE Coke Ltd.	2,000,000	150	3	10.00	0.23	75.00	1.72
59	Havells India Limited	854,545	235	5	5.00	0.11	275.00	6.31
60	Havells India Limited	854,545	0	-	5.00	0.11	0.00	0.00
61	Hexaware Technologies Limited	10,569,790	1502	34	2.00	0.05	142.10	3.26
62	Himachal Futuristic Communication Ltd	11,802,739	258	6	10.00	0.23	21.90	0.50
63	Hindustan Dorr-Oliver Ltd	6,350,000	406	9	2.00	0.05	64.00	1.47
64	Hindustan Dorr-Oliver Ltd	250,000	16	0	2.00	0.05	64.00	1.47
65	Hindustan Dorr-Oliver Ltd	1,000,000	64	1	2.00	0.05	64.00	1.47
66	Hindustan Sanitary And Industries Ltd	8,250,000	529	12	2.00	0.05	64.10	1.47
67	Ifb Industries Ltd.	1,350,000	23	1	10.00	0.23	17.00	0.39
68	Ifb Industries Ltd.	1,450,000	34	1	10.00	0.23	23.60	0.54
69	I-Flex Solutions Limited	91,347	54	1	5.00	0.11	587.57	13.48
70	I-Flex Solutions Limited	4,447,418	5815	133	5.00	0.11	1,307.50	30.00

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Sr. No.	Company Name	Number of Securities issued	Funds Raised (Rs. Mn.)	Funds Raised (US \$ Mn)	Par Value (Rs.)	Par Value (US \$.)	Issue Price (Rs.)	Issue Price (US \$)
71	Igarashi Motors India Limited	1,125,000	241	6	10.00	0.23	214.00	4.91
72	Indiabulls Financial Services Limited	7,250,000	3023	69	2.00	0.05	417.00	9.57
73	Indiabulls Financial Services Limited	11,000,000	902	21	2.00	0.05	82.00	1.88
74	India Cements Ltd.	15,857,443	745	17	10.00	0.23	47.00	1.08
75	India Cements Ltd.	13,743,118	646	15	10.00	0.23	47.00	1.08
76	India Infoline Limited	1,176,471	200	5	10.00	0.23	170.00	3.90
77	India Infoline Limited	4,117,647	700	16	10.00	0.23	170.00	3.90
78	Imp Power Ltd	432,562	24	1	10.00	0.23	55.63	1.28
79	Imp Power Ltd	915,000	78	2	10.00	0.23	85.34	1.96
80	Ind-Swift Laboratories Ltd.	620,000	71	2	10.00	0.23	115.00	2.64
81	Ind-Swift Laboratories Ltd.	200,000	23	1	10.00	0.23	115.00	2.64
82	Ind-Swift Laboratories Ltd.	400,000	46	1	10.00	0.23	115.00	2.64
83	Ind-Swift Laboratories Ltd.	380,950	35	1	10.00	0.23	92.00	2.11
84	Ind-Swift Limited	800,000	14	0	2.00	0.05	18.00	0.41
85	IVRCL Infrastructures & Projects Ltd.	2,000,000	50	1	2.00	0.05	25.00	0.57
86	JB Chemicals & Pharmaceuticals Ltd.	3,900,000	445	10	2.00	0.05	114.00	2.62
87	JBF Industries Ltd.	15,528,600	722	17	10.00	0.23	46.50	1.07
88	JBF Industries Ltd.	2,450,000	114	3	10.00	0.23	46.50	1.07
89	JBF Industries Ltd.	3,848,100	179	4	10.00	0.23	46.50	1.07
90	J.K.Industries Limited	3,600,000	378	9	10.00	0.23	105.00	2.41
91	JK Lakshmi Cement Limited	3,589,700	350	8	10.00	0.23	97.50	2.24
92	JK Paper Limited	15,380,000	1000	23	10.00	0.23	65.00	1.49
93	Jyoti Structures Ltd	1,550,000	887	20	10.00	0.23	572.00	13.12
94	Jyoti Structures Ltd	2,200,000	89	2	2.00	0.05	40.50	0.93
95	Kabra Extrusion Technik Ltd	558,290	53	1	10.00	0.23	95.00	2.18
96	Kabra Extrusion Technik Ltd	558,290	53	1	10.00	0.23	95.00	2.18
97	KEI Industries Limited	8,500,000	235	5	2.00	0.05	27.60	0.63
98	Khaitan Electricals Ltd.	500,000	30	1	10.00	0.23	60.00	1.38
99	Khaitan Electricals Ltd.	2,500,000	328	8	10.00	0.23	131.00	3.01
100	Khandwala Securities Limited	943,000	33	1	10.00	0.23	35.00	0.80
101	Kinetic Motor Company Limited	1,418,000	100	2	10.00	0.23	70.52	1.62
102	Kinetic Motor Company Limited	2,065,000	136	3	10.00	0.23	66.00	1.51
103	Klg Systel Ltd.	400,000	42	1	10.00	0.23	106.00	2.43
104	Kopran Ltd.	172,875	13	0	10.00	0.23	74.55	1.71
105	Kopran Ltd.	4,720,000	258	6	10.00	0.23	54.70	1.25
106	KPIT Cummins Infosystems Limited	148,830	47	1	5.00	0.11	316.74	7.27

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Sr. No.	Company Name	Number of Securities issued	Funds Raised (Rs. Mn.)	Funds Raised (US \$ Mn)	Par Value (Rs.)	Par Value (US \$.)	Issue Price (Rs.)	Issue Price (US \$)
107	KPIT Cummins Infosystems Limited	311,166	111	3	5.00	0.11	356.00	8.17
108	KRBL Limited	3,000,000	270	6	10.00	0.23	90.00	2.06
109	Lg Balakrishnan & Bros Ltd	5,532,714	221	5	1.00	0.02	39.89	0.92
110	Lyka Labs Ltd	930,000	67	2	10.00	0.23	72.00	1.65
111	Lyka Labs Ltd	100,000	6	0	10.00	0.23	64.00	1.47
112	Lyka Labs Ltd	250,000	16	0	10.00	0.23	64.00	1.47
113	Magma Leasing Limited	2,537,772	457	10	10.00	0.23	180.00	4.13
114	Manugraph India Ltd.	398,306	99	2	2.00	0.05	248.00	5.69
115	Max India Ltd	1,068,585	214	5	10.00	0.23	200.00	4.59
116	Media Video Ltd.	1,794,000	54	1	10.00	0.23	30.00	0.69
117	Mid-Day Multimedia Limited	5,612,333	337	8	10.00	0.23	60.00	1.38
118	MSK Projects (India) Limited	2,500,000	175	4	10.00	0.23	70.00	1.61
119	Murudeshwar Ceramics Ltd	2,501,000	310	7	10.00	0.23	124.00	2.84
120	Mysore Cements Ltd	3,000,000	82	2	10.00	0.23	27.35	0.63
121	Mysore Cements Ltd	66,500,000	3591	82	10.00	0.23	54.00	1.24
122	Mysore Cements Ltd	1,274,944	13	0	10.00	0.23	10.00	0.23
123	Jayaswals Neco Ltd	35,633,434	356	8	10.00	0.23	10.00	0.23
124	Nagreeka Exports Ltd	850,000	53	1	10.00	0.23	62.25	1.43
125	Nahar Industrial Enterprises Limited	1,265,000	181	4	10.00	0.23	143.43	3.29
126	Nahar Industrial Enterprises Limited	3,617,000	238	5	10.00	0.23	65.78	1.51
127	Nandan Exim Limited	12,830,188	170	4	1.00	0.02	13.25	0.30
128	Nova Petrochemicals Limited	2,400,000	144	3	10.00	0.23	60.00	1.38
129	Nova Petrochemicals Limited	1,000,000	60	1	10.00	0.23	60.00	1.38
130	Onward Technologies Ltd	545,000	38	1	10.00	0.23	70.00	1.61
131	Onward Technologies Ltd	1,025,000	72	2	10.00	0.23	70.00	1.61
132	Onward Technologies Ltd	60,000	4	0	10.00	0.23	70.00	1.61
133	Orchid Chemicals Ltd	50,000	11	0	10.00	0.23	226.28	5.19
134	Orchid Chemicals Ltd	35,000	8	0	10.00	0.23	226.28	5.19
135	Pasupati Fabrics Limited	23,000,000	230	5	10.00	0.23	10.00	0.23
136	Pearl Polymers Ltd	2,676,181	30	1	10.00	0.23	11.21	0.26
137	Phillips Carbon Black Ltd.	3,500,000	231	5	10.00	0.23	66.00	1.51
138	Phillips Carbon Black Ltd.	4,000,000	264	6	10.00	0.23	66.00	1.51
139	Praj Industries Ltd	2,433,375	293	7	2.00	0.05	120.25	2.76
140	Reliance Energy Limited	10,416,000	5968	137	10.00	0.23	573.00	13.15
141	Reliance Energy Limited	15,400,000	8824	202	10.00	0.23	573.00	13.15
142	Reliance Capital Limited	3,800,000	866	20	10.00	0.23	228.00	5.23
143	Reliance Capital Limited	15,500,000	3534	81	10.00	0.23	228.00	5.23
144	Rane Engine Valves Limited	110,992	48	1	10.00	0.23	435.00	9.98
145	Rico Auto Industries Ltd	3,000,000	201	5	1.00	0.02	67.00	1.54
146	Ramkrishna Forgings Limited	2,252,520	221	5	10.00	0.23	98.00	2.25

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Sr. No.	Company Name	Number of Securities issued	Funds Raised (Rs. Mn.)	Funds Raised (US \$ Mn)	Par Value (Rs.)	Par Value (US \$.)	Issue Price (Rs.)	Issue Price (US \$)
147	Ramkrishna Forgings Limited	172,410	20	0	10.00	0.23	116.00	2.66
148	Reliance Natural Resources Limited	120,000,000	3078	71	5.00	0.11	25.65	0.59
149	Rpg Life Sciences Limited	1,940,000	307	7	10.00	0.23	158.00	3.62
150	R. S. Software (India) Limited	70,000	1	0	10.00	0.23	20.00	0.46
151	R. S. Software (India) Limited	83,600	2	0	10.00	0.23	20.00	0.46
152	Sabero Organics Gujarat Ltd	3,500,000	92	2	10.00	0.23	26.17	0.60
153	The Sandesh Limited	1,037,714	273	6	10.00	0.23	262.82	6.03
154	Sangam (India) Ltd.	7,178,778	335	8	10.00	0.23	46.70	1.07
155	Sangam (India) Ltd.	1,500,000	70	2	10.00	0.23	46.70	1.07
156	Sangam (India) Ltd.	1,070,663	50	1	10.00	0.23	46.70	1.07
157	Sangam (India) Ltd.	3,180,444	149	3	10.00	0.23	46.70	1.07
158	Sanghi Industries Limited	31,107,000	322	7	10.00	0.23	10.35	0.24
159	Sanghi Industries Limited	67,006,800	670	15	10.00	0.23	10.00	0.23
160	Sanghi Industries Limited	16,249,250	162	4	10.00	0.23	10.00	0.23
161	Sanghvi Movers Ltd.	880,000	726	17	10.00	0.23	825.00	18.93
162	Scandent solutions Corporation Ltd	1,025,227	226	5	10.00	0.23	220.00	5.05
163	Shasun Chemicals and Drugs Ltd.	2,250,000	150	3	2.00	0.05	66.60	1.53
164	Shriram City Union Finance Limited	4,000,000	640	15	10.00	0.23	160.00	3.67
165	Shriram City Union Finance Limited	4,000,000	640	15	10.00	0.23	160.00	3.67
166	Shriram City Union Finance Limited	4,000,000	640	15	10.00	0.23	160.00	3.67
167	Sical Logistics Limited	2,638,655	942	22	10.00	0.23	357.00	8.19
168	Sintex Industries Ltd.	1,475,000	83	2	2.00	0.05	56.02	1.29
169	Sintex Industries Ltd.	4,800,000	269	6	2.00	0.05	56.02	1.29
170	Sintex Industries Ltd.	9,650,000	541	12	2.00	0.05	56.02	1.29
171	SSI Ltd.	7,150,000	750	17	10.00	0.23	104.85	2.41
172	SSI Ltd.	873,000	35	1	10.00	0.23	40.00	0.92
173	Sona Koyo Steering Systems Ltd.	4,396,700	295	7	2.00	0.05	67.10	1.54
174	SRF Ltd.	3,375,000	287	7	10.00	0.23	85.00	1.95
175	Shriram Transport Finance Co. Ltd.	24,478,681	2742	63	10.00	0.23	112.00	2.57
176	Shriram Transport Finance Co. Ltd.	5,715,000	200	5	10.00	0.23	35.00	0.80
177	Steel Strips Wheels Limited	77,500	11	0	10.00	0.23	145.00	3.33
178	Steel Strips Wheels Limited	150,000	22	0	10.00	0.23	145.00	3.33
179	Strides Arcolab Limited	3,068,875	215	5	10.00	0.23	70.00	1.61
180	Strides Arcolab Limited	1,196,662	239	5	10.00	0.23	200.00	4.59
181	Sti India Ltd	7,500,000	75	2	10.00	0.23	10.00	0.23

Contd...



*Contd...*

Sr. No.	Company Name	Number of Securities issued	Funds Raised (Rs. Mn.)	Funds Raised (US \$ Mn)	Par Value (Rs.)	Par Value (US \$.)	Issue Price (Rs.)	Issue Price (US \$)
182	Sterlite Optical Technologies Limited	2,800,000	280	6	5.00	0.11	100.00	2.29
183	Suryalakshmi Cotton Mills Limited	1,428,300	350	8	10.00	0.23	245.00	5.62
184	Surya Pharmaceutical Limited	400,000	28	1	10.00	0.23	70.00	1.61
185	Surya Pharmaceutical Limited	400,000	28	1	10.00	0.23	70.00	1.61
186	Surya Roshni Ltd	600,000	38	1	10.00	0.23	64.00	1.47
187	Tata Steel Limited	27,000,000	13932	320	10.00	0.23	516.00	11.84
188	Tata Tea Ltd	2,810,000	2183	50	10.00	0.23	777.00	17.83
189	Teledata Informatics Limited	8,100,000	300	7	10.00	0.23	37.00	0.85
190	Teledata Informatics Limited	9,600,000	250	6	10.00	0.23	26.00	0.60
191	Thiru Arooran Sugars Limited	564,700	78	2	10.00	0.23	137.38	3.15
192	TIPS Industries Limited	2,183,000	98	2	10.00	0.23	45.00	1.03
193	Trent Ltd.	585,000	501	11	10.00	0.23	856.86	19.66
194	Trigyn Technologies Limited	10,111,111	136	3	10.00	0.23	13.50	0.31
195	Unichem Laboratories Ltd	1,875,000	563	13	5.00	0.11	300.00	6.88
196	Uttam Galva Steels Limited	3,476,300	70	2	10.00	0.23	20.00	0.46
197	UTV Software Communications Limited	3,400,000	655	15	10.00	0.23	192.50	4.42
198	Vaibhav Gems Limited	7,527,273	2084	48	10.00	0.23	276.80	6.35
199	Vakrangee Softwares Limited	7,050,000	451	10	10.00	0.23	64.00	1.47
200	Varun Shipping Co. Ltd.	1,650,000	53	1	10.00	0.23	32.09	0.74
201	Varun Shipping Co. Ltd.	22,550,000	1691	39	10.00	0.23	75.00	1.72
202	Vimta Labs Limited	4,064,690	772	18	2.00	0.05	190.00	4.36
203	Visaka Industries Ltd.	300,000	41	1	10.00	0.23	135.00	3.10
204	Welspun Gujarat Stahl Rohren Limited	5,501,500	441	10	5.00	0.11	80.07	1.84
205	Welspun Gujarat Stahl Rohren Limited	3,774,116	221	5	5.00	0.11	58.57	1.34
206	Yes Bank Limited	10,000,000	1200	28	10.00	0.23	120.00	2.75
207	Zicom Electronic Security Systems Limited	400,000	48	1	10.00	0.23	121.00	2.78

*Source : NSE*

## Collective Investment Vehicles

A collective investment vehicle is any entity that allows investors to pool their money and invest the pooled funds, rather than buying securities directly as individuals. The most common types of collective investment vehicles are mutual funds, exchange traded funds, collective investment schemes and venture capital funds. The Collective Investment Scheme is well established in many jurisdictions and now serves as an investment vehicle for a wide range of investment opportunities around the world.

The International Organization of Securities Commission (IOSCO) has, in its Report on Investment Management of the Technical Committee, defined the Collective Investment Schemes (CIS), as "an open ended collective investment scheme that issues redeemable units and invests primarily in transferable securities or money market instruments".

In India, there are three distinct categories of collective investment vehicles in operation namely, Mutual Funds (MFs), Collective Investment Schemes (CIS) and Venture Capital Funds (VCFs) which mobilize resources from the market for investment purposes. The developments in the year 2006-07 with respect to the above three different CIVs are discussed in this chapter.

### Mutual Funds

A mutual fund is a company that pools money from many investors and invests the money in stocks, bonds, short-term money-market instruments, other securities or assets, or some combination of these investments. Mutual Funds are essentially investment vehicles where people with similar investment objective come together to pool their money and then invest accordingly. SEBI defines mutual funds as 'A fund established in the form of a trust to raise money through the sale of units to the public or a section of the public under one or more schemes for investing in securities, including money market instruments or gold or gold related instruments.' A Mutual Fund will have a fund manager who is responsible for investing the pooled money into specific securities (usually stocks and bonds). When you invest in a MF, you are buying shares (or portions) of the MF and become a shareholder of the fund. Mutual Funds (MFs) are considered a good route to invest and earn returns with reasonable safety. Some of the other major benefits of investing in them are:

- **Number of available options:** equity funds, debt funds, gilt funds and many others are available that cater to the different needs of an investor.
- **Diversification:** Mutual funds diversify the risk of the investor by investing in a basket of various stocks.
- **Managed by Skilled Professionals:** A team of professional fund managers manages them with in-depth research inputs from investment analysts.
- **Liquidity:** When in need of liquidity, the money can be withdrawn or redeemed at the Net Asset Value related prices anytime, without much reduction in yield (unlike penalty on premature fixed deposit withdrawal). Some mutual funds however, charge exit loads for withdrawal within a specified period.
- **Well Regulated:** All investments have to be accounted for & decisions judiciously taken. SEBI acts as a true watchdog through regulations, designed to protect the investors' interests and impose penalties on the AMCs at fault.
- **Transparency:** Being under a regulatory framework, mutual funds have to disclose their holdings, investment pattern and all the information relating to the investment strategy, outlooks of the market and scheme related details to all investors frequently to ensure that transparency exists in the system.
- **Flexible, Affordable and a Low Cost affair:** Mutual Funds provide the benefit of cheap access to expensive stocks.
- **Tax benefits :** Mutual Funds (MFs) are undoubtedly an important product innovation in the financial field, as an instrument of raising capital from the wider public for corporate enterprise growth. Historically MFs originally called unit trusts in the United Kingdom, were invented for the mass of relatively small investors. Investors are issued 'units', thus for an investor, investments in MF imply buying shares (or portions) of the MF and becoming the shareholders of the fund.

In India, the Unit Trust of India (UTI), created in 1964 was the first MF. It enjoyed complete monopoly of MF business up to 1986. The entry of non- UTI, public sector mutual funds was set up by public sector banks and Life Insurance Corporation of India (LIC) and General Insurance Corporation of India (GIC) in 1987. SBI Mutual Fund was the first non- UTI Mutual Fund established in June 1987. The MF business was progressively opened to competition post 1988. This move gathered momentum after the adoption of economic liberalization in 1991 and the creation of SEBI in 1992. As of end March 2007, 40 MFs are registered with SEBI with an asset base of Rs.3,263,880 million. (US \$ 74,887 million).

In recent years, the MF schemes have diversified considerably thus expanding the basket of investment opportunities to suit the different needs of the investors. There are schemes that invest only in equities, in debt instruments or in both, in real estates, gold units etc. The objectives of the MFs have also widened, with the MFs investing in growth stocks, in stocks of a particular sector, the MFs are managed aggressively as well as passively. Thus, investors have a variety of options such as income funds, balanced funds, liquid



funds, gilt funds, index funds, exchange traded funds, sectoral funds to deploy their savings.

## Policy Developments

The policy and regulatory initiatives during the period April 2006 to June 2007 are discussed hereunder.

### *I. Union Budget 2007-08*

The Union Budget for 2007-08 proposed the following:

- 1) The Dividend Distribution tax (DDT) for the money market and liquid mutual funds to be brought at par at 25 %. The intention behind this was to restrict the arbitrage opportunities used by these schemes.
- 2) Mutual Funds would play a bigger role in infrastructure development by launching and operating dedicated infrastructure funds which would directly invest into core sector projects. The Indian Mutual Fund industry already have schemes which are sector specific and invest into infrastructure sector through equities. Now, after this particular proposal Mutual Funds can directly invest into infrastructure projects.
- 3) Delivery based short selling to be allowed for institutional participants. Mostly in all developed countries short selling is allowed. In India, till recently only the retail investors enjoyed this. Along with FII, Mutual Fund houses are also allowed for delivery based short selling.
- 4) It was proposed to bring the asset management services offered by individuals under the service tax bracket. The individuals who provide investment fund management advisory services would have to pay service tax. The managers would have to register themselves with the Central Excise department and pay service tax, if their service fee would exceed Rs.8 lakh per annum.
- 5) Retail investor would be allowed to invest abroad through Indian Mutual Funds.

## Initiatives From RBI

### *I. Investment by Mutual Funds in Overseas Securities.*

With a view to providing greater opportunity to invest overseas, the extant ceiling on overseas investments by Mutual Funds, registered with Securities and Exchange Board of India (SEBI), was enhanced during November 2006 and May 2007.

The aggregate ceiling for overseas investment by Mutual Funds, registered with SEBI, was increased from USD 2 billion to USD 3 billion during November 2006. The aggregate ceiling for investment by Mutual Funds registered with SEBI was further increased from USD 3 billion to USD 4 billion during May 2007.

### *II. Distribution of Mutual Fund products by NBFCs.*

In order to strengthen the NBFC sector by allowing diversification in their area of business, the NBFCs, have been allowed selectively, to market and distribute mutual fund products as agents of mutual funds, with prior approval of Reserve Bank, for an initial period of

two years and a review thereafter. NBFCs fulfilling the following minimum requirements are eligible to apply:

- 1) Minimum net owned fund of Rs.100 crore;
- 2) The company should have made net profit as per last two years audited balance sheet;
- 3) The percentage of net NPAs to net advances of the NBFC as per the last audited balance sheet should not be more than 3%;
- 4) The non-deposit-taking NBFCs (NBFCs-ND) should have CRAR of 10% and deposit-taking NBFCs (NBFCs-D) should have CRAR of 12% or 15%, as applicable to the company.

In addition, the NBFCs would be required to adhere to the following stipulations :

### **I. Operational Aspects**

- 1) The NBFC should comply with the SEBI guidelines/regulations, including their code of conduct, for distribution of mutual fund products.
- 2) The company should not adopt any restrictive practice of forcing its customers to go in for a particular mutual fund product sponsored by it. The customers should be allowed to exercise their own choice.
- 3) The participation by a company's customer in mutual fund products is purely on a voluntary basis and this information should be stated in all publicity material distributed by the company in a prominent way. There should be no 'linkage' either direct or indirect between the provisions of financial services offered by the company to its customers and distribution of the mutual fund products.
- 4) The company should only act as an agent of the customers, forwarding the investor's applications for purchase/sale of MF units together with the payment instruments, to the Mutual Fund/the Registrars/the transfer agents. The purchase of units should be at the customers' risk and without the company guaranteeing any assured return.
- 5) The company should neither acquire units of mutual funds from the secondary market for sale to customers, nor should it buy back units of mutual funds from their customers.
- 6) In case the company is holding custody of MF units on behalf of customers, it should ensure that its' own investments and the investments belonging to its' customers are kept distinct from each other.

### **II. Other Aspects**

- 1) The risks, if any, involved in mutual fund agency business should not get transferred to the business of the NBFC;
- 2) The NBFC should have put in place guidelines on fair practices code;
- 3) The company should be adhering to Know Your Customer Guidelines and provisions of prevention of Money Laundering Act;





- 4) The company must be complying with Non-Banking Financial Companies Acceptance of Public Deposits (Reserve Bank) Directions, 1998 and/or Non-Banking Financial Companies Prudential Norms (Reserve Bank) Directions, 1998 and any other instructions / provisions of RBI Act, 1934 to the extent applicable to the NBFC concerned;
- 5) The NBFC should comply with other terms and conditions as the Bank may specify in this behalf from time to time;
- 6) The permission is liable to be withdrawn with a notice period of 3 months in the event of any undesirable / unhealthy operations coming to the notice of the Bank.

### III. Overseas Investment by Venture Capital Funds (VCFs )

Reserve Bank of India, in consultation with the Securities and Exchange Board of India (SEBI), has decided to permit Indian Venture Capital Funds (VCFs), registered with SEBI, to invest in equity and equity-linked instruments of off-shore venture capital undertakings, subject to an overall limit of USD 500 million and SEBI regulations issued in this regard. SEBI has accordingly notified the enabling Venture Capital Funds (Amendment) Regulations 2006 on January 25, 2006. Allocations of limits to individual VCFs will be made by SEBI, subject to such terms and conditions as SEBI may deem necessary.

Accordingly, Domestic Venture Capital Funds registered with SEBI, desirous of making investments in off-shore Venture Capital Funds will have to approach SEBI for prior approval in this regard. No separate permission is required from the Reserve Bank for such VCFs.

## Initiatives From SEBI

### I. Guidelines on certain operational aspects of Gold Exchange Traded Fund (GETF):

- 1) Valuation:

Since physical gold and other permitted instruments linked to gold are denominated in gold tonnage, it will be valued based on the market price of gold in the domestic market and will be marked to market on a daily basis. The market price of gold in the domestic market on any business day would be arrived at as under:

Domestic price of gold = (London Bullion Market Association AM fixing in US\$/ounce X conversion factor for converting ounce into kg for 0.995 fineness X rate for US\$ into INR) + custom duty for import of gold + sales tax/octroi and other levies applicable.

The Trustees reserve the right to change the source (centre) for determining the exchange rate. The AMC should record in writing the reason for change in the source for determining the exchange rate.

- 2) Determination of Net Asset Value

NAV of units under the Scheme should be calculated as shown below:

$$\text{NAV (Rs.)} = \frac{\text{Market or Fair Value of Scheme's investments} + \text{Current Assets} - \text{Current Liabilities and Provision}}{\text{No of Units outstanding under Scheme on the Valuation Date}}$$

The NAV should be calculated up to four decimals.

- 3) Recurring Expenses: The limits on recurring expenses for a GETF are the same as applicable to equity.
- 4) Benchmark for GETF: As there are no indices catering to the gold sector/securities linked to Gold, currently GETF should be benchmarked against the price of Gold.

## *II. Common Key Personnel between Mutual Funds and Venture Capital Funds*

In order to avoid conflict of Interest between the activities of Mutual Funds and Venture Capital Funds, it has been decided that no key personnel of a Mutual Fund would be on the Board of Asset Management Company/Investment Manager/Investment Advisor/Investment Committee of a Venture Capital Fund.

Key Personnel of a Mutual Fund includes Chief Executive Officer (whatever his designation may be), Chief Investment Officer, Fund Managers and Head of other departments in a AMC.

## *III. Rationalisation of Initial Issue Expenses and Dividend distribution procedure for Mutual Funds*

In order to clarify the expense structure in SEBI (Mutual Funds) Regulations, 1996 with greater precision and to introduce uniform practices in procedure for dividend distribution by the mutual funds, SEBI has taken the following decisions:

### **1. Rationalisation of Initial Issue Expenses**

- a) The initial issue expenses will be permitted for closed-ended schemes only.
- b) Open ended scheme should meet the sales, marketing and other such expenses connected with sales and distribution of schemes from the entry load and not through initial issue expenses.
- c) Since closed-ended schemes are allowed to charge initial issue expenses, they should not charge entry load.
- d) In close-ended schemes where initial issue expenses are amortised, for an investor exiting the scheme before amortisation is completed, AMC should redeem the units only after recovering the balance proportionate unamortised issue expenses.
- e) Conversion of a closed-ended scheme or interval scheme to open-ended scheme/ or issuance of new units should be done only after the balance unamortised amount has been fully recovered from the scheme.

### **2. Dividend Distribution Procedure for Mutual Funds**

Regulation 53(a) of SEBI (Mutual Funds) Regulations, 1996 permit the mutual funds



to distribute returns including dividend. It was noted that mutual funds were following different procedures for dividend distribution. To introduce uniform practices in procedure for dividend distribution by the mutual funds and for development of the mutual funds industry, the following guidelines have been issued.

### *Unlisted Schemes/Plans*

- a) Quantum of dividend and the record date should be fixed by the trustees in their meeting. Dividend so decided should be paid, subject to availability of distributable surplus.
- b) Record date should be the date which will be considered for the purpose of determining the eligibility of investors whose names appear on the register of unit holders for receiving dividends. Further, the NAV should be adjusted to the extent of dividend distribution and statutory levy, if any, at the close of business hours on record date.
- c) Within one calendar day of the decision by the trustees, AMC should issue notice to the public communicating the decision including the record date. The record date will be 5 calendar days from the issue of notice.
- d) Such notice should be given in one English daily newspaper having nationwide circulation as well as in a newspaper published in the language of the region where the head office of the mutual fund is situated.
- e) The notice should, in font size 10, bold, categorically state that pursuant to payment of dividend, the NAV of the scheme would fall to the extent of payout and statutory levy (if applicable).
- f) Before the issue of such notice, no communication indicating the probable date of dividend declaration in any manner whatsoever, may be issued by any mutual fund or distributors of its products.

### *Liquid Schemes / debt schemes with frequent dividend distribution.*

The requirement of giving notice is not compulsory for scheme/plan/options having frequency of dividend distribution from daily up to monthly dividend provided that there is a disclosure to that effect in the offer document.

### *Listed Schemes/Plans*

For declaration of dividend, listed schemes/plans will continue to follow the requirements stipulated in the listing agreement.

### *Advertisement*

All Advertisements, in any media, containing proposed dividend should, in the same font as dividend figure (in percentage or in absolute terms), disclose immediately below the dividend figure that the NAV of the scheme, pursuant to payment of dividend would fall to the extent of payout and statutory levy (if applicable).

#### ***IV. Parking of Funds in Short Term Deposits of Scheduled Commercial Banks by Mutual Funds -Pending deployment***

In order to ensure that the funds collected in a scheme are invested as per the investment objective stated in the offer document, following guidelines are issued for parking of funds in short term deposits of scheduled commercial banks - pending deployment:

- 1) 'Short Term' for such parking of funds by mutual funds should be treated as a period not exceeding 91 days.
- 2) Such short term deposits should be held in the name of the concerned scheme.
- 3) No mutual fund scheme is allowed to park more than 15% of the net assets in Short term deposit(s) of all the scheduled commercial banks put together. However, it may be raised to 20% with prior approval of the trustees. Also, parking of funds in short term deposits of associate and sponsor scheduled commercial banks together should not exceed 20% of total deployment by the mutual fund in short term deposits.
- 4) No mutual fund scheme should park more than 10% of the net assets in short term deposit(s), with any one scheduled commercial bank including its subsidiaries.
- 5) Trustees should ensure that no funds of a scheme may be parked in short term deposit of a bank which has invested in that scheme.
- 6) Asset Management Company (AMC) will not be permitted to charge any investment management and advisory fees for parking of funds in short term deposits of scheduled commercial banks in case of liquid and debt oriented schemes.
- 7) All funds parked in short term deposit(s) should be disclosed in half yearly portfolio statements under a separate heading. Details such as name of the bank, amount of funds parked, percentage of NAV can be disclosed.
- 8) Trustees should certify in the half-yearly reports that the provision of the Regulation pertaining to parking of funds in short term deposits - pending deployment is being complied with at all points of time. Further, the AMC should also certify the same in its bi-monthly compliance test report.

The above conditions are applicable to all fresh investments whether in a new scheme or an existing scheme. In case of an existing scheme where the scheme has already parked funds in short term deposits, the AMC should ensure that such mutual funds schemes confirm with the above conditions within a period of 3 months, from the date of the issue of these guidelines.

#### ***V. Investments by Mutual Funds in ADRs/GDRs/Foreign Securities and Overseas Exchange Traded Funds.***

The aggregate ceiling for the mutual fund industry to invest in ADRs/GDRs issued by Indian companies, equity of overseas companies listed on recognized stock exchanges overseas and rated debt securities (subsequently referred to as 'foreign securities') has been raised from US \$1 billion to US \$ 2 billion in the Finance Bill 2006-07.



**Conditions for investments in ADRs / GDRs/ Foreign Securities :**

- a) The mutual funds can make investments in
  - i. ADRs/GDRs issued by Indian companies
  - ii. Equity of overseas companies listed on recognized stock exchanges overseas
  - iii. Foreign debt securities in the countries with fully convertible currencies, short term as well as long term debt instruments with highest rating (foreign currency credit rating) by accredited/registered credit rating agencies, say A-1/AAA by Standard & Poor, P-1/AAA by Moody's, F1/AAA by Fitch IBCA, etc.
  - iv. Government securities where the countries are AAA rated.
  - v. Units/securities issued by overseas mutual funds or unit trusts which invest in the aforesaid securities or are rated as mentioned above and are registered with overseas regulators.
- b) The mutual funds can invest in ADRs/GDRs/Foreign Securities within overall limit of US\$4 bn. This will be with a sub-ceiling for individual mutual funds which should not exceed 10% of the net assets managed by them as on March 31 of each relevant year and subject to a maximum of US \$ 200 mn. per mutual fund.

**Conditions for Investment in Overseas exchange traded funds (ETFs):**

Finance Bill for the year 2006-07 permitted a limited number of qualified Indian mutual funds to invest, cumulatively up to US \$ 1 billion, in overseas exchange traded funds. To be eligible to invest in overseas ETFs, either of the two conditions should be satisfied:

- i. The Mutual Fund should be in existence for a minimum period of 10 years as on July 31, 2006 and managing schemes.
- ii. The Mutual Fund or its Sponsors should have experience, to be certified by the Trustees, of investing in foreign securities and an appropriate disclosure regarding the nature of experience should be made in the offer document.

Limits: The mutual funds can invest in overseas ETFs within overall limit of US\$ 1 bn. with a sub-ceiling for individual mutual fund which should not exceed 10% of the net assets managed by them as on March 31 of each relevant year, subject to a maximum of US \$50 mn. per mutual fund.

**Other guidelines to be adhered to :*****a) Appointment of dedicated Fund Manager.***

The Mutual Fund should appoint a dedicated Fund Manager for making investments in ADRs/GDRs/Foreign Securities and overseas ETFs. However, the existing schemes which had already invested in ADRs/GDRs/Foreign Securities were given a relaxation of six month period for ensuring the compliance with the said requirement from August 2, 2006.

***b) Due Diligence***

Boards of Asset Management Companies (AMCs) and trustees should exercise due

diligence in making investment decisions as required under Regulation 25 (2). They should make a detailed analysis of risks and returns of investment in foreign securities and overseas ETFs, comparing them with likely yields of the securities available in domestic markets and how these investments would be in the interest of investors. Investment must be made in liquid actively traded securities.

Boards of AMCs and trustees may prescribe detailed parameters for making such investments which may include identification of countries, country rating, country limits, etc. They should satisfy themselves that the AMC has experienced key personnel, research facilities and infrastructure for making such investments. Other specialised agencies and service providers associated with such investments e.g. custodian, bank, advisors, etc should also have adequate expertise and infrastructure facilities. Their past track record of performance and regulatory compliance record, if they are registered with foreign regulators, may also be considered. Necessary agreements may be entered into with them as considered necessary.

### *c) Disclosure Requirements*

The following disclosure requirements are mandatory for mutual fund schemes proposing to invest in foreign securities.

- i. Intention to invest in foreign securities/ ETFs has to be disclosed in the offer documents of the schemes. The attendant risk factors and returns ensuing from such investments should be explained clearly in offer documents. The mutual funds should also disclose as to how such investments will help in the furtherance of the investment objectives of the schemes. Such disclosures should be in a language comprehensible to an average investor in mutual funds.
- ii. The mutual funds should disclose the name of the dedicated Fund Manager for making investments in ADRs/GDRs/Foreign Securities and Overseas ETFs.
- iii. In case of schemes investing in ETFs the nature of experience of mutual fund or its Sponsors of having invested in foreign securities should be appropriately disclosed in the offer document.
- iv. The mutual funds have to disclose exposure limits i.e. the percentage of assets of the scheme they would invest in foreign securities/ ETFs.
- v. Such investments should be disclosed while disclosing half-yearly portfolios in the prescribed format by making a separate heading 'Foreign Securities/overseas ETFs'. Scheme-wise percentage of investments made in such securities should be disclosed while publishing half-yearly results in the prescribed format, as a footnote.

### *d) Investment by Existing Schemes:*

Existing schemes of mutual funds where the offer document provides for investment in foreign securities and attendant risk factors but which have not yet invested, may invest in foreign securities, consistent with the investment objectives of the schemes, provided a dedicated fund manager has been appointed for making investments in ADRs/GDRs/Foreign Securities. Any additional disclosure as specified above should be informed to unitholders by way of addendum. In case the offer document of an existing scheme does



not provide for investment in ADRs/GDRs /foreign securities and overseas ETFs, the scheme, if it so desires, may make such investments in accordance with these guidelines, provided that prior to investment in ADRs/GDRs /foreign securities and overseas ETFs for the first time, the AMC should ensure that a written communication about the proposed investment is sent to each unitholder and an advertisement is given in one English daily newspaper having nationwide circulation as well as in a newspaper published in the language of the region where the Head Office of the mutual fund is situated. The communication to unitholders should also disclose the risk factors associated with such investments.

*e) Reporting to Trustees :*

The AMCs should send detailed periodical reports to the trustees which should include the following aspects:

- i. Performance of investments made in foreign securities and overseas ETFs in various countries.
- ii. Amount invested in various schemes and any breach of the exposure limit laid down in the scheme offer documents.

*f) Review of Performance*

Boards of AMCs and trustees should review the performance of investments made in foreign securities/overseas ETFs in their meetings by comparing the yield with that of investment opportunities available in domestic markets and should decide further course of action. In case of schemes investing exclusively in foreign securities/overseas ETFs, performance may also be compared with appropriate benchmark(s).

*g) Reporting to SEBI*

The AMCs and trustees should offer their comments on the compliance of these guidelines in the quarterly and half-yearly reports filed with SEBI.

*h) Clause 4 of Seventh Schedule of the SEBI (Mutual Funds) Regulations 1996*

It has been clarified that Clause 4 of Seventh Schedule of the SEBI (Mutual Funds) Regulations 1996 which restricts investments in mutual fund units upto 5% of net assets and prohibits charging of fees, should not be applicable to investments in mutual funds in foreign countries. However, the management fees and other expenses charged by the mutual fund(s) in foreign countries along with the management fee and recurring expenses charged to the domestic mutual fund scheme should not exceed the total limits on expenses as prescribed under Regulation on limitation of fees and expenses on issue of schemes. Where the scheme is investing only a part of the net assets in the foreign mutual fund(s), the same principle should be applicable for that part of investment. The details of calculation for charging such expenses should be reported to the Boards of AMC and trustees and should also be disclosed in the Annual Report of the scheme

*VI. Uniform cut-off timings for applicability of Net Asset Value (NAV) of Mutual Fund scheme(s)/plan(s)*

SEBI had come across reports in media about 'late trading' in Mutual Funds, in some

countries where undue advantage was taken by a few investors due to different cut-off timings for applying NAVs both for subscriptions and redemptions to the disadvantage of other investors.

As a proactive measure, keeping in view the interests of investors, SEBI had initiated a dialogue with the Mutual Funds industry in India including AMFI for adopting a uniform cut-off time for applying NAVs both for subscriptions and redemptions, across the industry. Taking into account the inputs received in this regard, the following guidelines are being issued.

These guidelines are applicable to all the schemes/plans of Mutual Funds whether existing or new. However, considering the nature of International Funds (i.e. the mutual fund schemes) have substantial investment in foreign securities which are valued as per time zones other than the Indian Standard time zone, are not covered by these guidelines.

#### Mutual Fund Scheme(s)/plan-

- i) Purchases : In respect of valid applications received upto 3 p.m by the Mutual Fund alongwith a local cheque or demand draft payable at par at the place where it is received, closing NAV of the day of receipt of application is received should be applicable. In respect of valid application received after 3.00 pm by a Mutual Fund along with a local cheque or demand draft payable at par at the place where it is received, the closing NAV of the next business day should be applicable. However, in respect of valid applications with outstation cheques or demand draft not payable on par at the place where it is received, closing NAV of day on which the cheque or demand draft is credited should be applicable.
- ii) Redemptions: In respect of valid applications received upto 3.00 pm - by the Mutual Fund, same day's closing NAV of the day should be applicable. In respect of valid applications received after 3.00 pm by the Mutual Fund, the closing NAV of the next business day should be applicable.

#### Mutual Fund - Liquid Fund Scheme(s)/plan-

- i) The following cut-off timings should be observed by a mutual fund in respect of purchase of units in liquid fund schemes and their plans, and the following NAVs should be applied for such purchase:
  - a. where the application is received upto 12.00 noon on a day and funds are available for utilization on the same day - the closing NAV of the day immediately preceding the day of receipt of application;
  - b. where the application is received after 12.00 noon on a day and funds are available for utilization on the same day - the closing NAV of the day immediately preceding the next business day ; and
  - c. irrespective of the time of receipt of application, where the funds are not available for utilization on the day of the application - the closing NAV of the day immediately preceding the day on which the funds are available for utilization.





- ii) The following cut-off timings should be observed by a mutual fund in respect of repurchase/redemption of units in liquid fund schemes and their plans, and the following NAVs should be applied for such repurchase:
  - a. where the application is received upto 3.00 pm - the closing NAV of the day immediately preceding the next business day ; and
  - b. where the application is received after 3.00 pm - the closing NAV of the next business day.
- iii) A mutual fund should calculate NAV for each calendar day in respect of its liquid fund schemes and their plans.

'Business day' does not include a day on which the money markets are closed or otherwise not accessible.

Cut-off timings for other schemes and plans & for liquid fund schemes and plans should apply to 'switch in' transactions as if they were purchase transactions and to 'switch out' transactions as if they were repurchase transactions. In case of 'switch' transactions from one scheme to another the allocation should be in line with redemption payouts. The cut off timings for Liquid fund and other schemes should apply to sweep transactions as if they were purchase transactions.

## Market Design

The MF industry is governed by SEBI (MF) Regulations, 1996, which lays the norms for the MF and its AMC. All MFs in India are constituted as trusts and are allowed to issue open-ended and close-ended schemes under a common legal structure. This section throws light on the market design of the MFs in India.

### *Structure of MFs*

A typical MF in India has the following constituents:

*Fund Sponsor:* A 'sponsor' is a person who, acting alone or in combination with another corporate body, establishes a MF. In order to register with SEBI as a MF, the sponsor should have a sound financial track record of over five years, and integrity in all his business transactions. Following its registration, in accordance with SEBI Regulations, the sponsor forms a trust, appoints a Board of Trustees and an AMC as a fund manager. Further, a custodian is appointed to carry out the custodial services for the schemes of the fund. The sponsor should contribute at least 40% of the net worth of the AMC (provided that any person who holds 40 % or more of the net worth of an asset management company should be deemed to be a sponsor and would be required to fulfil the eligibility criteria specified in the SEBI regulations)

*Trustees:* The MF 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 or be associated with them in any manner whatsoever. The trustees, being the primary

guardians of the unit holders' funds and assets, have to be persons of high repute and integrity. The Trustees, however, do not directly manage the portfolio of MF. It is managed by the AMC as per the defined objectives, in accordance with trust deed and SEBI (MF) Regulations.

*Asset Management Company:* The AMC, appointed by the sponsor or the Trustees and approved by SEBI, acts like the investment manager of the Trust. The AMC should have at least a net worth of Rs. 10 crore. It functions under the supervision of its Board of Directors, Trustees and the SEBI. In the name of the Trust, AMC floats and manages different investment 'schemes' as per the SEBI Regulations and the Investment Management agreement signed with the Trustees. The regulations require non-interfering relationship between the fund sponsors, trustees, custodians and AMC.

*Custodians.* A custodian is appointed for safe keeping the securities and participating in the clearing system through approved depository. Custodian also records information on stock splits and other corporate actions. No custodian in which the sponsor or its associate holds 50 % or more of the voting rights of the share capital of the custodian or where 50 % or more of the directors of the custodian represent the interest of the sponsor or its associates should act as custodian for a mutual fund constituted by the same sponsor or any of its associate or subsidiary company.

*Registrar and Transfer agent:* Registrar and transfer agent maintains record of the unitholders account. A fund may choose to hire an independent party registered with SEBI to provide such services or carryout these activities in-house. If the work relating to the transfer of units is processed in-house, the charges at competitive market rates may be debited to the scheme. The registrar and transfer agent forms the most vital interface between the unitholder and mutual fund. Most of the communication between these two parties takes place through registrar and transfer agent.

*Distributors/Agents:* To send their products across the length and breadth of the country, mutual funds take the services of distributors/agents. Distributors comprise of banks, non-banking financial companies and other distribution companies.

### *Types of MFs/Schemes*

A wide variety of MFs/Schemes cater to different preferences of the investors based on their financial position, risk tolerance and return expectations. The MF Schemes can be broadly categorized under three headings, viz., Funds by structure e.g. open ended, close ended schemes and interval schemes; Funds by investment objective e.g. growth schemes, income schemes, balanced schemes, money market schemes and lastly other schemes e.g. tax saving schemes and special schemes like index schemes and sector specific schemes.

An open-ended fund provides the investors with an easy entry and exit option at NAV, which is declared on a daily basis. While, in close-ended funds, the investors have to wait till maturity to redeem their units, however, an entry and exit is provided through mandatory listing of units on a stock exchange. The listing is to be done within six months of the close of the subscription. Assured return schemes, is a scheme that assures a



specific return to the unit holders irrespective of performance of the scheme, which are fully guaranteed either by the sponsor or AMC.

Growth/Equity Oriented Schemes provide capital appreciation over medium to long-term by investing a major part of their corpus in equities. Income/Debt Oriented Schemes provide regular and steady income to investors by investing in fixed income securities such as bonds, corporate debentures, government securities and money market instruments. Hence, they are less risky compared to equity schemes. Balanced Funds provide both growth and regular income as they invest both in equities and fixed income securities in the specified proportion as indicated in their offer documents. Money Market or Liquid Funds provide easy liquidity and preserves capital, but generates moderate income. As they invest exclusively in safer short-term instruments such as, treasury bills, certificates of deposit, commercial paper, inter-bank call money, and government securities. Index Funds replicate the portfolio of any particular index such as the Nifty 50 by investing in the same securities with the same weightage as in the index. The exchange traded index funds, as the name suggests, are traded on the stock exchanges. Exchange Traded Funds are an innovation to traditional mutual funds as ETFs provide investors a fund that closely tracks the performance of an index with the ability to buy/sell on an intra-day basis. Then, there are funds/schemes that invest in shares of specific sectors or industries such as Pharmaceuticals, Software and Banking.

### *Regulation of Funds*

The MFs are regulated under the SEBI (MF) Regulations, 1996. All the MFs have to be registered with SEBI. The regulations have laid down a detailed procedure for launching of schemes, disclosures in the offer document, advertisements, listing and repurchase of close-ended schemes, offer period, transfer of units, investments, among others. In addition, 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 falls under the regulatory ambit of the RBI.

Further, as the MFs, AMCs and corporate trustees are registered as companies under the Companies Act 1956, they have to comply with the provisions of the Companies Act. Many close-ended schemes of the MFs are listed on one or more stock exchanges. Such schemes are, therefore, subject to the regulations of the concerned stock exchange(s) through the listing agreement between the fund and the stock exchange.

MFs, being Public Trusts are governed by the Indian Trust Act, 1882, are accountable to the office of the Public Trustee, which in turn reports to the Charity Commissioner, that enforces provisions of the Indian Trusts Act.

#### **I. Amendments in Mutual Fund Regulations**

The Securities and Exchange Board of India (Mutual Funds) (Second Amendment) Regulations, 2006, which had amended the Securities and Exchange Board of India (Mutual Funds) Regulations 1996 brought about the amendments in the following regulations:

##### **1) *Repurchase of Close ended Schemes (Regulation 33)***

The asset management company may at its option repurchase or reissue the repurchased units of a close ended scheme. The units of a close ended scheme may

be open for sale or redemption at fixed predetermined intervals if the maximum and minimum amount of sale or redemption of the units and the periodicity of such sale or redemption have been disclosed in the offer document. The units of close ended scheme can be converted into open-ended scheme if the offer document of such scheme discloses the option and the period of such conversion or the unitholders are provided with an option to redeem their units in full and the initial issue expenses of the scheme have been amortised fully in accordance with the tenth schedule.

A close ended scheme should be fully redeemed at the end of the maturity period provided that a close-ended scheme may be allowed to be rolled over if the purpose, including the likely composition of assets immediately before the roll over, the net assets and net asset value of the scheme are disclosed to the unitholders and a copy of the same has been filed with SEBI. Further, such roll over would be permitted only in the case of those unit holders who express their consent in writing and the unit holders who do not opt for the roll over or have not given written consent will be allowed to redeem their holdings in full at net asset value based price.

## 2) *Option trading, etc.(Regulation 45)*

The funds of a scheme are not allowed in any manner to be used in option trading or in short selling or carry forward transactions; provided that a mutual fund may enter into derivative transactions in a recognized stock exchange subject to such guidelines as may be specified by SEBI.

## 3) *Pricing of Units (Regulation 49)*

The price at which the units may be subscribed or sold and the price at which such units may at any time be repurchased by the mutual fund should be made available to the investors. The mutual fund, in case of an open-ended scheme, should at least once a week publish in a daily newspaper of all India circulation, the sale and repurchase price of units. While determining the price of the units, the mutual fund should ensure that the repurchase price is not lower than 93 percent of the Net Asset Value and the sale price is higher than 107 percent of the Net Asset Value. However, the repurchase price of the units of a close ended scheme should not be lower than 95 percent of the Net Asset Value. Further, the difference between the repurchase price and the sale price of the unit should not exceed 7 percent calculated on the sale price. No entry load should be charged by any close-ended scheme after the commencement of SEBI Mutual Funds (Regulations), 2006.

When a mutual fund repurchases units in a close ended scheme which fulfills the conditions of 1) the scheme is launched after the commencement of of SEBI Mutual Funds (Second Amendment) Regulations, 2006 and 2) initial issue expenses in respect of the scheme have been charged or are proposed to be charged to the mutual fund as per the clause (a) of sub-regulation (4) of regulation 52; then it should deduct an amount representing proportionate initial issue expenses or part thereof remaining unamortized, from the repurchase proceeds. Further, the amount recovered would be credited to the unamortized initial issue expenses of the scheme. The term proportionate initial issue expenses or part thereof remaining unamortized refers to



such proportion of the expenses of the scheme as are attributable to the units being repurchased.

#### 4) *Limitation of fees and expenses on issue of schemes (Regulation 52)*

- 1) All expenses should be clearly identified and appropriated in the individual schemes.
- 2) The Asset Management Company may charge the mutual fund with investment and advisory fees which are fully disclosed in the offer document subject to the following namely:-
  - i. One and a quarter of one percent of the weekly average net assets outstanding in each accounting year for the scheme concerned, as long as the net assets do not exceed Rs.100 crore and
  - ii. One percent of the excess amount over Rs.100 crore, where net assets so calculated exceed Rs.100 crore.
- 3) For schemes launched on a no load basis, the asset management company will be entitled to collect an additional management fee not exceeding 1 % of the weekly average net assets outstanding in each financial year.
- 4) In addition to the investment and advisory fees, the asset management company may charge the mutual fund with the following expenses namely:
  - i. initial expenses on launching of close-ended schemes, which should be accounted in the books of account of the scheme in accordance with the tenth schedule.
  - ii. recurring expenses including:
    - a) Marketing and selling expenses including agents commissions if any;
    - b) Brokerage and transaction cost;
    - c) Registrar services for transfer of units sold or redeemed;
    - d) Fees and expenses of trustees;
    - e) Audit fees;
    - f) Custodian fees;
    - g) Cost related to investor communication;
    - h) Cost of fund transfer from location to location;
    - i) Cost of providing account statements and dividend/redemption cheques and warrants;
    - j) Insurance premium paid by the fund;
    - k) Winding up costs for terminating a fund or a scheme;
    - l) Cost of statutory advertisements in case of a gold exchange traded fund scheme, recurring expenses incurred toward storage and handling of gold and in case of a capital protection oriented scheme, rating fees;
    - m) Such other costs as may be approved by SEBI.



- iii. Any expense other than those specified above should be borne by the asset management company or trustee or sponsors provided that the initial expenses of launching a close-ended scheme should not exceed six per cent of initial resources raised under that scheme. Further, any excess over the 6 per cent initial issue expense should be borne by the asset management company.
- iv. The total expenses of the scheme excluding issue or redemption expenses, whether initially borne by the mutual fund or by the asset management company, but including the investment management and advisory fee will be subject to the following limits :-
  - (i) On the first Rs. 100 crores of the average weekly net assets 2.5%;
  - (ii) On the next Rs. 300 crores of the average weekly net assets 2.25%;
  - (iii) On the next Rs. 300 crores of the average weekly net assets 2.0%;
  - (iv) On the balance of the assets 1.75% :

Such recurring expenses should be lesser by at least 0.25% of the weekly average net assets outstanding in each financial year in respect of a scheme investing in Bonds. Further, in case of a fund of funds scheme, the total expenses of the scheme including the management fees should not exceed 0.75% of the daily or weekly average net assets, depending upon whether the NAV of the scheme is calculated on daily or weekly basis.

#### 5) *Declaration of Dividends (Regulation 52 A)*

A mutual fund may declare dividends in accordance with the offer document and subject to such Guidelines as may be made by SEBI.

#### 6) *Seventh Schedule of SEBI Mutual Funds Regulations, 1996 on 'Restriction on Investments' (Regulation 44(1))*

##### **Restrictions On Investments**

- 1) A mutual fund scheme should not invest more than 15% of its NAV in debt instruments issued by a single issuer which are rated not below investment grade by a credit rating agency authorised to carry out such activity under the Act. Such investment limit may be extended to 20% of the NAV of the scheme with the prior approval of the Board of Trustees and the Board of asset management company provided that such limit should not be applicable for investments in Government securities and money market instruments. Further, that investment within such limit can be made in mortgaged backed securitised debt which are rated not below investment grade by a credit rating agency registered with SEBI.

A mutual fund scheme should not invest more than 10% of its NAV in unrated debt instruments issued by a single issuer and the total investment in such instruments should not exceed 25% of the NAV of the scheme. All such investments should be made with the prior approval of the Board of Trustees and the Board of asset management company.



- 2) No mutual fund under all its schemes should own more than ten per cent of any company's paid up capital carrying voting rights.
- 3) Transfers of investments from one scheme to another scheme in the same mutual fund should be allowed only if,-
  - (a) such transfers are done at the prevailing market price for quoted instruments on spot basis. 'Spot basis' has the same meaning as specified by stock exchange for spot transactions.
  - (b) the securities so transferred should be in conformity with the investment objective of the scheme to which such transfer has been made.
- 4) A scheme may invest in another scheme under the same asset management company or any other mutual fund without charging any fees, provided that aggregate interscheme investment made by all schemes under the same management or in schemes under the management of any other asset management company should not exceed 5% of the net asset value of the mutual fund. However, this is not applicable to any fund of funds scheme.
- 5) The initial issue expenses in respect of any scheme can not exceed six per cent of the funds raised under that scheme.
- 6) Every mutual fund should buy and sell securities on the basis of deliveries and should in all cases of purchases, take delivery of relative securities and in all cases of sale, deliver the securities and should in no case put itself in a position whereby it has to make short sale or carry forward transactions or engage in badla finance. (Provided that a mutual fund may enter into derivatives transactions in a recognised stock exchange, subject to such Guidelines as may be specified by the SEBI.)
- 7) Every mutual fund should get the securities purchased or transferred in the name of the mutual fund on account of the concerned scheme, wherever investments are intended to be of long-term nature.
- 8) Pending deployment of funds of a scheme in securities in terms of investment objectives of the scheme a mutual fund can invest the funds of the scheme in short term deposits of scheduled commercial banks.
- 9) No mutual fund [scheme] should make any investment in,-
  - (a) any unlisted security of an associate or group company of the sponsor;  
or
  - (b) any security issued by way of private placement by an associate or group company of the sponsor; or
  - (c) the listed securities of group companies of the sponsor which is in excess of 25 per cent of the net assets.
- 9A) No scheme of a mutual fund should make any investment in any fund of funds scheme.
- 10) No mutual fund scheme should invest more than 10 per cent of its NAV in the equity shares or equity related instruments of any company . Provided that,

the limit of 10 per cent should not be applicable for investments in case of index fund or sector or industry specific scheme.

- 11) A mutual fund scheme should not invest more than 5% of its NAV in the unlisted equity shares or equity related instruments in case of open ended scheme and 10% of its NAV in case of close ended scheme.
- 12) A fund of funds scheme will be subject to the following investment restrictions:
  - (a) A fund of funds scheme should not invest in any other fund of funds scheme;
  - (b) A fund of funds scheme should not invest its assets other than in schemes of mutual funds, except to the extent of funds required for meeting the liquidity requirements for the purpose of repurchases or redemptions, as disclosed in the offer document of fund of funds scheme.

**7) Tenth Schedule of SEBI Mutual Funds Regulations, 1996 'Amortisation of Initial Issue Expenses for Close-ended Schemes'(Regulation 52 (4) (a))**

Accounting treatment with regard to initial issue expenses :-

- a) Asset management companies, trustee company or sponsor may launch schemes either on a 'load' or 'no-load basis', or on a mixed basis with two classes of units in the same scheme - one with load and the other without load, provided that the implications of such load on the NAV for the investors should be clearly explained through a worked-out example in the offer document. Asset Management Company, trustee company or sponsor may also launch 'partial load' schemes in which a part of the load would be borne by the asset management companies, trustee company or sponsor and the balance by the scheme. However, such schemes will not qualify to be 'no load' schemes and would be treated in the same manner as 'load' schemes. In the case of a no-load scheme, the initial issue expenditure should be borne by the Asset Management Company, trustee company or sponsor.
- b) For a closed-ended scheme floated on a 'load' basis, the initial issue expenses should be amortised on a weekly basis over the period of the scheme. In case the schemes provide for partial redemption during the life of the scheme, the amortisation should take into account the number of outstanding units and the aggregate amount during the relevant periods.
- c) In case of closed-ended floated on a 'load' basis, the unamortised portion of the expenses should be included in the calculation of the NAV. However, such portion should not be included in the NAV for the purposes of determining the asset management company's investment management and advisory fees or for determining the limitation of expenses under regulation 51 of these regulations.
- d) For schemes floated on a 'no-load' basis, the asset management company may levy an additional management fee not exceeding 1% of the NAV. The asset management company may be entitled to levy a contingent deferred sales charge for redemption during the first four years after purchase, not exceeding 4% of





the redemption proceeds in the first year, 3% in the second year, 2% in the third year and 1% in the fourth year.

- e) All subsequent distribution charges must in the case of load schemes should be borne by the scheme and in the case of no-load schemes borne by the asset management company.

### *Disclosure of Performance*

A MF has to compute net asset value (NAV) for each scheme by dividing the net assets of the scheme by the number of outstanding units as on the valuation date, which reflects the performance of a scheme. The NAV is to be disseminated on daily basis in case of open ended schemes and on weekly basis in case of close ended schemes. Apart from publishing NAVs in newspapers and the web sites of respective MFs, all MFs are required to put their daily NAVs on the web site of AMFI, so that the investors can access NAVs of all the MFs at one place.

Considering the ambiguity prevalent in the calculation of sale and repurchase price of the units of MF, it was decided to have uniformity in the determination of sale and repurchase price. The formulae to be used for calculation are:

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

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

While determining the prices of the units, the mutual fund should ensure that the repurchase price is not lower than 93 % of the NAV and the sale price is not higher than 107 % of the NAV. The repurchase price of the units of a close ended scheme, however, should not be lower than 95 % of the NAV. The difference between repurchase and sale price should not exceed 7 % of the sale price. Further, no entry load should be charged by any close-ended scheme after commencement of the SEBI (Mutual Funds) (Second Amendment) Regulation 2006.

The MFs are required to publish their performance in the form of half-yearly results, which should include their returns/yields over a period of time i.e. last six months, 1 year, 3 years, 5 years and at the inception of the schemes. The MFs are required to send annual report or abridged annual report to all the unit holders at the end of the year but not later than six months from the date of closure of the relevant accounts year.

### *Code of Conduct*

The MF regulations include codes of conduct for the MFs and AMCs, their employees and intermediaries. They are as in the following:

- 1) Mutual fund schemes should not be organised, operated, managed or the portfolio of securities selected, in the interest of sponsors, directors of asset management companies, members of Board of trustees or directors of trustee company, associated persons as in the interest of special class of unitholders rather than in the interest of all classes of unitholders of the scheme.
- 2) Trustees and asset management companies must ensure the dissemination to all unitholders of adequate, accurate, explicit and timely information fairly presented in a simple language about the investment policies, investment objectives, financial position and general affairs of the scheme.

- 3) Trustees and asset management companies should avoid excessive concentration of business with broking firms, affiliates and also excessive holding of units in a scheme among a few investors.
- 4) Trustees and asset management companies must avoid conflicts of interest in managing the affairs of the schemes and keep the interest of all unitholders paramount in all matters.
- 5) Trustees and asset management companies must ensure schemewise segregation of bank accounts and securities accounts.
- 6) Trustees and asset management companies should carry out the business and invest in accordance with the investment objectives stated in the offer documents and take investment decision solely in the interest of unitholders.
- 7) Trustees and asset management companies must not use any unethical means to sell; market or induce any investor to buy their schemes.
- 8) Trustees and the asset management company should maintain high standards of integrity and fairness in all their dealings and in the conduct of their business
- 9) Trustees and the asset management company should render at all times high standards of service, exercise due diligence, ensure proper care and exercise independent professional judgement.
- 10) The asset management company should not make any exaggerated statement, whether oral or written, either about their qualifications or capability to render investment management services or their achievements.
- 11) The sponsor of the mutual fund, the trustees or the asset management company or any of the employees should not render any, 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.

In case an employee of the sponsor, the trustees or the asset management company is rendering such advice, he should 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.

### *Advertisements Code by MFs*

- 1) An advertisement should be truthful, fair and clear and should not contain a statement, promise or forecast which is untrue or misleading.
- 2) An advertisement should be considered to be misleading if it contains -
  - a) **Misleading Statements:-** Representations made about the performance or activities of the mutual fund in the absence of necessary explanatory or qualifying statements, and which may give an exaggerated picture of the performance or activities, than what it really is.
  - b) An inaccurate portrayal of a past performance or its portrayal in a manner which implies that past gains or income will be repeated in the future.



- c) Statements promising the benefits of owning units or investing in the schemes of the mutual funds without simultaneous mention of material risks associated with such investments.
- 3) The advertisement should not be so designed in content and format or in print as to be likely to be misunderstood, or likely to disguise the significance of any statement. Advertisements should not contain statements which directly or by implication or by omission may mislead the investor.
  - 4) The sales literature may contain only information, the substance of which is included in the Funds' current advertisements in accordance with the advertisement Code of SEBI.
  - 5) Advertisements should not be so framed as to exploit the lack of experience or knowledge of the investors. As the investors may not be sophisticated in legal or financial matters, care should be taken that the advertisement is set forth in a clear, concise, and understandable manner. Extensive use of technical or legal terminology or complex language and the inclusion of excessive details which may detract the investors should be avoided.
  - 6) The advertisement should not contain information, the accuracy of which is to any extent dependent on assumptions. Any advertisement that makes claims about the performance of the fund should be supported by relevant figures.
  - 7) The advertisement should not compare one fund with another, implicitly or explicitly, unless the comparison is fair and all information relevant to the comparison is included in the advertisement.
  - 8) The Funds which advertises yield must use standardised computations such as annual dividend on face value, annual yield on the purchase price, and annual compounded rate of return.
  - 9) Mutual funds should indicate in all advertisements, the names of the Settlor, Trustee, Manager and or Financial Advisor to the Fund, bringing out clearly their legal status and liability of these entities.  
  
All advertisements containing information regarding performance, advertising yield, return or any scheme detail or inviting subscription to the scheme should contain disclosures of all the risk factors.
  - 10) All advertisements should also make a clear statement to the effect that all mutual funds and securities investments are subject to market risks, and there can be no assurance that the fund's objectives will be achieved.
  - 11) If however, in any Advertisement a mutual fund guarantees or assures any minimum rate of return or yield to prospective investors, resources to back such a guarantee should also be indicated.
  - 12) If any existing mutual fund indicates the past performance of the fund in advertisements, the basis for computing the rates of return/yield and adjustments made (if any) must be expressly indicated with a statement that, such information is not necessarily indicative of future results and may not necessarily provide a basis



for comparison with other investments. Any advertisement containing information regarding performance, NAV, yield or returns should give such data for the past three years, wherever applicable.

- 13) All advertisements issued by a mutual fund or its sponsor or asset management company, should state "all investments in mutual funds and securities are subject to market risks and the NAV of the schemes may go up or down depending upon the factors and forces affecting the securities market.
- 14) All advertisement launched in connection with the scheme should also disclose prominently the risks factors as stated in the offer document alongwith the following warning statements :-
  - a) ..... is only the name of the scheme and does not in any manner indicate either the quality of the scheme, its future prospects or returns; and,
  - b) please read the offer document before investing.

Any advertisement reproducing or purporting to reproduce any information contained in a offer document should reproduce such information in full and disclose all relevant facts and not be restricted to select extracts relating to that item which could be misleading. Further, no celebrities should form part of the advertisement.

- 15) No name can be given to a scheme with a view to subtly indicate any assurance of return, except in the cases of guaranteed return scheme in accordance with regulation 38 about guaranteed returns.
- 16) No advertisement should be issued stating that the scheme has been subscribed or oversubscribed during the period the scheme is open for subscription.
- 17) If a corporate advertisement is issued by the sponsor or any of the companies in the Group, or an associate company of the sponsor during the subscription period, no reference should be made to the scheme of the mutual fund or mutual fund itself; otherwise it will be treated as an issue advertisement.
- 18) If a corporate advertisement of a sponsor issued prior to the launch of a scheme makes a reference to the mutual fund sponsored by it or any of its schemes launched/ to be launched, it should contain a statement to the effect that the performance of the sponsor has no bearing on the expected performance of the mutual fund or any of its schemes.
- 19) Advertisements on the performance of a mutual fund or its Asset management company should compare the past performances only on the basis of per unit of statistics as per this Regulations. Advertisements for NAVs must indicate the past as well as the latest NAV of a scheme. The yield calculations will be made as provided in these regulations.

## Market Outcome

### *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 3-1). 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 90's with liberalisation evoking positive response from the investors. The resource mobilisations by MFs remained steady during the period 1992-95 with annual gross mobilisation averaging Rs. 110,000 million per annum during the period. The MFs were however, hit severely by the bearish sentiments in the secondary market since October 1994. The years 1995-96 and

**Table 3-1: Resource Mobilisation by Mutual Funds**

Year	Public Sector MFs			Private Sector MFs	Grand Total	
	Bank sponsored	FI sponsored	UTI		(Rs. Mn.)	(US \$ Mn.)
1990-91	23,520	6,040	45,530	–	75,090	–
1991-92	21,400	4,270	86,850	–	112,520	–
1992-93	12,040	7,600	110,570	–	130,210	–
1993-94	1,480	2,390	92,970	15,600	112,440	–
1994-95	7,650	5,760	86,110	13,220	112,740	–
1995-96	1,130	2,350	-63,140	1,330	-58,330	–
1996-97	60	1,370	-30,430	8,640	-20,360	–
1997-98	2,370	2,030	28,750	7,490	40,640	–
1998-99	2,310	6,910	1700	25,190	36,110	851
1999-00	1,560	3,570	45,480	148,920	199,530	4,574
2000-01	-----	15,200-----	3,220	92,920	111,350	2,387
2001-02	-----	14,740-----	-72,840	129,470	71,370	1,463
2002-03	-----	18,950-----	-94,340	121,220	45,830	965
2003-04	-----	37,610-----	10,500*	428,730	476,840	10,990
2004-05	-----	16,670-----	25,970	425,450	468,090	10,699
2005-06	-----	98,020-----	-----	429,770	527,790	11,815
2006-07	-----	149,470-----	-----	790,380	939,850	21,561

\* Data for 2003-04 relate to UTI Mutual Fund for the period February 01, 2003 to March 31, 2004.

US \$ conversions are done from the year 1998-1999

Source: RBI.

1996-97 witnessed net outflows of funds from MFs. The MF industry managed to mobilise modest sums during the next two financial years. It was during 1999-00, that the MF industry witnessed a sharp turnaround with record resource mobilisation amounting to Rs. 199,530 million (US \$ 4,574 million). Tax sops announced in the Union Budget 1999-00 and emergence of bullish trends in the secondary market fuelled the recovery. The year 2000-01 witnessed a slowdown once again with net resource mobilisation by all MFs taken together aggregating Rs. 71,370 million (US \$ 1,463 million), which could be attributed to a slump in secondary market and increase in tax on income distributed by debt-oriented MFs. In 2002-03, the resource mobilization by all MFs together aggregated to a further low of Rs. 45,830 million (US \$ 965 million) with UTI having a net outflow of Rs. 94,340 million (US \$ 1,986 million). The fiscal years 2003-04 and 2004-05 witnessed a sharp rise in the net resources mobilized compared to its previous years aggregating Rs. 476,840 million (US \$ 10,990 million) and Rs. 468,090 million (US \$ 10,699 million) respectively. The same trend continued in the fiscal 2005-06 wherein the



net resources mobilized were Rs. 527,800 million (US \$ 11,816 million). The performance of the private sector MFs were also consistent as compared to its previous years. It mobilized Rs. 429,770 million (US \$ 9,634 million). During 2006-07, net resources mobilized by mutual funds increased to Rs.939,850 million (US \$ 21,561 million) from Rs.527,790 million (US \$ 11,815 million) in the corresponding period last year. This increase has been the highest so far accounting for 78.1 % mainly due to high resource mobilization of 84 % by the Private sector mutual funds. Increasing resource mobilization is indicative of the growing confidence of investors in Mutual Funds as an investment avenue.

During 2006-07, the number of registered MFs with the SEBI stood at 40. As against 190 schemes in the year 2005-06, 414 new schemes were launched in 2006-07, of which 35 were open-ended and 379 close-ended schemes. This took the total number of schemes as at end-March 2007 to 756 against 592 as at end March 2006. Aggregate sales of all the 756 schemes amounted to Rs. 19,385,920 million (US \$ 444,733 million). The redemptions during the year were at Rs. 18, 445,120 million (US \$ 423,150 million) (Table 3-2).

The bank sponsored MFs made gross mobilization of Rs. 2,140,130 million (US \$ 49,097 million) accounting for 11.04 % of the total resource mobilization during 2006-07. In net terms, the bank sponsored MFs witnessed an outflow of Rs.107,200 million (US \$ 2,459 million). The private sector MFs accounted for the bulk of mobilization by raising almost 82.53 % of gross resources mobilized by MF industry during 2006-07. These private sector MFs witnessed a net inflow of Rs. 791,340 million (US \$ 18,154 million) in the same period as compared to Rs. 429,730 million (US \$ 9,633 million) in 2005-06.

The share of open-ended schemes in total funds raised by MFs was 92.86 % as compared with its share of 96.26 % in 2005-06 and 97.89 % in 2004-05. The share of close ended schemes in total funds, on the other hand increased from 3.73 % in 2005-06 to 7.14 % in 2006-07. The share of open ended schemes has been coming down marginally over the last three years due to a significant y-o-y increase in the funds raised by close ended schemes. The close ended schemes posted a growth of 237.14 % in raising funds in 2006-07 as compared with its growth of 131.77 % in 2005-06.

The open ended and close ended schemes together registered a net inflow of Rs.527,760 million (US \$ 12,107 million) in 2005-06 and Rs.940,800 million (US \$ 21,583 million) in 2006-07 respectively.(Table:3-3 A).

With the decline in interest rates during past few years, the liquid/money market schemes have become very popular among investors due to the attractive returns delivered by them. They have accounted for almost three-fourths of the total resources mobilized. The sale as well as repurchase has been very high in case of these schemes, resulting in a net inflow of Rs. 49,850 million (US \$ 1,144 million) during the year. Except for the Gilt schemes, all other schemes witnessed an inflow. Gold ETFs witnessed a net inflow of Rs.960 million (US \$ 22 million). Income funds saw net inflow of Rs.600,460 million (US \$ 13,775 million) , growth funds saw net inflow of Rs.237,520 million (US \$ 5,449 million) and balanced funds & ELSS witnessed net inflows of Rs.17,110 million (US \$ 393 million) and Rs.44,530 million (US \$ 1,022 million) respectively. The income schemes raised about 10.89 % of resources mobilising Rs. 2,110,260 million (US \$ 48,412 million) during 2006-07 (Table 3-3 B).



Table 3-2: Accretion of Funds with Mutual Funds

Category	2005-06				2006-07				Assets under Management at the end			
	Sale (Rs. mn)	Purchase (Rs. mn)	Net (Rs. mn)	Net (US \$ mn)	Sale (Rs. mn)	Purchase (Rs. mn)	Net (Rs. mn)	Net (US \$ mn)	March-06 (Rs. mn)	March-07 (Rs. mn)	March-07 (US \$ mn)	March-07 (US \$ mn)
<b>A Bank Sponsored</b>	1,372,260	1,295,350	76,910	1,724	2,140,130	2,032,930	107,200	2,459	451,190	545,700	12,519	12,519
i. Joint Ventures -	481,670	439,730	41,940	940	525,120	489,420	35,700	819	131,860	168,070	3,856	3,856
Predominantly Indian												
ii. Others	890,590	855,620	34,970	784	1,615,010	1,543,510	71,500	1,640	319,330	377,630	8,663	8,663
<b>B Institutions</b>	462,200	441,080	21,120	473	1,246,070	1,203,810	42,260	969	52,290	96,430	2,212	2,212
<b>C Private Sector (i+ii+iii+iv)</b>	9,147,120	8,717,390	429,730	9,633	15,999,720	15,208,380	791,340	18,154	1,815,140	2,621,750	60,146	60,146
i. Indian	2,567,610	2,380,650	186,960	4,191	4,797,540	4,504,470	293,070	6,723	506,020	801,570	18,389	18,389
ii. Joint Ventures -												
Predominately Indian	3,465,180	3,294,290	170,890	3,831	6,218,990	5,914,570	304,420	6,984	741,440	1,047,790	24,037	24,037
iii. Joint Ventures -												
Predominately Foreign	3,114,330	3,042,450	71,880	1,611	4,983,190	4,789,340	193,850	4,447	567,680	772,390	17,719	17,719
iv. Foreign	--	--	--	--	--	--	--	--	--	--	--	--
<b>Grand Total (A+B+C)</b>	<b>10,981,580</b>	<b>10,453,820</b>	<b>527,760</b>	<b>11,831</b>	<b>19,385,920</b>	<b>18,445,120</b>	<b>940,800</b>	<b>21,583</b>	<b>2,318,620</b>	<b>3,263,880</b>	<b>74,877</b>	<b>74,877</b>

Source: AMFI Updates.



Table 3-3A: Scheme-wise Resource Mobilisation by Mutual Funds

Scheme	(Rs. mn.)				(US \$ mn)			
	2005-06		2006-07		2005-06		2006-07	
	Sale	Purchase	Sale	Purchase	Sale	Purchase	Sale	Purchase
Open-ended	10,571,260	10,313,460	18,002,570	17,762,620	236,971	231,192	412,998	407,493
Close-ended	410,320	140,360	1,383,350	682,500	9,198	3,146	31,735	15,657
Assured Return	--	--	--	--	--	--	--	--
<b>Total</b>	<b>10,981,580</b>	<b>10,453,820</b>	<b>19,385,920</b>	<b>18,445,120</b>	<b>246,169</b>	<b>234,338</b>	<b>444,733</b>	<b>423,150</b>

Source : AMFI Updates

Table 3-3B: Scheme-wise Resource Mobilisation by Mutual Funds

Scheme	2005-06				2006-07			
	Sale	Purchase	Net Inflow/ (Outflow)		Sale	Purchase	Net Inflow/ (Outflow)	
	(Rs. mn)	(Rs. mn)	(Rs. mn)	(US \$ mn)	(Rs. mn)	(Rs. mn)	(Rs. mn)	(US \$ mn)
Income	1,687,920	1,548,160	139,760	3,133	2,110,260	1,509,800	600,460	13,775
Growth	820,860	504,500	316,360	7,092	896,820	659,300	237,520	5,449
Balanced	40,060	30,790	9,270	208	44,730	27,620	17,110	393
Liquid/ Money Market	8,368,590	8,326,540	42,050	943	16,267,900	16,218,050	49,850	1,144
Gilt	24,800	40,400	(15,600)	(350)	18,530	28,160	(9,630)	(221)
ELSS	39,350	3,430	35,920	805	46,690	2,160	44,530	1,022
GOLD ETFs	--	--	--	--	990	30	960	22
<b>Total</b>	<b>10,981,580</b>	<b>10,453,820</b>	<b>527,760</b>	<b>11,831</b>	<b>19,385,920</b>	<b>18,445,120</b>	<b>940,800</b>	<b>21,583</b>

Source: AMFI Updates

### Assets under Management

As on March 30, 2007, the MFs have managed assets of Rs. 3,263,880 million (US \$ 74,877 million). As shown in (Table 3-2), the share of private sector MFs in total assets rose to 80.33 % at end March 2007 from 78.29 % in March 2006. (Chart 3-1). During the year, the assets under management of the private sector MFs increased by Rs. 806,610 million (US \$ 18,504 million) amounting to an aggregate of Rs. 2,621,750 million (US \$ 60,146 million).

The open ended schemes and the close ended schemes as at end-March 2007 accounted for 66.61 % and 33.39 % of total assets under management of MFs, respectively (Table 3-4) and (Chart 3-1)

The income schemes accounted for 36.56 % of total assets under management as at end-March 2007, followed by growth schemes with 34.74 %. The liquid/money market schemes accounted for 22.06 % of assets under management of MFs as at end-March 2007. (Chart 3-1).

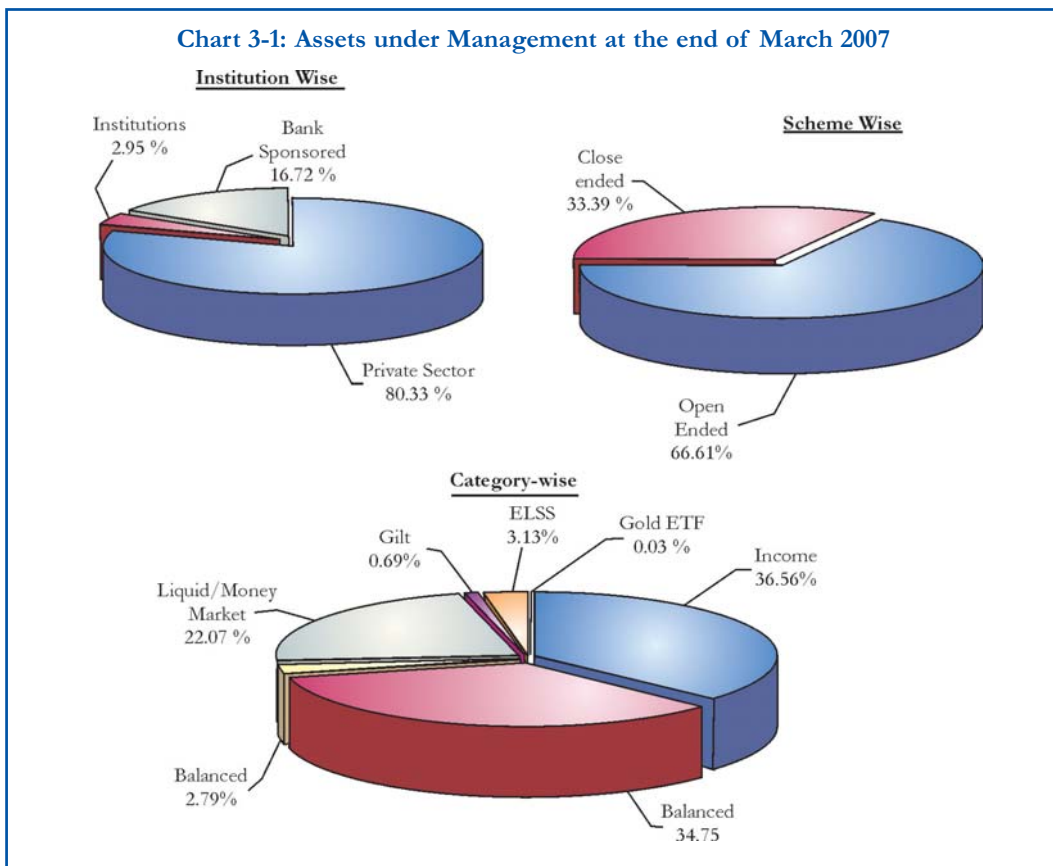




Table 3-4: Assets under Management as at end March, 2007

Scheme	Open Ended (Rs. Mn)	Close Ended (Rs. Mn)	Total (Rs. Mn)	Total (US \$ Mn)	% to total
Income	308,940	884,280	1,193,220	27,374	36.56
Growth	963,570	170,290	1,133,860	26,012	34.74
Balanced	74,090	17,010	91,100	2,090	2.79
Liquid/Money Market	720,060	--	720,060	16,519	22.06
Gilt	22,570	--	22,570	518	0.69
ELSS	83,980	18,130	102,110	2,343	3.13
Gold ETF	960	--	960	22	0.03
<b>Total</b>	<b>2,174,170</b>	<b>1,089,710</b>	<b>3,263,880</b>	<b>74,877</b>	<b>100.00</b>

Source: AMFI Updates.



### Index Funds

Index funds are those funds which track the performance of an index. This is usually carried out by either investing in the shares comprising the index or by buying a sample of shares making up the index or a derivative based on the likely performance of the index. The value of the fund is linked to the chosen index so that if the index raises so will the value of the fund. Conversely, if the index falls so will the value of the fund.



In the Indian context, the index funds attempt to copy the performance of the two main indices in the market viz., Nifty 50 or Sensex. This is done by investing in all the stocks that comprise the index in proportions equal to the weightage given to those stocks in the index. Unlike a typical MF, index funds do not actively trade stocks throughout the year. They may at times hold their stocks for the full year even if there are changes in the composition of index; this reduces transaction costs. Index funds are considered, particularly, appropriate for conservative long term investors looking at moderate risk, moderate return arising out of a well-diversified portfolio. Since index funds are passively managed, the bias of the fund managers in stock selection is reduced, yet providing returns at par with the index. As of September 2007 there were 37 Index funds in India. Returns of Index funds have been shown in (Table 3-5).

**Table 3-5: Performance of Index Funds**

Index Funds scheme wise	Benchmark Index	Returns		
		3 month	6 month	12 month
1 Birla Index Fund - Dividend	Nifty 50	-35.30	-29.65	-25.01
2 Birla Index Fund - Growth	Nifty 50	-5.88	2.33	9.07
3 Canindex - Dividend	Nifty 50	-3.57	-32.54	-28.57
4 Canindex - Growth	Nifty 50	-3.52	4.63	10.78
5 Franklin India Index Fund - NSE Nifty Plan - Dividend	Nifty 50	-3.43	6.89	13.20
6 Franklin India Index Fund - NSE Nifty Plan - Growth	Nifty 50	-3.43	6.89	13.20
7 HDFC Index Fund - Nifty Plan	Nifty 50	-3.06	6.18	10.98
8 ICICI Prudential Index Fund	Nifty 50	-3.29	6.45	13.81
9 ING Nifty Plus Fund - Bonus	Nifty 50	-2.60	7.31	14.63
10 ING Nifty Plus Fund - Dividend	Nifty 50	-2.58	7.32	14.60
11 ING Nifty Plus Fund - Growth	Nifty 50	-2.60	7.31	14.63
12 LIC MF Index Fund - Nifty Plan - Dividend	Nifty 50	-33.99	-28.98	-25.91
13 LIC MF Index Fund - Nifty Plan - Growth	Nifty 50	-5.20	1.99	6.40
14 PRINCIPAL Index Fund - Dividend	Nifty 50	-3.85	5.07	10.44
15 PRINCIPAL Index Fund - Growth	Nifty 50	-3.87	5.04	9.52
16 Reliance Index Fund - Nifty Plan - Bonus	Nifty 50	-3.74	3.18	7.20
17 Reliance Index Fund - Nifty Plan - Dividend	Nifty 50	-3.74	3.18	7.20
18 Reliance Index Fund - Nifty Plan - Growth	Nifty 50	-3.77	3.14	7.17
19 SBI Magnum Index Fund - Dividend	Nifty 50	-3.91	5.08	14.13
20 SBI Magnum Index Fund - Growth	Nifty 50	-3.96	5.03	14.30
21 Tata Index Fund - Nifty Plan - Option A	Nifty 50	-3.82	6.08	13.42
22 UTI Nifty Fund - Dividend	Nifty 50	-3.30	6.98	-30.63
23 UTI Nifty Fund - Growth	Nifty 50	-3.29	7.00	-30.62
24 Franklin India Index Fund - BSE Sensex Plan - Dividend	BSE Sensex	-5.41	4.38	13.76
25 Franklin India Index Fund - BSE Sensex Plan - Growth	BSE Sensex	-5.41	4.38	13.76
26 HDFC Index Fund - Sensex Plan	BSE Sensex	-5.69	3.58	14.86
27 HDFC Index Fund - Sensex Plus Plan	BSE Sensex	-4.68	5.91	14.60
28 LIC MF Index Fund - Sensex Advantage Plan - Div	BSE Sensex	-23.83	-15.62	-13.44
29 LIC MF Index Fund - Sensex Advantage Plan - Growth	BSE Sensex	-6.48	3.64	6.29
30 LIC MF Index Fund - Sensex Plan - Dividend	BSE Sensex	-21.25	-37.31	-28.85
31 LIC MF Index Fund - Sensex Plan - Growth	BSE Sensex	-6.25	2.10	15.86
32 Reliance Index Fund - Sensex Plan - Bonus	BSE Sensex	-4.60	4.39	12.84
33 Reliance Index Fund - Sensex Plan - Dividend	BSE Sensex	-4.60	4.39	12.84
34 Reliance Index Fund - Sensex Plan - Growth	BSE Sensex	-4.60	4.39	12.84
35 Tata Index Fund - Sensex Plan - Option A	BSE Sensex	-5.02	4.41	16.81
36 UTI Master Index Fund - Dividend	BSE Sensex	-5.15	4.82	89.94
37 UTI Master Index Fund - Growth	BSE Sensex	-5.15	4.82	89.93

\*Returns as calculated as on March end 2007

Source : ICRA Online and NSE



## Exchange Traded Funds

An Exchange Traded Fund (ETF) is a type of Investment Company whose investment objective is to achieve similar returns as in case of a particular market index. An ETF is similar to an index fund, but the ETFs can invest in either all of the securities or a representative sample of securities included in the index. Importantly, the ETFs offer a one-stop exposure to a diversified basket of securities that can be traded in real time like an individual stock. ETFs first came into existence in USA in 1993. Some of the popular ETFs are: SPDRs (Spiders) based on the S&P 500 Index, QQQs (Cubes) based on the Nasdaq-100 Index, iSHARES based on MSCI Indices, TRAHK (Tracks) based on the Hang Seng Index and DIAMONDS based on Dow Jones Industrial Average (DJIA).

Like index funds, ETFs are also passively managed funds wherein subscription/redemption of units implies exchange with underlying securities. These being exchange traded, units can be bought and sold directly on the exchange, hence, cost of distribution is much lower and the reach is wider. These savings are passed on to the investors in the form of lower costs. The structure of ETFs is such that it protects long-term investors from inflows and outflows of short-term investor. ETFs are highly flexible and can be used as a tool for gaining instant exposure to the equity markets.

The first ETF in India, based on Nifty 50, was the Nifty Benchmark Exchange Traded Scheme (Nifty BeES). This was launched by Benchmark Mutual Fund in December 2001. It is bought and sold like any other stock on NSE. Over the past three years, few more ETFs have been introduced, they are: Junior Nifty BeES based on CNX Nifty Junior, S&P CNX Nifty UTI Depository Receipts Schemes (SUNDER) based on Nifty 50, Bank BeES (Banking Index Benchmark Exchange Traded Scheme) tracking the CNX Bank Index. Further, the Benchmark Mutual Fund launched a money market ETF in India which is incidentally the only money market ETF in the world. It is known as the Liquid BeES (Liquid Benchmark Exchange Traded Scheme). Prudential ICICI Mutual Fund also launched an ETF based on the BSE Sensex, SPICE (Sensex Prudential ICICI Exchange Traded Fund), trading for which started on January 13, 2003. As of October 2007 there were 6 Exchange trade funds in India

### 1. Nifty BeES

Nifty BeES, the first ETF in India, was introduced by Benchmark, an Asset Management Company on January 8, 2002. Nifty BeES was introduced with an objective to provide investment returns that before expenses, closely correspond to the total returns of securities as represented by Nifty 50.

Nifty BeES trades on the Capital Market segment of NSE. Each Nifty BeES unit is 1/100th of the Nifty 50 Index. Nifty BeES units are traded and settled in dematerialised form like any other share in the rolling settlement. It is settled on T+2 basis.

### Advantages of Nifty BeES

- Nifty BeES is **Simple**: Nifty BeES can be bought / sold like a share through any NSE terminal at prices available on the screen. The underlying portfolio of Nifty BeES very closely replicates that of the Nifty 50. Hence, Nifty BeES tracks the movement of Nifty 50.



- Nifty BeES is **Economical**: Nifty BeES is a no load scheme. The annual expense ratio including management fees is a maximum of 0.80% of the Daily Average Net Assets, which is one of the lowest for any mutual fund scheme in India. The costs reduce further to 0.65%, for assets over Rs.500 crore.
- Nifty BeES is **Convenient**: As it is listed and traded on the NSE, Nifty BeES can be bought / sold throughout the trading day just by a call to your broker. This gives you the power to react swiftly to changes in the market. You can even place limit orders. Nifty BeES can be held in your DP account with other portfolio holdings.
- Nifty BeES is **Liquid**: The structure of Nifty BeES attracts liquidity from various sources such as buying / selling by investors, arbitrage with index futures, arbitrage by authorized participants with the underlying shares.
- Nifty BeES is **Neutral**: The performance of Nifty BeES is simply the result of performance of shares in the Nifty 50 Index and demand & supply in the market. There is no Fund manager bias.
- Nifty BeES is **Transparent**: As Nifty BeES replicates the Nifty 50, investors can know at any given point of time where and how much is invested in each stock.
- Nifty BeES gives Instant **Diversification**: Investing in just one unit gives exposure to fifty shares of the Nifty 50. This allows investors to spread risk with one single decision.
- Nifty BeES is an **Equitable Structure**: The unique "in-kind" mechanism of creating / redeeming Nifty BeES by exchanging a pre-defined portfolio ensures that long-term investors do not bear the cost of short term trading as observed in traditional Open-ended structure. This insulates long-term investors from short-term trading activity.

## 2. Junior Nifty BeES

The investment objective of Junior BeEs is to provide returns that, before expenses, closely correspond to the returns of securities as represented by CNX Nifty Junior Index. It is the first madcap index fund in India.

Junior BeES trades on the Capital Market segment of NSE. Each Junior BeES unit is 1/100th of the CNX Nifty Junior Index value. Junior BeES units are traded and settled in dematerialised form like any other share in the rolling settlement.

## 3. Liquid Benchmark Exchange Traded Scheme (Liquid BeES)

Liquid BeES (Liquid Benchmark Exchange Traded Scheme) is the first money market ETF (Exchange Traded Fund) in the world. It is a unique liquid fund that is listed and traded on the stock exchange just like a share. The investment objective of the Scheme is to provide money market returns. Liquid BeES will invest 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 - Capital Market Segment and is settled on a T+2 Rolling basis.

The Fund endeavors to provide daily returns to the investors, which would accrue in the form of daily dividend, which will be compulsorily reinvested in the Fund daily. The



units arising out of dividend reinvestment will be allotted and credited to the Demat account of the investors at the end of every month. Such units of Liquid BeES will be allotted and credited daily, upto 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. Bank BeES

Banking Index Benchmark Exchange Traded Scheme (Bank BeES) is an Open Ended Index Fund listed on the National Stock Exchange in the form of an Exchange Traded Fund (ETF) tracking the CNX Bank Index.

Bank BeES is designed to provide returns that closely correspond to the total returns of stocks as represented by the CNX Bank Index.

Unit of Bank BeES has a face value of Rs.10/- each and will be approximately equal to 1/10th of the value of the CNX Bank Index.

Bank BeES have benefits of index funds such as low cost and a transparent portfolio.

#### 5. S&P CNX NIFTY UTI Notional Depository Receipts Scheme (SUNDER)

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 Nifty 50 Index. SUNDER will have 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.

#### 6. Spice

SPICE is the country's first Exchange Traded Fund on Sensex. It is launched by Prudential ICICI Mutual Fund. The price of an ETF (SPICE in this case) is linked to the SENSEX, which will be approximately 1/100th of SENSEX. The scheme is listed on both The Bombay Stock Exchange (BSE) and The Delhi Stock Exchange (DSE). It was listed on BSE on January 13, 2003.

Advantages of SPICE:

- Instant exposure to a well-diversified portfolio of 30 quality stocks forming part of SENSEX.
- Real-time buying and selling of SPICE units throughout the trading hours just like any other equity share.
- Since once SPICE unit will trade at 1/100th of SENSEX, the minimum investment for a retail investor will be as low as Rs. 33 (3300/100).
- The price of each unit of SPICE would move in tandem with the SENSEX, making the whole process extremely transparent.
- No sales load for investor. Only normal brokerage charges apply.
- Low expense ratio.



## Gold Exchange Traded Fund

A gold exchange traded fund unit is like a mutual fund unit whose underlying asset is Gold and is held in demat form. It is typically an Exchange traded Mutual Fund unit which is listed and traded on a stock exchange.

Every gold ETF unit is representative of a definite quantum of pure gold and the traded price of the gold unit moves in tandem with the price of the actual gold metal. The underlying asset in case of a gold ETF is gold which is held by a mutual fund house issuing such units either in a physical form or through gold receipt giving right of ownership. Authorised participants can redeem the gold ETF units and can demand equivalent value of actual pure gold at any time. By means of a Gold ETF (GETF), investors can participate in the gold bullion market without taking any physical delivery of gold and buying and selling through trading of a security on a stock exchange. The GETF aims at providing returns which closely correspond to the returns provided by Gold.

Gold ETFs would provide various advantages like a transparent platform for traders, jewellery manufactures and provide them with hedging and arbitrage opportunities. GETFs would facilitate easy buying of standard quality gold in small units without the hassle of safekeeping of the precious metal and cost of insurance. Gold ETFs were introduced in India in 2006.

### Advantages of Gold ETFs :

- Transparency
- Affordable
- Highly Liquid
- Lower cost
- Low tracking error

### Significance of GETFs in India:

India is the world's biggest consumer of gold and consumes 700 to 800 tonnes on an annual basis. The major use of gold is for jewellery making.

## Gold ETFs in India

### 1. Gold BeES:

Gold BeES is a gold exchange traded fund introduced in India by Benchmark Asset Management Company. Gold BeES offers investors an innovative, cost-efficient and secure way to access the gold market. The investment objective of Gold Benchmark Exchange Traded Scheme (Gold BeES) is to provide returns that, before expenses, closely correspond to the returns provided by domestic price of gold through physical gold.

It is an open ended fund listed on the exchange in the form of an ETF which tracks domestic prices of gold through investments in physical gold. Each unit issued under the scheme will be approximately equal to price of 1 gram of Gold.



The units of Gold Benchmark Exchange Traded Scheme (GOLD BeES) ETF was listed on NSE on March 19, 2007.

## 2. UTI Gold ETF- Goldshare

UTI Mutual Fund launched the UTI Gold Exchange Traded Fund from March 1, 2007. The UTI Gold Exchange Traded fund is an open ended exchange traded fund to track the performance and yield of the underlying asset viz. gold. The objective of UTI Gold ETF is to endeavour to provide returns that, before expenses, closely track the performance and yield of gold.

Goldshare was listed on the NSE on April 17, 2007.

## 3. Kotak Gold ETF

Kotak Gold ETF is an open-ended fund which would invest in gold and endeavours to track its spot price. Each unit of ETF will be approximate to one gram of gold at the time of allotment.

The investment objective of the scheme is to generate returns that are in line with the returns on investment in physical gold. Kotak Gold was listed on NSE on August 8, 2007.

A comparative view of ETFs vis-à-vis other funds are presented in the table below:

Parameter	Open-Ended fund	Close-Ended fund	Exchange Traded Fund
<b>Fund Size</b>	Flexible	Fixed	Flexible
<b>NAV</b>	Daily	Daily	Real time
<b>Liquidity provider</b>	Fund itself	Stock Market	Stock Market/Fund itself
<b>Sale Price</b>	At NAV plus load if any	Significant Premium/ Discount to NAV	Very close to actual NAV of scheme
<b>Availability</b>	Fund itself	Through Exchange where listed	Through Exchange where listed/fund itself
<b>Portfolio Disclosures</b>	Monthly	Monthly	Daily/Real time
<b>Uses</b>	Equitising Cash	-	Equitising cash, hedging, Arbitrage
<b>Intra-day trading</b>	Not Possible	Expensive	Possible at low cost

## Collective Investment Schemes

A Collective Investment Scheme (CIS) is any scheme or arrangement made or offered by any company, which pools the contributions, or payments made by the investors, and deploys the same. Despite the similarity between the CIS and MF regarding the pooling of savings and issuing of securities, they differ in their investment objective. While MF invests exclusively in securities, CIS confine their investment to plantations and real estate. Any entity proposing to operate as a Collective Investment Management Company (CIMC) has to apply for registration with SEBI.

### *Guidelines under CIS Regulations*

The SEBI (CIS) Regulations specifically state that, without obtaining a certificate of registration from SEBI, no entity can carry on or sponsor or launch a CIS. The other regulations are as follows:

- i. CIS should be set up and registered as a public company registered under the provisions of the Companies Act, 1956 and the memorandum of association should specify management of CIS as one of its objectives.
- ii. The company at the time of registration as CIMC should have a minimum net worth of Rs. 5 crore (provided that at the time of making the application, the applicant should have a minimum net worth of Rs. 3 crore which should be increased to Rs. 5 crore within three years from the date of grant of registration).
- iii. The offer document should disclose adequate information to enable investors to take informed decisions. The offer document should also indicate the maximum and minimum amount expected to be raised. No scheme should be kept open for subscription for a period more than 90 days.
- iv. Each scheme has to obtain a rating from a recognized credit rating agency and the projects to be undertaken should be appraised by an appraising agency.
- v. CIMC should obtain adequate insurance policy for protection of the scheme's property.
- vi. Advertisements for each and every scheme have to conform to the SEBI's advertisement code.
- vii. The CIMC should issue to the applicant whose application has been accepted, unit certificates as soon as possible but not later than six weeks from the date of closure of the subscription list. (provided if the units are issued through a depository, a receipt in lieu of unit certificate will be issued as per provisions of SEBI (Depositories and Participants) Regulations, 1996 and bye laws of the depository.
- viii. The units of every scheme should be listed immediately after the date of allotment of units and not later than six weeks from the date of closure of the scheme on each of the stock exchanges as mentioned in the offer document.
- ix. A scheme should be wound up on the expiry of duration specified in the scheme or on the accomplishment of the purpose of the scheme. A scheme may also be wound up on the happening of any such event which in the opinion of the trustee. The scheme can also be wound up if unit holders of a scheme holding three-fourth of the nominal value of the unit capital pass a resolution to that effect or if in the opinion of the CIMC, the purpose of the scheme cannot be accomplished then through the approval of least three-fourth of the nominal value of the unit capital of the scheme. However, for winding up the schemes, SEBI approval has to be obtained. Further, if in SEBI's opinion the continuation of the scheme would be prejudicial to the interest of unit holders then the scheme can be wound up. When a scheme is to be wound up then the trustee should give notice disclosing the circumstances leading to such a decision in a daily newspaper having nationwide circulation and in the





newspaper published in the language of the region where the Collective Investment Management Company is registered.

The trustee should dispose of the assets of the scheme concerned in the best interest of the unit holders of that scheme. If the scheme is wound up because of happening of any event, which in opinion of the trustee requires the scheme to be wound up, then the proceeds realized should be utilized towards the discharge of such liabilities as are due and payable under the scheme and after making appropriate provision for meeting the expenses connected with such winding up, the balance should be paid to the unit holder in proportion to their unit holding.

After completion of winding up, the trustees have to forward to SEBI and the unit holders the report on steps taken for realization of assets of the scheme, expenses for winding up and net assets available for distribution to the unit holders and a certificate from the auditors of the scheme certifying that all the assets of the scheme have been realized and the details of the distribution of the proceeds.

The unclaimed money if any at the time of winding up should be kept separately in a bank account by the trustee for a period of three years for the purpose of meeting investors' claims and thereafter should be transferred to investor protection fund, as may be specified by SEBI.

- x. The CIMC on behalf of the scheme should before the expiry of one month from the close of each quarter that is 31st March, 30th June, 30th September and 31st December publish its unaudited financial results in one daily newspaper having nation wide circulation and in the regional newspaper of the region where the head office of the CIMC is situated. (provided that the quarterly unaudited report should contain details as specified in the regulations and such other details as are necessary for the purpose of providing a true and fair view of the operations of the scheme.

As on March 31, 2007, there were no CIS entity registered with SEBI.

## Venture Capital Funds

Venture Capital Fund (VCF) is a fund established in the form of a trust or a company including a body corporate having a dedicated pool of capital, raised in the specified manner and invested in Venture Capital Undertakings (VCUs). VCU is a domestic company whose shares is not listed on a stock exchange and is engaged in a business for providing services, production, or manufacture of article. A company or body corporate to carry on activities as a VCF has to obtain a certificate from SEBI and comply with the regulations prescribed in the SEBI (Venture Capital Regulations) 1996.

### *Regulations for VCFs*

The salient features of the SEBI (Venture Capital Regulations), 1996 are as follows:

- i. A venture capital fund may raise money from any investor whether Indian, Foreign or non-resident Indian by way of issue of units. No venture capital fund set up as a company or any scheme of a venture capital fund set up as a trust should accept any investment from any investor which is less than Rs. 0.5 million (5 lakh). However,



this does not apply for investors who are employees or the principal officer or directors of the venture capital fund or directors of the trustee company or trustees where the venture capital fund has been established as a trust and the employees of the fund manager or asset management company. Each scheme launched or set up by a venture capital fund should have firm commitment from the investors for contribution of an amount of at least Rupees fifty million or (Rs.5 crore) before the start of the operations by the VCF.

- ii. A VCF seeking to avail benefit under the relevant provisions of the Income Tax Act will be required to disinvest its holdings within a period of one year from the listing of the VCU.
- iii. The VCF is eligible to participate in the IPO through book building route as Qualified Institutional Buyer.
- iv. Automatic exemption is granted from open offer requirements in case of transfer of shares from VCFs in Foreign Venture Capital Investors (FVCIs) to promoters of a venture capital undertaking.

### *Investment Condition & Restrictions*

- i. The VCF has to disclose the investment strategy at the time of application for registration and should not have invested more than 25% corpus of the fund in any one VCU.
- ii. Venture Capital Fund may invest in securities of foreign companies subject to such conditions or guidelines that may be stipulated or issued by the Reserve Bank of India and SEBI from time to time.
- iii. A VCF, also, cannot invest in associated companies.
- iv. Venture capital fund should make investment as enumerated below.
  - i) At least 66.67 % of the investible funds should be invested in unlisted equity shares or equity linked instruments of venture capital undertakings.
  - ii) Not more than 33.33 % of the investible funds may be invested by way of
    - a) subscription to Initial Public Offer (IPO) of a VCU whose shares are proposed to be listed.
    - b) debt or debt instrument of a VCU in which the VCF has already made an investment by way of equity.
    - c) Preferential allotment of equity shares of a listed company subject to lock-in-period of one year.
    - d) The equity shares or equity linked instruments of a financially weak company or a sick industrial company whose shares are listed. For these regulations, a financially weak company or a sick industrial company means a company, which has at the end of the previous financial year accumulated losses, which has resulted in erosion of more than 50% but less than 100 % of its networth as at the beginning of the previous financial year.
    - e) Special Purpose Vehicles (SPVs) which are created by a venture capital fund for the purpose of facilitating or promoting investment in accordance with these Regulations.



The investment conditions and restrictions stipulated above should be achieved by the venture capital fund by the end of its life cycle.

- v. The venture capital fund should disclose the duration of life cycle of the fund.

***Prohibition on Listing :***

No venture capital fund is entitled to get its units listed on any recognized stock exchange till the expiry of three years from the date of the issuance of units by the venture capital fund.

As on March 31, 2007 the total count of VCFs and FVCIs stood at 90 and 78 respectively. All VCFs are now required to provide information pertaining to their venture capital activity for every quarter starting from the quarter ending December 2000.

## Secondary Market - Trading\*

### Introduction

After the securities are issued in the primary market, they are traded in the secondary market by the investors. The stock exchanges along with a host of other intermediaries provide the necessary platform for trading in secondary market and also for clearing and settlement. The securities are traded, cleared and settled within the regulatory framework prescribed by the Exchanges and the SEBI.

With the increased application of information technology, the trading platforms of stock exchanges are accessible from anywhere in the country through their trading terminals. The trading platforms are also accessible through internet. In a geographically widespread country like India, this has significantly expanded the reach of the exchanges.

### Policy Developments

Over the past years the Government and the market regulators have taken several policy measures to improve the operations of the stock exchanges and market intermediaries. The measures are aimed at improving the market infrastructure and upgradation of risk containment, so as to protect the interest of the investors. The recent policy developments (April 2006 - June 2007) pertaining to trading of securities are enumerated below.

### Initiatives from Government

#### *I. Union Budget 2007-2008*

In line with measures announced every year to strengthen the capital markets, the Union Budget 2007-08 proposed the following measures that have bearing on the functioning of the secondary market:

- PAN to be made the sole identification number for all participants in the securities market with alpha-numeric prefix or suffix to distinguish a particular kind of account.
- Idea of Self Regulating Organisations (SRO) to be taken forward for different market participants under regulations to be made by SEBI.
- Mutual Funds to be permitted to launch and operate dedicated infrastructure funds.
- Individuals to be permitted to invest in overseas securities through India mutual funds.

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\* This Chapter discusses the trading of equity shares while the trading of debt and derivative instrument is discussed in chapters 6 and 7 respectively.



- Short-selling settled by delivery and securities lending and borrowing to facilitate delivery, by institutions to be allowed.
- Enabling mechanism to permit Indian companies to unlock a part of their holdings in group companies for meeting their financing requirements by issue of exchangeable bonds.

Direct Taxes:

Rate of dividend distribution tax to be raised from 12.5 per cent to 15 per cent on dividends distributed by companies; and to 25 per cent on dividends paid by money market mutual funds and liquid mutual funds to all investors.

## Initiatives from SEBI

### I. PAN for Securities Trading

PAN has been made mandatory for transacting in the Futures and Options market as well as for operating a Beneficiary Owner (BO) Account in the Depository system. To further, strengthen the Know Your Client (KYC) norms in the cash market with a view to facilitate sound audit trail, PAN has been mandatory for all the entities/persons who are desirous of transacting in the cash market.

In the Union Budget for the year 2007-08, it was proposed that PAN be made the sole identification number for all participants in the securities market with an alpha-numeric prefix or suffix to distinguish a particular kind of account. In pursuant to the proposal and to strengthen the Know Your Client (KYC) norms, it was decided to make PAN the sole identification number for all participants transacting in the securities market, irrespective of the amount of transaction. This would ensure sound audit trail of all the transactions. Further, for this purpose the intermediaries were required to adhere to the following :-

- All necessary systems had to be put in place so that all the individual databases of their clients and clients' transactions could get linked to the PAN details of the client with which detailed analysis could be made.
- Ensure building the necessary infrastructure for enabling accessibility and query based on PAN thereby enabling retrieval of all the details of the clients that is available, including the transactions done by them.
- Copies of PAN cards which were issued to the existing as well new clients by the Income Tax Department would have to be collected and maintained in their record after verifying with the original.
- The aforesaid details would be required to be cross-checked with the details on the website of the Income Tax Department i.e. <http://incometaxindiaefiling.gov.in/challan/enterpanforchallan.jsp>.

### *Clarifications pertaining to mandatory requirement of PAN for operating Beneficiary Owner (BO) Account in the depository system.*

Custodians would have to verify the PAN details of the institutional clients with the original PAN card and provide copy of such verified PAN details to the brokers duly certified. This

would be applicable in respect of institutional clients, namely, FIIs, MFs, VCFs, FVCIs, Scheduled Commercial Banks, Multilateral and Bilateral Development Financial Institutions, State Industrial Development Corporations, Insurance Companies registered with IRDA and Public Financial Institution as defined under section 4A of the Companies Act, 1956.

Further, for those NRIs/PIOs who were not able to obtain PAN for one reason or the other but were holding securities in physical form and desired to sell the same, SEBI permitted them to open a "limited purpose BO account" without PAN, subject to certain conditions specified therein. The same was also extended for trading in cash market for such NRIs/PIOs. The CBDT as advised by SEBI would also address the concerns of NRIs in this regard.

The Directorate of Income Tax (Systems) issued guidelines to its service providers (M/s UTITSL & NSDL) facilitating the citizens of India residing outside India, foreign citizens and other persons (like companies/trusts/firms) having no office of their own in India, to obtain PAN based on the copy of their passport as ID proof and copy of passport/copy of bank account in the country of residence as address proof. Through this provision, NRIs/PIOs/foreign national were enabled by the Income Tax Department to obtain PAN. After the above facility was given, the facility of opening a limited purpose BO account/trading account by them without PAN was withdrawn. However, the NRIs/PIOs who had already opened such BO accounts/trading accounts without PAN were required to comply with the mandatory requirement of PAN on or before December 31, 2006, failing which, such accounts were to be made inoperable by the Depository/Depository Participant/Broker.

## *II. Standing Committee- Computerised Trading System*

SEBI, provides for setting up a Standing Committee to investigate the problems of computerized trading system, such as, hanging/slowdown/breakdown. In order to bring uniformity in implementation/compliance, with this provision all the exchanges would have to ensure the following :

1. All instances of hanging/slowdown/breakdown and any other problem in the computerized trading system, even if the disruption is less than five minutes, should be reported to the Committee for its consideration.
2. The committee, upon examination of the issue/s should submit a report to the Governing Board/Council of the Stock Exchanges.
3. The Governing Board/Council of the Stock Exchanges should deliberate on the aforesaid report and take suitable action/remedial measure.
4. Further, in case of stoppage beyond five minutes the exchange would have to explain and report to SEBI about the incident as well as the remedial measure taken. The Stock Exchange would also have to issue a press release in this regard for greater transparency and in the interest of investors.
5. The Stock Exchanges were advised to make necessary amendments to the relevant bye-laws, rules and regulations, and to bring about the provisions of the "Standing Committee- Computerised Trading System" to the notice of the member brokers clearing members and disseminate the same on the website, and communicate to SEBI the status of the same.



### *III. Exclusive e-mail ID for redressal of Investor Complaints.*

SEBI received representations from various investors requesting for a direct and quicker forum for enabling them to register their complaints expeditiously with the intermediaries/listed companies/stock exchanges. It was observed in several cases that pursuant to registering a complaint, the investors did not have any mode for a follow-up or monitoring the processing of their complaints.

In order to address the aforesaid representations, it was felt desirable to designate an exclusive e-mail ID of the grievance redressal division / compliance officer in which the investors would be able to register their complaints and also take necessary follow-up actions as necessary. Such a process would not only expedite the redressal of the complaints of the investors but also enable several investors across the country to register their complaints through a single, centralized, exclusive e-mail ID that is designated for the purpose.

Accordingly, all the stock exchanges/registered brokers/registered sub- brokers/listed companies/depositories/registered depository participants/ all registered Merchant Bankers, registered Registrars to an Issue/ Share Transfer Agents, registered Debenture Trustees, registered Bankers to Issue and registered Underwriters were advised to designate an e-mail ID of the grievance redressal division/compliance officer exclusively for the purpose of registering complaints by investors. The above entities were also advised to display the email ID and other relevant details prominently on their websites and in the various materials/ pamphlets/advertisement campaigns initiated by them for creating investor awareness.

### *IV. Short selling and securities lending and borrowing*

Pursuant to the recommendations of the Secondary Market Advisory Committee (SMAC) of SEBI and the decision of the SEBI Board, it has been decided to permit all classes of investors to short sell.

In order to provide a mechanism for borrowing of securities to enable settlement of securities sold short, it has also been decided to put in place a full-fledged securities lending and borrowing (SLB) scheme for all market participants in the Indian securities market under the over-all framework of "Securities Lending Scheme, 1997" of SEBI specified by SEBI vide circular No. SMD/POLICY/SL/CIR-09/97 dated May 07, 1997 (available on SEBI website [www.sebi.gov.in](http://www.sebi.gov.in)) .

The broad framework for Short Selling and Securities Lending and Borrowing is enumerated below:

#### **Broad framework for short selling:**

- 1) "Short selling" is defined as selling a stock which the seller does not own at the time of trade.
- 2) All classes of investors, viz., retail and institutional investors, would be permitted to short sell.
- 3) Naked short selling would not be permitted in the Indian securities market and accordingly, all investors would be required to mandatorily honour their obligation of delivering the securities at the time of settlement.

- 4) No institutional investor would be allowed to do day trading i.e., square-off their transactions intra-day. In other words, all transactions would be grossed for institutional investors at the custodians' level and the institutions would be required to fulfill their obligations on a gross basis. The custodians, however, would continue to settle their deliveries on a net basis with the stock exchanges.
- 5) The stock exchanges would frame necessary uniform deterrent provisions and take appropriate action against the brokers for failure to deliver securities at the time of settlement which would act as a sufficient deterrent against failure to deliver.
- 6) A scheme for Securities Lending and Borrowing (SLB) would be put in place to provide the necessary impetus to short sell. The introduction of a full fledged securities lending and borrowing scheme would be simultaneous with the introduction of short selling by institutional investors.
- 7) The securities traded in F&O segment would be eligible for short selling. SEBI may review the list of stocks that are eligible for short selling transactions from time to time.
- 8) The institutional investors would disclose upfront at the time of placement of order whether the transaction is a short sale. However, retail investors would be permitted to make a similar disclosure by the end of the trading hours on the transaction day.
- 9) The brokers would be mandated to collect the details on scrip-wise short sell positions, collate the data and upload it to the stock exchanges before the commencement of trading on the following trading day. The stock exchanges would then consolidate such information and disseminate the same on their websites for the information of the public on a weekly basis. The frequency of such disclosure may be reviewed from time to time with the approval of SEBI.

#### **Broad framework for securities lending and borrowing**

- 1) The stock exchanges would put in place, a full fledged securities lending and borrowing (SLB) scheme, within the overall framework of "Securities Lending Scheme, 1997" (the scheme), that is open for all market participants in the Indian securities market.
- 2) To begin with, the SLB would be operated through Clearing Corporation/Clearing House of stock exchanges having nation-wide terminals who will be registered as Approved Intermediaries (AIs) under the SLS, 1997.
- 3) The SLB would take place on an automated, screen based, order-matching platform which will be provided by the AIs. This platform would be independent of the other trading platforms.
- 4) To begin with, the securities traded in F&O segment would be eligible for lending & borrowing under the scheme.
- 5) All categories of investors including retail, institutional etc. will be permitted to borrow and lend securities. The borrowers and lenders would access the platform for lending/borrowing set up by the AIs through the clearing members (CMs) (including banks and custodians) who are authorized by the AIs in this regard.





- 6) The AIs, CMs and the clients would have to enter into an agreement (which may have one or more parts) specifying the rights, responsibilities and obligations of the parties to the agreement. The agreement should include the basic conditions for lending and borrowing of securities as prescribed under the scheme. In addition to that, AIs may also include suitable conditions in the agreement to have proper execution, risk management and settlement of lending and borrowing transactions with clearing member and client. Given the nature of the client base, while the major responsibility of ensuring compliance with "Know Your Client" (KYC) norms in respect of the clients rests with CMs, the exact role of AIs/CMs vis-à-vis the clients in this regard needs to be elaborated in the aforesaid agreement between the AI/CMs/clients. In this regard, there would be one master agreement with two individual parts to the same. The first part of the agreement would be between the AIs and the CMs and the second part of the agreement would be between the CMs and the clients. There would be adequate cross referencing between the two parts of the agreement so that all the concerned parties, viz., the AIs/CMs and the clients agree completely and are aware of all the provisions governing the SLB transactions between them. However, there should be no direct agreement between the lender and the borrower. The CM will attach a certified copy of the first part of the agreement signed with the AI in the second part of the agreement signed with each client. The model agreements in this regard would be devised by the stock exchanges.
- 7) The AIs would allot a unique ID to each client which would be mapped to the Permanent Account Number (PAN) of the respective clients. The AIs should put in place appropriate systemic safeguards to ensure that a client is not able to obtain multiple client IDs.
- 8) The tenure of lending/borrowing would be fixed as standardised contracts. To start with, contracts with tenure of 7 trading days may be introduced.
- 9) The settlement cycle for SLB transactions would be on T+1 basis. The settlement of lending and borrowing transactions would be independent of normal market settlement.
- 10) The settlement of the lending and borrowing transactions should be done on a gross basis at the level of the clients i.e. no netting of transactions at any level will be permitted.
- 11) AIs would frame suitable risk management systems to guarantee delivery of securities to borrower and return of securities to the lender. In the case of lender failing to deliver securities to the AI or borrower failing to return securities to the AI, the AI would conduct an auction for obtaining securities. In the event of exceptional circumstances resulting in non-availability of securities in auction, such transactions would be financially closed-out at appropriate rates, which may be more than the rates applicable for the normal close-out of transactions, so as to act as a sufficient deterrent against failure to deliver securities.
- 12) Position limits at the level of market, CM and client would be decided from time to time by AIs in consultation with SEBI. To begin with (a) the market-wide position limits for SLB transactions would be 10% of the free-float capital of the company in terms of number of shares (b) No clearing member should have open position of more than 10% of the market-wide position limits or Rs. 50 crore (base value), whichever is lower (c) For a FII/MF, the position limits should be the same as of a clearing member (d) The



- client level position limits should be not more than 1% of the market-wide position limits.
- 13) There would be no lending/borrowing activity during the periods of corporate action in the security and would be disclosed by AI to the market.
  - 14) Any borrowing/lending and return of securities would not amount to purchase/disposal/transfer of the same for the purpose of compliance with the extant FDI/FII limits and the norms regarding acquisition of shares/disclosure requirements specified under the various Regulations of SEBI.
  - 15) Adequate systems would be put in place by the stock exchanges/Depositories to distinguish the SLB transactions from the normal market transactions in the demat system.
  - 16) AIs should provide suitable arbitration mechanism for settling the disputes arising out of the SLB transactions executed on the platform provided by them.
  - 17) AIs should disseminate in public domain, the details of SLB transactions executed on the platform provided by them and the outstanding positions on a weekly basis. The frequency of such disclosure may be reviewed from time to time with the approval of SEBI.

## Initiatives from RBI

### *I. Banks' exposure to Capital Markets - Rationalization of Norms*

The prudential capital market exposure norms prescribed for banks were rationalized in terms of base and coverage so as to:

- Restrict a bank's aggregate capital market exposure to 40 per cent of its net worth on a solo and consolidated basis
- Modify a consolidated bank's direct capital market exposure to 20 per cent of its consolidated net worth.
- Simplify and rationalize the exemptions in regard to the coverage.

The modification carried out to the existing guidelines on banks' exposure to capital markets are as given below :

#### *Components of Capital Market Exposure (CME)*

Banks' capital market exposures includes both their direct exposures and indirect exposures. The aggregate exposure (both fund and non-fund based) of banks to capital markets in all forms would include the following:

- Direct investment in equity shares, convertible bonds, convertible debentures and units of equity-oriented mutual funds the corpus of which is not exclusively invested in corporate debt;
- Advances against shares/bonds/debentures or other securities or on clean basis to individuals for investment in shares (including IPOs/ESOPs), convertible bonds, convertible debentures, and units of equity-oriented mutual funds;



- Advances for any other purposes where shares or convertible bonds or convertible debentures or units of equity oriented mutual funds are taken as primary security;
- Advances for any other purposes to the extent secured by the collateral security of shares or convertible bonds or convertible debentures or units of equity oriented mutual funds i.e. where the primary security other than shares/convertible bonds/convertible debentures/units of equity oriented mutual funds does not fully cover the advances;
- Secured and unsecured advances to stockbrokers and guarantees issued on behalf of stockbrokers and market makers;
- Loans sanctioned to corporates against the security of shares / bonds/ debentures or other securities or on clean basis for meeting promoter's contribution to the equity of new companies in anticipation of raising resources;
- Bridge loans to companies against expected equity flows/issues;
- Underwriting commitments taken up by the banks in respect of primary issue of shares or convertible bonds or convertible debentures or units of equity oriented mutual funds;
- Financing to stockbrokers for margin trading;
- All exposures to Venture Capital Funds (both registered and unregistered) as mentioned.

### *The Limits on banks' exposure to Capital Markets*

#### **Solo Basis**

The aggregate exposure of a bank to the capital markets in all forms (both fund based and non-fund based) should not exceed 40 per cent of its net worth as on March 31 of the previous year. Within this overall ceiling, the bank's direct investment in shares, convertible bonds / debentures, units of equity-oriented mutual funds and all exposures to Venture Capital Funds (VCFs) [both registered and unregistered] should not exceed 20 per cent of its net worth.

#### **Consolidated Basis**

The aggregate exposure of a consolidated bank to capital markets (both fund based and non-fund based) should not exceed 40 per cent of its consolidated net worth as on March 31 of the previous year. Within this overall ceiling, the aggregate direct exposure by way of the consolidated bank's investment in shares, convertible bonds / debentures, units of equity-oriented mutual funds and all exposures to Venture Capital Funds (VCFs) [both registered and unregistered] should not exceed 20 per cent of its consolidated net worth.

The Limits solo Basis and Consolidated basis are the maximum permissible and a bank's Board of Directors is free to adopt a lower ceiling for the bank, keeping in view its overall risk profile and corporate strategy.

#### *Definition of Net Worth*

Net worth would comprise of Paid-up capital plus Free Reserves including Share Premium but excluding Revaluation Reserves, plus Investment Fluctuation Reserve and credit balance in Profit & Loss account, less debit balance in Profit and Loss account, Accumulated Losses

and Intangible Assets. No general or specific provisions should be included in computation of net worth. Infusion of capital through equity shares, either through domestic issues or overseas floats after the published balance sheet date, may also be taken into account for determining the ceiling on exposure to capital market. Banks should obtain an external auditor's certificate on completion of the augmentation of capital and submit the same to the Reserve Bank of India (Department of Banking Supervision) before reckoning the additions, as stated above.

### *Items excluded from Capital Market Exposure*

The exclusions from the aggregate exposure ceiling of 40 per cent of networth and direct investment exposure ceiling of 20 per cent of networth (wherever applicable) is as follows:

- Banks' investments in own subsidiaries, joint ventures, sponsored Regional Rural Banks (RRBs) and investments in shares and convertible debentures, convertible bonds issued by institutions forming crucial financial infrastructure such as National Securities Depository Ltd. (NSDL), Central Depository Services (India) Ltd. (CDSL), National Securities Clearing Corporation Ltd. (NSCCL), National Stock Exchange (NSE), Clearing Corporation of India Ltd., (CCIL), Credit Information Bureau of India Ltd. (CIBIL), Multi Commodity Exchange Ltd. (MCX), National Commodity and Derivatives Exchange Ltd. (NCDEX), National Multi-Commodity Exchange of India Ltd. (NMCEIL), National Collateral Management Services Ltd. (NCMSL) and other All India Financial Institutions (as given below). After listing, the exposures in excess of the original investment (i.e. prior to listing) would form part of the Capital Market Exposure.

### *List of All-India Financial Institutions*

1. *Industrial Finance Corporation of India Ltd. (IFCI)*
  2. *Tourism Finance Corporation of India Ltd. (TFCI)*
  3. *Risk Capital and Technology Finance Corporation Ltd. (RCTC)*
  4. *Technology Development and Information Company of India Ltd. (TDICI)*
  5. *National Housing Bank (NHB)*
  6. *Small Industries Development Bank of India (SIDBI)*
  7. *National Bank for Agriculture and Rural Development (NABARD)*
  8. *Export Import Bank of India (EXIM Bank)*
  9. *Industrial Investment Bank of India (IIBI)*
  10. *State Bank of India Discount and Finance House of India Ltd. (SBIDFHI)*
  11. *Unit Trust of India (UTI)*
  12. *Life Insurance Corporation of India (LIC)*
  13. *General Insurance Corporation of India (GIC)*
  14. *Securities Trading Corporation of India Ltd. (STCI)*
- Tier I and Tier II debt instruments issued by other banks;
  - Investment in Certificate of Deposits (CDs) of other banks;
  - Preference Shares;



- Non-convertible debentures and non-convertible bonds;
- Units of Mutual Funds under schemes where the corpus is invested exclusively in debt instruments;
- Shares acquired by banks as a result of conversion of debt/overdue interest into equity under Corporate Debt Restructuring (CDR) mechanism;
- Term loans sanctioned to Indian promoters for acquisition of equity in overseas joint ventures / wholly owned subsidiaries under the refinance scheme of Export Import Bank of India (EXIM Bank).

### *Computation of exposure*

For computing the exposure to the capital markets, loans/advances sanctioned and guarantees issued for capital market operations should be reckoned with reference to sanctioned limits or outstanding, whichever is higher. However, in the case of fully drawn term loans, where there is no scope for re-drawal of any portion of the sanctioned limit; banks may reckon the outstanding as the exposure. Further, banks' direct investment in shares, convertible bonds, convertible debentures and units of equity oriented mutual funds should be calculated at their cost price.

### *Loans and advances against shares*

#### **Ceiling on loans/advances against shares & debentures etc. to individuals**

Loans against security of shares, convertible bonds, convertible debentures and units of equity oriented mutual funds to individuals from the banking system should not exceed the following limits :

- Limit of Rs.10 lakh per individual if the securities are held in physical form and Rs. 20 lakh per individual if the securities are held in demat form.
- Loans/advances to any individual from the banking system against security of shares, convertible bonds, convertible debentures, units of equity oriented mutual funds and PSU bonds should not exceed the limit of Rs.10 lakh for subscribing to IPOs.
- Banks may extend finance to employees for purchasing shares of their own companies under ESOP to the extent of 90% of the purchase price of the shares or Rs. 20 lakh, whichever is lower.

These instructions, however, would not be applicable to banks' extending financial assistance to their own employees for acquisition of shares under ESOPs/ IPOs. Banks would have to, therefore, not extend advances including to their employees/ Employee Trusts set up by them for the purpose of purchasing their (banks') own shares under ESOP/ IPO or from the secondary market. This prohibition would be applicable irrespective of whether the advances are unsecured or secured. Banks should obtain a declaration from the borrower indicating the details of the loans / advances availed against shares and other securities specified above, from any other bank/s in order to ensure compliance with the ceilings prescribed for the purpose.



### *Advances against Shares to Stockbrokers and Market Makers*

Banks are free to provide credit facilities to stockbrokers and market makers on the basis of their commercial judgment, within the policy framework approved by their Boards. However, in order to avoid any nexus emerging between inter-connected stock broking entities and banks, the Board of each bank should fix, within the overall ceiling of 40 percent of their net worth as on March 31 of the previous year, a sub-ceiling for total advances to

- Stockbrokers and market makers (both fund based and non-fund based, i.e. guarantees) and
- To any single stock broking entity, including its associates/ inter-connected companies. Further, banks should not extend credit facilities directly or indirectly to stockbrokers for arbitrage operations in Stock Exchanges.

### *Bank financing to individuals against shares to joint holders or third party beneficiaries*

While granting advances against shares held in joint names to joint holders or third party beneficiaries, banks should be circumspect and ensure that the objective of the regulation is not defeated by granting advances to other joint holders or third party beneficiaries to circumvent the above limits placed on loans/advances against shares and other securities specified above.

### *Margins on advances against shares/issue of guarantees*

A uniform margin of 50 per cent would be applied on all advances/financing of IPOs/issue of guarantees for capital market operations. A minimum cash margin of 25 per cent (within the margin of 50%) would have to be maintained in respect of guarantees issued by banks for capital market operations.

### *Investments in Venture Capital Funds (VCFs)*

The Banks exposures to VCFs (both registered and unregistered) would be deemed to be on par with equity and hence will be reckoned for compliance with the capital market exposure ceilings (both direct and indirect).

### *Intra-day Exposures*

At present, there are no explicit guidelines for monitoring banks' intra-day exposure to the capital markets, which are inherently risky. It has been decided that the Board of each bank should evolve a policy for fixing intra-day limits and put in place an appropriate system to monitor such limits, on an ongoing basis. The position will be reviewed after a year.

### *Enhancement in limits*

Banks having sound internal controls and robust risk management systems can approach the Reserve Bank for higher limits together with details thereof.

### *Transitional provisions*

Such banks whose exposure to capital market on solo and/or consolidated basis is in excess



of the ceilings as prescribed are required to approach RBI with a plan for adhering to the exposure ceilings prescribed.

## ***II. Issue of American Depository Receipts (ADRs)/Global Depository Receipts (GDRs) - Depository Agreement***

In the recent past, some banks have raised funds through issue of American Depository/Global Depository Receipts. Under such a mechanism, banks issue shares to the depositories who in turn issue ADRs/GDRs to the ultimate investors. Banks generally enter into an agreement with the depository to the effect that the depository would not exercise voting rights in respect of the shares held by them or they would exercise voting rights as directed by the Board of Directors of the bank.

The matter relating to exercise of voting rights by the depositories has been examined by RBI from the angle of corporate governance. In this context, banks are advised to furnish to Reserve Bank a copy each of the Depository Agreements entered into by them with the depositories. Further, to eliminate possibility of any interference of the depositories in the management of the bank, banks should give an undertaking to Reserve Bank that (i) they would not give cognizance to voting by the depository, should the depository vote in contravention of its agreement with the bank; (ii) no change would be made in terms of the Depository Agreement without prior approval of RBI.

## **Market Design<sup>†</sup>**

At the end of March 2007, there were 22 *stock exchanges* registered with SEBI having a total of 9,444 registered brokers and 27,541 registered sub-broker trading on them (Annexure 4-1).

## **Stock Exchanges**

The stock exchanges need to be recognized under the Securities Contracts (Regulation) Act, 1956. There are 22 stock exchanges in India. The Securities and Exchange Board of India (SEBI), has approved and notified the Corporatisation and Demutualisation Scheme of 19 Stock Exchanges.

BSE has successfully completed the process of Demutualisation in terms of The BSE (Corporatisation and Demutualisation) Scheme, 2005. The Bombay Stock Exchange Limited has succeeded 'The Stock Exchange, Mumbai' in accordance with the Scheme and the SCRA and has ensured compliance with the requirements of section 4B(8) of the SCRA on May 16, 2007 and completed its corporatisation and demutualisation by this date. The Securities and Exchange Board of India (SEBI) had approved and published the Scheme of 'The Stock Exchange, Mumbai' vide notification No. S.O. 684(E), dated 20-5-2005.

NSE since inception has adopted a demutualised structure and its model of demutualization compares well with the international models of demutualised stock exchanges as seen from (Table 4-1).

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<sup>†</sup> While an attempt has been made to present market design for the entire Indian Securities Market, the trading mechanism and such other exchange - specific elements have been explained on the model adopted by NSE. The market developments have been explained, mostly for the two largest stock exchanges, viz NSE and BSE. Wherever data permits, an all-India picture has been presented.

**Table 4-1: Comparison of the NSE Model and the International Models of Demutualised Stock Exchanges**

Comparators	International Model	NSE Model
Legal Structure	Company	Company
For Profit / Not for Profit	For Profit Company	For Profit Company
Ownership Structure	Owned by Shareholders which includes brokers	Owned by Shareholders which are financial institutions which also have broking firms as subsidiaries.
Listing	Several stock exchanges are listed on themselves after Initial Public Offer.	Not a listed company. No Initial Public Offer made.
Ceilings on shareholding	Mostly 5% of voting rights for a single shareholder	No ceiling
Segregation of ownership, trading rights and management	These are segregated. To become a member of the demutualised stock exchange, it is not necessary to own a share in the company. Thus, members may or may not be shareholders and members who own shares may sell off their trading rights and all shareholders are not necessarily members.	These are segregated. The trading rights and ownership are segregated. The broking firms are not shareholders.
Board Structure	The Governing Board comprises of directors who are elected by shareholders. Some of the directors are brokers but majority do not have stock broking background.	The Board comprises of representatives of shareholders, academics, chartered accountants, legal experts etc. Of these, 3 directors are nominated by SEBI and 3 directors are public representatives approved by SEBI.
Fiscal benefits	As mutual entities, stock exchanges enjoyed fiscal benefits prior to demutualisation, but when converted into for profit companies these are taxed.	NSE was set up as a demutualised for profit company and is taxed. So the question of fiscal benefit prior to demutualisation does not arise.
Transfer of assets	Assets were transferred from the mutual entity to the for-profit demutualised company and shares were given to the members in lieu of the ownership in the old entity. There was no cash consideration paid. Since an Initial Public Offer (IPO) was also made in many cases, the valuation of the shares were done by the market and no separate valuation exercise was required as for example in the case of LSE where a bonus issue was made.	The question of transfer of assets did not arise because NSE was set up by the institutions as a demutualised company itself.
Enactment of legislation to give effect to demutualisation	In several countries a separate legislation was necessary as in the case of Australia, Hong Kong, Toronto and Singapore. In several others no legislation was necessary as in the case of UK.	Not applicable as NSE was set up as a demutualised company.

*Source:* Report of the SEBI Group on Corporatisation and Demutualisation of Stock Exchanges.





## Membership

The trading platform of a stock exchange is accessible only to trading members. They play a significant role in the secondary market by bringing together the buyers and the sellers. The brokers give buy/sell orders either on their own account or on behalf of clients. As these buy and sell order matches, the trades are executed. The exchange can admit a broker as its member only on the basis of the terms specified in the Securities Contracts (Regulation) Act, 1956, the SEBI Act 1992, the rules, circulars, notifications, guidelines, and the byelaws, rules and regulations of the concerned exchange. No stock broker or sub-broker is allowed to buy, sell or deal in securities, unless he or she holds a certificate of registration from the SEBI.

The stock exchanges, however are free to stipulate stricter requirements than those stipulated by the SEBI. The minimum standards stipulated by NSE are in excess of those laid down by the SEBI. The NSE admits members based on factors such as, corporate structure, capital adequacy, track record, education, and experience (Table 4-2). This reflects a conscious decision of NSE to ensure quality broking services.

The authorities have been encouraging corporatisation of the broking industry. As a result, a number of brokers-proprietor firms and partnership firms have converted themselves into corporates. As at end-March 2007, there were 9,443 brokers (including multiple registrations) registered with SEBI as compared to 9,335 brokers as at end-March 2006. As of end March 2007, 4,110 brokers, accounting for nearly 43.52 % of total brokers have become corporate entities. Amongst those registered with NSE around 91.74 % of them were corporatised, followed by BSE with 80.13 % corporate brokers.

**Table 4-2: Eligibility Criteria for Trading Membership on CM Segment of NSE**

(Amount in Rs. lakh)

Particulars	CM Segment	CM and F&O Trading
Constitution	Individuals/Firms/Corporates	Individuals/Firms/Corporates
Paid-up capital (in case of corporates)	30	30
Net Worth	100	100 *
Interest Free Security Deposit (IFSD)	100	125**
Collateral Security Deposit (CSD)	25	25**
Annual Subscription	1	1
Education	Individual trading member/ two partners/two directors should be graduates. Dealers should also have passed SEBI approved certification test for Capital Market Module of NCFM.	Individual trading member/ two partners/two directors should be graduates. Dealers should also have passed SEBI approved certification test for Derivatives and Capital Market Module of NCFM.
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.	

\* Networth of Rs. 100 lakh is required for self-clearing members in the F&O segment and a network of Rs. 300 lakh is required for members clearing for self as well as for other trading members.

\*\* Additional Rs. 25 lakh is required for clearing membership (self-clearing member/members clearing for self as well as for others) in 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.



As at end-March 2007, there were 27,541 sub-brokers registered with SEBI, as compared with 23,479 sub-brokers as at end of previous year. NSE and BSE together constituted 95.15% of the total sub-brokers. During 2006-07, 263 new brokers were registered with SEBI, whereas 155 were membership cases of reconciliation/cancellation/surrender

## Listing of Securities

Listing means formal admission of a security to the trading platform of a stock exchange. Listing of securities on the domestic stock exchanges is governed by the provisions in the Companies Act, 1956, the Securities Contracts (Regulation) Act, 1956 (SC(R)A), the Securities Contracts (Regulation) Rules (SC(R)R), 1957, the circulars/guidelines issued by Central Government and SEBI. In addition, they are governed by the rules, bye-laws and regulations of the concerned stock exchange and by the listing agreement entered into by the issuer and the stock exchange. Some of the key provisions are enumerated below:

- 1) The Companies Act, 1956 requires a company intending to issue securities to the public should seek permission from one or more recognised stock exchanges for its listing. If the permission is not granted by all the stock exchanges before the expiry of 10 weeks from the closure of the issue, then the allotment of securities would be void. Also, a company may prefer to appeal against refusal of a stock exchange to list its securities to the Securities Appellate Tribunal (SAT). The prospectus should state the names of the stock exchanges, where the securities are proposed to be listed.
- 2) The byelaws of the exchanges stipulates norms for the listing of securities. All listed companies are under obligation to comply with the conditions of listing agreement with the stock exchange where their securities are listed.
- 3) According to the Securities Contract Regulation Act 1956, for any security to be listed on any recognized stock exchange, it has to fulfill the eligibility criteria and comply with the regulations made by SEBI.
- 4) The Securities Contract (Regulation) Act, 1956 prescribe requirements with respect to the listing of securities on a recognised stock exchange and empowers SEBI to waive or relax the strict enforcement of any or all of requirements with respect to listing prescribed by these rules.
- 5) The listing agreement states that the issuer should agree to adhere to the agreement of listing, except for a written permission from SEBI. As a precondition for the security to remain listed, an issuer should comply with the conditions as may be prescribed by the Exchange. Further, the securities are listed on the Exchange at its discretion, as the Exchange has the right to suspend or remove from the list the said securities at any time and for any reason, which it considers appropriate.
- 6) As per SEBI provision, the basic norms of listing on the stock exchanges should be uniform across the exchanges. However, the stock exchanges can prescribe additional norms over and above the minimum, which should be part of their byelaws. SEBI has been issuing guidelines/circulars prescribing certain norms to be included in the listing agreement and to be complied by the companies. The listing requirements for companies in the CM segment of NSE are presented in ( Table 4-3).



Table 4-3: Listing Criteria for Companies on CM Segment of NSE

Criteria	Initial Public Offerings (IPOs)	Companies listed on other exchanges
<b>Paid-up Equity Capital (PUEC)/ Market Capitalisation (MC)</b>	PUEC $\geq$ Rs. 10 cr. and MC $\geq$ Rs. 25 cr.	PUEC $\geq$ Rs. 10 cr. and MC $\geq$ Rs. 25 cr. OR PUEC $\geq$ Rs. 25 cr. OR MC $\geq$ Rs. 50 cr.
<b>Company/Promoter's Track Record</b>	3 years of existence of applicant/ promoting company.	3 years of existence of applicant/promoting company.
<b>Dividend Record or Net worth</b>	--	Dividend paid for at least 2 out of the last 3 years OR Net worth Rs. 50 cr.
<b>Project Appraisal/Listing</b>	Project appraisal by specified agencies	Listed on any other stock exchange for at least last three years OR Project appraisal by specified agencies
<b>Other Requirements</b>	(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:**

- 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.
- Dividend track record/net worth/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:**

- Paid up Equity Capital means post issue paid up equity capital.
- 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.
- 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.



- 7) The stock exchanges levy listing fees on the companies, whose securities are listed with them. The listing fee has two components-initial fee and annual fee. While, initial fee is a fixed amount, the annual fee varies depending upon the size of the company. NSE charges Rs.7,500 as initial fees. For companies with a paid-up share and/or debenture capital of less than or equal to Rs.1 crore, annual listing fees is Rs. 4,200. For companies, with a paid up capital of above Rs.1 crore and upto Rs.5 crore, the annual listing fees is Rs.8,400. For companies with the paid up share and/or debenture capital of above Rs.5 crore and upto Rs.10 crore, the annual listing fees is Rs.14,000. For companies with a paid up share and/or debenture capital of Rs.10 crore and upto Rs.20 crore, the annual listing fees is Rs 28,000. For companies, with paid up share and/or debenture capital above Rs.20 crore and Rs.50 crore, the annual listing fees is Rs.42,000. For companies with a paid-up share and/or debenture capital of more than Rs.50 crore, the annual listing fees is Rs. 70,000 plus Rs.1,400 for every additional Rs.5 crore or part thereof in the paid up share/debenture capital.

#### Listing Fees

Sr. No.	PARTICULARS	AMOUNT (Rs.)
1	Initial Listing Fees	7,500
2	Annual Listing Fees	
	a) Companies with paid up Share and /or debenture capital of Rs. 1 Crore	4,200
	b) Above Rs. 1 Crore and upto Rs.5 Crores	8,400
	c) Above Rs. 5 Crore and upto Rs.10 Crores	14,000
	d) Above Rs. 10 Crore and upto Rs.20 Crores	28,000
	e) Above Rs. 20 Crore and upto Rs.50 Crores	42,000
	f) Above Rs. 50 Crores *	70,000

\* For companies with a paid-up share and/or debenture capital of more than Rs.50 crore, the annual listing fees is Rs.70,000 plus Rs. 1,400 for every additional Rs. 5 crore or part thereof in the paid up share/debenture capital.

A number of requirements, under the SC(R)R, the byelaws, the listing agreement have to be continuously complied with by the issuers to ensure continuous listing of its securities. The listing agreement also stipulates the disclosures that have to be made by the companies. In addition, the corporate governance practices enumerated in the agreement have to be followed. The Exchange is required to monitor the compliance with requirements. In case a company fails to comply with the requirements, then trading of its security would be suspended for a specified period, or withdrawal/delisting, in addition to penalty as prescribed in the SC(R)A.

### Trading Mechanism

NSE was the first stock exchange in the country set up as a national exchange having nationwide access with fully automated screen based trading system. Today, NSE has become the largest exchange in India with approximately 67% of the trading volumes on it. It is one of



the very few exchanges in the world to also have adopted anonymous order matching system. The member punches in the NEAT system, the details of his order such as the quantities and prices of securities at which he desires to transact. The transaction is executed as soon as it finds a matching sale or buy order from a counter party. All the orders are electronically matched on a price/time priority basis. This has resulted in a considerable reduction in time spent, cost and risk of error, as well as frauds, resulting in improved operational efficiency. It allows for faster incorporation of price sensitive information into prevailing prices, as the market participants can see the full market on real time basis. This increases informational efficiency and makes the market more transparent. Further, the system 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. A single consolidated order book for each stock displays, on a real time basis, buy and sell orders originating from all over the country. The book stores only limit orders, which are orders to buy or sell shares at a stated quantity and stated price and are executed only if the price quantity conditions match. Thus, the NEAT system provides an Open Electronic Consolidated Limit Order Book (OECLOB), which ensures full anonymity by accepting orders, big or small, from members without revealing their identity. The NEAT System also provides equal access to all the investors. A perfect audit trail, which helps to resolve disputes by logging in the trade execution process in entirety, is also provided.

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 .

SEBI has allowed the use of internet as an order routing system for communicating investors' orders to the exchanges through the registered brokers. These brokers should obtain the permission from their respective stock exchanges. In February 2000, NSE became the first exchange in the country to provide web-based access to investors to trade directly on the Exchange followed by BSE in March 2001. The orders originating from the PCs of investors are routed through the internet to the trading terminals of the designated brokers with whom they have relations and further to the exchange. After these orders are matched, the transaction is executed and the investors get the confirmation directly on their PCs.

At the end of March 2007, 74 members on the CM segment were permitted to allow investor's web based access to NSE's trading system. The members of the exchange in turn had registered 2,248,711 clients for web based access as on March 31, 2007. In the Capital market segment about 1,203 lakh trades for Rs. 2,328,569 million, constituting 11.97% of total trading volume, were routed and executed through internet.

## Trading Regulations

### *Insider Trading*

Insider Trading is considered as an offence and is hence prohibited as per the SEBI (Prohibition of Insider Trading) Regulations, 1992. The same was amended in the year 2003. The act prohibits an insider from dealing (on his behalf or on behalf of any other person) in securities of a company listed on any stock exchange, when in possession of any unpublished price sensitive information. Further, it has also prohibited any insider from communicating, counseling or procuring directly or indirectly any unpublished price sensitive information to



any person who while in possession of such unpublished price sensitive information should not deal in securities. Price sensitive information means any information which is related directly or indirectly to a company and which if published is likely to materially affect the price of securities of a company. It includes information like periodical financial results of the company, intended declaration of dividends (both interim and final), issue of securities or buy-back of securities, any major expansion plans or execution of new projects, amalgamation, merger or takeovers, disposal of the whole or substantial part of the undertaking and significant changes in policies, plans or operations of the company. SEBI is empowered to investigate on the basis of any complaint received from the investors, intermediaries or any other person on any matter having a bearing on the allegations of insider trading. SEBI can also investigate suo motu upon its own knowledge or information in its possession to protect the interest of investors in securities against breach of these regulations. If a person is found prima facie guilty of insider trading, then SEBI may prosecute persons in an appropriate court or pass any of the order like:

- a) Directing the insider not to deal in securities in any particular manner.
- b) Prohibiting the insider from disposing of any of the securities acquired in violation of the Insider trading regulations
- c) Directing the person who acquired the securities in violation of these regulations to deliver the securities back to the seller. If the buyer, is not in a position to deliver such securities, the market price prevailing at the time of the issuing of such directions or at the time of transactions whichever is higher should be paid to the seller.
- d) Directing the person who has dealt in securities in violation of these regulations to transfer an amount or proceeds equivalent to the cost price or market price of securities, which ever is higher to the investor protection fund of a recognized stock exchange.

In order to strengthen insider trading regulations, SEBI has mandated a code of conduct for listed companies and organizations associated with securities markets including intermediaries, asset management companies, recognized stock exchanges, clearing houses or corporations, public financial institutions and professional firms such as auditors, accountancy firms, law firms, analysts, consultants. The insider trading regulations require initial and continuous disclosure of shareholding by directors, officers and major shareholders (holding more than 5 % shares or voting rights in any listed company).

### *Unfair Trade Practices*

The SEBI (Prohibition of Fraudulent and Unfair Trade Practices relating to the Securities Market) Regulations 2003 enable SEBI to investigate into cases of market manipulation and fraudulent and unfair trade practices. The regulations specifically prohibit fraudulent dealings, market manipulations, misleading statements to induce sale or purchase of securities, unfair trade practices relating to securities. When SEBI has reasonable ground to believe that the transaction in securities are being dealt within a manner detrimental to the investor or the securities market in violation of these regulations and when any intermediary has violated the rules and regulations under the act then it can order to investigate the affairs of such intermediary or persons associated with the securities market. Based on the report of the



investigating officer, SEBI can initiate action for suspension or cancellation of registration of an intermediary.

The regulations prohibit certain dealings in securities like:

- Buying or selling or otherwise dealing in securities in fraudulent manner.
- Using or employing, in connection with issue, purchase or sale of any security listed or proposed to be listed in a recognized stock exchange, any manipulative or deceptive device or contrivance in contravention of the provisions of the SEBI Act, 1992 or the rules and regulations made thereunder.
- Employ any device, scheme or artifice to defraud in connection with dealing in or issue of securities which are listed or proposed to be listed on a recognized stock exchange.
- Engage in any act, practice, course of business which operates or would operate as fraud or deceit upon any person in connection with any dealing or issue of securities which are listed on a recognized stock exchange.
- Engage in any act, practice, course of business which operates or would operate as fraud or deceit upon any person in connection with any dealing in or issue of securities which are proposed to be listed on a recognized stock exchange in contravention of the provision of SEBI Act 1992 or the rules and the regulations made thereunder.

Unfair trade practices also prohibits manipulative, fraudulent and unfair trade practices. Following activities are considered as fraudulent or an unfair trade practices.

- Indulging in an act which creates false or misleading appearance of trading in the securities market.
- Dealing in a security not intended to effect transfer of beneficial ownership but intended to operate only as a device to inflate, depress or cause fluctuations in the price of such security for wrongful gain or avoidance of loss.
- Advancing or agreeing to advance any money to any person thereby inducing any other person to offer to buy any security in any issue only with the intention of securing the minimum subscription to such issue.
- Paying, offering or agreeing to pay or offer, directly or indirectly, to any person any money or money's worth for inducing such person for dealing in any security with the object of inflating, depressing, maintaining or causing fluctuation in the price of such security.
- Any act or omission amounting to manipulation of the price of a security.
- Publishing or causing to publish or reporting or causing to report by a person dealing in securities any information which is not true or which he does not believe to be true prior to or in the course of dealing in security.
- Entering into a transaction in a securities without intention of performing it or without intention of change of ownership of such security.
- Selling, dealing or pledging of stolen or counterfeit security whether in physical or dematerialized form.



- Any intermediary promising a certain price in respect of buying or selling of a security to a client and waiting till a discrepancy arises in the price of such security and retaining the difference in prices as profits for himself.
- An intermediary providing his clients with such information relating to a security which cannot be verified by the clients before their dealing in such security.
- An advertisement that is misleading or that contains information in a distorted manner and which may influence the decision of the investors.
- An intermediary reporting trading transactions to his clients entered on his behalf including taking an option position.
- Circular transactions in respect of a security entered into between intermediaries in order to increase commission to provide a false appearance of trading in such security or to inflate, depress or cause fluctuations in the price of such security.
- Encouraging the clients by an intermediary to deal in securities solely with object of enhancing his brokerage or commission.
- An advertisement that is misleading or that contains information in a distorted manner and which may influence the decision of the investors.
- An intermediary predating or otherwise falsifying records such as contract note.
- An intermediary buying or selling securities in advance of a substantial client order or whereby a futures or option position is taken about an impending transaction in the same or related futures or options contract.
- Planting false or misleading news which may induce sale or purchase of securities.

### *Takeovers*

The restructuring of companies through takeover is governed by SEBI (Substantial Acquisition of shares and Takeover) Regulations, 1997. These regulations were formulated so that the process of acquisition and takeovers is carried out in a well-defined and orderly manner following the fairness and transparency.

The SEBI (Substantial Acquisition of shares and Takeover) Regulations, 1997 defines an 'acquirer' as a person who directly or indirectly acquires or agrees to acquire shares or voting rights in the target company or acquires or agrees to acquires 'control' over the target company, either by himself or with any person acting in concert with the acquirer.

In context of this regulation, the term 'control' includes right to appoint majority of the directors or to control the management or policy decisions exercisable by any person or persons acting individually or in concert, directly or indirectly, including by virtue of their shareholding or management rights or shareholders agreements or voting agreements or in any other manner. This implies that where there are two or more persons in control over the target company, the cesser of any one of such persons from such control should not be deemed to be in control of management.

In terms of Chapter II 'Disclosures of shareholding and control in a listed company' of the SEBI (Substantial Acquisition of Shares and Takeovers) Regulations, 1997 certain categories of persons are required to disclose their shareholding and/or control in a listed company to





that company. Such companies, in turn, are required to disclose such details to the stock exchanges where shares of the company are listed. In case of acquisition of 5 percent and more share or voting rights of a company, an acquirer would have to disclose at every stage the aggregate of his shareholding or voting rights in that company to the company and to the stock exchange where shares of the target company are listed.

No acquirer either by himself or through/with persons acting in concert with him should acquire, additional shares or voting rights unless such acquirer makes a public announcement to acquire shares in accordance with the regulations. As per the regulations, the mandatory public offer is triggered on:

- 1) Limit of 15 percent or more but less than 55 percent of the shares or voting rights in a company.
- 2) Limit of 55 percent or more but less than 75 percent of the shares. In a case where the target company had obtained listing of its shares by making an offer of at least ten percent of issue size to the public in terms of the relevant clause mentioned in the Securities Contracts (Regulations) Rules 1957 or in terms of any relaxation granted from strict enforcement of the said rule, then the limit would be 90 percent instead of 75 percent. Further, if the acquirer (holding 55 % more but less than 75 percent) is desirous of consolidating his holding while ensuring that the public shareholding in the target company does not fall below the minimum level permitted in the listing agreement, he may do so only by making a public announcement in accordance with these regulations.

Irrespective of whether or not there has been any acquisition of shares or voting rights in a company, no acquirer should acquire control over the target company, unless such person makes a public announcement to acquire shares and acquires such shares in accordance with the regulations.

The regulations give enough scope for existing shareholders to consolidate and also cover the scenario of indirect acquisition of control. The applications for takeovers are scrutinised by the Takeover Panel constituted by the SEBI.

### ***Buy Back***

Buy Back is done by the company with the purpose to improve liquidity in its shares and enhance the shareholders' wealth. Under the SEBI (Buy Back of Securities) Regulations, 1998, a company is permitted to buy back its shares or other specified securities by any of the following methods:-

- a) From the existing security holders on a proportionate basis through the tender offer
- b) From the open market through (i) book building process (ii) stock exchange
- c) From odd-lot holders.

The company has to disclose the pre and post-buy back holding of the promoters. To ensure completion of the buy back process speedily, the regulations have stipulated time limit for each step. For example in the cases of purchases through tender offer an offer for buy back should not remain open for more than 30 days. The company should complete the verifications of the offers received within 15 days of the closure of the offer and shares or other specified securities. The payment 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. Further, the company making an offer

for buy back will have to open an escrow account on the same lines as provided in takeover regulations.

### *Circuit Breakers*

Volatility in stock prices is a cause of concern for both the policy makers and the investors. To curb excessive volatility, SEBI has prescribed a system of circuit breakers. The circuit breakers bring about a nation-wide coordinated halt in trading on all the equity and equity derivatives markets. An index based market-wide circuit breaker system applies at three stages of the index movement either way at 10%, 15% and 20%. The breakers are triggered by movement of either Nifty 50 or Sensex, whichever is breached earlier (discussed in details in chapter 5).

Further, the NSE views entries of non-genuine orders with utmost seriousness as this has market-wide repercussion. It 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. As an additional measure of safety, individual scrip-wise price bands has been fixed as below:

- Daily price bands of 2% (either way) on a set of specified securities,
- Daily price bands of 5% (either way) on a set of specified securities,
- Price bands of 20% (either way) on all remaining securities (including debentures, warrants, preference shares etc which are traded on CM segment of NSE),
- Daily price bands of 10% (either way) on specified securities,
- No price bands are applicable on scrips on which derivative products are available or on scrips included in indices on which derivatives products are available.

For auction market the price bands of 20% are applicable. In order to prevent members from entering orders at non-genuine prices in these securities, the Exchange has fixed operating range of 20% for such securities.

### **Demat Trading**

A depository holds securities in dematerialized form. It maintains ownership records of securities in a book entry form, and also effects transfer of ownership through book entry. Though, the investors have a right to hold securities in either physical or demat form, SEBI has made it compulsory that trading in securities should be only 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 are required to mandatorily trade in dematerialized form. The companies, which fail to establish connectivity with both the depositories on the scheduled date as announced by SEBI, then their securities are traded on the 'trade for trade' settlement window of the exchanges.

At the end of March 2007, the number of companies connected to NSDL and CDSL were 6,483 and 5,589 respectively. The number of dematerialised securities have increased from 201.9 billion at the end of March 2006 to 233.9 billion at the end of March 2007. During the same period the value of dematerialised securities has increased by 26.59 % from Rs. 27,147 billion (US \$ 609 billion) to Rs.34,365 billion (US \$ 788 billion). Since the introduction of the depository system, dematerialisation has progressed at a fast pace and has gained acceptance amongst the market participants. All actively traded scrips are held, traded and



settled in demat form. The details of progress in dematerialisation in two depositories, viz. NSDL and CDSL, are presented in (Table 4-4A).

**Table 4-4A: Progress of Dematerialisation: NSDL & CDSL**

Parameters of Progress	NSDL		CDSL	
	March-06	March-07	March-06	March-07
Companies - Agreement signed	6,022	6,483	5,479	5,589
Companies - Available for Demat	6,022	6,483	5,479	5,589
Market Cap. of Companies available (Rs.bn.)	30,051	35,988	29,527	33,894
Number of Depository Participants	223	240	315	365
Number of DP Locations	3,017	5,599	2,577	4,178
No. of Investor Accounts	75,60,299	7,903,389	1,861,288	2,368,101
Demat Quantity (Mn.)	174,722	202,701	27,220	31,250
Demat Value (Rs. bn.)	24,789	31,426	2,358	2,939

Source: NSDL & CDSL.

## Charges for Services

As per SEBI Regulations, every stockbroker, on the basis of his total turnover, is required to pay annual turnover charges, which are to be collected by the stock exchanges. In order to share the benefits of efficiency, NSE has been reducing the transaction charges over a period of time.

The maximum brokerage chargeable by trading member in respect of trades effected in the securities admitted to dealing on the CM segment of the Exchange is fixed at 2.5% of the contract price, exclusive of statutory levies like, securities transaction tax, SEBI turnover fee, service tax and stamp duty. However, the brokerage charges as low as 0.15% are also observed in the market.

A member is required to pay the exchange transaction charges at the rate of 0.0035% (Rs. 3.5 per Rs. 1 lakh) of the turnover. Trading members are also required to pay securities transaction tax (STT) on all delivery based transaction at the rate of 0.125% (payable by both buyer and seller) and in case of non-delivery transactions at the rate of 0.025% for equities payable by the seller only).

Stamp duties are payable as per the rates prescribed by the relevant states. In Maharashtra, for brokers having registered office in Maharashtra, it is charged at @ Re. 1 for every Rs. 10,000 or part thereof (i.e. 0.01%) of the value of security at the time of purchase/sale as the case may be. However, if the securities are not delivered, it is levied at @ 20 paise for every Rs. 10,000 or part thereof (i. e. 0.002%).

The Depositories in India provide depository services to investors through Depository Participants (DPs). The Depositories do not charge the investors directly, but charge their DPs who in turn charge the clients. DPs are free to have their own charge structure for their clients. However, as per SEBI directive, DPs cannot charge investors towards opening of a Beneficiary Owner (BO) account (except statutory charges), credit of securities into BO account and custody charges. It may be added that the depositories have been reducing its charges



along with the growth in volumes. The charges levied on DPs by NSDL and CDSL are presented in (Table 4-4 B).

**Table 4-4B: Service Charges levied by the Depositories end of March 2007**

Depositories Services	NSDL	CDSL
Dematerialisation	Nil	Nil
Rematerialisation	Rs.10 for every hundred securities or part thereof or a flat fee of Rs.10 per certificate whichever ever is higher	A fee of Rs.10 for every 100 securities or part thereof; or a Flat fee of Rs.10 per certificate, whichever is higher. (However, no fee shall be collected in case of government securities where rematerialisation is used for transfer to other SGL participant account and units of UTI and other mutual funds where rematerialisation is used for redemption / repurchase.)
Custody	Nil	Nil
Settlement	Rs. 6 per debit instruction	Rs. 500 per month on Clearing Members' settlement related accounts. Rs. 6 per transaction is levied on Beneficial Owner accounts only for debit transactions. Rs. 6 per transaction is levied on Clearing Member account
Pledge Creation	Rs.25 per instruction	Rs. 12 per request (only Pledgor)
Pledge Closure	Nil	Rs. 12 per request (only Pledgor)
Pledge Invocation	Nil	Nil
Securities Borrowing	Facility not currently used	Facility not currently used

Source: NSDL & CDSL.

## Institutional Trades

Trades by Mutual Funds and Foreign Institutional Investors are termed as Institutional trades. Transactions by MFs in the secondary market are governed by SEBI (Mutual Funds) Regulations, 1996. A MF under all its schemes is not allowed to own more than 10% of any company's paid-up capital. They are allowed to do only 'delivery-based' transactions. A MF cannot invest more than 10% of the NAV of a particular scheme in the equity shares or equity related instruments of a single company.

The investment by FIIs are governed by the rules and regulations of the RBI and the SEBI. As per the RBI guidelines, total holding of all the FIIs/sub-accounts put together should not exceed 24 % of the paid up capital or paid up value of each series of convertible debentures. This limit of 24 % can be increased to the sectoral cap / statutory limit as applicable to the Indian Company concerned, by passing a resolution of its Board of Directors followed by a special resolution to that effect by its General Body.



## Index Services

A stock index consists of a set of stocks that are representative of either the whole market, or a specified sector. It helps to measure the change in overall behaviour of the markets or sector over a period of time. NSE and CRISIL, have jointly promoted the India Index Services & Products Limited (IISL). The IISL provides stock index services by developing and maintaining an array of indices for stock prices. IISL maintains a number of equity indices comprising broad-based benchmark indices, sectoral indices and customised indices.

### *Various Indices Of NSE:*

The most popular index is the Nifty 50, followed by the CNX Nifty Junior, CNX 100, S&P CNX 500, Nifty Midcap 50, CNX Midcap, S&P CNX Defty, S&P CNX Industry indices (for 72 industries) and CNX IT. These indices are monitored and updated dynamically and are reviewed regularly. These are maintained professionally to ensure that it continues to be a consistent benchmark of the equity markets, which involves inclusion and exclusion of stocks in the index, day-to-day tracking and giving effect to corporate actions on individual stocks.

**Method of Computation:** The indices are computed using market capitalization weighted method, wherein the level of the index reflects the total market value of all the stocks in the index relative to a particular base period. The method also takes into account constituent changes in the index and importantly corporate actions such as stock splits, rights, etc without affecting the index value.

### 1. Nifty 50

Nifty 50 is the blue chip index of National Stock Exchange of India Ltd. It consists of well diversified 50 stock index accounting for 22 sectors of the economy. The index is composed of top 50 liquid stocks in India. It is used for a variety of purposes such as benchmarking fund portfolios, index based derivatives and index funds. It accounted for 56.70 % of total market capitalisation of CM segment of NSE as at end-March 2007. The total traded value of all Nifty 50 stocks is approximately 50.53 % of the traded value of all the stocks on the NSE during 2006-07. Nifty 50 was introduced considering the fact that it would not only be used for reflecting the stock market behavior accurately, but also for modern applications such as index funds and index derivatives. It has become the most popular and widely used stock market indicator in the country. The base period selected for Nifty 50 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 and a base capital of Rs.2.06 trillion.

### 2. CNX Nifty Junior

The next rung of liquid securities after Nifty 50 is the CNX Nifty Junior. As with the Nifty 50, stocks in the CNX Nifty Junior are filtered for liquidity, so they are the most liquid of the stocks excluded from the Nifty 50. The maintenance of the Nifty 50 and the CNX Nifty Junior are synchronised so that the two indices will always be disjoint sets; i.e. a stock will never appear in both indices at the same time. CNX Nifty Junior accounted for 9.60 % of the

market capitalization of CM segment of NSE as at end March 2007. CNX Nifty Junior was introduced on January 1, 1997, with base date and base value being November 03, 1996 and 1000 respectively and a base capital of Rs.0.43 trillion.

### **3. CNX 100**

CNX 100 is a diversified 100 stock index accounting for 35 sector of the economy. This index is a combination of the Nifty 50 and CNX Nifty Junior. Any changes i.e. inclusion and exclusion of securities in Nifty 50 and CNX Nifty Junior would be automatically mirrored in this new index. The CNX 100 Index has a base date of January 1, 2003 and a base value of 1000.

### **4. S&P CNX 500**

The S&P CNX 500 is India's first broad-based benchmark of the Indian capital market for comparing portfolio returns vis-a-vis market returns. The S&P CNX 500 represents about 90.30% of total market capitalization and about 80.02% of the total turnover on the NSE as on March 30, 2007.

The S&P CNX 500 companies are disaggregated into 72 industry indices viz. S&P CNX Industry Indices. Industry weightages in the index reflect the industry weightages in the market. For e.g. if the banking sector has a 5% weightage in the universe of stocks traded on NSE, banking stocks in the index would also have an approx. representation of 5% in the index. The calendar year 1994 has been selected as the base year for S&P CNX 500. The base value of the index is set at 1000.

### **5. Nifty Midcap 50**

The medium capitalized segment of the stock market is being increasingly perceived as an attractive investment segment with high growth potential. The primary objective of the Nifty Midcap 50 Index is to capture the movement of the midcap segment of the market. The Nifty Midcap 50 Index has a base date of Jan 1, 2004 and a base value of 1000.

### **6. CNX Midcap**

The medium capitalised segment of the stock market is being increasingly perceived as an attractive investment segment with high growth potential. The primary objective of the CNX Midcap Index is to capture the movement and be a benchmark of the midcap segment of the market. The CNX Midcap Index has a base date of Jan 1, 2003 and a base value of 1000.

### **7. S&P CNX Defty**

Almost every institutional investor and off-shore fund enterprise with an equity exposure in India would like to have an instrument for measuring returns on their equity investment in dollar terms. To facilitate this, a new index the S&P CNX Defty -Dollar Denominated Nifty 50 has been developed. S&P CNX Defty is Nifty 50, measured in dollars.



## Salient Features

- Performance indicator to foreign institutional investors, off shore funds, etc.
- Provides an effective tool for hedging Indian equity exposure.
- Impact cost of the Nifty 50 for a portfolio size of Rs.5 million is 0.07%
- Provides fund managers an instrument for measuring returns on their equity investment in dollar terms.

## Calculation of S&P CNX Defty

Computations are done using the Nifty 50 index calculated on the NEAT trading system of NSE and USD Rupee exchange rate that is based on the real time polled data feed which is as follows:

(S&P CNX Nifty at time t \* Exchange rate as on base date/Exchange rate at time t)

## Specifications of S&P CNX Defty:

Base date: 03 November 1995

Base S&P CNX Defty Index Value: 1000

Nifty 50 Value as on Base date: 1000

Exchange rate as on base date: 34.65

Adjustment factor as on Base date:1.00

S.No.	Name of the Index	Base date of the Index	Base Value of the Index
1	Nifty 50	November 3, 1995	1000
2	CNX Nifty Junior	November 3, 1996	1000
3	CNX 100	January 1, 2003	1000
4	S&P CNX 500	1994	1000
5	Nifty Midcap 50	January 1, 2004	1000
6	CNX Midcap	January 1, 2003	1000
7	S&P CNX Defty	November 3, 1995	1000

## BSE Indices

### 1. SENSEX:

SENSEX is the blue chip index of the Bombay Stock Exchange (BSE). SENSEX was first compiled in 1986 and was calculated on a "Market Capitalization-Weighted" methodology of 30 component stocks representing a sample of large, well-established and financially sound companies. SENSEX is a basket of 30 constituent stocks representing a sample of large, liquid and representative companies SENSEX is not only scientifically designed but also based on globally accepted construction and review methodology. From September 2003, the SENSEX is calculated on a free-float market capitalization methodology. The "free-float Market

Capitalization-Weighted" methodology is a widely followed index construction methodology on which majority of global equity benchmarks are based. The base year of SENSEX is 1978-79 and the base value is 100.

## **2. BSE-100 INDEX**

The BSE National Index was launched on January 3, 1989. It comprises of 100 stocks listed at five major stock exchanges in India at Mumbai, Calcutta, Delhi, Ahmedabad and Madras. The criteria for selection had been market activity, due representation to various industry groups and representation of trading activity on major stock exchanges. The BSE National Index was renamed as BSE-100 Index from October 14, 1996 and since then it is calculated taking into consideration only the prices of stocks listed at BSE. BSE also calculates a dollar-linked version of BSE-100 Index. The base period for BSE-100 is 1983-84 with a base value of 100.

## **3. BSE-200 INDEX**

BSE 200 Index was constructed and launched on 27th May 1994. Equity shares of 200 selected companies from the specified and non-specified lists of BSE have been considered for inclusion in the sample for 'BSE-200'. The selection of companies has primarily been done on the basis of current market capitalisation of the listed scrips on the exchange. Besides market capitalisation, the market activity of the companies as reflected by the volumes of turnover and certain fundamental factors were considered for the final selection of the 200 companies. BSE also calculates a dollar-linked version of BSE-200 Index. The base period for BSE-200 index is 1989-90 with a base value of 100.

## **4. BSE-500 INDEX**

The BSE-500 Index, consists of 500 scrips in its basket was launched on August 9, 1999. The changing pattern of the economy and that of the market have been kept in mind while constructing this index. BSE-500 index represents nearly 93% of the total market capitalisation on Bombay Stock Exchange Limited. This means BSE-500 index ideally represents total market. This index represents all 20 major industries of the economy.

The base period for BSE-500 is February 1, 1999 with a base value of 1000.

## **5. BSE Mid-Cap and BSE Small-Cap Index**

BSE introduced 'BSE Mid-Cap' index and 'BSE Small-Cap' index to track the performance of the companies with relatively small market capitalization that would exclusively represent the mid and small cap companies listed on the Bombay Stock Exchange. This index was constructed to capture the trend in the specific class of companies (with lower market capitalisation). Scrips that are classified as Z group, scrips traded under the permitted category and scrips with the trading frequency of less than 60 % days in preceding three months are not considered for inclusion in these indices. (BSE Mid cap tracks the performance of scrips between 80 and 95 % scrips (95-100%)). Number of companies in each of these indices is variable. The base period for BSE Midcap and BSE Small-cap Indices is 2002-03 and the base index value is 1000.





## Dollex Series of BSE Indices

All BSE indices reflect the growth in market value of constituent stocks over the base period in rupee terms, a need was felt to design a yardstick by which these growth values are measured in dollar terms. Such an index would reflect, in one value, the changes in both the stock prices and the foreign exchange variation. This is facilitated by the introduction of a dollar-linked index in which the formula for calculation of index is suitably modified to express the current and base market values in dollar terms. The scope for dollar-linked index emerged from the background of Indian equity markets increasingly getting integrated with global capital markets and the need to assess the market movements in terms of international benchmarks. This dollar-linked index is useful to overseas investors, as it helps them measure their 'real returns' after providing for exchange rate fluctuations.

BSE presently calculates dollar-linked version of SENSEX and BSE-200. These dollar linked indices i.e. Dollex-30 was launched on July 25, 2001 and Dollex-200 on May 27, 1994. These indices are calculated at the end of the trading session by taking into consideration day's rupee/ US\$ reference rate as announced by India 's Central Bank i.e. Reserve Bank of India .

BSE announced introduction of Dollex-100, a dollar linked version of BSE-100 index effective from May 22, 2006 and from this date onwards Dollex-30, Dollex-100 and Dollex-200 are calculated and displayed through BSE On-line trading terminals (BOLT) by taking into account real-time Re./US\$ Exchange rate. The formula for calculating the index is

**Dollex** = Index Value (in local currency) \* Base Rupee US\$ Rate/ Current Rupee US\$ Rate

## Sectoral Indices of NSE & BSE :

### NSE Sectoral Indices

#### 1. CNX IT Index

In order to have a good benchmark of the Indian IT sector, IISL has developed the CNX IT sector index. CNX IT provides investors and market intermediaries with an appropriate benchmark that captures the performance of the IT segment of the market. Companies in this index have more than 50% of their turnover from IT related activities like software development, hardware manufacture, vending, support and maintenance. The index is a market capitalisation weighted index with its base period being December 1995 and the base date and base value being January 1, 1996 and 100 respectively.

#### 2. Bank Nifty

In order to have a good benchmark of the Indian banking sector, (IISL) has developed the Bank Nifty Index. CNX Bank Index is an index comprised of the most liquid and large capitalised Indian Banking stocks. It provides investors and market intermediaries with a benchmark that captures the capital market performance of Indian Banks. The index is composed of 12 stocks from the banking sector which trade on the National Stock Exchange. The index is a *market capitalization weighted index* with base date of January 01, 2000, indexed to a base value of 1000.

### 3. CNX FMCG Index

FMCGs (Fast Moving Consumer Goods) are those goods and products, which are non-durable, mass consumption products, available off the shelf. The CNX FMCG Index is a 15 stock Index from the FMCG sector that trade on the National Stock Exchange. The CNX FMCG Index is calculated using the *market capitalisation weighted* aggregate method. The base period is the month of December 1995, index to a value 1000.

### 4. CNX PSE Index

As part of its agenda to reform the Public Sector Enterprises (PSE), the Government has selectively been disinvesting its holdings in public sector enterprises since 1991. With a view to provide regulators, investors and market intermediaries with an appropriate benchmark that captures the performance of this segment of the market, as well as to make available an appropriate basis for pricing forthcoming issues of PSEs, IISL has developed the CNX PSE Index, comprising of 20 PSE stocks. The CNX PSE Index includes only those companies that have over 51% of their outstanding share capital held by the Central Government and/or State Government, directly or indirectly. The CNX PSE Index is calculated using the *market capitalisation weighted* aggregate method. The base period is the month of December 1994, index to a value 1000.

### 5. CNX MNC Index

The CNX MNC Index comprises 50 listed companies in which the foreign shareholding is over 50% and / or the management control is vested in the foreign company. The CNX MNC Index is calculated using the *market capitalisation weighted* method, wherein individual stocks are weighted by market value. The base period is the month of December, 1994 indexed to a value 1000.

### 6. CNX Service Sector Index

To capture the performance of the companies belonging to the service sector, IISL has developed CNX Service Sector Index. The CNX Service Sector Index is 30 stocks index and includes companies belonging to services sector like Computers - Software, Banks, Telecommunication -services, Financial Institutions, Power, Media, Courier, Shipping etc. The CNX Service Sector Index is calculated using the market capitalization weighted aggregate method. The base period is the month of May 1999, index to a value 1000.

### 7. S&P CNX Industry Indices

S&P CNX 500 Equity Index is segregated into 72 Industry sectors which are separately maintained by IISL. The industry indices are derived out of the S&P CNX 500 and care is taken to see that the industry representation in the entire universe of securities is reflected in the S&P CNX 500. e.g, if in the entire universe of securities, Banking sector has a 5% weightage, then the Banking sector (as determined by the Banking stocks in S&P CNX 500) would have a 5% weightage in the S&P CNX 500. The Banking sector index would be derived out of the Banking stocks in the S&P CNX 500. The changes to the weightage of various sectors in the S&P CNX 500 would dynamically reflect the changes in the entire universe of securities.



### 8. CNX Energy Index

IISL has developed CNX Energy Index to capture the performance of the companies in Energy sector. Energy sector Index will include companies belonging to Petroleum, Gas and Power sub sectors. The index is a market capitalization weighted index with base date of January 1, 2001, indexed to a base value of 1000.

### 9. CNX Pharma Index

IISL has developed CNX Pharma Index to capture the performance of the companies in the pharma sector. The index is a market capitalization weighted index with base date of January 1, 2001, indexed to a base value of 1000.

### 10. CNX Infrastructure Index

Recognizing the needs of the market, IISL has developed CNX Infrastructure Index to capture the performance of the companies in the infrastructure sector. It is composed of 25 stocks. CNX Infrastructure Index includes companies belonging to Telecom, Power, Port, Air, Roads, Railways, shipping and other Utility Services providers. The index is a market capitalization weighted index with base date of January 1, 2004, indexed to a base value of 1000. The constituents should be available for trading in the derivatives segment (Stock Futures & Options market) on NSE.

### 11. CNX PSU BANK Index

Recognizing these changing dynamics of Indian banking industry, IISL has developed PSU Bank Index to capture the performance of the PSU banks. The index is a Free Float methodology based weighted index with base date of January 1, 2004, indexed to a base value of 1000. The constituents should be available for trading in the derivatives segment (Stock Futures & Options market) on NSE.

### 12. CNX Realty Index

Necessitated by the thrust of redevelopment of old buildings, building townships and redeveloping mill lands, one can witness plenty of opportunities in real estate sector backed by favourable tax regime. IISL has developed the CNX Realty Index to synergize these emerging opportunities in real estate sector along with their Index expertise creating new investment avenues for investors. The index is a Free Float methodology based weighted index with base date of December 29, 2006, indexed to a base value of 1000.

## BSE Sectoral Indices

BSE also calculates various sectoral indices "Sectoral Series (90/FF)". All the indices are calculated and disseminated on BOLT, BSEs trading terminal on a real time basis. "90/FF" implies that the index covers 90 % of the sectoral market capitalization and is based on the Free-Float methodology. Some of the sectoral indices along with their Index specification are given below :

## Index Specification:

Index	Base Period	Base Index Value	Date of Launch	Method of calculation
BSE Auto	01-Feb-99	1000	23-Aug-04	Free-float market capitalisation
BSE BANKEX	01-Jan-02	1000	23-Jun-03	Free-float market capitalisation
BSE Capital Goods	01-Feb-99	1000	09-Aug-99	Launched on full market capitalisation method and effective August 16, 2005, calculation method shifted to free-float market capitalisation
BSE Consumer Durables	01-Feb-99	1000	09-Aug-99	Launched on full market capitalisation method and effective August 16, 2005, calculation method shifted to free-float market capitalisation
BSE FMCG	01-Feb-99	1000	09-Aug-99	Launched on full market capitalisation method and effective August 16, 2005, calculation method shifted to free-float market capitalisation
BSE Healthcare	01-Feb-99	1000	09-Aug-99	Launched on full market capitalisation method and effective August 16, 2005, calculation method shifted to free-float market capitalisation
BSE IT	01-Feb-99	1000	09-Aug-99	Launched on full market capitalisation method and effective August 16, 2005, calculation method shifted to free-float market capitalisation
BSE Metal	01-Feb-99	1000	23-Aug-04	Free-float market capitalisation
BSE Oil & Gas	01-Feb-99	1000	23-Aug-04	Free-float market capitalisation
BSE Power	03-Jan-05	1000	19-Nov-07	Free-float market capitalisation
BSE Realty	2005	1000	09-Jul-07	Free-float market capitalisation

## Market Outcome

### Turnover – Growth and Distribution

Trading volumes in the equity segments of the stock exchanges have witnessed a phenomenal growth over the last few years. The trading volumes saw a considerable increase in late 1990's, however a slump was witnessed during the year 2001-02, where the trading volume decreased by 69 % as compared to the preceding year. The traits of recovery in the market are visibly seen for the last few years. The year 2002-03, saw a recovery where the total trading volume reported on the exchanges was Rs. 9,689,093 million( US \$203,981 million).

During 2003-04, the trading volumes registered an year-on-year increase of 67 % to Rs.16,204,974 million (US \$ 373, 473 million). The volumes further increased from Rs.16,668,963 million (US \$ 381,005 million) in 2004-05 to Rs.23,901,030 million (US \$ 535,777 million) in 2005-06. The fiscal 2006-07, also witnessed an increase in the trading volumes



which amounted to Rs. 29,330,590 million (US \$ 672,874 million). In percentage terms there has been a growth of 22.46 % in 2006-07 over the previous year's volume.

The trading value of the CM segment on NSE showed year-on-year increase of 23.93 % from Rs.15,695,579 million (US \$ 351,840 million) in 2005-06 to Rs.19,452,865 million (US \$ 446,269 million) during 2006-07 (Table 4-5 & Table 4-6). The daily turnover on NSE averaged around Rs.78,124 million (US\$ 1,792 million) in 2006-07.

Except for NSE, BSE and Hyderabad Stock exchange, all other stock exchanges posted a fall or reported no trading volume during 2006-07. NSE consolidated its position as the market leader by contributing about 67% of the total turnover in India. Since its inception in 1994, NSE has emerged as the favoured exchange among trading members. The consistent increase in popularity of NSE is clearly evident from (Annexure 4-2), which presents the business growth of CM segment of NSE. Not only in the national arena, but also in the international markets, NSE has been successful in creating a niche for itself. According to the WFE Annual Report 2006, in terms of number of trades in equity shares, NSE ranks 3rd next only to NASDAQ and NYSE at end December 2006. (Table:4-7).

**Table 4-5: Turnover on Stock Exchanges in India\***

Stock Exchanges	Turnover				Share in turnover (%)	
	2005-06		2006-07		2005-06	2006-07
	(Rs. mn.)	(US \$ mn)	(Rs. mn.)	(US \$ mn)		
1 NSE	15,695,580	351,840	19,452,865	446,269	65.67	67.01
2 BSE	8,160,740	182,935	9,561,850	219,359	34.14	33
3 Calcutta	28,000	628	6,940	159	0.12	0.02
4 Uttar Pradesh	14,860	333	7,990	183	0.06	0.03
5 Ahmedabad	0	0	0	0	0	0
6 Delhi	0	0	0	0	0	0
7 Pune	0	0	0	0	0	0
8 Ludhiana	0	0	0	0	0	0
9 Bangalore	0	0	0	0	0	0
10 ICSE	0	0	0	0	0	0
11 Hyderabad	890	20	920	21	0.004	0.003
12 SKSE	0	0	0	0	0	0
13 Madras	50	1	12	0.28	0.0002	0.00004
14 Madhya Pradesh	0	0	0	0	0	0
15 Vadodara	0	0	0	0	0	0
16 OTCEI	0.10	0.002	0	0	0.0000004	0
17 Gauhati	0	0	0	0	0	0
18 Cochin	0	0	0	0	0	0
19 Magadh	910	20	0	0	0.004	0
20 Bhubaneshwar	0	0	0	0	0	0
21 Coimbatore	0	0	0	0	0	0
22 Jaipur	0	0	0	0	0	0
<b>Total</b>	<b>23,901,030</b>	<b>535,777</b>	<b>29,030,577</b>	<b>665,992</b>	<b>100.00</b>	<b>100.00</b>

\* Excludes turnover in WDM and derivatives segments of Exchanges.

Source: SEBI

Table 4-6: Stock Market Indicators - Monthly Trends on NSE and BSE

Month	Turnover				Average Daily Turnover				Market Capitalisation (end of period)			
	NSE		BSE		NSE		BSE		NSE		BSE	
	Rs. Mn	US \$ Mn	Rs. Mn	US \$ Mn	Rs. Mn	US \$ Mn	Rs. Mn	US \$ Mn	Rs. Mn	US \$ Mn	Rs. Mn	US \$ Mn
Apr-06	1,773,724	40,691	874,870	20,070	98,540	2,261	48,600	1,115	29,901,998	685,983	32,555,650	746,861
May-06	2,014,090	46,205	958,200	21,982	91,550	2,100	43,550	999	26,126,387	599,367	28,420,490	651,996
Jun-06	1,510,500	34,652	750,130	17,209	65,674	1,507	32,610	748	25,246,594	579,183	27,216,770	624,381
Jul-06	1,186,983	27,231	546,980	12,548	56,523	1,297	26,050	598	25,142,609	576,798	27,121,430	622,194
Aug-06	1,307,960	30,006	630,840	14,472	59,453	1,364	28,670	658	27,774,010	637,165	29,937,790	686,804
Sep-06	1,443,388	33,113	716,290	16,432	68,733	1,577	34,110	783	29,941,316	686,885	31,856,790	730,828
Oct-06	1,383,822	31,746	696,270	15,973	69,191	1,587	34,810	799	31,383,194	719,963	33,706,750	773,268
Nov-06	1,898,635	43,557	1,018,400	23,363	86,302	1,980	66,290	1,521	33,736,518	773,951	35,773,070	820,671
Dec-06	1,701,054	39,024	855,120	19,617	85,053	1,951	42,760	981	34,262,356	786,014	36,243,560	831,465
Jan-07	1,751,470	40,181	876,040	20,097	87,573	2,009	43,800	1,005	35,714,874	819,336	37,797,410	867,112
Feb-07	1,801,702	41,333	888,440	20,382	94,826	2,175	46,760	1,073	32,969,306	756,350	34,892,130	800,462
Mar-07	1,679,537	38,530	780,280	17,900	79,978	1,835	37,160	852	33,673,500	772,505	35,450,410	813,269
<b>2006-2007</b>	<b>19,452,865</b>	<b>446,269</b>	<b>9,591,860</b>	<b>220,047</b>	<b>78,124</b>	<b>1,792</b>	<b>38,400</b>	<b>881</b>	<b>33,673,500</b>	<b>772,505</b>	<b>35,450,410</b>	<b>813,269</b>

Source: NSE &amp; SEBI



Table 4-7: Total Number of Trades in Equity Shares (in thousands)

Exchange	End December 2006
Nasdaq	1,317,634
NYSE	1,264,255
NSE	746,712
Shanghai Stock Exchange	447,264
Korea Exchange	408,680

Source : WFE Annual Report 2006

The sectoral distribution of turnover has undergone significant change over last few years. (Table 4-8) presents the share of top '50' companies at NSE, classified according to different sectors, in turnover and market capitalisation. The share of manufacturing companies in trading volume of top '50' companies, which was around 9.85% in 2000-01, witnessed a sharp decline to 2.03% in 2002-03. However, last few years have seen the share of manufacturing companies in trading volume grow manifold from 37.66 % in 2003-04 to 55.15 % in 2006-07. The share of information technology (IT) companies in trading volume declined from 21.49 % in 2005-06 to 15.04% in 2006-07 and that of the financial services declined from 18.15 % to 13.17 % during the same period.

The share of top '5' securities in turnover has been on a declining trend since the past few years. It witnessed a decline from 25.88% in 2004-05 to 22.15% in 2005-06. It further decelerated to 16.97 % in 2006-07 (Table 4-9). Trading in top '100' securities witnessed an increase from 73.12% in 2005-06 to 77.22% during 2006-07. Member-wise distribution of turnover indicates increasing diffusion of trades among a larger number of trading members over the years. During 2006-07, top '5' members accounted for only 14.72% of turnover, while top '100' members accounted for 71.22% of total turnover.

Turnover in India seems to be less concentrated in comparison to that in other comparable markets as may be seen from (Table 4-10). Ten most active index securities accounted for 23.7 % of turnover in India and top ten index securities in terms of equity base accounted for 32.2% of market capitalisation at the end of December 2006.

At the end of March 2007, 74 members on CM segment were permitted by NSE to allow investors' web based access to its trading system. These members in turn have registered 2,248,711 clients for web based access. About 1,203 lakh trades for Rs. 2,328,569 million (US \$ 53,420 million) constituting 11.97% of the total trading volume were routed and executed through the internet. NEATiXS a product of the NSE.IT helps brokerage firms to conduct internet trading, which can be accessed easily using standard browsers. It provides real time on-line market information including stock quotes and order screens, allowing investors to place orders from their personal computers. The success of internet trading in India, however, will depend on expansion of internet bandwidth, which is necessary for faster execution of trades.



Table 4-8: Distribution of Turnover and Market Capitalisation of Top '50' Companies listed at NSE

Companies	Turnover																		
	US \$ Mn															% to Total			
	Amount (Rs. mn.)	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2006-07	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05		2005-06	2006-07	
Manufacturing	882,241	1,397,421	1,247,790	284,260	1,119,930	3,289,182	3,450,950	3,976,090	6,645,436	152,453	23.13	18.78	9.85	6.05	2.03	37.66	41.81	43.01	55.15
Financial Services	265,005	343,082	175,590	49,170	142,040	1,164,357	1,240,080	1,677,850	1,587,490	36,419	6.95	4.61	1.39	1.05	2.57	13.33	15.02	18.15	13.17
F.M.C.G	942,404	380,109	324,380	132,580	44,630	194,259	174,380	422,780	450,126	10,326	24.71	5.11	2.56	2.82	0.81	2.22	2.11	4.57	3.74
I.T.	1,381,476	3,693,152	9,371,590	3,128,510	4,127,810	2,711,187	1,614,760	1,986,260	1,812,571	41,582	36.22	49.63	75.56	66.58	74.71	31.04	19.56	21.49	15.04
Pharmaceuticals	90,295	482,304	210,850	225,380	95,600	229,023	228,810	224,200	237,173	5,441	2.37	6.48	1.66	4.80	1.73	2.63	2.77	2.43	1.97
Telecommunications	-	-	-	-	-	-	-	-	923,796	21,193	-	-	-	-	-	-	-	-	7.67
Others	252,850	1,144,814	1,138,030	878,840	1,002,930	1,146,357	1,545,400	957,150	393,415	9,025	6.63	15.39	8.98	18.70	18.15	13.12	18.72	10.35	3.26
<b>Total</b>	<b>3,814,271</b>	<b>7,440,881</b>	<b>12,668,230</b>	<b>4,698,740</b>	<b>5,524,940</b>	<b>8,734,966</b>	<b>9,244,330</b>	<b>12,050,008</b>	<b>276,440</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Companies	Market Capitalisation																		
	US \$ Mn															% to Total			
	Amount (Rs. mn.)	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2006-07	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05		2005-06	2006-07	
Manufacturing	1,065,715	1,516,922	967,180	561,090	333,830	2,621,234	2,562,230	5,436,240	10,099,450	231,692	34.39	20.53	20.79	12.41	8.03	31.13	23.35	29.30	45.88
Financial Services	183,338	362,092	364,600	424,850	452,830	1,045,514	1,385,180	1,867,460	2,564,041	58,822	5.92	4.90	7.84	9.39	10.89	12.41	12.62	10.07	11.65
F.M.C.G	907,729	795,220	804,970	565,070	378,260	598,188	623,510	1,331,570	1,021,502	23,434	29.29	10.76	17.30	12.49	9.09	7.10	5.68	7.18	4.64
I.T.	457,416	3,064,181	1,060,950	801,450	760,170	811,075	2,473,980	4,447,680	3,992,494	91,592	14.76	41.48	22.80	17.72	18.28	9.63	22.54	23.97	18.14
Pharmaceuticals	242,208	193,237	210,350	323,140	273,740	425,007	413,650	751,000	518,650	11,898	7.82	2.62	4.52	7.14	6.63	5.05	3.77	4.05	2.36
Telecommunications	-	-	-	-	-	-	-	-	2,554,117	58,594	-	-	-	-	-	-	-	-	11.60
Others	242,718	1,456,091	1,245,020	1,847,200	1,958,270	2,920,559	3,515,830	4,717,670	1,262,454	28,962	7.83	19.71	26.76	40.84	47.08	34.68	32.04	25.43	5.74
<b>Total</b>	<b>3,099,124</b>	<b>7,387,742</b>	<b>4,653,070</b>	<b>4,522,800</b>	<b>4,159,100</b>	<b>8,421,576</b>	<b>10,974,380</b>	<b>18,551,620</b>	<b>22,012,708</b>	<b>504,994</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

F.M.C.G. Fast Moving Consumer Goods  
I.T. Information Technology





Table 4-9: Percentage Share of Top 'N' Securities/Members in Turnover of NSE

Month	No. of Securities / Members				
	5	10	25	50	100
<b>Securities</b>					
1994-95 (Nov.-Mar.)	48.77	55.92	68.98	81.14	91.07
1995-96	82.98	86.60	90.89	93.54	95.87
1996-97	84.55	91.96	95.70	97.03	98.19
1997-98	72.98	85.17	92.41	95.76	97.90
1998-99	52.56	67.11	84.71	92.03	95.98
1999-00	39.56	59.22	82.31	88.69	93.66
2000-01	52.15	72.90	88.93	94.57	97.46
2001-02	44.43	62.92	82.24	91.56	95.91
2002-03	40.58	55.41	77.80	89.16	95.38
2003-04	31.04	44.87	64.32	79.44	91.03
2004-05	25.88	41.65	57.98	72.40	84.26
2005-06	22.15	31.35	46.39	59.22	73.12
2006-07	16.97	25.25	43.46	61.94	77.22
<b>Members</b>					
1994-95 (Nov.-Mar.)	18.19	26.60	44.37	61.71	81.12
1995-96	10.65	16.56	28.61	41.93	58.59
1996-97	5.94	10.08	19.67	30.57	45.95
1997-98	6.29	10.59	18.81	29.21	44.24
1998-99	7.73	11.96	20.77	31.66	47.02
1999-00	7.86	12.99	22.78	34.41	49.96
2000-01	7.78	12.76	23.00	33.86	48.79
2001-02	7.14	12.29	23.63	36.32	53.40
2002-03	10.26	16.41	29.07	42.49	59.15
2003-04	11.58	17.36	30.34	44.05	61.37
2004-05	13.52	20.20	34.97	49.01	65.09
2005-06	14.62	22.57	38.17	52.57	68.45
2006-07	14.72	24.27	42.61	56.71	71.22

Source: NSE.

Table 4-10: Market Concentration in Emerging Asian Markets: End December 2006

(In per cent)

Market	Index Stock's Share of Market Capitalisation	Share of Turnover	Share of 10 Largest Index Stocks in Market Capitalisation	Share of 10 Most Active Index Stocks in Turnover
China	85.7	56.3	50.1	17.8
Thailand	86.7	69.2	45.8	39.5
Taiwan	79.9	59.6	31.5	20.2
Korea	89.3	65.8	34.5	20.7
Malaysia	80.1	59.5	35.9	25.4
India	81.6	67.2	32.2	23.7

Source: S&amp;P Emerging Stock Markets Factbook 2007



## World Traded Value

In 2006, United States ranked first with the total traded value of US \$ 33,267,643 million. Japan ranked second with the traded value of US \$ 6,252,470 million followed by United Kingdom at US \$ 4,242,082 million of traded value. Among the first 20 countries ranked according to total traded value, 14 countries belonged to the developed markets while 6 belonged to the emerging markets. India ranked 18th with a trading volume of US \$ 638,484 million (Table 4-11).

**Table 4-11: Top 40 countries World Value Traded**

Rank	Market	Total Value Traded (US\$ Millions)
1	United States	33,267,643
2	Japan	6,252,470
3	United Kingdom	4,242,082
4	France	2,504,704
5	Germany	2,486,668
6	Spain	1,930,620
7	China	1,635,121
8	Saudi Arabia	1,403,027
9	Italy	1,366,130
10	Korea	1,340,122
11	Canada	1,290,246
12	Switzerland	1,286,762
13	Netherlands	1,096,089
14	Taiwan	894,553
15	Hongkong	830,666
16	Australia	826,285
17	Sweden	677,122
18	India	638,484
19	Russia	514,362
20	Finland	356,805
21	Norway	350,952
22	South Africa	312,439
23	Brazil	254,513
24	Turkey	227,615
25	Singapore	184,380
26	Denmark	176,661
27	Belgium	165,920
28	Pakistan	126,560
29	United Arab Emirates	113,005
30	Greece	107,478
31	Thailand	100,797
32	Israel	88,771
33	Mexico	80,095
34	Ireland	79,920
35	Austria	79,574
36	Portugal	70,230
37	Malaysia	66,904
38	Kuwait	55,886
39	Poland	55,041
40	Indonesia	48,831

Source: S&P Global Stock Markets Factbook 2007

■ Developed markets  
■ Emerging markets



The BRIC (Brazil, Russia, India, China) economies posted a year-on-year increase of 128.11 % in the trading value from US \$ 1,333,763 million in 2005 to US \$ 3,042,480 million in 2006 (Table:4-12). China contributed the highest share of 53.74 % in total BRIC turnover followed by India - 20.99 % during 2006. However, Russia posted a stupendous growth of 222.83 % in traded value as compared to last year. The share of BRIC Economies in total traded value of emerging economies was 36.98 % in 2006 as compared with its share of 23.84 % in 2005. The contribution of BRIC Economies in total world market turnover rose from 2.81 % in 2005 to 4.48 % in 2006 (Table: 4-12).

**Table 4-12: Turnover of BRIC Economies**

Country	Traded Value (in US \$ Millions)		YoY Percentage Change
	December-05	December-06	
Brazil	154,232	254,513	65.02
Russia	159,330	514,362	222.83
India	433,900	638,484	47.15
China	586,301	1,635,121	178.89
<b>BRIC Economies</b>	<b>1,333,763</b>	<b>3,042,480</b>	<b>128.11</b>
<b>Emerging Market Economies</b>	<b>5,594,642</b>	<b>8,226,944</b>	<b>47.05</b>
<b>World Total</b>	<b>47,453,734</b>	<b>67,912,153</b>	<b>43.11</b>
<b>Percentage share of BRIC Economies to</b>			
1) Total turnover of Emerging Economies	23.84	36.98	
2) Total turnover of World	2.81	4.48	

## Market Capitalisation - Growth and Distribution

The market capitalisation for securities available for trading on the equity segment of NSE and BSE witnessed enormous growth over the previous years (Table 4-6). The market capitalisation of NSE and BSE as at end March 2007 amounted to Rs. 33,673,500 million (US \$ 772,505 million) and Rs. 35,450,410 million (US \$ 813,269 million) respectively.

The sectoral distribution of market capitalization on NSE is presented in (Table 4-8). The manufacturing sector was the most dominant sector in terms of market capitalization and reported a significant share of 45.88 % during 2006-07 as compared with its share of 29.30 % in 2005-06. The IT Sector accounting for 18.14 % of the market capitalisation, during 2006-07 was the second most dominant sector followed by the financial services sector. The financial services reported a share of 11.65 % during 2006-07, a rise from 10.07 % in the corresponding period last year.

## World Market Capitalisation

In 2006, United States reported the highest market capitalisation of US \$ 19,425,855 million followed by Japan at US\$ 4,726,269 million and UK at US \$3,794,310 million. Among the top 20 countries by Market Capitalisation, 13 were the developed markets while others were emerging market economies. India ranked 15th in the world with the market capitalization of US \$ 818,879 million. (Table 4-13).

Among the BRIC Economies, highest market capitalisation at the end of 2006 was recorded by China at US\$ 2,426,326 Million, followed by Russia at US\$ 1,057,189 Million,



Table 4-13: Market Capitalisation of top 40 countries

Rank	Market	End December 2006	
		Market capitalisation (US\$ Million)	
1	United States	19,425,855	
2	Japan	4,726,269	
3	United Kingdom	3,794,310	
4	France	2,428,572	
5	China	2,426,326	
6	Hongkong	1,714,953	
7	Canada	1,700,708	
8	Germany	1,637,826	
9	Spain	1,323,090	
10	Switzerland	1,212,508	
11	Australia	1,095,858	
12	Russia	1,057,189	
13	Italy	1,026,640	
14	Korea	835,188	
15	India	818,879	
16	Netherlands	779,645	
17	South Africa	715,025	
18	Brazil	711,100	
19	Taiwan	654,858	
20	Sweden	573,250	
21	Belgium	396,220	
22	Mexico	348,345	
23	Saudi Arabia	326,869	
24	Norway	281,081	
25	Singapore	276,329	
26	Finland	265,477	
27	Malaysia	235,356	
28	Denmark	231,015	
29	Greece	208,284	
30	Austria	191,300	
31	Chile	174,556	
32	Israel	173,306	
33	Ireland	163,358	
34	Turkey	162,399	
35	Poland	149,054	
36	Thailand	141,093	
37	Indonesia	138,886	
38	United Arab Emirates	138,531	
39	Kuwait	128,940	
40	Portugal	104,201	

Source: S&P Fact Book 2007

 Developed Markets  
 Emerging Markets

India at US \$ 818,879 million and Brazil at US \$711,100 million. China saw a phenomenal year-on-year increase of 210.76 % in its market capitalization.(Table 4-14).

China contributed the highest share of 48.40 % in total BRIC market capitalization amounting to US\$ 2,426,326 million followed by Russia at US\$ 1,057,189 million , India at US \$ 818,879 Million and Brazil at US \$711,100 million. The share of BRIC Economies in market capitalization of emerging economies was 47.94 % in 2006 as compared with its share of 33.03 % in 2005. The contribution of BRIC Economies in total world market capitalisation rose from 5.40 % in 2005 to 9.25 % in 2006.



Table 4-14: Market capitalisation of BRIC Economies

Country	Market Capitalisation (in US\$ Millions)		YoY Percentage Change
	December-05	December-06	
Brazil	474,647	711,100	49.82
Russia	548,579	1,057,189	92.71
India	553,074	818,879	48.06
China	780,763	2,426,326	210.76
<b>BRIC Economies</b>	<b>2,357,063</b>	<b>5,013,494</b>	<b>112.70</b>
<b>Emerging Market Economies</b>	<b>7,135,963</b>	<b>10,458,582</b>	<b>46.56</b>
<b>World Total</b>	<b>43,680,851</b>	<b>54,194,991</b>	<b>24.07</b>
<b>Percentage share of BRIC Economies to</b>			
1) Total turnover of Emerging Economies	23.84	47.94	
2) Total turnover of World	2.81	9.25	

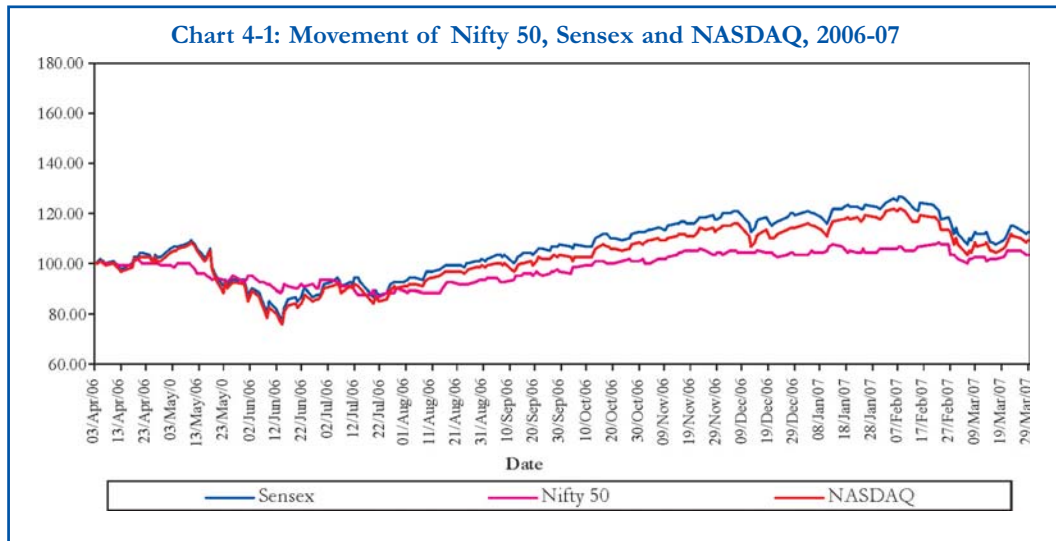
## Indices

The different markets in the year 2006-07 have shown a steep rise in the performance as compared to the markets in the previous year. The Nifty 50 index, registered a new high of 3821.55 in March 2007. The point to point return of the index was 12.31 % in 2006-07 (Table 4-15). Similarly BSE SENSEX also gave huge returns to the tune of 15.89 % in the said period. The daily movements in Nifty 50, Sensex and Nasdaq index are plotted in (Chart 4-1).

Table 4-15: Movement of Select Indices on Indian/Foreign Markets

Index	31.03.2005	31.03.2006	30.03.2007	Change during 2005-06 (%)	Change during 2006-07 (%)
Nifty 50	2035.65	3402.55	3821.55	67.15	12.31
BSE Sensex	6492.82	11280.00	13072.1	73.73	15.89
Hang Seng	13516.88	15805.04	19800.93	16.93	25.28
Dow Jones	10503.76	11109.32	12354.35	5.77	11.21
Nasdaq	1999.23	2339.79	2421.64	17.03	3.50
Nikkei	11668.95	17059.66	17287.65	46.20	1.34
FTSE	4894.40	5964.60	6308.00	21.87	5.76

Source: NSE, BSE & Bloomberg.



## Volatility

The volatility of Nifty 50 and Sensex since April 2006 is presented in (Table 4-16). The stock markets witnessed maximum volatility in June 2006, when volatility of Nifty 50 was 3.23% and Sensex had a volatility of 3.25%. The volatility of Nifty 50 and Sensex was the lowest in November 2006. During the last quarter of 2006-07, March witnessed high volatility to the tune of 2% and 1.95% for Nifty 50 and Sensex respectively. Rest of the months during 2006-07 showed volatility in the range of 0.58% to 3.25%. (Chart 4-2) presents the volatility of Nifty 50, Sensex and NASDAQ. It can be observed that Nifty 50 and Sensex were more volatile than NASDAQ Composite except for the months of August and November 2006.

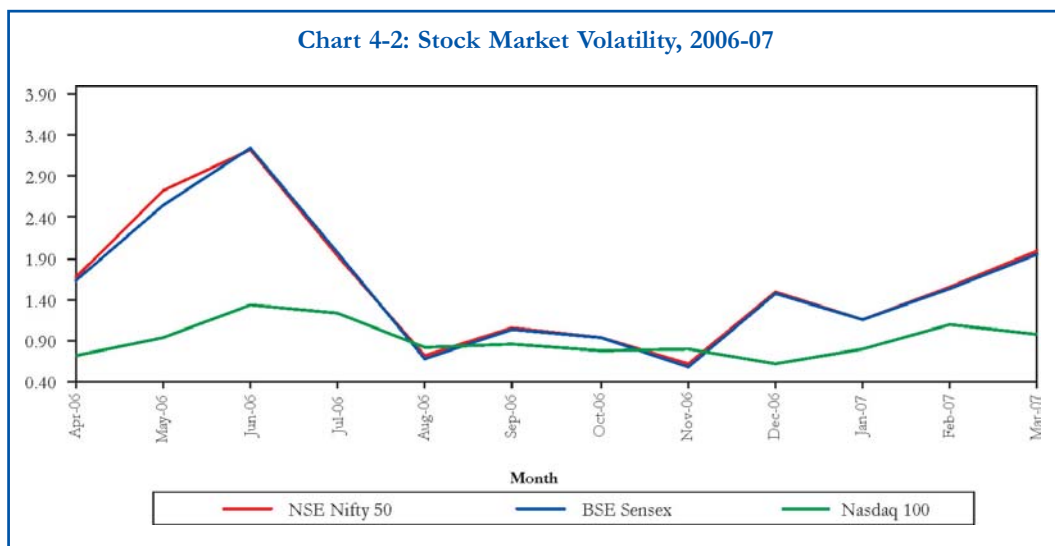
**Table 4-16: Stock Market Index, Volatility and P/E Ratio: April 2006 to March 2007**

Month/Year	Nifty 50			Sensex		
	Index	Volatility (%)**	P/E Ratio*	Index	Volatility (%)**	P/E Ratio*
Apr-06	3557.60	1.67	20.31	12,042.56	1.64	21.35
May-06	3071.05	2.73	17.46	10,398.61	2.55	20.41
Jun-06	3128.20	3.23	18.44	10,609.25	3.25	17.90
Jul-06	3143.20	1.93	17.64	10,743.88	1.97	19.02
Aug-06	3413.90	0.72	19.15	11,699.05	0.67	19.60
Sep-06	3588.40	1.06	20.92	12,454.42	1.04	20.73
Oct-06	3744.10	0.93	20.37	12,961.90	0.94	21.56
Nov-06	3954.50	0.61	21.18	13,696.31	0.58	22.07
Dec-06	3966.40	1.50	21.26	13,786.91	1.48	22.51
Jan-07	4082.70	1.15	19.85	14,090.92	1.16	22.73
Feb-07	3745.30	1.55	18.01	12,938.09	1.54	21.56
Mar-07	3821.55	2.00	18.40	13,072.10	1.95	19.84

Source: NSE, BSE, SEBI

\* As on the last trading day of the month.

\*\* Volatility is calculated as standard deviation of the daily returns for the respective period



The volatility across different sectoral indices varied widely. The volatility of sectoral indices is presented in table (4-17). Across all the indices, CNX Finance Index posted the highest volatility of 6.35 % during the month of June 2006. During 2006-07, volatility for Nifty 50 was 1.77 %.

### Returns in Indian Market

The performance of Nifty 50 and various other indices over different periods of the last one month to 12 months is presented in (Table 4-18). It reveals that the indices have performed with varying degrees over varying periods. Some of the indices provided substantial gains in the longer period of 6 months and one year, but did not give encouraging returns for the shorter periods of 1 month, 3 months. The investments made in Nifty 50 securities a year back (March 2006) gave out positive returns of 12.31 %. The best performer in the longer period of one year was CNX IT which gave positive returns of 19.01 %.

The comparative performance of five major sectoral indices, viz. S&P CNX Petrochemicals Index, S&P CNX Finance Index, CNX FMCG Index, S&P CNX Pharma Index, and CNX IT Index, with that of Nifty 50 Index for the year 2006-07 is presented in (Chart 4-3). It is observed that the CNX Finance Index was the best performer. During the entire period, CNX IT Index out-performed the Nifty -50 and stood at the second position. The FMCG Index was the worst performer during the whole year, followed by S&P CNX pharmaceutical Index. The petrochemicals index scored above the Nifty 50 during the period August to September 2006, however could not sustain the growth of the Nifty 50 and fell to the second last position along with the pharmaceutical Index. The monthly closing prices of these sectoral indices are presented in (Table 4-18).

### Exchange Traded Funds

The first ETF in India, the "Nifty BeEs (Nifty Benchmark Exchange Traded Scheme) based on Nifty 50 was launched in December 2001 by Benchmark Mutual Fund. It is bought and sold like any other stock on NSE and has all characteristics of an index fund. As of August end 2007, there were eight ETFs listed on NSE. They are namely Nifty BeES, Junior Nifty BeES, Bank BeES, Liquid BeES and SUNDER (S&P CNX Nifty UTI Notional Depository Receipts Scheme), Gold Bees, GoldShare and Kotak Gold.

The ETF based on Sensex is SPICE (Sensex Prudential ICICI Exchange Traded Fund) which was launched by -Prudential ICICI. During the month of August 2007 the total trading volume of the 8 ETFs listed on NSE was Rs. 1,747.91 million. Details about ETFs are available in Chapter 3.

### Liquidity

Many listed securities on stock exchanges are not traded actively. The percentage of companies traded on BSE was quite low at 34.93% as compared with 99.72 % on NSE in March 2007

Table 4-17: Performance of Sectoral Indices

Month/ Year	Monthly Closing Prices						Average Daily Volatility (%)					
	Nifty 50	CNX FMCG	CNX IT	CNX Finance	S&P Petro-chemicals	S&P Pharma-ceuticals	CNX FMCG	CNX IT	CNX Finance	S&P Petro-chemicals	S&P Pharma-ceuticals	
Apr-06	3557.60	6172.28	4341.85	2255.75	3617.40	4589.65	1.62	2.33	2.11	2.25	1.62	
May-06	3071.05	5067.71	3869.65	2053.55	3167.15	3978.08	2.64	2.34	3.43	4.23	2.33	
Jun-06	3128.20	5159.14	3957.55	1869.27	3239.11	3688.72	3.47	3.23	6.35	4.51	2.93	
Jul-06	3143.20	4983.22	4113.55	1688.63	3001.37	3761.65	1.98	2.35	2.38	1.89	1.23	
Aug-06	3413.90	5368.97	4445.60	1916.61	3531.09	4150.23	0.96	0.67	1.21	1.68	0.76	
Sep-06	3588.40	5530.27	4540.50	2303.47	3717.59	4289.54	1.34	1.20	2.10	1.92	1.08	
Oct-06	3744.10	5456.68	4888.95	2389.21	3607.88	4262.01	0.97	1.28	1.05	1.25	0.69	
Nov-06	3954.50	5415.25	5267.85	2599.87	3455.05	4370.76	1.03	0.94	1.50	1.33	0.73	
Dec-06	3966.40	5176.73	5432.25	2764.04	3542.38	4467.68	1.32	1.44	2.16	2.03	1.31	
Jan-07	4082.70	5145.37	5535.00	2860.43	3467.92	4522.32	1.11	1.38	1.38	1.03	1.01	
Feb-07	3745.30	4774.95	5129.60	2861.52	3218.54	4160.11	1.05	1.87	2.51	1.54	1.37	
Mar-07	3821.55	4724.77	5180.70	2946.25	3210.21	4344.67	1.77	2.55	2.28	2.98	1.47	

Source: IISL.

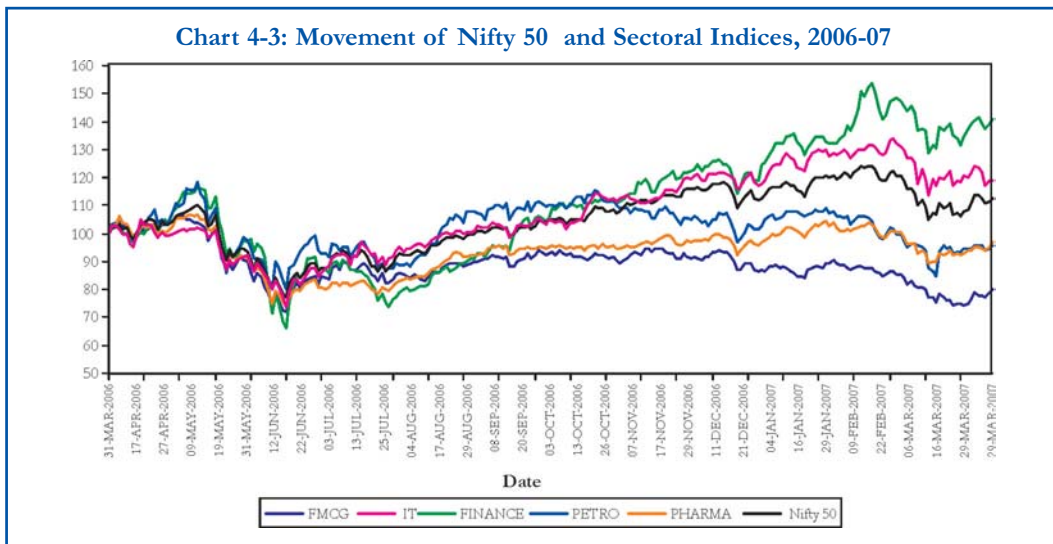




**Table 4-18: Performance of Select Indices as at end March 2007**

	(In per cent)			
	1 month	3 months	6 months	1 year
Nifty 50	2.04	-3.65	6.5	12.31
S&P CNX 500	1.21	-4.54	5.26	8.07
S&P CNX Defty	3.71	-2.03	12.45	15.08
CNX Nifty Junior	2.32	-3.21	5.65	7.27
CNX Midcap	-0.56	-6.73	3.38	1.31
CNX IT Index	0.99	-4.63	14.1	19.01
S&P CNX Banks	1.56	-9.43	1.91	15.2

Source: IISL.



(Table 4-19). The companies traded on BSE for more than 100 days during 2006-07 was 86.31% and that on NSE, was 87.51 % (Table 4-20). Trading took place for less than 100 days in case of 13.69 % of companies traded at BSE and 12.49 % for companies traded on NSE during the year.

### Institutional Transactions

Though the volume of trades done by FIIs is not very high as compared to other market participants, they are the driving force in determination of market sentiments and price trends. This is so because, they do only delivery-based trades and they are perceived to be infallible in their assessment of the market. The strong risk adjusted returns of the Indian market have led FIIs to make more allocations to India. As at the end of March 2007, the total number of FIIs registered with SEBI were 996 against 882 in March 2006.

During 2006-07, the net investments made by FIIs came down by 21.85 % from Rs. 394,660 million (US \$ 9,334 million) in 2005-2006 to Rs.308,410 million (US \$ 6,708 million)



**Table 4-19: Trading Frequency on NSE & BSE**

Month/Year	NSE			BSE		
	Companies Available for Trading*	Companies Traded	% of Traded to Available for Trading	Listed Securities	Traded Securities	% of Traded to Listed Securities
Apr-06	944	935	99.05	7,336	2,425	33.06
May-06	952	943	99.05	7,408	2,460	33.21
Jun-06	962	950	98.75	7,490	2,459	32.83
Jul-06	956	950	99.37	7,466	2,500	33.49
Aug-06	958	949	99.06	7,407	2,590	34.97
Sep-06	969	968	99.90	7,505	2,567	34.20
Oct-06	981	973	99.18	7,484	2,575	34.41
Nov-06	991	982	99.09	7,412	2,620	35.35
Dec-06	1,016	1,009	99.31	7,500	2,692	35.89
Jan-07	1,040	1,035	99.52	7,553	2,689	35.60
Feb-07	1,063	1,057	99.44	7,596	2,602	34.25
Mar-07	1,084	1,081	99.72	7,561	2,641	34.93

Source: SEBI and NSE.

\* At the end of the month. Includes listed/permitted to trade companies but excludes suspended companies.

**Table 4-20: Frequency Distribution of Companies Traded at NSE and BSE**

No. of Days Traded	No. of Companies Traded at NSE		No. of Companies Traded at BSE	
	2006-07	% to Total	2006-07	% to Total
	Above 100 days	981	87.51	2,673
91-100 days	3	0.27	30	0.97
81-90 days	12	1.07	25	0.81
71-80 days	8	0.71	31	1.00
61-70 days	25	2.23	35	1.13
51-60 days	18	1.61	30	0.97
41-50 days	13	1.16	22	0.71
31-40 days	17	1.52	22	0.71
21-30 days	14	1.25	30	0.97
11-20 days	17	1.52	50	1.61
1-10 days	13	1.16	149	4.81
<b>Total</b>	<b>1,121</b>	<b>100.00</b>	<b>3,097</b>	<b>100.00</b>

Source: SEBI & NSE.

in the current year. The FII net investment was highest during the month of November 2006, when they made net purchases for a peak of Rs. 101,860 million (US \$ 2,213 million) (Table 4-21). The cumulative net FII investment touched Rs.2,181.38 billion (US \$ 51.97 billion) by end-March 2007.

During 2006-07, the MFs have invested more funds in the debt instruments than equity instruments (Table 4-22). In the equity market, MFs were net buyers to the tune of Rs. 1,359,480



Table 4-21: Trends in FII Investment

Period	Purchases (Rs. mn.)	Sales (Rs. mn.)	Net Investment (Rs. mn.)	Cumulative Net Investment (Rs. mn.)	Net Investment (US\$ mn.)	Cumulative Net Investment (US\$ mn.)
<b>2005-06</b>	<b>3,449,780</b>	<b>3,055,120</b>	<b>394,660</b>	<b>1,872,966</b>	<b>9,334</b>	<b>477,063</b>
Apr-05	162,100	176,860	(14,760)	1,463,546	(338)	35,589
May-05	156,190	170,050	(13,860)	1,449,686	(318)	35,271
Jun-05	259,600	207,020	52,580	1,502,266	1,210	36,481
Jul-05	257,170	179,560	77,610	1,579,876	1,784	38,265
Aug-05	283,590	237,370	46,220	1,626,096	1,062	39,327
Sep-05	266,510	221,940	44,570	1,670,666	1,023	40,350
Oct-05	271,660	317,940	(46,280)	1,624,386	(1,054)	39,296
Nov-05	235,000	216,260	18,740	1,643,126	420	39,716
Dec-05	335,480	251,870	83,610	1,726,736	1,831	41,547
Jan-06	334,150	326,580	7,570	1,734,306	603	42,150
Feb-06	356,710	282,350	74,360	1,808,666	1,660	43,810
Mar-06	531,620	467,320	64,300	1,872,966	1,451	45,261
<b>2006-07</b>	<b>5,205,090</b>	<b>4,896,680</b>	<b>308,410</b>	<b>2,181,376</b>	<b>6,708</b>	<b>51,967</b>
Apr-06	452,340	444,640	7,700	1,880,666	174	45,433
May-06	487,380	553,850	(66,470)	1,814,196	(1,473)	43,960
Jun-06	404,080	395,320	8,760	1,822,956	193	44,153
Jul-06	269,670	256,700	12,970	1,835,926	285	44,438
Aug-06	283,950	229,480	54,470	1,890,396	1,173	45,611
Sep-06	340,570	279,230	61,340	1,951,736	1,318	46,929
Oct-06	395,740	309,040	86,700	2,038,436	1,879	48,808
Nov-06	548,590	446,730	101,860	2,140,296	2,213	51,021
Dec-06	442,070	469,730	(27,660)	2,112,636	(599)	50,422
Jan-07	457,700	474,520	(16,820)	2,095,816	(370)	50,052
Feb-07	582,570	500,620	81,950	2,177,766	1,834	51,886
Mar-07	540,430	536,820	3,610	2,181,376	82	51,967

Source: SEBI.

million (US \$ 31,188 million) during 2006-07. In the month of June 2006 and from October 2006 to March 2007 the MFs were in a selling spree in the equity market, whereas in the Debt market a buying trend was visible throughout the fiscal 2006-07. Purchases to the tune of Rs.1,537,340 million (US \$ 35,268 million) were made in the debt segment during the current fiscal. The maximum purchase of Rs.161,690 million (US \$ 3,709 million) was made during the month of August 2006.

## Takeovers

In 2006-07, there were 87 takeovers under open category involving Rs. 113,520 million (US \$ 2,604 million) as against 102 takeovers involving Rs. 40,800 million (US \$ 915 million) during the preceding year (Table 4-23). Under the exempted category there were 223 takeovers involving Rs 186,080 million (US \$ 4,269 million) as against 245 takeovers involving Rs. 171,320 million (US \$ 3,840 million) in the previous year.

Table 4-22: Trends in Transactions by Mutual Funds

Month/Year	Equity			Debt			Total Net Purchases/Sales				
	Gross Purchase (Rs.mn)	Gross Sales (Rs.mn)	Net Purchases/ Sales (US \$ Mn)	Gross Purchase (Rs.mn)	Gross Sales (Rs.mn)	Net Purchases/ Sales (US \$ Mn)	Gross Purchase (Rs.mn)	Gross Sales (Rs.mn)	Net Purchases/ Sales (US \$ Mn)		
Apr-05	43,480	28,830	14,450	95,680	45,330	50,350	50,350	45,330	1,129	65,000	1,457
May-05	70,010	36,610	33,400	106,880	59,820	47,060	106,880	59,820	1,055	80,460	1,804
Jun-05	45,680	63,850	(18,170)	106,870	70,890	35,980	106,870	70,890	807	17,810	399
Jul-05	59,250	54,200	5,050	89,670	51,540	38,130	89,670	51,540	855	43,180	968
Aug-05	92,820	69,890	22,930	143,180	82,850	60,330	143,180	82,850	1,352	83,260	1,866
Sep-05	102,630	70,290	32,340	136,990	89,330	47,660	136,990	89,330	1,068	80,000	1,793
Oct-05	92,730	62,530	30,200	79,770	57,840	21,930	79,770	57,840	492	52,130	1,169
Nov-05	65,770	59,960	5,810	69,240	42,910	26,330	69,240	42,910	590	32,140	720
Dec-05	83,680	97,450	(13,770)	71,670	79,370	(7,700)	71,670	79,370	(173)	(21,470)	(481)
Jan-06	98,570	110,300	(11,730)	66,180	57,130	9,050	66,180	57,130	203	(2,680)	(60)
Feb-06	91,580	94,030	(2,450)	46,280	37,030	9,250	46,280	37,030	207	6,800	152
Mar-06	157,700	112,870	44,830	83,100	56,600	26,500	83,100	56,600	594	71,330	1,599
<b>2005-06</b>	<b>1,003,900</b>	<b>860,810</b>	<b>143,090</b>	<b>1,095,510</b>	<b>730,640</b>	<b>364,870</b>	<b>1,095,510</b>	<b>730,640</b>	<b>8,179</b>	<b>507,960</b>	<b>11,387</b>
Apr-06	127,520	96,320	31,200	112,280	68,000	44,280	112,280	68,000	1,016	75,480	1,732
May-06	183,450	104,520	78,930	153,860	77,740	76,120	153,860	77,740	1,746	155,050	3,557
Jun-06	78,440	98,200	(19,760)	142,360	89,070	53,290	142,360	89,070	1,223	33,530	769
Jul-06	75,520	76,340	(820)	159,830	82,660	77,170	159,830	82,660	1,770	76,350	1,752
Aug-06	88,520	84,250	4,270	161,690	118,530	43,160	161,690	118,530	990	47,430	1,088
Sep-06	103,450	90,060	13,390	128,790	95,910	32,880	128,790	95,910	754	46,270	1,061
Oct-06	99,440	99,480	(40)	103,140	79,300	23,840	103,140	79,300	547	23,800	546
Nov-06	126,750	127,000	(250)	132,970	69,620	63,350	132,970	69,620	1,453	63,100	1,448
Dec-06	131,810	115,540	16,270	75,850	62,560	13,290	75,850	62,560	305	29,560	678
Jan-07	116,440	129,860	(13,420)	108,310	84,270	24,040	108,310	84,270	552	10,620	244
Feb-07	126,970	129,710	(2,740)	103,520	76,830	26,690	103,520	76,830	612	23,950	549
Mar-07	101,160	117,570	(16,410)	154,740	107,400	47,340	154,740	107,400	1,086	30,930	710
<b>2006-07</b>	<b>1,359,470</b>	<b>1,268,850</b>	<b>90,620</b>	<b>1,537,340</b>	<b>1,011,890</b>	<b>525,450</b>	<b>1,537,340</b>	<b>1,011,890</b>	<b>12,054</b>	<b>616,070</b>	<b>14,133</b>

Source: SEBI.



Table 4-23: Substantial Acquisition of Shares and Takeovers

Year	Open Offers						Automatic Exemption		
	Change in Control of Management			Objectives			Total		
	Number	Value (Rs. Mn)		Number	Value (Rs. Mn)		Number	Value of Shares Acquired (Rs. Mn)	(US \$ Mn)
1994-95	0	0	1	1,140	1	42	2	1,182	--
1995-96	4	301	4	255	0	0	8	556	--
1996-97	11	118	7	783	1	23	19	924	--
1997-98	18	1,429	10	3,398	13	956	41	5,784	35,022
1998-99	29	997	24	4,163	12	3,271	65	8,430	18,881
1999-00	42	2,588	9	711	23	1,300	74	4,599	46,774
2000-01	70	11,404	5	1,890	2	425	77	13,719	48,732
2001-02	54	17,562	26	18,152	1	390	81	36,104	25,390
2002-03	46	38,144	40	25,733	2	14	88	63,891	24,284
2003-04	38	3,952	16	1,966	11	10,030	65	15,948	14,357
2004-05	35	35,030	12	1,650	14	9,640	61	46,320	69,580
2005-06	78	32,520	9	1,190	15	7,090	102	40,800	171,320
2006-07	66	67,710	15	44,980	6	830	87	113,520	186,080
<b>Total</b>	<b>491</b>	<b>211,756</b>	<b>178</b>	<b>106,011</b>	<b>101</b>	<b>34,011</b>	<b>770</b>	<b>351,778</b>	<b>640,420</b>
								<b>7,628</b>	<b>13,624</b>

Source: SEBI.



## Annexure 4-1: Exchange -wise Brokers and Sub-brokers in India

Exchanges	Participants at the end March							
	Registered Brokers				Registered Sub-Brokers			
	2004	2005	2006	2007	2004	2005	2006	2007
Ahmedabad	323	317	317	317	124	119	119	97
Bangalore	242	250	256	256	156	156	156	156
BSE	673	726	840	901	6,600	6,917	10,691	13,482
Bhubaneshwar	229	221	219	216	17	17	17	17
Calcutta	980	962	962	960	92	88	88	87
Cochin	468	446	434	432	42	42	42	42
Coimbatore	177	135	135	135	24	22	22	21
Delhi	373	376	375	374	363	343	343	292
Gauhati	172	119	110	104	4	4	4	4
Hyderabad	305	288	304	304	199	199	199	196
ICSEIL	633	654	788	925	3	3	3	3
Jaipur	532	522	507	492	34	34	34	33
Ludhiana	297	293	293	293	38	38	38	37
Madhya Pradesh	179	174	174	174	115	5	5	5
Madras	182	178	182	181	3	115	115	112
Magadh	195	198	198	197	1	3	3	3
NSEIL	970	976	1,014	1,077	4,717	5,338	11,359	12,724
OTCEI	867	801	769	752	25	19	19	19
Pune	197	186	192	188	161	161	161	158
SKSE	437	425	426	411	0	0	0	0
Uttar Pradesh	514	504	463	384	19	19	19	14
Vadodara	318	311	311	311	73	41	41	38
<b>Total</b>	<b>9,368</b>	<b>9,128</b>	<b>9,335</b>	<b>9,384</b>	<b>12,815</b>	<b>13,684</b>	<b>23,479</b>	<b>27,540</b>

Source: SEBI.



## Annexure 4-2: Business Growth of CM Segment of NSE

Month/ Year	No. of Trading Days	No. of Companies Traded	No. of Trades (mn.)	Traded Quantity (mn.)	Turnover (Rs. mn.)	Average Daily Turnover (Rs. mn.)	Turnover Ratio (%)	Demat Securities Traded (mn.)	Demat Turnover (Rs. mn.)	Demat Turnover as a % of Total Turnover	Market Capital- isation (Rs. mn.) *
Nov 94-Mar 95	102	--	0.3	139	18,050	177	--	--	--	0	3,633,500
1995-96	246	--	7	3,991	672,870	2,735	--	--	--	0	4,014,590
1996-97	250	--	26	13,556	2,954,030	11,816	--	--	--	0	4,193,670
1997-98	244	--	38	13,569	3,701,930	15,172	--	--	--	0	4,815,030
1998-1999	251	--	55	16,533	4,144,740	16,513	--	854	238,180	5.75	4,911,751
1999-2000	254	--	98	24,270	8,390,515	33,034	--	15,377	7,117,057	84.82	10,204,257
2000-01	251	1201	168	32,954	13,395,102	53,367	--	30,722	12,643,372	94.39	6,578,470
2001-02	247	1,019	175	27,841	5,131,674	20,776	--	27,772	5,128,661	99.94	6,368,610
Apr-02	22	843	20	2,880	533,200	24,236	8.21	2,878	533,159	99.99	6,495,510
May-02	22	821	22	3,530	549,791	24,990	8.70	3,530	549,791	100.00	6,316,092
Jun-02	20	825	19	3,852	442,411	22,121	6.70	3,852	442,411	100.00	6,599,910
Jul-02	23	820	21	3,682	513,984	22,347	8.44	3,682	513,984	100.00	6,086,430
Aug-02	21	806	19	2,600	461,131	21,959	7.29	2,600	461,131	100.00	6,326,180
Sep-02	20	806	18	2,558	464,986	23,249	7.75	2,558	464,986	100.00	5,996,032
Oct-02	21	770	20	2,646	519,022	24,715	8.55	2,646	519,022	100.00	6,067,880
Nov-02	19	767	17	2,363	513,515	27,027	7.96	2,363	513,515	100.00	6,453,880
Dec-02	21	762	22	3,302	619,733	29,511	9.21	3,302	619,733	100.00	6,728,620
Jan-03	23	763	24	3,634	647,622	28,157	11.32	3,634	647,622	100.00	5,722,766
Feb-03	19	760	19	2,868	482,892	25,415	8.30	2,868	482,892	100.00	5,819,850
Mar-03	20	762	18	2,492	431,599	21,580	8.04	2,492	431,599	100.00	5,371,332
<b>2002-03</b>	<b>251</b>	<b>899</b>	<b>240</b>	<b>36,407</b>	<b>6,179,886</b>	<b>24,621</b>	--	<b>36,405</b>	<b>6,179,845</b>	<b>100.00</b>	<b>5,371,332</b>
Apr-03	20	749	21	3,145	489,713	24,486	9.23	3,145	489,713	100.00	5,306,304
May-03	21	743	25	4,400	546,902	26,043	8.94	4,400	546,902	100.00	6,120,303
Jun-03	21	744	27	5,190	615,857	29,327	9.08	5,190	615,857	100.00	6,785,500
Jul-03	23	755	32	6,491	788,776	34,295	10.97	6,491	788,776	100.00	7,191,449
Aug-03	20	752	32	8,455	853,466	42,673	10.20	8,455	853,466	100.00	8,366,505
Sep-03	22	761	35	7,185	1,033,456	46,975	11.97	7,185	1,033,456	100.00	8,634,805
Oct-03	23	728	36	7,177	1,155,953	50,259	12.47	7,177	1,155,953	100.00	9,267,479
Nov-03	20	738	31	5,672	928,858	46,443	9.48	5,672	928,858	100.00	9,795,410
Dec-03	22	754	38	7,175	1,103,726	50,169	9.46	7,175	1,103,726	100.00	11,670,287
Jan-04	21	761	40	7,334	1,342,687	63,937	12.03	7,334	1,342,687	100.00	11,161,500
Feb-04	19	763	31	4,648	1,087,181	57,220	9.79	4,648	1,087,181	100.00	11,109,543
Mar-04	22	769	32	4,459	1,048,765	47,671	9.36	4,459	1,048,765	100.00	11,209,760
<b>2003-04</b>	<b>254</b>	<b>804</b>	<b>379</b>	<b>71,330</b>	<b>10,995,339</b>	<b>43,289</b>	--	<b>71,330</b>	<b>10,995,339</b>	<b>100.00</b>	<b>11,209,760</b>
Apr-04	20	771	32	5,369	1,009,512	50,476	8.61	5,369	1,009,512	100.00	11,718,279
May-04	21	776	36	5,465	989,199	47,105	10.41	5,465	989,199	100.00	9,504,938
Jun-04	22	787	34	4,199	848,985	38,590	8.67	4,199	848,985	100.00	9,796,999
Jul-04	22	793	38	6,306	938,361	42,653	8.80	6,306	938,361	100.00	10,660,873
Aug-04	22	799	36	5,754	868,557	39,480	7.60	5,754	868,557	100.00	11,430,748
Sep-04	22	809	37	6,267	885,081	40,231	7.21	6,267	885,081	100.00	12,275,502
Oct-04	20	814	30	4,727	756,976	37,849	6.04	4,727	756,976	100.00	12,538,253
Nov-04	20	816	33	6,255	820,353	41,018	5.67	6,255	820,353	100.00	14,462,924
Dec-04	23	821	47	9,933	1,155,931	50,258	7.32	9,933	1,155,931	100.00	15,791,608
Jan-05	19	820	41	8,158	997,319	52,490	6.40	8,158	997,319	100.00	15,574,438

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## Annexure 4-2: Business Growth of CM Segment of NSE

Month/ Year	No. of Trading Days	No. of Companies Traded	No. of Trades (mn.)	Traded Quantity (mn.)	Turnover (Rs. mn.)	Average Daily Turnover (Rs. mn.)	Turnover Ratio (%)	Demat Securities Traded (mn.)	Demat Turnover (Rs. mn.)	Demat Turnover as a % of Total Turnover	Market Capital- isation (Rs. mn.)*
Feb-05	20	825	42	8,967	999,895	49,995	6.19	8,967	999,895	100.00	16,145,971
Mar-05	22	831	46	8,370	1,130,551	51,389	7.13	8,370	1,130,551	100.00	15,855,853
<b>2004-05</b>	<b>253</b>	<b>856</b>	<b>451</b>	<b>79,769</b>	<b>11,400,720</b>	<b>45,062</b>	--	<b>79,769</b>	<b>11,400,720</b>	<b>100.00</b>	<b>15,855,853</b>
Apr-05	20	829	37	5,127	827,183	41,359	5.45	5,127	827,183	100.00	15,179,079
May-05	22	830	41	5,652	868,020	39,455	5.24	5,652	868,020	100.00	16,549,947
Jun-05	23	843	48	7,048	1,113,970	48,433	6.45	7,048	1,113,970	100.00	17,275,024
Jul-05	20	856	50	8,413	1,230,080	61,504	6.65	8,413	1,230,080	100.00	18,487,400
Aug-05	22	864	57	10,072	1,457,313	66,242	7.44	10,072	1,457,313	100.00	19,574,909
Sep-05	21	872	58	9,200	1,453,932	69,235	6.93	9,200	1,453,932	100.00	20,982,633
Oct-05	20	887	46	5,767	1,208,099	60,405	6.27	5,767	1,208,099	100.00	19,276,445
Nov-05	20	872	43	5,387	1,095,785	54,789	5.06	5,387	1,095,785	100.00	21,668,229
Dec-05	22	888	55	6,370	1,499,083	68,140	6.45	6,370	1,499,083	100.00	23,223,921
Jan-06	20	893	55	6,672	1,494,421	74,721	6.14	6,672	1,494,421	100.00	24,343,946
Feb-06	19	900	52	6,163	1,353,742	71,250	5.39	6,163	1,353,742	100.00	25,120,830
Mar-06	22	920	66	8,579	2,093,951	95,180	7.44	8,579	2,093,951	100.00	28,132,007
<b>2005-06</b>	<b>251</b>	<b>928</b>	<b>609</b>	<b>84,449</b>	<b>15,695,579</b>	<b>62,532</b>	--	<b>84,449</b>	<b>15,695,579</b>	<b>100.00</b>	<b>28,132,007</b>
Apr-06	18	935	57	7,289	1,773,724	98,540	5.93	7,289	1,773,724	100.00	29,901,998
May-06	22	943	69	9,537	2,014,090	91,550	7.71	9,537	2,014,090	100.00	26,126,387
Jun-06	23	950	67	6,675	1,510,500	65,674	5.98	6,675	1,510,500	100.00	25,246,594
Jul-06	21	950	54	4,615	1,186,983	56,523	4.72	4,615	1,186,983	100.00	25,142,609
Aug-06	22	949	63	5,644	1,307,960	59,453	4.71	5,644	1,307,960	100.00	27,774,010
Sep-06	21	968	65	6,439	1,443,388	68,733	4.82	6,439	1,443,388	100.00	29,941,316
Oct-06	20	973	58	6,082	1,383,822	69,191	4.41	6,082	1,383,822	100.00	31,383,194
Nov-06	22	982	75	7,307	1,898,635	86,302	5.63	7,307	1,898,635	100.00	33,736,518
Dec-06	20	1,009	67	5,858	1,701,054	85,053	4.96	5,858	1,701,054	100.00	34,262,356
Jan-07	20	1,035	70	8,835	1,751,470	87,573	4.90	8,835	1,751,470	100.00	35,714,874
Feb-07	19	1,057	70	8,981	1,801,702	94,826	5.46	8,981	1,801,702	100.00	32,969,306
Mar-07	21	1,081	71	8,284	1,679,537	79,978	4.99	8,284	1,679,537	100.00	33,673,500
<b>2006-07</b>	<b>249</b>	<b>1,114</b>	<b>785</b>	<b>85,546</b>	<b>19,452,865</b>	<b>78,124</b>	-	<b>85,546</b>	<b>19,452,865</b>	<b>100.00</b>	<b>33,673,500</b>

\* At the end of the period.

Source: NSE





## Annexure 4-3: Market Capitalisation, Weightage &amp; Beta of S&amp;P CNX Nifty Securities as on March 30, 2007

SL No.	Security	Market Capitalisation (Rs.million)	Weightage(%)	Beta
1	ABB	150,442	0.79	0.94
2	ACC	137,717	0.72	1.01
3	BAJAJAUTO	245,633	1.29	0.95
4	BHARTIARTL	1,448,254	7.58	0.94
5	BHEL	553,488	2.90	1.09
6	BPCL	109,457	0.57	0.66
7	CIPLA	184,063	0.96	0.78
8	DABUR	81,974	0.43	0.95
9	DRREDDY	122,273	0.64	0.69
10	GAIL	223,717	1.17	0.78
11	GLAXO	94,859	0.50	0.81
12	GRASIM	191,864	1.00	1.14
13	GUJAMBCEM	161,846	0.85	0.96
14	HCLTECH	189,675	0.99	0.94
15	HDFC	381,548	2.00	0.89
16	HDFCBANK	301,688	1.58	0.83
17	HEROHONDA	137,535	0.72	0.66
18	HINDALCO	151,107	0.79	1.20
19	HINDLEVER	452,842	2.37	1.00
20	HINDPETRO	84,086	0.44	0.77
21	ICICIBANK	763,787	4.00	0.93
22	INFOSYSTCH	1,139,996	5.97	0.87
23	IPCL	81,430	0.43	1.18
24	ITC	568,660	2.98	0.94
25	JETAIRWAYS	54,667	0.29	0.91
26	LT	454,710	2.38	1.12
27	MARUTI	236,964	1.24	1.16
28	M&M	191,488	1.00	1.02
29	MTNL	92,453	0.48	1.26
30	NATIONALUM	150,543	0.79	1.02
31	ONGC	1,883,919	9.87	0.92
32	ORIENTBANK	47,014	0.25	1.03
33	PNB	149,516	0.78	0.98
34	RANBAXY	131,181	0.69	0.77
35	REL	112,940	0.59	0.93
36	RELIANCE	1,909,524	10.00	1.00
37	SAIL	472,105	2.47	1.49
38	SATYAMCOMP	309,689	1.62	1.06
39	SBIN	523,378	2.74	0.89
40	SIEMENS	183,870	0.96	1.27
41	SUNPHARMA	203,407	1.07	0.69
42	SUZLON	288,196	1.51	1.25
43	TATAPOWER	100,789	0.53	0.69
44	RCOM	860,578	4.51	1.24
45	TATAMOTORS	280,629	1.47	1.12
46	TCS	1,207,459	6.32	0.97
47	TATASTEEL	261,010	1.37	1.35
48	VSNL	114,656	0.60	1.44
49	WIPRO	807,168	4.23	1.18
50	ZEEL	108,695	0.57	0.82
<b>TOTAL</b>		<b>19,094,485</b>	<b>100.00</b>	<b>1.00</b>

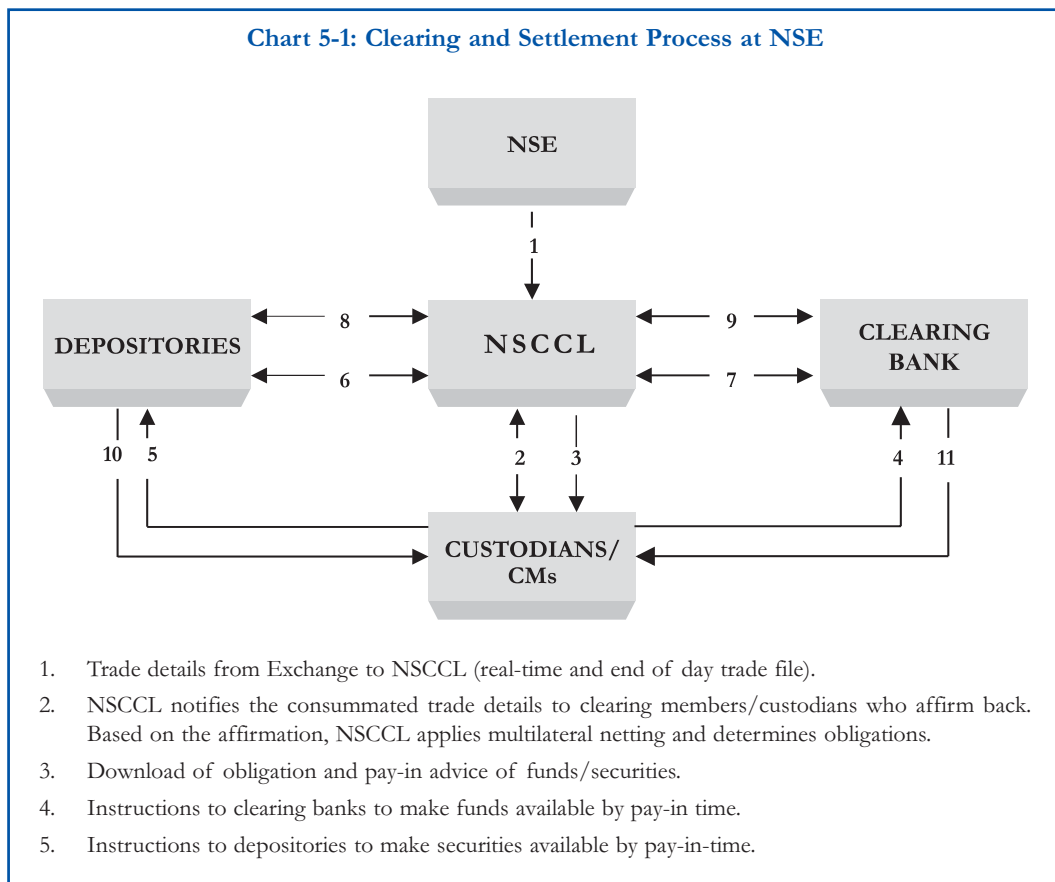
Source:NSE



## Secondary Market - Clearing and Settlement

### Clearing and Settlement Processes

The transactions in secondary market pass through three distinct phases, viz., trading, clearing and settlement. While the stock exchanges provide the platform for trading, the clearing corporation determines the funds and securities obligations of the trading members and ensures that the trade is settled through exchange of obligations. The clearing banks and the depositories provide the necessary interface between the custodians/clearing members for settlement of funds and securities obligations of trading members. The clearing process involves determination of what counter-parties owe, and which counter-parties are due to receive on the settlement date, thereafter the obligations are discharged by settlement. The clearing and settlement process for transaction in securities on NSE is presented in (Chart 5-1).



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.

Several entities, like the clearing corporation, clearing members, custodians, clearing banks, depositories are involved in the process of clearing. The role of each of these entities is explained below:

- *Clearing Corporation:* The clearing corporation is responsible for post-trade activities such as the risk management and the clearing and settlement of trades executed on a stock exchange.
- *Clearing Members:* Clearing Members are responsible for settling their obligations as determined by the NSCCL. They do so by making available funds and/or securities in the designated accounts with clearing bank/depositories on the date of settlement.
- *Custodians:* Custodians are clearing members but not trading members. They settle trades on behalf of trading members, when a particular trade is assigned to them for settlement. The custodian is required to confirm whether he is going to settle that trade or not. If he confirms to settle that trade, then clearing corporation assigns that particular obligation to him. As on date, there are 11 custodians were empanelled with NSCCL. They are, Citibank N.A., Deutsche Bank A.G., HDFC Bank Limited, HSBC Limited, ICICI Limited, IL&FS Limited, Standard Chartered Bank, State Bank of India, SHCL, Kotak Mahendra Bank Ltd and DBS Bank Ltd
- *Clearing Banks:* Clearing banks are a key link between the clearing members and Clearing Corporation to effect settlement of funds. Every clearing member is required to open a dedicated clearing account with one of the designated clearing banks. Based on the clearing member's 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. There are 13 clearing banks of NSE, viz. Axis Bank Ltd, Bank of India Ltd., Canara Bank Ltd., Citibank N.A, HSBC Ltd., HDFC Bank Ltd., ICICI Bank Ltd, IDBI Bank Ltd., Indusind Bank Ltd., Kotak Mahindra Bank, Standard Chartered Bank, State Bank of India and Union Bank of India
- *Depositories:* Depository holds securities in dematerialized form for the investors in their beneficiary accounts. Each 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 and visa-versa as per the schedule of allocation of securities.

- *Professional Clearing Member:* NSCCL admits special category of members known as professional clearing members (PCMs). PCMs may clear and settle trades executed for their clients (individuals, institutions etc.). In such cases, the functions and responsibilities of the PCM are similar to that of the custodians. PCMs also undertake clearing and settlement responsibilities of the trading members. The PCM in this case has no trading rights, but has clearing rights i.e. he clears the trades of his associate trading members and institutional clients.

The core processes involved in clearing and settlement include :

- (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 parties to a 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.
- (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 NSCCL 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.



*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. The risk management methods adopted by NSE have brought the Indian financial market in line with the international markets.

### Settlement Cycle

NSCCL clears and settles trades as per the well-defined settlement cycles (Table 5-1). All the securities are being traded and settled under T+2 rolling settlement. The NSCCL notifies the relevant trade details to clearing members/custodians on the trade day (T), which are affirmed on T+1 to NSCCL. Based on it, NSCCL nets the positions of counterparties to determine their obligations. A clearing member has to pay-in/pay-out funds and/or securities. 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 and are forwarded to them on the same day, so that they can settle their obligations on T+2. The securities/funds are paid-in/paid-out on T+2 day to the members' clients' and the settlement is complete in 2 days from the end of the trading day.

**Table 5-1: Settlement Cycle in CM Segment**

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

T+1 means one working day after the trade day. Other T+ terms have similar meanings.

Source: NSE



## Risk Containment Measures

The risk containment measures have been repeatedly reviewed and revised to be up to date with the market realities. This section however discusses the measures prevailing as in September 2007.

### Capital Adequacy

The capital adequacy requirements stipulated by the NSE are substantially in excess of the minimum statutory requirements as also in comparison to those stipulated by other stock exchanges. A person seeking membership in the CM and F&O segment is required to have a net worth of Rs. 1 crore, and keep an interest free security deposit of Rs. 1.25 crore and collateral security deposit of Rs. 0.25 crore with the Exchange/NSCCL. The deposits kept with the Exchange as part of the membership requirement may be used towards the margin requirement of the member. Additional capital may be provided by the member for taking additional exposure. The capital adequacy norms to be followed by members are presented in (Table 5-2).

**Table 5-2: Capital Adequacy Norms for Membership on NSE**

Requirement	Members of			Professional Clearing Members of	
	CM and F&O Segment	CM and WDM Segment	CM, WDM and F&O Segment	CM Segment	CM and F&O Segment
Net Worth <sup>1</sup>	Rs. 100 lakh	Rs. 200 lakh	Rs. 200 lakh	Rs. 300 lakh	Rs. 300 lakh
Interest Free Security Deposit (IFSD) <sup>2</sup>	Rs. 125 lakh	Rs. 250 lakh	Rs. 275 lakh	Rs. 25 lakh	Rs. 34 lakh
Collateral Security Deposit (CSD) <sup>2</sup>	Rs. 25 lakh	Rs. 25 lakh	Rs. 25 lakh	Rs. 25 lakh	Rs. 50 lakh
Annual Subscription	Rs. 1 lakh	Rs. 2 lakhs	Rs. 2 lakh	Nil	Rs. 2.5 lakh

*Note: 1.* No additional Net worth is required for self-clearing members in the F&O segment.“ However a Net worth of Rs. 300 lakh is required for members clearing for self as well as for other trading members (clearing members).

*Note: 2.* Additional Rs. 25 lakh is required for trading members in the F&O segment clearing for self (Self clearing member) and for trading members clearing for self and other trading members (clearing member).“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.

### On-Line 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 the NSCCL are alerted as per pre-set levels (reaching 70%, 85%, 90%, 95% and 100%) as and when the members approach these limits. The system enables NSCCL to further check the micro-details of members' positions, if required and take pro-active action.

The on-line surveillance mechanism also generates alerts/reports on any price/volume movement of securities not in line with past trends/patterns. Open positions of



securities are also analyzed. For this purpose the exchange maintains various databases to generate alerts. These alerts are scrutinized and if necessary taken up for follow up action. Besides this, rumors in the print media are tracked and where they are found to be price sensitive, companies are approached to verify the same. This is then informed to the members and the public.

### *Inspection and Investigation*

There is a regulatory requirement that a minimum of 20% of the active trading members in the capital market segment and 50 % of active trading members in the derivatives segment should be inspected every year to verify their 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 the investor interests are being compromised in the conduct of business by the members. On the basis of various alerts further analysis is carried out. If it suggests any possible irregularity such as deviations from the past trends/patterns, 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 a disciplinary action is initiated against the member. If the investigation suggests suspicions of possible irregular activity across the stock exchanges and/or possible involvement of clients, the same is informed to SEBI.

### *Margin Requirements*

NSCCL imposes stringent margin requirements as a part of its risk containment measures. The categorization of stocks for imposition of margins has the structure as given below;

- The Stocks which have traded atleast 80% of the days for the previous six months constitute the Group I and Group II.
- Out of the scrips identified for Group I & II category, the scrips having mean impact cost of less than or equal to 1% are categorized under Group I and the scrips where the impact cost is more than 1, are categorized under Group II.
- The remaining stocks are classified into Group III.
- The impact cost is calculated on the 15th of each month on a rolling basis considering the order book snapshots of the previous six months. On the basis of the impact cost so calculated, the scrips move from one group to another group from the 1st of the next month.
- For securities that have been listed for less than six months, the trading frequency and the impact cost is computed using the entire trading history of the security

### *Categorisation of newly listed securities*

For the first month and till the time of monthly review a newly listed security is categorised in that Group where the market capitalization of the newly listed security exceeds or equals the market capitalization of 80% of the securities in that particular group. Subsequently, after one month, whenever the next monthly review is carried out, the actual trading frequency and



impact cost of the security is computed, to determine the liquidity categorization of the security.

In case any corporate action results in a change in ISIN, then the securities bearing the new ISIN shall be treated as newly listed security for group categorization.

Daily margin, comprises of VaR margin, Extreme Loss margin and Mark to Market margin.

### 1) *Value at Risk Margin :*

All securities are classified into three groups for the purpose of VaR margin

For the securities listed in Group I, scrip wise daily volatility calculated using the exponentially weighted moving average methodology is applied to daily returns in the same manner as in the derivatives market. The scrip wise daily VaR would be 3.5 times the volatility so calculated subject to a minimum of 7.5%.

For the securities listed in Group II, the VaR margin is higher of scrip VaR (3.5 sigma) or three times the index VaR, and it is scaled up by root 3.

For the securities listed in Group III, the VaR margin is equal to five times the index VaR and scaled up by root 3.

The index VaR, for the purpose, would be the higher of the daily Index VaR based on NSE NIFTY 50 or BSE Sensex. The index VaR would be subject to a minimum of 5%.

Security specific Margin: NSCCL may stipulate security specific margins for the securities from time to time.

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. There would be no netting off of positions across different settlements. The VaR margin is collected on an upfront basis by adjusting against the total liquid assets of the member at the time of trade. The VaR margin so collected is released on completion of pay-in of the settlement

The VaR numbers are recomputed six times during the day taking into account price and volatilities at various time intervals and are provided on the website of the Exchange.

### 2) *Extreme Loss Margin*

The Extreme Loss Margin for any security is higher of 5%, or 1.5 times the standard deviation of daily logarithmic returns of the security price in the last six months. The Extreme Loss Margin is collected/adjusted against the total liquid assets of the member on a real time basis

### 3) *Mark to Market Margin*

Mark to market loss is calculated by marking each transaction in security to the closing price of the security at the end of trading. In case the security has not been traded on a particular day, the latest available closing price at the NSE is considered as the closing price. In case the net outstanding position in any security is nil, the difference between the buy and sell values is considered as notional loss for the purpose of calculating the mark to market margin payable.

The mark to market margin (MTM) is collected from the member before the start





of the trading of the next day. The MTM margin is also collected/adjusted from/against the cash/cash equivalent component of the liquid net worth deposited with the Exchange.

The MTM margin so collected is released on completion of pay-in of the settlement.

## Index-based Market-wide Circuit Breakers

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 trading on all equity and equity derivatives markets across the country. The breakers are triggered by movements in either Nifty 50 or Sensex, whichever is breached earlier.

- In case of a 10% movement in either of these indices, there would be a one-hour market halt if the movement takes place before 1:00 p.m. In case the movement takes place at or after 1:00 p.m. but before 2:30 p.m. there would be trading halt for ½ hour. In case movement takes place at or after 2:30 p.m. there will be no trading halt at the 10% level and market would continue trading.
- In case of a 15% movement of either index, there should be a two-hour halt if the movement takes place before 1 p.m. If the 15% trigger is reached on or after 1:00 p.m. but before 2:00 p.m., there should be a one-hour halt. If the 15% trigger is reached on or after 2:00 p.m. the trading should halt for remainder of the day.
- In case of a 20% movement of the index, trading should be halted for the remainder of the day.

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. As an additional measure of safety, individual scrip-wise price bands have been fixed as below:

Daily price bands of 2% (either way) on a set of specified securities

Daily price bands of 5% (either way) on a set of specified securities

Daily price bands of 10% (either way) on a set of specified securities

Price bands of 20% (either way) on all the remaining securities (including debentures, warrants, preference shares etc. which are traded on CM segment of NSE),

No price bands are applicable on scrip on which derivative products are available or scrips included in indices on which derivative products are available. However in order to prevent members from entering orders at non-genuine prices in such securities, the Exchange has fixed operating range of 20% for such securities.

The price bands for the securities in the Limited Physical Market are the same as those applicable for the securities in the Normal Market. For Auction market the price bands of 20% are applicable.

## Settlement Process

The settlement process begins as soon as members' obligations are determined through

the clearing process. The settlement process is carried out by the Clearing Corporation with the help of clearing banks and depositories. The Clearing Corporation provides a major link between the clearing banks and the depositories. This link ensures actual movement of funds as well as securities on the prescribed pay-in and pay-out day.

This requires members to bring in their funds/securities to the clearing corporation. The CMs make the securities available in designated accounts with the two depositories (CM pool account in the case of NSDL and designated settlement accounts in the case of CDSL). The depositories move the securities available in the pool accounts to the pool account of the clearing corporation. Likewise CMs with funds obligations make funds available in the designated accounts with clearing banks. The clearing corporation sends electronic instructions to the clearing banks to debit designated CMs' accounts to the extent of payment obligations. The banks process these instructions, debit accounts of CMs and credit accounts of the clearing corporation. This constitutes pay-in of funds and of securities.

After processing for shortages of funds/securities and arranging for movement of funds from surplus banks to deficit banks through RBI clearing, the clearing corporation sends electronic instructions to the depositories/clearing banks to release pay-out of securities/funds. The depositories and clearing banks debit accounts of the Clearing Corporation and credit accounts of CMs. This constitutes pay-out of funds and securities.

Settlement is deemed to be complete upon declaration and release of pay-out of funds and securities. The settlement cycle for the CM segment are presented in Table 5.1.

### *Dematerialised Settlement*

NSE along with leading financial institutions established the National Securities Depository Ltd. (NSDL), the first depository in the country, with the objective to reduce the menace of fake/forged and stolen securities and thereby enhance the efficiency of the settlement systems. This has ushered in an era of dematerialized trading and settlement. SEBI, too, has been progressively promoting dematerialisation by mandating settlement only through dematerialized form for more and more securities. The share of demats delivery in total delivery at NSE touched almost 99.99% in terms of value during 2006-07.

### *Settlement Guarantee*

The Settlement Guarantee Fund provides a cushion for any residual risk and operates like a self-insurance mechanism wherein members themselves contribute to the fund. In the event of a trading member failing to meet his settlement obligation, then the fund is utilized to the extent required for successful completion of the settlement. This has eliminated counter-party risk of trading on the Exchange.

As in case of NSCCL, other stock exchanges also have been allowed by the SEBI to use trade guarantee funds (TGFs) 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, 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 Base Minimum Capital 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.

### Settlement Statistics

The details of settlement of trades on CM segment of NSE are provided in Annexure 5.1. There has been a substantial reduction in short and bad deliveries. Short deliveries averaged around 0.32% of total delivery in 2006-07. The ratio of bad deliveries to net deliveries progressively declined to almost negligible in 2006-07.

During 2006-07, taking all stock exchanges together, 33.17% of securities accounting for 28.98% turnover settled by delivery and the balance were squared up/netted out (Table 5-3). In the preceding year, 35.57% of shares accounting for 28.49% of turnover was settled by delivery. This indicates preference for non-delivery-based trades.

**Table 5-3: Delivery Pattern in Stock Exchanges**

Exchange	(In per cent)			
	2005-06		2006-07	
	Quantity	Value	Quantity	Value
NSE	27.66	25.99	28.02	27.92
BSE	45.25	33.24	40.96	31.13
Calcutta	56.23	60.32	75.28	77.95
Delhi	0.00	0.00	0.00	0.00
Ahmedabad	0.00	0.00	0.00	0.00
Uttar Pradesh	0.28	2.83	0.03	0.08
Bangalore	0.00	0.00	0.00	0.00
Ludhiana	0.00	0.00	0.00	0.00
Pune	0.00	0.00	0.00	0.00
OTCEI	100.00	100.00	0.00	0.00
Hyderabad	96.00	95.82	99.81	100.00
ISE	0.00	0.00	0.00	0.00
Madras	100.00	97.80	100	100.00
Vadodara	0.00	0.00	0.00	0.00
Bhubaneshwar	0.00	0.00	0.00	0.00
Coimbatore	0.00	0.00	0.00	0.00
Madhya Pradesh	0.00	0.00	0.00	0.00
Magadh	0.00	0.00	0.00	0.00
Jaipur	0.00	0.00	0.00	0.00
Gauhati	0.00	0.00	0.00	0.00
SKSE	0.00	0.00	0.00	0.00
Cochin	0.00	0.00	0.00	0.00
<b>Total</b>	<b>35.57</b>	<b>28.49</b>	<b>33.17</b>	<b>28.98</b>

Source: SEBI.

\* Delivery ratio represents percentage of delivery to turnover of a Stock Exchange

Quantity = qty shares delivered as a % of no. of shares traded

Value = value of shares delivered as a % of turnover



### *Close-out Facility*

An online facility to close -out open positions of members in the capital market segment whose trading facility is withdrawn for any reason, has been provided with effect from June 13, 2007,

On disablement, the trading members will be allowed to place close-out orders through this facility. Only orders which result in reduction of existing open positions at the client level would be accepted through the close-out facility in the normal market. Members would not be allowed to create any fresh position when in the close-out mode, to place close out orders with custodial participant code and to close out open positions of securities in trade for trade segment.



Annexure 5-1: Settlement Statistics in CM Segment of NSE

Month/ Year	No. of Trades (mm.)	Traded Quantity (mm.)	Quantity of Shares Delive- rable (mm.)	% of Shares Delive- rable to Total Shares Traded	Turnover (Rs. mm.)	Value of Shares Delive- rable (Rs. mm.)	Turnover (US \$, mm.)	Value of Shares Delive- rable (US\$, mm.)	% of Delive- rable to Value of Shares Traded	Securities Pay-in (Rs. mm.)	Short Delivery (Auctioned quantity) (mm.)	% of Short Delivery to Delivery (mm.)	Unrectified Bad Delivery (Auctioned quantity) (mm.)	% of Unrectified Bad Delivery to Delivery	Funds Pay-in (Rs. mm.)
Apr-05	36	5,195	1,315	25.31	830,379	216,237	18,614	4,847	26.04	215,385	6	0.48	0.00	0.00	76,911
May-05	41	5,628	1,527	27.14	884,437	245,605	19,826	5,506	27.77	244,493	8	0.49	0.00	0.00	79,205
Jun-05	46	6,679	1,829	27.38	1,061,326	300,648	23,791	6,739	28.33	299,637	8	0.42	0.00	0.00	105,857
Jul-05	47	7,798	2,101	26.95	1,147,291	313,081	25,718	7,018	27.29	311,979	9	0.43	0.00	0.00	101,738
Aug-05	58	10,013	2,831	28.27	1,525,605	428,940	34,199	9,615	28.12	427,448	12	0.43	0.00	0.00	134,044
Sep-05	54	8,535	2,300	26.94	1,320,876	356,177	29,609	7,984	26.97	354,630	11	0.49	0.00	0.00	103,726
Oct-05	50	6,473	1,822	28.14	1,353,763	338,570	30,347	7,590	25.01	337,409	7	0.40	0.00	0.00	131,706
Nov-05	42	5,201	1,416	27.24	1,047,482	276,525	23,481	6,199	26.40	275,745	5	0.32	0.00	0.00	91,549
Dec-05	55	6,211	1,723	27.75	1,428,141	362,951	32,014	8,136	25.41	361,941	5	0.29	0.00	0.00	114,822
Jan-06	55	6,601	1,861	28.19	1,482,577	400,983	33,234	8,989	27.05	399,644	7	0.36	0.00	0.00	136,334
Feb-06	52	6,032	1,770	29.34	1,337,526	373,521	29,983	8,373	27.93	372,459	6	0.31	0.00	0.00	105,809
Mar-06	62	7,477	2,229	29.81	1,748,987	480,289	39,206	10,766	27.46	478,989	6	0.29	0.00	0.00	132,557
<b>2005-06</b>	<b>600</b>	<b>81,844</b>	<b>22,724</b>	<b>27.77</b>	<b>15,168,390</b>	<b>4,093,525</b>	<b>340,022</b>	<b>91,762</b>	<b>26.99</b>	<b>4,079,759</b>	<b>89</b>	<b>0.39</b>	<b>0.00</b>	<b>0.00</b>	<b>1,314,256</b>
Apr-06	57	7,287	2,102	28.85	1,745,546	489,074	40,045	11,220	28.02	487,614	9	0.44	0.00	0.00	137,303
May-06	72	9,976	3,058	30.65	2,163,968	667,500	49,644	15,313	30.85	665,015	12	0.40	0.00	0.00	264,705
Jun-06	67	6,633	1,778	26.81	1,498,416	362,168	34,375	8,308	24.17	361,263	5	0.30	0.00	0.00	133,977
Jul-06	54	4,664	1,310	28.08	1,219,783	303,466	27,983	6,962	24.88	302,716	4	0.27	0.00	0.00	114,891
Aug-06	63	5,499	1,484	26.99	1,278,073	325,731	29,320	7,473	25.49	324,774	6	0.38	0.00	0.00	96,356
Sep-06	64	6,197	1,739	28.06	1,403,000	393,544	32,186	9,028	28.05	392,670	6	0.33	0.00	0.00	122,063
Oct-06	58	6,068	1,792	29.53	1,360,363	404,487	31,208	9,279	29.73	403,443	6	0.32	0.00	0.00	111,178
Nov-06	74	7,241	2,121	29.30	1,834,958	520,490	42,096	11,941	28.37	519,237	6	0.29	0.00	0.00	155,351
Dec-06	67	5,889	1,793	30.44	1,721,272	481,019	39,488	11,035	27.95	480,093	5	0.28	0.00	0.00	143,405
Jan-07	70	8,376	2,355	27.47	1,722,096	518,547	39,507	11,896	30.11	517,186	8	0.36	0.00	0.00	142,502
Feb-07	68	8,758	2,284	26.08	1,768,344	513,273	40,568	11,775	29.03	512,159	6	0.26	0.00	0.00	140,226
Mar-07	73	8,264	2,091	25.30	1,685,124	465,047	38,658	10,669	27.60	464,306	4	0.20	0.00	0.00	169,921
<b>2006-07</b>	<b>786</b>	<b>85,051</b>	<b>23,907</b>	<b>28.11</b>	<b>19,400,943</b>	<b>5,444,345</b>	<b>445,078</b>	<b>124,899</b>	<b>28.06</b>	<b>5,430,475</b>	<b>77</b>	<b>0.32</b>	<b>0.00</b>	<b>0.00</b>	<b>1,731,877</b>

Source: NSE



## Debt Market\*

### Introduction

The debt market in India comprises mainly of two segments viz., the Government securities market consisting of Central and State Governments securities, Zero Coupon Bonds (ZCBs), Floating Rate Bonds (FRBs), T-Bills and the Corporate securities market consisting of FI bonds, PSU bonds, and Debentures/Corporate bonds. Government securities form the major part of the market in terms of outstanding issues, market capitalization and trading value. It sets benchmark for the rest of the market. The market for debt derivatives have not yet developed appreciably though a market for OTC derivatives in interest rate products exists.

During 2006-07, the government and corporate sector collectively mobilized Rs. 2,925,532 million (US \$ 67,115 million) from primary debt market, a rise of 10.99% as compared to the preceding year (Table 6-1). About 68.43% of the resources were raised by the government (Central and State Governments), while the balance amount was mobilized by the corporate sector through public and private placement issues. The turnover in secondary debt market during 2006-07 aggregated Rs. 35,974,308 million (US \$ 825,288 million), 38% higher than that in the previous year. The share of NSE in total turnover in debt securities witnessed a decline and stood at 5.71% during 2006-07.

**Table 6-1: Debt Market: Selected Indicators**

Issuer/Securities	(In Rs. mn.)				(In US \$ million)			
	Amount raised form Primary Market		Turnover in Secondary Market		Amount raised form Primary Market		Turnover in Secondary Market	
	2005-06	2006-07	2005-06	2006-07	2005-06	2006-07	2005-06	2006-07
Government	1,817,470	2,001,980	25,804,000*	35,833,370*	40,741	45,928	578,435	822,055
Corporate/Non Government	818,466	923,552	252,762	140,938	18,347	21,187	5,666	3,233
<b>Total</b>	<b>2,635,936</b>	<b>2,925,532</b>	<b>26,056,762</b>	<b>35,974,308</b>	<b>59,088</b>	<b>67,115</b>	<b>584,101</b>	<b>825,288</b>

\* includes NDS-OM turnover

Source : Primedatabase, RBI and NSE.

\* This chapter discusses the market design and outcome in the government securities market, both primary and secondary segment. Data availability for secondary market for corporate debt securities is limited. Wherever possible, the developments in the secondary market for corporate debt are also covered in this chapter. The developments in primary corporate debt market are presented in Chapter 2 of this publication.



## Policy Developments

Various initiatives taken by the RBI and SEBI during April 2006 to June 2007 are enumerated in this section.

### *I) Accounting and related aspects - 'When Issued' transactions in Central Government Securities.*

In continuation to the introduction of 'When Issued' markets in Central Government Securities, the Reserve Bank of India has set Guidelines for the Accounting and related aspects.

#### **1) Accounting Treatment**

- (a) The 'WI' security should be recorded in books as an off-balance sheet item till issue of the security.
- (b) The off-balance sheet net position in 'WI' market should be marked to market scrip-wise on daily basis at the day's closing price of the 'WI' security. In case the price of the 'WI' security is not available, the market value of the underlying security may be used instead. Revaluation losses, if any, should be provided for and gains, if any, should be ignored.
- (c) On delivery, the underlying security may be classified in any of the two categories, viz., 'Permanent' or 'Current', depending upon the intent of holding, and may be recognized in the balance sheet at the contracted price.

#### **2) Eligibility for SLR status**

The securities bought in the 'When Issued' market would be eligible for SLR purposes, only on delivery.

### *II. Corporate Bond Market- Launch of Reporting Platform*

The conditions to be complied in respect of private placements of debt securities had been stipulated by SEBI. These conditions governed three aspects, viz., issuance, listing and trading of privately placed debt securities.

In the first phase of implementing the Union Budget proposals for developing an exchange traded market for Corporate Bonds, SEBI authorized BSE and NSE to set up and maintain corporate bond reporting platforms to capture all information related to trading in corporate bonds as accurately and as close to execution as possible.

In the second phase of development, it had been decided to permit BSE and NSE to have in place corporate bond trading platforms to enable efficient price discovery and reliable clearing and settlement in a gradual manner. To begin with, the trade matching platform would be order driven with essential features of OTC market. Eventually, a system of anonymous order matching would be established.

The order driven trade matching platform for listed corporate debt securities was implemented by BSE and NSE with effect from July 01, 2007 on the following lines:

- 1) BSE and NSE may make use of the existing infrastructure available with them for

- operating the trade matching platform for corporate bonds, with necessary modifications.
- 2) In the initial stage of usage of the trade matching platforms, the system should retain the essential features of the OTC market.
  - 3) Orders executed through trading platforms of either BSE or NSE would not be required to be reported again on the reporting platforms.
  - 4) All investors including banks who are desirous of using the trading platform of BSE or NSE should deal through stock brokers registered with SEBI for their transactions thereon. Respective regulators accordingly have been requested to issue necessary instructions to all entities regulated by them.
  - 5) At the option of the participants, they would also be allowed to undertake Over the Counter transactions. Such Over the Counter transactions would continue to be reported on the reporting platforms.
  - 6) The trading platforms would be available from 10.00 am to 5.30 pm on all trading days. BSE and NSE should ensure that the norms on trading hours, access rights to the trading systems etc. should broadly follow the norms presently followed in the equity segment. BSE and NSE would ensure that the norms are harmonious between the exchanges.
  - 7) The entities trading in listed corporate debt securities may settle their trades bilaterally between them. They may also use the services of the stock exchanges for clearing and settlement.
  - 8) BSE and NSE should ensure that the shut period in corporate bonds should be reduced and aligned to that applicable for Government Securities within a reasonable period of time.
  - 9) All entities including Qualified Institutional Investors (QIBs), would trade in corporate bonds subject to a minimum value of Rs.1 lakh. Exchanges may also have a limited segment for transactions in smaller market lots.
  - 10) The Actual/Actual day count convention, presently followed for dated Government Securities, would be mandatory for all new issues of corporate bonds. For existing bonds, the existing terms may be observed unless agreed to by issuers and holders.

On stabilization of the trade matching system, BSE and NSE would be allowed to move to an anonymous order matching system for trading of bonds within an appropriate period of time. Both the stock exchanges will have to indicate to SEBI an expected date on which they could move to anonymous order matching system for trading in corporate bonds. Such anonymous order matching system would be implemented on the following lines:

- 1) With the introduction of anonymous order matching platform, the clearing and settlement facility should be provided by BSE and NSE with a multilateral netting facility for trades executed on the platform. The systems used for the purpose should be designed to ensure that they are fair, effective and efficient and that they reduce systemic risk.





- 2) BSE and NSE should devise an appropriate system of margining for trades done on the platform.
- 3) BSE and NSE may either fully or partially engage the services of entities providing technical support for trading in corporate bonds. Where such service providers are engaged, the concerned stock exchange would be responsible for the execution of trades and clearing and settlement thereon.
- 4) The conditions mentioned at point numbers 3, 4, 5, 6, 8, 9 and 10 of the order driven trade matching platform for listed corporate debt securities as far as may be, apply to the anonymous order matching system.

### *III. Secondary Market Transactions in Government Securities - Short-selling.*

Intra-day short sale in Central Government dated securities was permitted to enhance liquidity in the G-sec markets and to provide participants with a tool to express two way view on interest rate. As a part of the phased implementation of short sale in Govt. securities market and in terms of the announcement made vide paras 88 & 89 of the Mid-Term Review of Annual Policy Statement for the Year 2006-07, it was decided to extend the period of maintenance of short positions beyond the trading day.

#### **Definition**

**Short Sale** is defined as sale of securities one does not own. A bank can also undertake 'notional' short sale where it can sell a security short from HFT even if the security is held under its AFS/HTM book. The resultant 'notional' short position would be subject to the same regulatory requirements as in the case of a short sale. For the purpose of these guidelines, short sale would include 'notional' short sale as well. The short sale by banks and the cover transaction should not affect the holdings and valuation of the same security in AFS/HTM categories in any way.

#### **Extended period for holding Short Positions**

Scheduled Commercial Banks and Primary Dealers (PDs) may undertake short sale of Central Government dated securities, subject to the short position being covered within a maximum period of five trading days, including the day of trade. In other words, the short sale position initiated today (trade date, T+0) will have to be covered on or before close of T+4 day. It may be noted that such short positions should be covered only by outright purchase of an equivalent amount of the same security. The short positions may be reflected in Securities Short Sold (SSS) A/c specifically created for this purpose.



## Short Sale-ILLUSTRATION

Date	Transaction	Value (Rs. crore)	Settlement date	Short Position (as reflected in SSS A/c	Impact on Investment account	SGL Flow	Remarks
15 Jan 2007	Short sale	50	16 Jan 2007	(-) 50	--	--	Assumed a short position, which needs to be covered by an outright sale on or before 19 Jan 2007. The delivery obligation could be met by borrowing under reverse repo either on 15 Jan 07 ( T+1) or 16 Jan 07 ( T+0) or buying outright on 15 Jan 2007 (T+1)
	<b>At day end</b>			<b>(-) 50</b>	<b>Nil</b>	<b>Nil</b>	
16 Jan 2007	Reverse Repo No.1 (1st leg - buy)	50	16 Jan 2007		(+) 50	(+) 50	Acquired stock of the security under a one day reverse repo to meet the delivery commitment under the short sale
	Delivery into Short sale	50			(-) 50	(-) 50	Delivery into (Settlement of) short sale
	<b>At day end</b>			<b>(-) 50</b>	<b>Nil</b>	<b>Nil</b>	
17 Jan 2007	Reverse Repo No.2 (1st leg - buy)	50	17 Jan 2007		(+) 50	(+) 50	Acquired stock of the security under a one day reverse repo to meet the delivery commitment of the second leg of reverse repo no.1 done on 16 Jan 2007.
	Delivery into Reverse Repo No.1 (2nd leg - sell)	50			(-) 50	(-) 50	Bank meets the delivery commitment under the second leg of the Reverse Repo No.1
	<b>At day end</b>			<b>(-) 50</b>	<b>Nil</b>	<b>Nil</b>	
18 Jan 2007	Reverse Repo No.3 (1st leg - buy)	50	18 Jan 2007		(+) 50	(+) 50	Acquired stock of the security under a one day reverse repo to meet the delivery commitment of the second leg of reverse repo no.2 done on 17 Jan 2007.
	Delivery into Reverse Repo No.2 (2nd leg - Sell)	50			(-) 50	(-) 50	Bank meets the delivery commitment under the second leg of the Reverse Repo No.2

Contd...



Contd...

Date	Transaction	Value (Rs. crore)	Settlement date	Short Position (as reflected in SSS A/c)	Impact on Investment account	SGL Flow	Remarks
	At day end		(-) 50	Nil	Nil		
19 Jan 2007	Reverse Repo No.4 (1st leg - buy)	50	19 Jan 2007		(+) 50	(+) 50	Acquired stock of the security under three day reverse repo to meet the delivery commitment under the reverse repo 3 done on 17 Jan 2007.
	Delivery into Reverse Repo No.3 (2nd leg - Sell)	50			(-) 50	(-) 50	Bank meets the sale commitment under the second leg of the Reverse Repo No.3
	Outright purchase	50	22 Jan 2007	(+) 50	--	--	Acquired stock of the security through an outright purchase to square the short position assumed on 15 Jan 2007 and to meet the delivery commitment of Reverse Repo no.4.
	<b>At day end</b>			<b>Nil</b>	<b>Nil</b>	<b>Nil</b>	
22 Jan 2007	Settlement of outright purchase	50			(+) 50	(+) 50	
	Delivery into Reverse Repo No.4 (2nd leg - Sell)	50			(-) 50	(-) 50	Bank receives the stock purchased outright on 19 Jan 2007 and uses it to settle the sale leg of the Reverse Repo No.4.
	<b>At day end</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

### Minimum requirements

In respect of short sales, banks and PDs should ensure adherence to the following conditions:

- The sale leg as well as the cover leg of the transaction should be executed only on the Negotiated Dealing System - Order Matching (NDS-OM) platform.
- The sale leg as well as the cover leg of the transaction should be accounted in the HFT category.
- Under no circumstances, should participants fail to deliver, on settlement date, the securities sold short. Failures to deliver securities short sold should be treated as an

instance of 'SGL bouncing' and the concerned banks or PDs will be liable to disciplinary action prescribed in respect of SGL bouncing, besides attracting such further regulatory action as may be considered necessary.

- d) At no point of time should a bank/PD accumulate a short position (face value) in any security in the HFT category in excess of the following limits:
- 0.25% of the total outstanding stock issued of each security in case of securities other than liquid securities.
  - 0.50% of the total outstanding stock issued of each security in case of liquid securities

Banks and PDs would be entirely responsible for ensuring strict compliance with the above prudential limits on real time basis for which they may put in place appropriate systems and internal controls. The controls provided in the trading platform (NDS-OM) are merely in the nature of additional tools and should not be cited as a reason for any breach of internal or regulatory limits. The information regarding the outstanding stock of each Government of India dated security is being made available on the RBI website (URL: <http://rbi.org.in/Scripts/NDSUserXsl.aspx>). The list of liquid securities for compliance with the limits would be provided by FIMMDA from time to time.

Banks and PDs which undertake short sale transactions should mark-to-market their entire HFT portfolio, including the short positions, on a daily basis and account for the resultant mark-to-market gains / losses as per the relevant guidelines for marking-to-market of the HFT portfolio.

Gilt Accounts Holders (GAHs), under CSGL facility, are not permitted to undertake short sales. Entities maintaining CSGL Account are required to ensure that no short-sale is undertaken by the GAHs.

### **Borrowing security (through the repo market) to meet delivery obligations**

Since securities that are short sold are to be *invariably* delivered on the settlement date, participants are permitted to meet their delivery obligations by acquiring securities in the repo market. Accordingly, with a view to enable participants to run short positions across settlement cycles, banks / PDs are now permitted to use the securities acquired under a reverse repo to meet the delivery obligation of the short sale transaction. While the reverse repos can be rolled over, it is emphasised that the delivery obligations under the successive reverse repo contracts are also to be invariably met, failing which the concerned banks / PDs should attract the regulatory action specified in Pt (c) under minimum requirement above. It may, however, be noted that the permission to use securities acquired under reverse repo as above applies only to securities acquired under market repo and not to securities acquired under Reserve Bank's Liquidity Adjustment Facility.

### **Policy and internal control mechanisms**

Banks/PDs should put in place a written policy on short sale which should be approved by their respective Boards of Directors. The policy should lay down the internal guidelines which



should include, inter alia, risk limits on short position, an aggregate nominal short sale limit (in terms of Face Value) across all eligible securities, stop loss limits, the internal control systems to ensure adherence to regulatory and internal guidelines, reporting of short selling activity to the Board and the RBI, procedure to deal with violations, etc. Banks / PDs should also put in place a system to detect violations if any, immediately, certainly within the same trading day.

In addition to the internal control mechanisms, the concurrent auditors should specifically verify compliance with these instructions, as well as with internal guidelines and report violations, if any, within a reasonably short time, to the appropriate internal authority. As part of their monthly reporting, concurrent auditors may verify whether the independent back/mid office has taken cognizance of lapses, if any, and whether they have reported the same within the required time frame to the appropriate internal authority. Any violation of regulatory guidelines noticed in this regard should immediately be reported to the respective Public Debt Office (PDO) where the SGL account is maintained and Internal Debt Management Department, Reserve Bank of India, Mumbai.

### Reporting requirements

Banks / PDs should submit a report of the daily security-wise short sale position, in a specific format provided below to the Internal Debt Management Department, RBI on a monthly basis, on the first working day of the succeeding month.

#### Monthly report of the daily security-wise maximum short sale position (Format)

Name of the reporting institution:

Report for the month of:

(in Rs. Crores)

S.No	Trade Date	Name of the Security	Regulatory Limit * (0.25% / 0.50%) of the outstanding stock issued**	Short position at the beginning of the day	Maximum short position during day	Short position at the end of the day
Total						

\* For liquid securities 0.50% of outstanding stock issued of each security shall be shown under this head. For all other securities 0.25% of outstanding stock issued of each security shall be shown.

\*\* particulars of total stock available on RBI website.

- A NIL statement may be submitted in case there is no transaction during the reporting period.

### IV. Standing Liquidity Facilities for Banks and Primary Dealers

The Liquidity Adjustment Facility - Repo and Reverse Repo Rates, the fixed Repo rate under the LAF has been revised to 7.50 percent as per - The Financial Market Department.

Accordingly, the Standing Liquidity Facilities provided to Banks (export credit refinance) and Primary Dealers (PDs) (collateralized liquidity support) from the Reserve Bank would be available at the Repo rate i.e. at 7.50 per cent

### *V. Mid-term review of RBI's Annual Policy for 2006-07*

RBI governor presented the mid-term review of Annual Policy for the year 2006-07 on 31 October 2006. The highlights of the review are as given below:

- Repo rate is revised upwards by 25 basis points to 7.25 per cent from 7.0 per cent earlier.
- Reverse Repo Rate, Bank Rate and Cash Reserve Ratio (CRR) are kept unchanged at 6.0 per cent, 6.0 per cent and 5.0 per cent, respectively.
- GDP growth projection for fiscal 2007 is changed to around 8.0 per cent from 7.5-8.0 per cent projected in the the Annual Policy Statement and the First Quarter Review.
- There is no change in the policy of containing inflation in the range of 5-5.5 per cent during 2006-07. As on 13 October 2006, inflation rate measured in terms of WPI, was 5.26 per cent.

The RBI now expected the growth in monetary and credit aggregates to be higher than the initial indicative projections. It had forecast M3 to grow by 15 per cent in the the Annual Policy Statement and the First Quarter Review. As on 13 October 2006 growth in M3 was much higher at 19 per cent. Similarly, it had projected non-food credit and bank deposits to grow by 20 per cent and 15.6 per cent, respectively, during 2006-07. And the current growth in the same (as on 13 October 2006) is 30.5 per cent and 20.7 per cent, respectively

### *VI. Annual Policy Statement for 2007-08*

**The Annual Policy announced by the RBI Governor proposed the following:**

- Greater emphasis on price stability and well-anchored inflation expectations while ensuring a monetary and interest rate environment that supports growth momentum
- Swift response with all appropriate measures to all situations impinging on inflation expectations and the growth momentum.
- Renewed focus on credit quality and orderly financial markets conditions in securing macroeconomic, in particular, financial stability.
- Bank Rate, Reverse Repo Rate and Repo Rate kept unchanged
- Scheduled banks required to maintain CRR of 6.5 per cent with effect from the fortnight beginning April 28, 2007
- GDP growth projection for 2007-08 at around 8.5 per cent.
- Inflation to be contained close to 5.0 per cent during 2007-08. Going forward, the resolve is to condition policy and perceptions for inflation in the range of 4.0-4.5 per cent over the medium term.
- M3 expansion to be contained at around 17.0-17.5 per cent during 2007- 08.
- Deposits projected to increase by around Rs.4,90,000 crore during 2007-08.
- Appropriate liquidity to be maintained to meet legitimate credit requirements, consistent with price and financial stability.



- Ceiling interest rate on FCNR (B) deposits reduced by 50 basis points to LIBOR minus 75 basis points.
- Ceiling interest rate on NR(E)RA deposits reduced by 50 basis points to LIBOR/SWAP rates.
- Average cut-off yield on 182-day Treasury Bills to be used as a benchmark rate for floating rate bonds.
- Working Group to be set up to go into all the relevant issues and suggest measures to facilitate the development of interest rate futures market.
- Overseas investment limit (total financial commitments) for Indian companies enhanced to 300 per cent of their net worth.
- Listed Indian companies limit for portfolio investment abroad in listed overseas companies enhanced to 35 per cent of net worth.
- Aggregate ceiling on overseas investment by mutual funds enhanced to US \$ 4 billion.
- Prepayment of external commercial borrowings (ECBs) without prior Reserve Bank approval increased to US \$ 400 million
- Present limit for individuals for any permitted current or capital account transaction increased from US \$ 50,000 to US \$ 100,000 per financial year in the liberalised remittance scheme.
- A Working Group on Currency Futures to be set up to suggest a suitable framework to operationalise the proposal in line with the current legal and regulatory framework.
- Risk weight on loans up to Rs.1 lakh against gold and silver ornaments for all categories of banks reduced to 50 per cent.
- Indian banks permitted to extend credit and non-credit facilities to step-down subsidiaries within the existing prudential limits and some additional safeguards.
- Banks and primary dealers permitted to begin transactions in single-entity credit default swaps.
- Risk weight on residential housing loans to individuals for loans up to Rs.20 lakh reduced to 50 per cent as a temporary measure.
- Existing relaxed prudential norms applicable to Tier I and Tier II urban cooperative banks extended by one year.
- Ceiling rate of interest payable by NBFCs (other than RNBCs) on deposits raised by 150 basis points.

## Market Design

### Market Participants

Given the large size of the trades, the debt market has remained predominantly a wholesale market. In this market, the investors can also be the issuers of the securities. For example, a bank issues CDs and also invest in different banks CDs and also in other securities such as PSU bonds or Government securities. Though some efforts have been undertaken to encourage the retail participation, it still remains rather subdued. The RBI regulates the

government securities market, while the corporate debt instruments traded on exchanges are regulated by the SEBI. The important market participants in the debt market are:

### *Regulators*

The RBI operates both as the monetary authority and the debt manager to the government. In its role as a monetary authority, the RBI participates in the market through open-market operations as well as through Liquidity Adjustment facility (LAF) to regulate the money supply. It also regulates the bank rate and repo rate, and uses these rates as indirect tools for its monetary policy. The RBI as the debt manager issues the securities at the cheapest possible rate. Hence, in the debt market, the RBI plays a dual role of influencing the interest rates through its monetary policy and also issues government debt securities. Further, the RBI also supervises banks and development financial institutions.

The SEBI regulates the debt instruments listed on the stock exchanges. It issues guidelines for its issuance and also for their listing on stock exchanges. The secondary market trading is conducted as per the rules set by the SEBI.

### *Primary Dealers*

Primary dealers (PDs) are important intermediaries in the government securities markets. There were 17 PDs operating in the market at the end of March 2007. They act as underwriters in the primary market, 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 collectively offer to underwrite up to 100% of the notified amount in respect of all issues. 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. They are permitted to borrow and lend in the money market. In addition, they can raise resources through CPs and also have access to finance from commercial banks as any other corporate borrower.

### *Brokers*

Brokers play an important role in secondary debt market by bringing together counterparties and negotiating terms of the trade. It is through them that the trades are entered on the stock exchanges. The brokers are regulated by the stock exchanges and also by the SEBI.

### *Investors*

*Banks* are the largest investors in the debt markets, particularly in the government securities market. They are also the main participants in the call money market/term market and also repo market for their short term funding requirement. Banks also issue CDs and bonds in the debt markets. Further, they arrange CP issues of corporates.

*MFs* 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. They participate in the debt markets pre-dominantly as investors, and trade on their portfolios quite regularly.

*Foreign Institutional Investors (FIIs)* also are permitted to invest in treasury and corporate bonds, within certain limits.

*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. This is so because they are not permitted to sell their holdings, unless they have a funding requirement that cannot be met through regular accruals and contributions.

*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.

To enable *small and medium sized investors* to participate in the primary auction of government securities, a "Scheme of Non Competitive Bidding" was introduced in January 2002, which is open to any person including firms, companies, corporate bodies, institutions, provident funds, trusts, and any other entity prescribed by RBI. The scheme provides for allocation of up to 5 per cent of the notified amount at the weighted average rate of accepted bids. Investors can bid through banks or PDs a minimum amount of Rs.10,000 to a maximum amount of Rs. 20 million.

The matrix of issuers, investors, instruments in the debt market and their maturities are presented in (Table 6-2)

## Issuers of Securities

The dominant issuers in debt market consist of Governments, Public sector units and Corporates. However, there are other issuers who have not been tapping the market frequently such as the local governments and mutual funds. Recently, international financial institutions have also displayed interest in the domestic market.

- The government securities form the oldest and the most dominant part of the debt market. It comprises of the securities issued by the Central Government and State Governments. In the recent past, local bodies such as municipalities have also tapped the market. The Central Government mobilises funds mainly through issue of dated securities and T-bills, while State Governments rely solely on state development loans.
- Bonds are issued by Government sponsored institutions like Development Financial Institutions (DFIs), banks and public sector units. These bonds are generally treated at surrogates of sovereign paper, sometimes due to explicit guarantee and often due to the comfort of public ownership. Some of the PSU bonds are tax-free, while most bonds are not tax-free.
- The corporate bond markets comprise of commercial paper and bonds. These bonds typically are structured to suit the requirements of investors and the issuing corporate. They include a variety of tailor-made features with respect to interest payments and redemptions. Corporate bond market has seen a lot of innovations, including



**Table 6-2: Participants and Products in Debt Market**

<b>Issuer</b>	<b>Instruments</b>	<b>Maturity</b>	<b>Investors</b>
Central Government	Dated Securities	2 - 30 years	RBI, Banks, Insurance Companies, Provident Funds, Mutual Funds, Individuals, PDs
Central Government	T-Bills	91/182/ 364 days	RBI, Banks, Insurance companies, Provident Funds, Mutual Funds, Individuals, PDs
State Government	Dated Securities	5-13 years	RBI, Banks, Insurance Companies, Provident Funds, Mutual Funds, Individuals, PDs
PSUs	Bonds, Structured Obligations	5-10 years	Banks, Insurance Companies, Provident Funds, Mutual Funds, Individuals, Corporates
Corporates	Debentures	1 - 12 years	Banks, Mutual Funds, Corporates, Individuals
Corporates, PDs	Commercial Papers	15 days to 1 year	Banks, Mutual Funds, Financial Institutions, Corporates, Individuals, FIIs
Scheduled Commercial Banks, Select Financial Institutions (under umbrella limit fixed by RBI)	Certificates of Deposits	15 days to 1 year, whereas for FIs it is 1 year to 10 years	Banks, Companies, Individuals, FIIs, Corporations, Trusts, Funds, Associations, FIs, NRIs
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

securitized 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. The major part of the corporate debt is privately placed with tenors of 1-20 years.

- 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) and commercial papers (CPs). While CDs are issued by banks and financial institutions, CPs are issued by corporates.

## Primary Issuance Process

### *Government Securities*

The issue of government securities is governed by the terms and conditions specified in the general and the specific notification of the Government. The specific notifications are issued for each security issuance specifying its unique feature. The terms and conditions specified in the general notification are listed below.



- 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 for purchase of government securities.
- The payments can be done through a variety of means such as 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. 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 either in demat form in their SGL account or to a Constituents' SGL or to their Bond Ledger or in the form of stock certificate. These are repaid at Public Debt Offices of RBI or any other institution at which they are registered at the time of repayment.

Government issues securities through the auction, tap sale, pre-announced coupon rate etc. A brief about them are as given below:

**Issue of securities through auction:** The securities are issued through auction held either on price or on yield basis. If the issue is on price basis, the coupon is pre-determined, then the bidders should quote price per Rs.100 of the face value of the security. If the issue is on yield basis, then 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.

The auctions are held either on 'Uniform price' method or on 'Multiple price' method. In 'Uniform price' method, competitive bids are tendered with rates up to and including the maximum rate of yield as determined by RBI. As per the bids received, RBI determines the maximum rate of yield. Bids quoted higher than the maximum rate of yield are rejected. For '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 specific institutions, categorised by the RBI as '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 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 percentage of the aggregate nominal amount of the issue.

**Issue of securities with pre-announced coupon rates:** The coupon on 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.

**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.

**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.

*The following types of securities are issued by the Government:*

**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, but are redeemed at par.

**Floating Rate Bonds:** These securities carry a coupon rate, which consists of a variable base and a spread. The most common base rate used is the weighted average of yield of 364 day-treasury bills. The spread is decided at the auction.

**Zero Coupon Bonds:** These are issued at a discount and redeemed at par. On the basis of the bids tendered, the RBI determines the cut-off price at which tenders would be accepted at the auction.

**Securities with Embedded Options:** These securities, where a 'call option'/'put option' is specified, are repaid at the option before the specified redemption date.

### *Treasury Bills*

Treasury bills (T-bills) are short-term debt instruments issued by the Central government. They have either 91-days, 182-days or 364-days maturity. T-bills are sold through an auction process announced by the RBI at a discount to its face value. RBI issues an indicative calendar of T-bill auctions.

### *State Government Securities*

The States raise resources through Auctions and Tap routes. In the current fiscal year (2006-07), 100% of the resources were raised by the auction route as against 48% in the previous year 2005-06.

### **Secondary Market**

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.

### *Negotiated Dealing System*

Negotiated Dealing System (NDS) is an electronic platform for facilitating dealing in Government Securities and Money Market Instruments. It facilitates online reporting of transactions in the instruments available on the NDS. Government Securities (including T-bills), call money, notice/term money, repos in eligible securities, etc. are available for negotiated dealing through NDS. If the NDS member concludes deals outside the NDS system, then they 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.

### *Negotiated Dealing System - Order Matching (NDS-OM)*

NDS-OM is an electronic, screen based, anonymous, order driven trading system, introduced by RBI as part of the existing NDS system to facilitate electronic dealing in government securities. It is accessible to members through RBI's INFINET Network. The system facilitates better price discovery, liquidity, increased operational efficiency and transparency. NDS-OM facilitates straight-through-processing, with all the trades on the system automatically sent to CCIL for settlement. NDS-OM is open to all existing NDS members who are regulated by RBI. Trading in this platform has been gradually extended to entities like insurance companies, mutual funds and, provident funds. The NDS-OM system supports trading in all Central Government Dated Securities and State Government Securities in T+1 settlement type. It is proposed to be upgraded later to facilitate trading in discounted instruments like Treasury Bills. Further RBI has permitted the execution of intra-day short sale transaction and the covering of short position only on this trading platform.

*The main features of the trading system are:*

The trading system is purely order driven with all orders from market participants being matched based on strict price/time priority, providing fairness to all market users. This ensures a level playing field for all participants. The trader gets the best bid in the system. The advantages of an order-driven system are: participants provide their own prices and therefore a better flow of information, bid-ask spreads are usually smaller and prices more stable.

#### **a) Anonymity**

The system is an anonymous order matching system wherein identity of parties is not revealed at the time of order entry. CCIL is the central counterparty to each trade done on the system. This ensures fairness and minimal information leakage pre-trade.

**b) Transparency**

The trading system provides timely information, both pre-trade (for example, bid, offer and depth) and post-trade (for example, last trade price and volume), and disseminates it widely on real-time basis to all interested entities both within the NDS domain as also Non-NDS entities through the RBI website. This enables better price discovery and provides increased opportunities to market participants to respond to new information.

**c) Straight Through Processing**

The trading system allows straight-through processing (STP), i.e. the seamless integration of the different parts of the trading process, starting from displaying pre-trade information and ending with settlement and risk management. Since trades done on the platform flow directly for settlement, members benefit in terms of reduced operation cost and risk because of STP. Trades done on the system treated as confirmed and not subject to the confirmation processes.

**d) Trading protocols**

The trading system allows traders to set their preferences in terms of orders. The system allows traders to enter either price based orders (market orders, limits orders) or time based orders (good till day orders and immediate or cancel orders). Traders can also set the quantity to be disclosed to the market in case of large trades which ensures better pricing for them.

**e) Scalable**

The system facilitates trading by members on behalf of their constituents. The system is also scalable in terms of addition of new instruments and also additional of new user groups like corporate and retail investors.

**f) Audit Trails**

The system provides a precise audit trail of transactions, especially in light of the extant guidelines of sale of government securities and DVP-III mode of settlement. This facilitates electronic supervision and surveillance of the market.

***Wholesale Debt Market of NSE***

NSE's Wholesale Debt Market (WDM) segment offers a fully automated screen based trading platform through the NEAT (National Exchange for Automated Trading) system. The WDM segment as the name suggest permits only high value transactions in debt securities. Hence, it is meant primarily for banks, institutional and corporate participants and intermediaries. All types of SLR (Government securities, T-bills etc) and non-SLR (CPs, CDs etc) securities are available for trading in the WDM segment of the NSE.

The trades on the WDM segment can be executed through the 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 settlement cycle of 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 and the repo rate.

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). These trades are required to be reported to the Exchange within 24 hours of the issuance of contract note.

All government securities are 'deemed' listed as and when they are issued. The other debt securities are traded either under the 'permitted to trade' or 'listed' category. All eligible securities, whether publicly issued or privately placed, can be made available for trading in the WDM segment. Amongst other requirements, privately placed debt paper of banks, institutions and corporates requires an investment grade credit rating to be eligible for listing. The listing requirements for securities on the WDM segment are presented in (Table 6-3).

## Charges

The Exchange has waived the annual subscription fee and transaction charges for the Wholesale Debt Market segment of the Exchange for the period April 1, 2007 to March 31, 2008.

## Corporate Debt Market

Corporate debt instruments are traded either as bilateral agreements between two counterparties or on a stock exchange through brokers. In the latter category, these are traded on BSE and on the CM and WDM segments of NSE. The difference between trading of government securities and corporate debt securities is that the latter are traded on the electronic limit order book. This is in view of SEBI mandate, which prohibits negotiated deals in respect of corporate listed debt securities. The SEBI regulation also prescribes that all such trades should be executed on the basis of price and order matching

Table 6-3: Listing Criteria for Securities on WDM Segment

Issuer	Listing Criteria	
	Public Issue	Private Placement
a. Central/State Government	-----	Deemed listed -----
b. Public Sector Undertakings / Statutory Corporations		
- Minimum 51% holding by Govt.	-----	As applicable to corporates -----
- Less than 51% holding by Govt.	-----	As applicable to corporates -----
c. Financial Institutions (sSLR and Non-SLR Bonds)	- Eligible	- Investment Grade Credit Rating
d. Scheduled Commercial Banks		
- Net worth of Rs. 50 crore or above	- Eligible	- Investment Grade Credit Rating
e. Infrastructure Companies	- Eligible	- Investment Grade Credit Rating
f. Corporates		
- Minimum paid-up capital of Rs.10 crore, OR Market capitalisation of Rs. 25 crore (Net worth in case of unlisted companies)	- Eligible	- Investment Grade Credit Rating
g. Mutual Funds		
SEBI registered Mutual Fund/ Scheme having an investment objective to invest predominantly in debt instruments.	- Eligible	- Eligible

Source: NSE.

mechanism of stock exchanges as in case of equities. The trades on BSE are settled through the clearing house. The trades on CM segment of NSE are settled through National Securities Clearing Corporation. Trades on WDM segment of NSE are settled on a trade-by-trade basis on the settlement day.

### Dematerialization of Debt Instruments

Dematerialized trading was earlier restricted only to the equity shares and units of MFs. With the passage of Finance Act 2000, stamp duty payable on transfer of debt instruments was waived, in case of the transfer taking place in the demat mode. In order to promote dematerialization, RBI specified that repos on PSU bonds would be permitted only in demat form. From June 30, 2001, FIs, PDs and SDs have been permitted to make fresh investments and hold CP only in dematerialised form. The outstanding investments in scrip had to be converted into demat by October 2001. Since June 30, 2002, banks and FIs are required to issue CDs only in demat form. With these developments, NSDL and CDSL have admitted debt instruments such as debentures, bonds, CPs, CDs etc., irrespective of whether these debt instruments are listed, unlisted or privately placed.

Holding and trading in dematerialised form provides a number of benefits to the investors. As securities in demat form can be held and transferred in any denomination, it





is possible for the participant to sell securities to corporate clients, provident funds, trusts in smaller lots. This was not possible in the physical environment, as splitting of securities involved considerable amount of time.

As of March 2007, debentures/bonds worth Rs. 3,869,020 million (US \$ 88,759 million) were available in demat form. 669 issuers have issued 20,391 debentures/bonds in demat form. 386 issuers have issued 8,747 commercial papers in demat form.

### *Constituent SGL Accounts*

Subsidiary General Ledger (SGL) account is a facility provided by RBI to large banks and financial institutions. This facility maintains records of investment in Government securities and T-bills in electronic book entry form. These 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. These client accounts are referred to as constituent SGL accounts or SGL II accounts. Through a constituent SGL account, an entity can participate in the primary and secondary markets for government securities. It also avails of the dematerialised holding and DvP settlement facilities. RBI has permitted NSCCL, NSDL, CDSL, SHCIL, Banks and PDs to offer constituent SGL account facility. 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 CSGL account.

### *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, transfers 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.

### *Clearing Corporation of India Limited*

The Clearing Corporation of India Ltd. (CCIL) is India's first exclusive clearing and settlement institution to provide guaranteed settlement facility for transactions in Government securities and Foreign exchange. The Company was set up at the initiative of the Reserve Bank of India (RBI), which constituted a core committee in June 2000, with representatives from major banks, all-India financial institutions, and industry associations like FIMMDA (Fixed Income Money Market and derivatives Association of India), PDAI (Primary Dealers Association of India), FEDAI (Foreign exchange Dealers

Association of India), AMFI (Association of Mutual Funds in India) and RBI itself, to initiate the process of setting up a clearing corporation.

CCIL was incorporated on April 30, 2001 as an essential infrastructure for orderly development objective of improving efficiency in the transaction settlement process, insulating the financial system from shocks emanating from operations related issues, and to undertake other related activities that would help to broaden and deepen the money, debt and forex markets in the country.

The company started its software development process in July, 2001 and commenced business operations in the securities market on February 15, 2002 along with the operationalization of the Negotiated Dealing System (NDS) of RBI. It has since moved on to cover settlement of forex and other money market operations as well. In addition to its various activities, CCIL also supports through its fully owned subsidiary, Clearcorp Dealing Systems, two trading platforms in the forex and money market segments. Further, at the request of RBI, CCIL also launched the electronic auction module, NDS- AUCTION on January 3, 2007, to facilitate bidding in Primary Treasury bill Auctions.

The company has put in place a transparent mechanism for initiating new membership. Specific formats have been prescribed for the various business segments. The applicants are required to remit the applicable one time membership fees to CCIL along with the submission of Membership Application Form. All requests for membership are scrutinized to ensure conformity with the prescribed eligibility criteria. After processing the same, the requests are submitted by the department to MAC for approval of membership.

Upon approval of membership, the legal and documentation formalities relating to admission of a member are carried out by the department. Once the entities become members, they are required to bring in the necessary minimum Settlement Guarantee Fund/ Collateral contribution for their formal initiation into CCIL's Clearing and Settlement System (CSS) through a process of Activation. Membership activation is done after ensuring that the other formalities with regard to admission have been completed and margin/collateral contributions duly received by CCIL from the concerned member.

### **Eligibility Criteria:**

#### **1) Government Securities Segment:**

All the members of RBI-NDS are eligible for membership to the government securities segment. The other eligibility criteria have been prescribed in the Bye-Laws, Rules and Regulations of CCIL.

#### **2) NDS-OM - Trading Platform:**

Initially, trading on NDS-OM was restricted to Banks, Primary Dealers and Financial Institutions regulated by RBI and holding NDS membership. The same was later extended to Insurance entities (October 2005). It was further extended in February 2006 to qualified Mutual Funds, Provident Funds and Pension Funds. In April 2006



trading on this platform was extended to all Mutual Funds, large pension/provident funds through opening temporary current/SGL account with the Reserve Bank. The Membership to CCIL's Securities Segment is a pre-condition for trading on NDS-OM trading platform.

### 3) Money Market Segment:

The membership of CBLO segment initially covered only those entities who were already members of Reserve Bank of India's Negotiated Dealing System. CBLO membership has been extended to cover other market players such as Co-operative Banks, NBFC's, Corporates, etc. who are not members of RBI- NDS. Such Non-NDS members are eligible to be admitted as Associate Members to CCIL's CBLO segment.

#### A. *CBLO - for NDS Members:*

The eligibility criteria for admission of members to the CBLO segment (NDS Members) remain the same as is applicable for admission to Securities Segment. The Members are required to open Gilt Account with CCIL for depositing securities which are offered as collateral/margin for borrowing and lending of funds.

#### B. *CBLO - for Non-NDS Members:*

The eligibility criteria for an Associate Member are:

- not be eligible, as per RBI guidelines, to open SGL Account and/or Current Account with RBI;
- open Gilt Account with Clearing Corporation when required;
- maintain Current Account with a bank(s) designated as settlement bank(s) by Clearing Corporation for settlement transactions.

The Associate member has to designate a Settlement Bank and open a Current account with the designated Settlement Bank to facilitate settlement of funds obligations. It needs to maintain a Gilt Account either with the designated Settlement Bank and/or any other CSGL service provider, in addition to a Gilt account with CCIL, for deposit/withdrawal of securities with/ from CCIL in respect of collateral transactions in the CBLO Segment.

### 4) NDS -CALL

Membership to NDS-CALL is given at the sole discretion of RBI. The prima-facie prerequisites for NDS-CALL membership are RBI-NDS membership and INFINET connectivity. The eligible participants for NDS-CALL membership are banks and primary dealers who are permitted to operate in Interbank Call Money market. Dealing on this platform is optional. Currently, there are 91 participants comprising of 24 Public sector banks, 20 Private sector banks, 14 Foreign banks, 16 Co-operative banks and 10 banks cum primary dealers and 7 Primary Dealers admitted as members

in NDS-CALL. The membership of NDS-CALL is also extended only to the Members of the Securities Segment of CCIL.

#### 5) Forex Segment:

All the authorized dealers are eligible for membership to the Forex settlement segment. They are also required to conform to the other eligibility criteria prescribed for Forex Segment under Bye-Laws, Rules and Regulations of CCIL to become a member of this segment.

#### 6) FX-CLEAR Dealing Platform:

All the members of the forex settlement segment are eligible for membership to the FX CLEAR Dealing Platform.

#### One- time membership fees for various segments.

Segment	CCIL Membership Fees	ClearCorp Membership Fees
Securities	INR 100,000	
Forex Settlement	INR 100,000	
CBLO -NDS Members	INR 25,000	INR 25,000
CBLO - Non-NDS Members		
(i) Co-operative Banks accessing CBLO dealing platform through designated Settlement Bank.(Eligible for Associate Membership)	INR 10,000 to 25,000 (based on deposit size equally divided between CCIL & Clearcorp).	
(ii) Other Associate Members	INR 25,000	INR 25,000
FX CLEAR	No Cost	

#### The other fees and charges are as follows:

Sr. No.	Particulars	Charges
1	Securities Settlement (Outright)	Rs.150 per crore of face value, Minimum Rs.25/- Maximum Rs.5,000/- per Trade.
2	Treasury Bills Settlement (Outright)	Rs.75 per crore of face value, Minimum Rs.25/- Maximum Rs.5,000/- per Trade
3	Settlement of Repo Trades	Rs. 15/- per crore of face value for repo trades subject to Minimum of Rs. 15/- and Maximum of Rs. 1,500/- for each leg.
4	Clearcorp Transaction Charges CBLO (AUCTION MARKET)	Rs. 5/- per crore of face value per deal per member subject to Minimum of Rs. 5/-- and Maximum of Rs. 500/- per deal.
5	Clearcorp Transaction Charges CBLO (NORMAL MARKET)	Rs. 5/- per crore of face value per deal per member subject to Minimum of Rs. 5/-- and Maximum of Rs. 500/- per trade.

Contd...



Contd...

The other fees and charges are as follows:

Sr. No.	Particulars	Charges
6	CBLO Transaction Charges CBLO (AUCTION MARKET)	Rs. 10/- per crore of face value per deal per Member subject to minimum of Rs. 10/- and a maximum of Rs.1,000/- per deal for each member to be charged at the time of initial borrowing and lending.
7	CBLO Transaction Charges CBLO (NORMAL MARKET)	Rs. 10/- per crore of face value per deal per member subject to Minimum of Rs.10/- and a Maximum of Rs1,000/- per deal.
8	Settlement of Forex transactions	Rs.100/- per traded accepted for settlement.
9	Settlement of CLS transactions	CLS Charges plus 75 cents.
10	Delayed payment of Transaction Charges and System Usage Charges- For Securities and Forex Transactions (if payment is made after 10th of a calendar month.)	5 basis point per day on the amount of Charges

#### A. Penalty For Margin Shortfall

1	Delayed deposit of margin shortfall. (based on number of days in a calendar quarter) (Intraday margin shortfall will be treated as a shortfall for one day.)	<ul style="list-style-type: none"> <li>a) 5 basis point per day on the amount of shortfall for first three days (Charges Below Rs. 25/- will be waived).</li> <li>b) 10 basis points per day on the amount of Shortfall from day fourth onwards.</li> <li>c) 20 basis points per day on the amount of Shortfall from day fourteenth onwards till deposit of shortfall.</li> </ul>
2	Delayed deposit of Margin in CBLO	5 basis point per day on the amount of Shortfall till the shortfall is met.

#### B. Payment to be made by the defaulting member when trade settled by CCIL

1	For Securities Default	<ul style="list-style-type: none"> <li>a) 5 basis point per day, on the amount of default till the replenishment of the Security. (minimum charges would be Rs.100/-) &amp;</li> <li>b) Charges incidental to meet such security Default.</li> </ul>
2	For Funds Default	<ul style="list-style-type: none"> <li>a) 5 basis point on the amount of default till the default is fully met. (minimum charges would be Rs.100/-) &amp;</li> <li>b) Line of Credit (LOC) charges incurred by Clearing Corporation to meet such funds default.</li> </ul>
3	Default (CBLO)	5 basis point per day on the amount of shortage/ default till the shortage/ default is fully met; of which, 3 basis point per day will be payable to the non-defaulting on the shortfall. Allocation- (Minimum charges would be Rs.100/-)
4	Default (Forex)	<ul style="list-style-type: none"> <li>a) Bank Rate plus 5% p.a. per day on the amount of default (INR or USD) till the default is fully met &amp;</li> <li>b) Line of Credit (LOC) charges incurred by Clearing Corporation to meet such (INR or USD) default.</li> </ul>



**C. Payment to be made by the defaulting member when trade allocated by CCIL**

1	When Security default allocated. (Charges other than compensation payable by the defaulting member).	a) 5 basis point on the amount of security default (Minimum charges would be Rs.100/-). b) Compensation payable to the non-defaulting member as per Chapter- 6 of Regulations- Securities Segment.
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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, and continuous position monitoring and loss allocation procedure, penalties) in case of default. During the settlement process, CCIL assumes certain risks, which may arise due to a default by a member to honour its obligations. Settlement being on DvP basis, the risk from a default is the market risk, i.e. change in price of the concerned security. The margining system in CCIL are so designed that they cover such risks. CCIL collects Initial Margin and Mark to Market (MTM) margin from members in respect of their outstanding trades. Initial Margin is collected to cover the likely risk from future adverse movement of prices of the concerned securities. Mark to Market margin is collected to cover the notional loss (i.e. the difference between the current market price and the contract price of the security covered by the trade) already incurred by any member. Both the margins are computed trade-wise and then aggregated member-wise. In addition, CCIL in case of unusual volatility in the market may also collect volatility margin. Each member contributes collaterals to a Settlement Guarantee Fund (SGF), against which CCIL avails of a line of credit from the bank. This enables CCIL to complete settlement in case a situation of shortage resulting from a members default. A summary of the trades settled by CCIL are given below:

**Settlement of Trades in Government Securities**

(Amount in Rs. million)

Month	Outright Transactions		Repo Transactions		Total	
	No. of Trades	Amount (Face Value)	No. of Trades	Amount (Face Value)	No. of Trades	Amount (Face Value)
2001-02	7,131	389,190	524	159,300	7,655	548,480
2002-03	191,843	10,761,470	11,672	4,682,290	203,515	15,443,760
2003-04	243,585	15,751,330	20,972	9,431,890	264,512	25,183,220
2004-05	160,682	11,342,221	24,364	15,579,066	185,046	26,921,287
2005-06	125,509	8,647,514	25,673	16,945,087	151,182	25,592,601
2006-07	137,100	10,215,357	29,008	25,565,014	166,108	35,780,371

Source: CCIL Fact Book 2007.



### *Collateralised Borrowing and Lending Obligation*

‘Collateralised Borrowing and Lending Obligation (CBLO)’, a money market instrument as approved by RBI, is a product developed by CCIL for the benefit of the entities who have either been phased out from inter bank call money market or have been given restricted participation in terms of ceiling on call borrowing and lending transactions and who do not have access to the call money market. CBLO is a discounted instrument issued in electronic book entry form for maturity periods ranging from one day to one year. Members can borrow and lend funds by way of selling and buying CBLOs on the dealing system. CCIL also facilitates clearing and settlement of CBLO transactions concluded on the dealing system by following the concept of multilateral netting. Among the benefits flowing to members from their participation in the CBLO market are anonymity, transparency flexibility in dealing. Other related benefits are efficiency in settlement and reduction in settlement risk as the settlement is guaranteed by CCIL. In order to enable the market participants to borrow and lend funds, CCIL provides a Dealing System through Indian Financial Network (INFINET).

The daily average settlement volume in CBLO increased from Rs. 163,285 million in April 2006 to Rs. 176,619 million in March 2007. As at end March 2007, there were 163 members in the CCIL's CBLO segment as against 153 in the previous year.

## **Market Outcome**

### **Primary Market**

#### *Resource Mobilisation*

During 2006-07, the central government and state governments borrowed Rs. 1,793,730 million (US \$ 41,150 million) and Rs. 208,250 million (US \$ 4,777 million) respectively. The gross borrowings of the central and state governments taken together increased by 10.15 % from Rs. 1,817,470 million (US \$ 40,741 million) during 2005-06 to Rs. 2,001,980 million (US \$ 45,928 million) during 2006-07 (Table 6-4). Their net borrowings also increased by 10.42 % from Rs. 1,136,920 million (US \$ 25,486 million) in the previous year to Rs. 1,255,440 million (US \$ 28,801 million) during 2006-07. The gross and net market borrowings of central government are budgeted to increase further to Rs. 1,877,690 million and Rs. 1,108,270 million, respectively during 2007-08, while those of the state governments increased to Rs. 351,140 million and Rs. 235,590 million in the same period.

The Central Government mobilised Rs. 1,460,000 million (US \$ 33,494 million) through issue of dated securities and Rs. 333,730 million (US \$ 7,656 million) through issue of T-bills. After meeting repayment liabilities of Rs.390,840 million (US \$ 8,966 million) for dated securities, and redemption of T-bills of Rs. 290,190 million (US \$ 6,657 million), net market borrowing of Central Government amounted to Rs. 1,112,700 million (US \$ 25,526 million) for the year 2006-07. The state governments collectively raised Rs. 208,250 million (US \$ 4,777 million) during 2006-07 as against Rs. 217,290 million (US \$ 4,871 million) in the preceding year. The net borrowings of State Governments in 2006-07 amounted to Rs. 142,740 million (US \$ 3,275 million).



Table 6-4: Market Borrowings of Governments

Security	(Rs. million)										(US \$ million)					
	Gross			Repayment			Net		Gross	Repayment	Net	Gross	Repayment	Net		
	2007-08	2006-07	2005-06	2007-08	2006-07	2005-06	2007-08	2006-07							2005-06	2006-07
	BE			BE			BE									
1 Central Government (a+b)	1,877,690	1,793,730	1,600,180	769,420	681,030	617,810	1,108,270	1,112,700	982,370	41,150	15,624	25,526				
a) Dated Securities	1,554,550	1,460,000	1,310,000	458,760	390,840	356,300	1,095,790	1,069,160	953,700	33,494	8,966	24,528				
b) 364-day T-bills	323,140	333,730	290,180	310,660	290,190	261,510	12,480	43,540	28,670	7,656	6,657	999				
2 State Government	351,140 *	208,250	217,290	115,550	65,510	62,740	235,590 *	142,740	154,550	4,777	1,503	3,275				
<b>Total (1+2)</b>	<b>2,228,830</b>	<b>2,001,980</b>	<b>1,817,470</b>	<b>884,970</b>	<b>746,540</b>	<b>680,550</b>	<b>1,343,860</b>	<b>1,255,440</b>	<b>1,136,920</b>	<b>45,928</b>	<b>17,126</b>	<b>28,801</b>				

Source: RBI Annual Report, 2006-07

\* Excludes three states for which Annual Plans are yet to be finalised. Also includes additional allocation of Rs535 crore in 2007-08 in respect of two States.

BE - Budget estimates





## Yields

The year 2006-07 witnessed a rise in interest rates on market borrowings across maturities. This was largely due to comfortable liquidity position and subdued inflationary expectations. The yields on primary issues of dated government securities eased during the year with the cut-off yield varying between 7.06% and 8.75% during 2006-07 as against the range of 6.69% to 7.98% during the preceding year. The weighted average yield on government dated securities increased to 7.89% in 2006-07 from 7.34% in 2005-06 (Table 6-5).

**Table 6-5: Profile of Central Government Dated Securities**

Items	(Amount in Rs. mn.)		(Amount in US \$ Mn.)	
	2005-06	2006-07	2005-06	2006-07
1 Gross Borrowing	1,310,000	1,460,000	29,366	33,494
2 Repayments	356,310	390,840	7,987	8,966
3 Net Borrowings	953,700	1,069,160	21,379	24,528
4 Weighted Average Maturity (In years)	16.90	14.75	N.A	N.A
5 Weighted Average Yield (Per cent)	7.34	7.89	N.A	N.A
6 (A) Maturity Distribution (Amount)				
a Upto 5 years	0	100,000	0	2,294
b Above 5 and upto 10 years	340,000	690,000	7,622	15,829
c Above 10 years	970,000	670,000	21,744	15,370
Total	1,310,000	1,460,000	29,366	33,494
(B) Maturity Distribution (Per cent)				
a Upto 5 years	0	7	N.A	N.A
b Above 5 and upto 10 years	26	47	N.A	N.A
c Above 10 years	74	46	N.A	N.A
Total	100	100	N.A	N.A
7 Price based Auctions Amount	1,250,000	1,320,000	28020.6	30282.2
8 Yield - (Per cent)				
Minimum	6.69 (5 years, 6 months)	7.06 (6 years, 1 month)	N.A	N.A
Maximum	7.98 (29 years, 3 months)	8.75 (28 years, 1 month)	N.A	N.A
9 Yield - Maturity Distribution-wise				
(A) Less than 10 years				
Minimum	6.69 (5 years, 6 months)	7.06 (6 years, 1 month)	N.A	N.A
Maximum	7.06 (8 years, 2 months)	8.29 (9 years, 9 months)	N.A	N.A
(B) 10 years				
Minimum	Nil	7.59	N.A	N.A
Maximum	Nil	7.59	N.A	N.A
(C) Above 10 years				
Minimum	6.91 (10 years 10 months)	7.43 (10 years 1 month)	N.A	N.A
Maximum	7.98 (29 years, 3 months)	8.75 (28 years, 1 month)	N.A	N.A

Note: Figures in brackets indicate residual "maturity in years.

N.A Not applicable

Source: RBI Annual Report 2006-07

## Maturity Structure

Government has been consciously trying to lengthen maturity profile. During 2006-07, around 46 % of central government borrowings were affected through securities with maturities above 10 years and 47% borrowings were effected through securities with maturities above 5 and upto 10 years. The maximum maturity of primary issuance has been increased to 30 years. The weighted average maturity of dated securities issued during the year was 14.75 (in years) in 2006-07.

## Secondary Market

### Turnover

The aggregate secondary market transactions in debt securities (including government and non-government securities) increased by 38.06% to Rs. 35,974,308 million (US \$ 825,288 million) in 2006-07 from Rs. 26,056,762 million (US \$ 584,101 million) in 2005-06, (Table 6-6). Non-government securities accounted for a meager 0.39% of total turnover in debt market. NSE accounted for about 6.09% of total turnover in debt securities during 2006-07.

**Table 6-6: Turnover of Debt Securities**

Securities	2005-06 (Rs. mn.)	2006-07 (Rs. mn.)	2005-06 (US \$ mn.)	2006-07 (US \$ mn.)
<b>Government Securities</b>	<b>25,804,000 *</b>	<b>35,833,370 *</b>	<b>578,435</b>	<b>822,055</b>
WDM Segment of NSE	4,508,016	2,053,237	101,054	47,103
Rest of SGL	21,295,984	33,780,133	477,381	774,951
<b>Non Government Securities</b>	<b>252,762</b>	<b>140,938</b>	<b>5,666</b>	<b>3,233</b>
CM Segment of NSE	2,846	1,406	64	32
WDM Segment of NSE	247,219	137,828	5,542	3,162
'F' Category of BSE	2,697	1,704	60	39
<b>Total</b>	<b>26,056,762</b>	<b>35,974,308</b>	<b>584,101</b>	<b>825,288</b>

Source: RBI, BSE and NSE.

\* includes NDS-OM turnover

The non-government securities are traded on the WDM and CM segments of the NSE, and on the BSE (F Category). Except WDM, the volumes are quite insignificant on other segments. The turnover in non-government securities on WDM segment of NSE was Rs. 137,828 million (US \$ 3,162 million) in 2006-07, lower by 44.25% than that during the preceding year. BSE reported a turnover of Rs. 1,704 million (US \$ 39 million) during 2006-07. NSE accounted for over 98.79% of total turnover in non-government securities during the year.

The aggregate turnover in (central and state government dated securities and T-bills) through non-repo SGL transactions touched a level of Rs. 3,982,988 million (US \$ 91,374 million), recording a decline of 43.74% from Rs. 7,080,147 million (US \$ 158,712



million) in the previous year (Table 6-7). The details of non-repo SGL transactions in government securities are presented in (Annexure 6-1). The volume of transactions in state government securities decreased to Rs. 125,213 million (US \$ 2,873 million) in 2006-07 from Rs. 211,150 million (US \$ 4,733 million) in 2005-06. The monthly turnover in non-repo transactions for the year 2006-07 ranged between Rs. 240,930 million (US \$ 5,527 million) and Rs. 498,788 (US \$ 11,236 million) and with a monthly average of Rs. 331,916 million (US \$ 7,614 million).

**Table 6-7: Secondary Market Transactions in Government Securities**

Year	Total SGL Non-Repo Turnover (Rs. Mn.)	Total SGL Non-Repo Turnover (US \$.Mn.)	Share in Non-Repo Turnover (%)		
			Central Govt Securities	State Govt Securities	T-Bills
1995-96	295,300	-----	59.44	1.57	38.99
1996-97	939,210	-----	63.78	0.63	35.59
1997-98	1,610,900	-----	73.59	0.84	25.58
1998-99	1,875,310	44,197	76.31	0.82	22.87
1999-00	4,564,910	104,651	88.78	0.80	10.42
2000-01	5,721,456	122,673	88.98	0.52	10.50
2001-02	12,119,658	248,354	93.94	0.51	5.56
2002-03	13,923,834	293,133	93.81	0.68	5.51
2003-04	17,013,632	392,110	91.93	1.01	7.06
2004-05	12,608,667	288,198	76.27	2.27	21.46
2005-06	7,080,147	158,712	67.44	2.98	29.58
2006-07	3,982,988	91,374	65.83	3.14	31.02

SGL Non-Repo Turnover excludes NDS-OM turnover

Source: NSE

The share of WDM segment of NSE in the total turnover of Non-repo SGL transaction witnessed a significant decrease from 63.67% in 2005-06 to 51.55% in 2006-07 (Table 6-8). The share of WDM in turnover of non-repo dated securities (central and state government securities) also witnessed a decrease from 69.31% in 2005-06 to 55.82% in 2006-07 (Chart 6-1). In the year 2006-07, the share of WDM in turnover of non-repo T-bills has augmented to 42.05 % as compared to 50.24 % in the previous year.

### *Developments in WDM*

A total of 661 securities with a total outstanding debt of Rs. 3,769,784 (US \$ 86,483 million) were made available for trading in 2006-07. As at end March 2007, 3,249 securities were available for trading on the WDM Segment. Of which 762 securities were active during 2006-07 as compared to 897 in the previous year.

The turnover on WDM segment has been growing over time till the year 2004-05 where it witnessed a decline. The current year 2006-07 the turnover registered a decrease of 53.92% from Rs. 4,755,235 million (US \$ 106,596 million) in 2005-06 to Rs. 2,191,065 million (US \$ 50,265 million) . The average daily turnover also decreased from Rs. 17,547 million (US \$



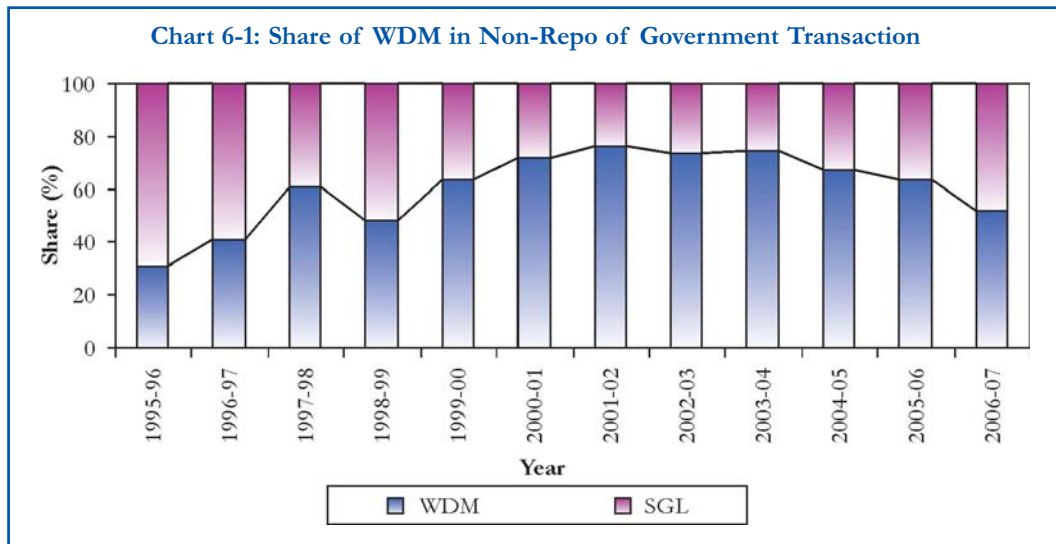
Table 6-8: Share of WDM in Transactions of Government Securities

(Amount in Rs. mn.)

Year	Turnover of Non-Repo Govt Securities			Turnover of Non-Repo Central & State Govt Sec.			Turnover of Non-Repo T-Bills		
	On SGL	On WDM	Share of WDM (%)	On SGL	On WDM	Share of WDM (%)	On SGL	On WDM	Share of WDM (%)
1995-96	295,300	92,433	31.30	180,170	69,885	6.97	115,130	22,548	19.58
1996-97	939,210	381,023	40.57	604,990	271,902	31.84	334,220	109,121	32.65
1997-98	1,610,900	975,152	60.53	1,198,890	804,943	60.21	412,010	170,209	41.31
1998-99	1,875,310	904,158	48.21	1,446,410	798,295	46.29	428,900	105,863	24.68
1999-00	4,564,910	2,915,915	63.88	4,089,160	2,809,475	58.37	475,750	106,440	22.37
2000-01	5,721,456	4,124,958	72.10	5,120,836	3,893,523	62.94	600,620	231,435	38.53
2001-02	12,119,658	9,269,955	76.49	11,446,342	9,015,121	60.91	673,316	254,834	37.85
2002-03	13,923,834	10,305,497	74.01	13,155,989	9,991,507	55.42	767,845	313,990	40.89
2003-04	17,013,632	12,741,190	74.89	15,813,076	12,185,221	49.01	1,200,556	555,969	46.31
2004-05	12,608,667	8,493,250	67.36	9,902,244	7,246,655	73.18	2,706,422	1,246,595	46.06
2005-06	7,080,147	4,508,016	63.67	4,986,040	3,455,832	69.31	2,094,107	1,052,184	50.24
2006-07	3,982,988	2,053,237	51.55	2,747,384	1,533,697	55.82	1,235,603	519,540	42.05

SGL Non-Repo Turnover excludes NDS-OM turnover

Source: NSE.



393.34 million) to Rs. 8,980 million (US \$ 206.01 million) during the same period. However, the average trade size increased from Rs. 76.83 million (US \$ 1.72 million) to Rs.111.90 million (US \$ 2.57 million). The business growth of WDM segment is presented in (Table 6-9), (Chart 6-2) and (Annexure 6-2).

Compared to the previous years, the market did not perform remarkably well during this year. The monthly as well as the total volumes during this year 2006-07 witnessed a huge dip. The highest turnover of Rs. 293,386 million (US \$ 6,731 million) was witnessed in November 2006. The average daily turnover ranged between Rs. 5,359 million (US \$ 123 million) and Rs. 13,638 million (US \$ 306 million).

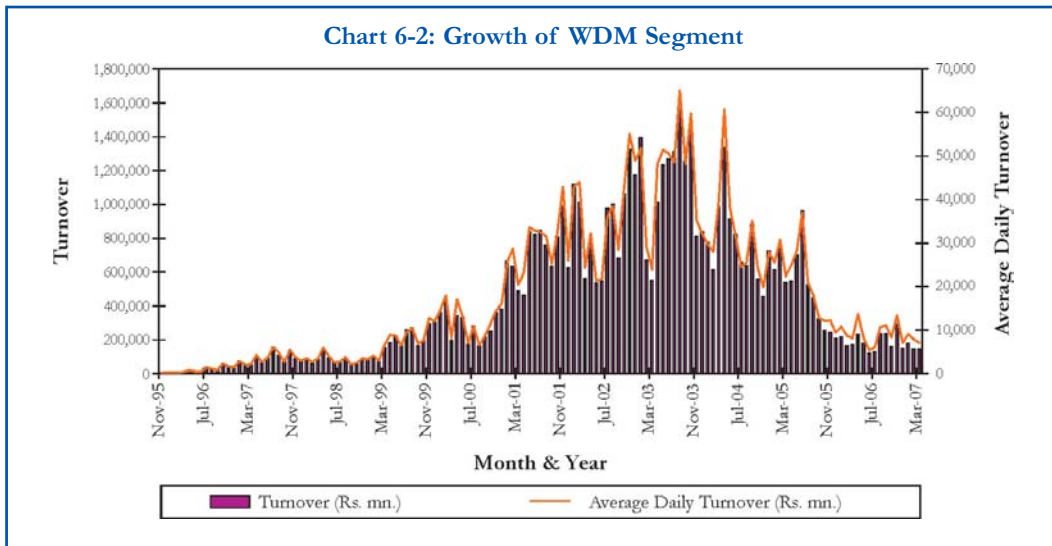


Table 6-9: Business Growth of WDM Segment of NSE

Parameter	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
No. of Active Securities	719	1,071	1,057	1,038	979	1,123	1,078	1,151	897	762
No. of Trades	16,821	16,092	46,987	64,470	144,851	167,778	189,518	124,308	61,891	19,575
No. of Retail Trades	1,390	1,522	936	498	378	1,252	1,400	1,278	892	399
Turnover (Rs. mn.)	1,112,633	1,054,691	3,042,162	4,285,815	9,471,912	10,687,015	13,160,962	8,872,936	4,755,235	2,191,065
<b>Turnover (US \$ mn)</b>	-----	<b>24,857</b>	<b>69,742</b>	<b>91,891</b>	<b>194,097</b>	<b>224,990</b>	<b>303,318</b>	<b>202,810</b>	<b>106,596</b>	<b>50,265</b>
Average Daily Turnover (Rs. mn.)	3,850	3,650	10,348	14,830	32,775	35,983	44,765	30,283	17,547	8,980
<b>Average Daily Turnover (US \$ mn)</b>	-----	<b>86.02</b>	<b>237.23</b>	<b>317.97</b>	<b>671.62</b>	<b>757.54</b>	<b>1,032</b>	<b>692.19</b>	<b>393.34</b>	<b>206.01</b>
Retail Turnover (Rs. mn.)	2,887	3,078	2,185	1,318	1,094	2,995	3,317	4,101	3,104	1,015
<b>Retail Turnover</b>	-----	<b>72.54</b>	<b>50.09</b>	<b>28.26</b>	<b>22.42</b>	<b>63.05</b>	<b>76.45</b>	<b>93.74</b>	<b>69.58</b>	<b>23.29</b>
Share of Retail Trades (%)	0.26	0.29	0.07	0.03	0.01	0.03	0.00	0.05	0.07	0.05
Average Trade Size (Rs. mn.)	66.15	65.54	64.74	66.48	65.39	63.70	69	71.4	76.83	111.9
<b>Average Trade Size (US \$ mn)</b>	-----	<b>1.54</b>	<b>1.48</b>	<b>1.43</b>	<b>1.34</b>	<b>1.34</b>	<b>1.60</b>	<b>1.63</b>	<b>1.72</b>	<b>2.57</b>
Average Size of Retail Trade (Rs. Mn.)	2.08	2.02	2.33	2.65	2.89	2.39	2.00	3.21	3.48	2.54
<b>Average Size of Retail Trade (US \$ mn)</b>	-----	<b>0.05</b>	<b>0.05</b>	<b>0.06</b>	<b>0.06</b>	<b>0.05</b>	<b>0.05</b>	<b>0.07</b>	<b>0.08</b>	<b>0.06</b>

Source: NSE.





### Securities Profile

Long-term securities dominated the market during 2006-07 revealing the interest of investors to hold on to long term of assets. Though the turnover in Government securities decreased by 55.62% in 2006-07 as compared to the previous year, yet it accounted for the bulk of trading with a turnover of Rs. 1,533,697 million (US \$ 35,185 million). Its share in total turnover also decreased marginally to 70.00% in 2006-07 from 72.67% in the previous year (Table 6-10). The share of T-Bills in WDM turnover, which has been declining over a time, witnessed a reversal in the trend in the last two years registering 22.13% and 23.71% share in the years 2005-06 and 2006-07 respectively. The PSU bonds witnessed a turnover of Rs. 23,038 million (US \$ 529 million) in 2006-07 as against Rs. 68,572 million (US \$ 1,537 million) in 2005-06 (Annexure 6-3). The share of Corporate bonds and CP's increased marginally from 2.19% in the year 2005-06 to 3.18% in the year 2006-07 (Chart 6-3).

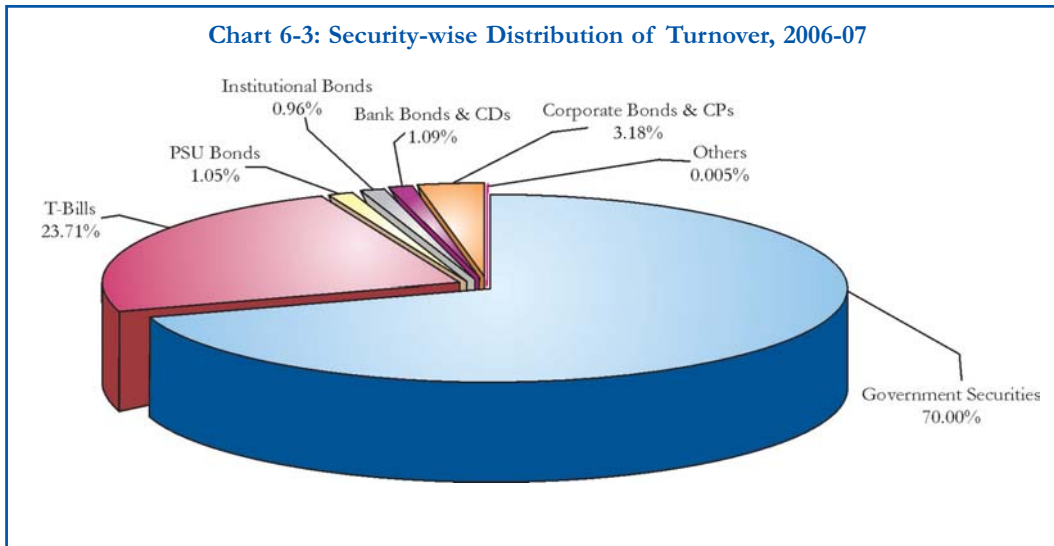
**Table 6-10: Security wise Distribution of Turnover**

Securities	Turnover (Rs.mn.)		Turnover (US \$ mn.)	% of Turnover	
	2005-06	2006-07	2006-07	2005-06	2006-07
Government Securities	3,455,832	1,533,697	35,185	72.67	70.00
T-Bills	1,052,184	519,540	11,919	22.13	23.71
PSU Bonds	68,572	23,038	529	1.44	1.05
Institutional Bonds	53,119	21,142	485	1.12	0.96
Bank Bonds & CDs	20,084	23,959	550	0.42	1.09
Corporate Bonds & CPs	104,184	69,589	1,596	2.19	3.18
Others	1,260	100	2	0.03	0.01
<b>Total</b>	<b>4,755,235</b>	<b>2,191,065</b>	<b>50,265</b>	<b>100.00</b>	<b>100.00</b>

Source: NSE.

The share of top '10' securities has decreased to 51.29% in 2006-07 as compared to 59.78% in 2005-06. (Table 6-11). Top 50 securities accounted for over 77.15 % of turnover in 2006-07.





**Table 6-11: Share of Top 'N' Securities/Trading Members/ Participants in Turnover in WDM Segment**

Year	In Percent				
	Top 5	Top 10	Top 25	Top 50	Top 100
<b>Securities</b>					
1994-95	42.84	61.05	80.46	89.81	97.16
1995-96	57.59	69.46	79.60	86.58	93.24
1996-97	32.93	48.02	65.65	78.32	90.17
1997-98	30.65	46.92	71.25	85.00	92.15
1998-99	26.81	41.89	64.30	78.24	86.66
1999-00	37.11	55.57	82.12	90.73	95.28
2000-01	42.20	58.30	80.73	89.97	95.13
2001-02	51.61	68.50	88.73	94.32	97.19
2002-03	43.10	65.15	86.91	92.74	96.13
2003-04	37.06	54.43	81.58	90.66	95.14
2004-05	43.70	57.51	71.72	80.59	89.55
2005-06	47.42	59.78	72.02	81.04	89.36
2006-07	40.90	51.29	65.82	77.15	86.91
<b>Trading Members</b>					
1994-95	51.99	73.05	95.37	100.00	--
1995-96	44.36	68.58	96.10	100.00	--
1996-97	30.02	51.27	91.57	99.96	100.00
1997-98	27.17	47.85	83.38	99.82	100.00
1998-99	29.87	50.45	86.55	99.98	100.00
1999-00	32.38	53.41	84.46	100.00	--
2000-01	35.17	54.25	86.82	100.00	--
2001-02	35.18	58.68	88.36	100.00	--
2002-03	31.77	53.71	85.49	100.00	--
2003-04	30.72	53.01	86.71	100.00	--
2004-05	35.75	56.84	86.74	100.00	--
2005-06	39.68	60.63	89.38	100.00	--
2006-07	57.75	78.01	96.43	100.00	--

Cont...



Cont...

**Table 6-11: Share of Top 'N' Securities/Trading Members/ Participants in Turnover in WDM Segment**

Year	In Percent				
	Top 5	Top 10	Top 25	Top 50	Top 100
<b>Participants</b>					
1994-95	18.37	27.38	38.40	42.20	--
1995-96	29.66	47.15	70.49	76.32	76.58
1996-97	25.27	44.92	67.00	76.33	77.10
1997-98	23.60	38.96	65.59	77.96	80.22
1998-99	22.47	37.39	62.79	79.27	84.51
1999-00	15.54	27.87	52.51	74.76	81.32
2000-01	17.51	28.85	50.64	69.72	76.78
2001-02	17.49	29.25	50.19	69.16	76.49
2002-03	17.27	28.29	49.22	68.14	75.20
2003-04	16.66	25.69	44.25	59.87	65.17
2004-05	16.82	28.64	47.24	61.71	66.00
2005-06	17.50	30.53	53.61	65.84	67.97
2006-07	25.85	40.65	59.99	68.17	69.09

Source: NSE.

### Participant Profile

Indian banks, foreign banks and PDs together accounted for over 66.42% of WDM turnover during 2006-07 (Table 6-12). The share of the Indian banks fell from 28.07% to 26.03% in 2006-07. Though the trading member's contribution declined from 32.01% to 30.88%, it proved to be market leader followed by Indian Banks (Annexure 6-3).

Top '50' trading members accounted for the total turnover of WDM in 2006-07, which is indicative of the narrow membership structure of WDM segment. (Table 6-11). As on March 30, 2007, there were 63 members on the WDM segment.

**Table 6-12: Participant-wise Distribution of Turnover**

Participants	2005-06	2006-07
Indian Banks	28.07	26.03
Foreign Banks	14.11	20.57
Primary Dealers	21.89	19.82
Trading Members	32.01	30.88
FI, MFs & Corporates	3.92	2.70
<b>Total</b>	<b>100.00</b>	<b>100.00</b>

Source: NSE.

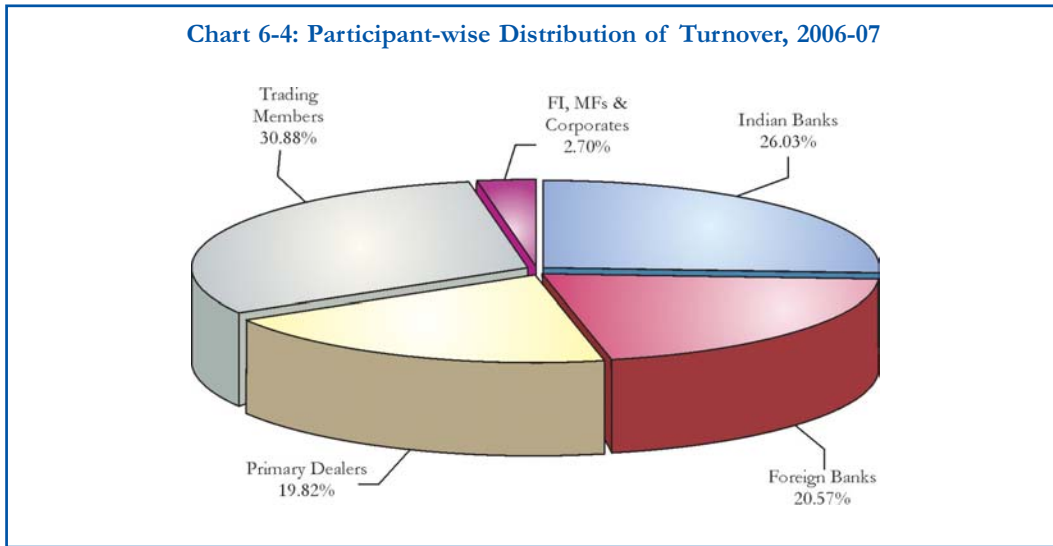
### Market Capitalisation

Market capitalisation of the WDM segment has witnessed a constant increase. The total market capitalisation of securities available for trading on WDM segment stood at Rs. 17,848,006 million (US \$ 409,452 million) as at end-March 2007, registering a growth of





Chart 6-4: Participant-wise Distribution of Turnover, 2006-07



13.86% over end-March 2006 (Table 6-13). The relative shares of different securities in market capitalisation maintained the trend of 2005-06 with the Government securities accounting for the highest share of 66.24% of total market capitalisation at the end of March 2007 (Chart 6-5). The growth of market capitalisation of WDM is presented in (Annexure 6-4).

Table 6-13 : Market Capitalisation of WDM Segment

(In per cent)

Securities	Market Capitalisation (end of period)				% to total	
	March-06 (Rs. mn.)	March-07 (Rs. mn.)	March-06 (US \$ mn.)	March-07 (US \$ mn.)	March-06	March-07
Government Securities	10,597,887	11,822,777	237,568	271,227	67.61	66.24
PSU Bonds	887,165	896,275	19,887	20,561	5.66	5.02
State Loans	2,419,271	2,498,474	54,232	57,318	15.43	14.00
T-bills	701,859	1,151,827	15,733	26,424	4.48	6.45
Other	1,069,556	1,478,652	23,976	33,922	6.82	8.28
<b>Total</b>	<b>15,675,738</b>	<b>17,848,006</b>	<b>351,395</b>	<b>409,452</b>	<b>100.00</b>	<b>100.00</b>

Source: NSE.

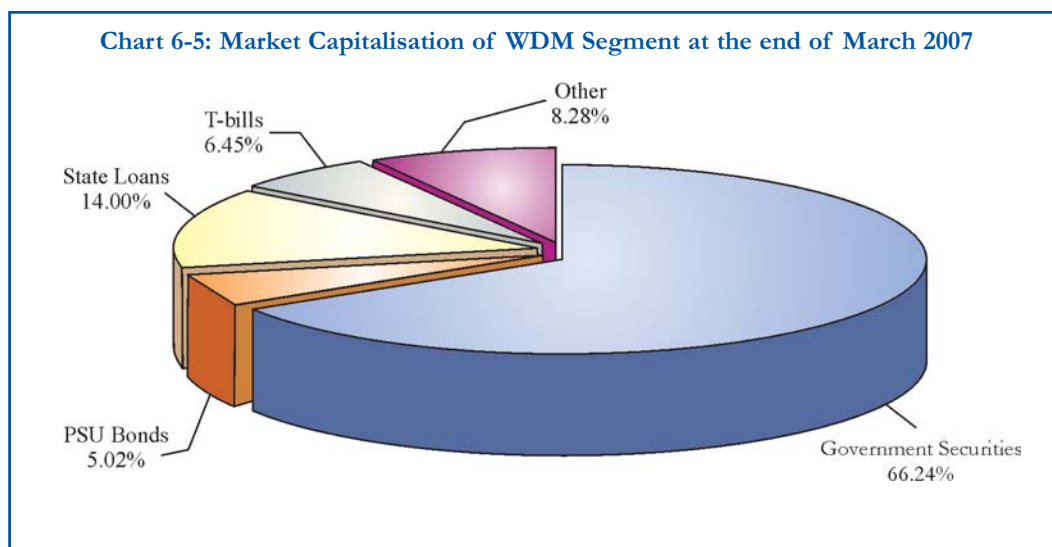
## Yields

The yields (yield-to-maturity) on government and corporate securities of different maturities of 0-1 year, 5-6 years, 9-10 years and above 10 years are presented in Table 6-14. The yields on government and corporate securities showed an upward trend through out 2006-07.

## Zero Coupon Yield Curve

Keeping in mind the requirements of the banking industry, financial institutions, mutual funds, insurance companies, 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





**Table 6-14: Yields on Government and Corporate Securities, 2006-07**

(In per cent)

Month/ Year	Government Securities				Corporate Securities			
	0-1 year	5-6 years	9-10 years	Above 10 years	0-1 year	5-6 years	9-10 years	Above 10 years
Apr-06	5.88	6.88	7.16	7.45	6.88	7.33	8.32	8.33
May-06	5.82	6.85	7.45	7.88	6.71	7.96	8.15	8.61
Jun-06	7.02	7.90	8.23	8.55	6.94	6.76	8.65	8.88
Jul-06	6.49	7.47	8.20	8.68	6.89	7.62	8.93	9.24
Aug-06	6.55	7.52	8.04	8.27	6.96	7.96	9.23	9.32
Sep-06	6.61	7.41	7.73	7.95	7.50	8.46	8.98	8.85
Oct-06	6.69	7.40	7.75	7.98	7.71	8.35	8.82	8.87
Nov-06	6.76	7.36	7.61	7.61	7.88	8.32	8.79	8.86
Dec-06	6.96	7.53	7.54	7.59	9.22	8.42	9.11	8.93
Jan-07	7.19	7.62	7.65	7.73	9.03	9.04	9.06	9.00
Feb-07	7.36	7.86	7.91	8.07	10.72	9.37	9.44	9.05
Mar-07	7.40	8.00	8.09	8.27	10.82	10.09	9.57	9.85

Source: NSE.

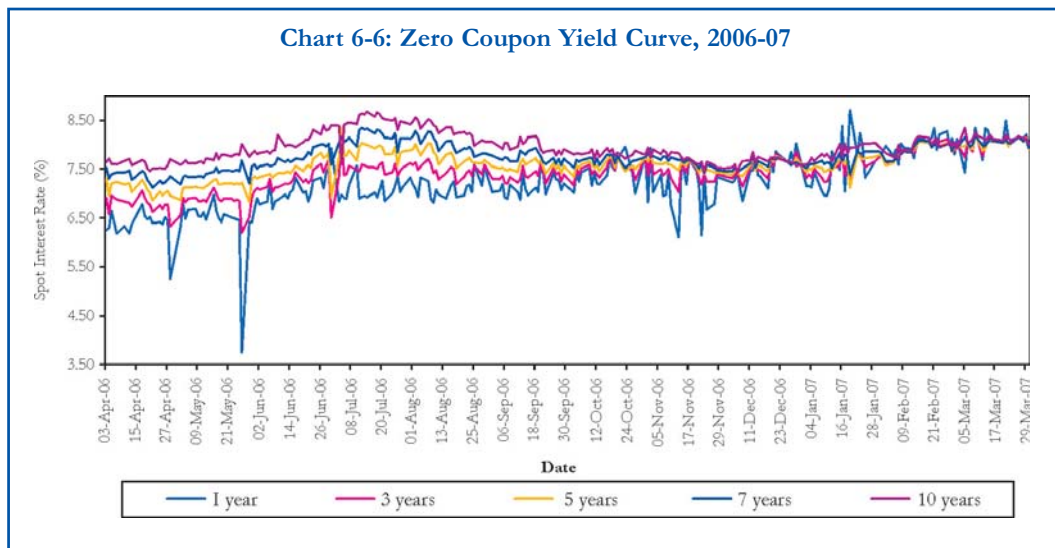
been developed by using Nelson-Siegel model to estimate the term structure of interest rate at any given point of time and been successfully tested by using daily WDM trades data. This is being disseminated daily.

The ZCYC depicts the relationship between interest rates in the economy and the associated terms 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. The daily ZCYC captures the changes in term structure, and is used to track the value of portfolios of government securities on a day-to-day basis.

The estimates of daily ZCYC are available from February 1998. (Chart 6-6) plots the spot interest rates at different maturities for the year 2006-07



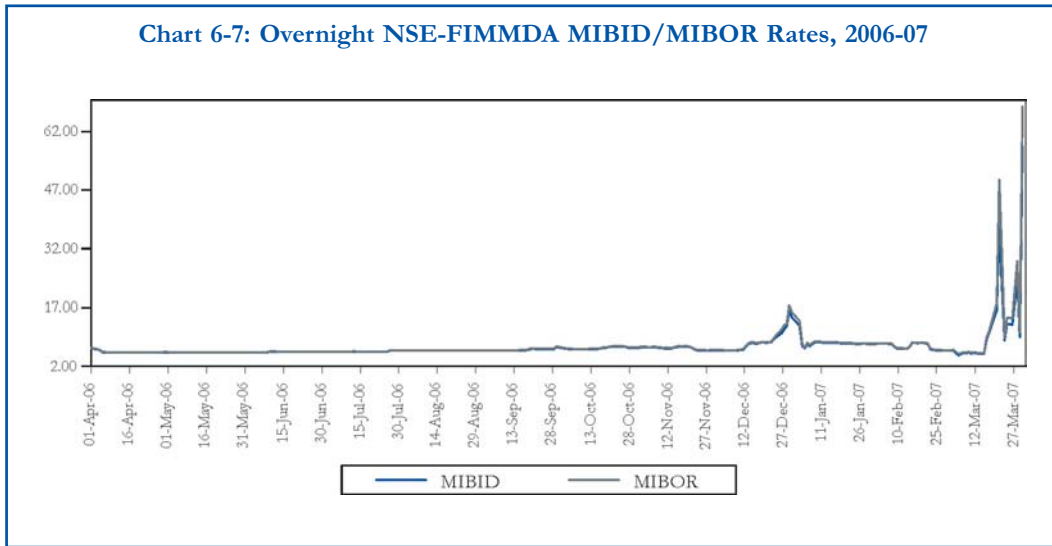
### ***FIMMDA-NSE MIBID/MIBOR***

A reference rate is an accurate measure of the market price. In the fixed income market, it is an interest rate that the market respects and closely matches. On these lines, 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 Dealers Association (FIMMDA) from March 4, 2002. These are now known as FIMMDA-NSE MIBID/MIBOR. (Chart 6-7) presents overnight FIMMDA-NSE MIBID/MIBOR from April 2006 to March 2007. The FIMMDA-NSE MIBID/MIBOR rates for month ends are presented in (Annexure 6-5). The daily FIMMDA-NSE MIBID/MIBOR rates are available at [www.nseindia.com](http://www.nseindia.com).

The overnight MIBID/MIBOR rates ruled fairly steady within a narrow range during the year 2006-07. These rates touched the peak of 58.15% and 68.27%, respectively, on March 30, 2007 and the low of 5.50% and 5.60%, respectively, on May 31, 2006. The rates have been particularly stable during the current financial year, reflective of a stable interest



Chart 6-7: Overnight NSE-FIMMDA MIBID/MIBOR Rates, 2006-07



rate environment, and have been hovering around 5-7%. 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.

FIMMDA-NSE MIBID/MIBOR rates are based on quotes polled by NSE from a representative panel of 33 banks/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 FIMMDA-NSE MIBID/MIBOR is used as a benchmark rate for majority of deals struck for interest rate swaps, forward rate agreements, floating rate debentures and term deposits.

### *NSE-VaR System*

NSE has developed a 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 (ZCYC) and provides measures of VaR using 5 alternative methods (variance-covariance, historical simulation method, weighted normal, weighted historical simulation and extreme value method). 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. 1-day VaR (99%) measure for GoI Securities



traded on NSE-WDM on March 30, 2007 is presented in (Annexure 6-6). The VaR for other GOI securities are available at [www.nseindia.com](http://www.nseindia.com).

### *Bond Index*

Market participants are familiar with the equity Indices such as the Nifty 50 and the BSE Sensex. These have been around for years and are very popular as benchmarks. These are comparatively easy to construct due to the high liquidity of many equities across several industry categories. In contrast, designing debt indices posed as a challenge in India as the breadth and depth of the debt market has not been very promising. There were also 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. However, market participants need an index to compare their performance with as well as the performance of different classes of assets.

A widely tracked benchmark in this context is the ICICI Securities' (Isec) bond index (i-BEX), which measures the performance of the bond markets by tracking returns on government securities. There are also other indices like NSE's G-Sec Index and NSE's T-Bills Index. These have emerged as the benchmark of choice across all classes of market participants - banks, financial institutions, primary dealers, provident funds, insurance companies, mutual funds and foreign institutional investors. It has two variants, namely, a Principal Return Index (PRI) and Total Return Index (TRI). The PRI tracks the price movements of bonds or capital gains/losses since the base date. It is the movement of prices quoted in the market and could be seen as the mirror image of yield movements. During 2006-07, the PRI of i-BEX and NSE G-Sec Index decreased by 2.96 % and 4.11% respectively. The TRI tracks the total returns available in the bond market. It captures both interest accruals and capital gains/losses. In a declining interest rate scenario, the index gains on account of interest accrual and capital gains, while losing on reinvestment income. As against this, during rising interest rate periods, the interest accrual and reinvestment income is offset by capital losses. Therefore, the TRI typically has a positive slope except during periods when the drop in market prices is higher than the interest accrual. During 2006-07, the TRI registered rise of 4.66% and 1.09 % for i-BEX and NSE G-Sec Index respectively.

While constructing the NSE-Government Securities Index prices are used from NSE ZCYC so that the movements reflect returns to an investor on account of change in interest rates. The index provides a benchmark for portfolio management by various investment managers and gilt funds. The movements of popular fixed income indices at monthly rates are presented in (Table 6-15).

Table 6-15: Debt Market Indices, 2006-07

At the end of the month	I Sec I-BEX (Base August 1, 1994=1000)		NSE-T-Bills Index		NSE-G Sec Index	
	TRI	PRI	TRI	PRI	TRI	PRI
Apr-05	3618.70	1294.29	198.56	198.56	237.68	117.26
May-05	3701.75	1316.10	199.20	199.20	239.46	117.42
Jun-05	3758.31	1328.02	200.23	200.23	243.71	118.92
Jul-05	3758.06	1319.44	201.42	201.42	244.23	118.48
Aug-05	3771.29	1315.55	202.52	202.52	242.50	117.28
Sep-05	3791.01	1313.83	203.31	203.31	243.21	117.16
Oct-05	3820.32	1315.54	204.20	204.20	244.00	117.25
Nov-05	3845.28	1315.63	205.16	205.16	244.79	116.93
Dec-05	3868.40	1314.93	205.75	205.75	249.19	118.38
Jan-06	3851.46	1300.30	206.81	206.81	244.73	115.80
Feb-06	3858.77	1294.54	207.64	207.64	244.56	115.00
Mar-06	3851.96	1282.36	209.16	209.16	244.03	114.25
Apr-06	3894.74	1288.17	210.99	210.99	244.24	114.09
May-06	3878.34	1273.56	210.95	210.95	240.92	112.08
Jun-06	3820.07	1245.31	211.25	211.25	242.84	112.29
Jul-06	3821.74	1236.92	212.87	212.87	233.69	107.95
Aug-06	3899.46	1253.58	214.51	214.51	240.51	110.5
Sep-06	3975.15	1269.72	215.45	215.45	244.61	111.95
Oct-06	4018.27	1274.90	216.16	216.16	244.91	111.53
Nov-06	4128.44	1301.83	217.98	217.98	252.04	114.18
Dec-06	4100.89	1284.33	218.39	218.39	250.07	112.51
Jan-07	4066.43	1264.38	220.24	220.24	248.68	111.08
Feb-07	4068.54	1256.91	221.21	221.21	248.02	110.26
Mar-07	4076.09	1250.01	222.52	222.52	246.91	109.40

Source: ICICI Securities and NSE



## Annexure 6-1: Secondary Market Transactions in Government Securities

Month/Year	SGL/NDS Non-Repo Transactions					WDM Non-Repo Transactions in Govt. Sec.				
	Dated Securities	State Govt. Securities	Treasury Bills	Total (2+3+4) (Rs. mn)	Total (5) (US \$ mn.)	Dated Securities	State Govt. Securities	Treasury Bills	Total (6+7+8) (Rs. mn)	Total (9) (US \$ mn.)
1	2	3	4	5		6	7	8	9	
1994-95	113,830	2,030	97,210	213,070	-----	29,471	793	26,337	56,601	-----
1995-96	175,530	4,640	115,130	295,300	-----	68,130	1,755	22,548	92,433	-----
1996-97	599,030	5,960	334,220	939,210	-----	268,914	2,988	109,121	381,023	-----
1997-98	1,185,410	13,480	412,010	1,610,900	-----	795,638	9,305	170,209	975,152	-----
1998-99	1,430,970	15,440	428,900	1,875,310	44,197	789,692	8,603	105,863	904,158	21,309
1999-00	4,052,850	36,310	475,750	4,564,910	104,651	2,788,655	20,820	106,440	2,915,915	66,847
2000-01	5,091,125	29,711	600,620	5,721,456	122,673	3,880,972	12,551	231,435	4,124,958	88,442
2001-02	11,385,035	61,307	673,316	12,119,658	248,354	9,001,001	14,120	254,834	9,269,955	189,958
2002-03	13,061,533	94,456	767,845	13,923,834	293,133	9,965,825	25,682	313,990	10,305,497	216,958
Apr-03	1,154,892	5,744	112,712	1,273,348	29,347	918,570	908	50,009	969,487	22,344
May-03	1,515,036	11,042	69,404	1,595,482	36,771	1,149,241	2,491	37,896	1,189,628	27,417
Jun-03	1,525,599	15,887	73,261	1,614,747	37,215	1,205,540	7,315	28,835	1,241,690	28,617
Jul-03	1,548,600	9,724	106,354	1,664,678	38,365	1,234,260	3,525	41,824	1,279,609	29,491
Aug-03	2,057,602	19,766	111,201	2,188,569	50,439	1,531,213	7,134	42,358	1,580,705	36,430
Sep-03	1,357,323	14,553	125,795	1,497,671	34,517	1,137,665	5,543	64,704	1,207,912	27,838
Oct-03	1,789,154	15,559	111,741	1,916,454	44,168	1,326,757	3,176	56,189	1,386,122	31,946
Nov-03	903,041	6,373	87,211	996,625	22,969	738,047	3,220	46,308	787,575	18,151
Dec-03	945,347	14,053	90,647	1,050,047	24,200	763,458	2,678	44,796	810,932	18,689
Jan-04	892,785	11,521	86,428	990,734	22,833	699,090	4,216	46,392	749,698	17,278
Feb-04	724,382	14,498	85,845	824,725	19,007	556,191	2,774	39,453	598,418	13,792
Mar-04	1,227,358	33,237	139,956	1,400,551	32,278	878,361	3,848	57,205	939,414	21,650
<b>2003-04</b>	<b>15,641,119</b>	<b>171,957</b>	<b>1,200,556</b>	<b>17,013,632</b>	<b>392,110</b>	<b>12,138,393</b>	<b>46,828</b>	<b>555,969</b>	<b>12,741,190</b>	<b>293,643</b>
Apr-04	1,675,727	13,537	126,297	1,815,561	41,499	1,230,497	3,383	53,399	1,287,278	29,424
May-04	1,042,848	17,468	191,697	1,252,013	28,617	792,919	7,595	80,854	881,368	20,146
Jun-04	1,019,694	34,065	199,611	1,253,370	28,648	686,290	12,822	87,664	786,777	17,983
Jul-04	690,184	26,898	194,045	911,127	20,826	530,350	8,642	90,343	629,336	14,385
Aug-04	712,238	10,396	196,797	919,431	21,016	545,141	2,056	63,295	610,492	13,954
Sep-04	961,442	27,525	225,008	1,213,975	27,748	738,151	6,388	99,226	843,765	19,286
Oct-04	579,305	39,790	200,767	819,862	18,740	446,924	14,542	75,930	537,396	12,283
Nov-04	433,090	22,417	221,927	677,434	15,484	310,337	9,090	116,651	436,078	9,967
Dec-04	754,370	36,540	263,734	1,054,644	24,106	558,937	10,333	121,625	690,896	15,792
Jan-05	568,678	32,098	264,172	864,948	19,770	443,227	8,443	131,458	583,128	13,329
Feb-05	700,335	12,399	294,047	1,006,781	23,012	541,361	3,099	157,274	701,734	16,040
Mar-05	473,595	12,712	333,212	819,519	18,732	332,980	3,148	168,875	505,003	11,543
<b>2004-05</b>	<b>9,611,506</b>	<b>285,845</b>	<b>2,711,314</b>	<b>12,608,665</b>	<b>288,198</b>	<b>7,157,115</b>	<b>89,540</b>	<b>1,246,595</b>	<b>8,493,250</b>	<b>194,131</b>
Apr-05	477,327	10,484	401,936	889,747	19,945	305,690	267	217,476	523,434	11,734
May-05	680,869	32,385	279,760	993,014	22,260	504,102	9,160	159,214	672,476	15,075

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## Annexure 6-1: Secondary Market Transactions in Government Securities

Month/Year	SGL/NDS Non-Repo Transactions					WDM Non-Repo Transactions in Govt. Sec.				
	Dated Securities	State Govt. Securities	Treasury Bills	Total (2+3+4) (Rs. mn)	Total (5) (US \$ mn.)	Dated Securities	State Govt Securities	Treasury Bills	Total (6+7+8) (Rs. mn)	Total (9) (US \$ mn.)
1	2	3	4	5		6	7	8	9	
Jun-05	1,100,412	31,777	165,837	1,298,026	29,097	853,811	11,783	62,078	927,673	20,795
Jul-05	597,429	9,288	124,668	731,385	16,395	450,853	2,816	44,693	498,363	11,172
Aug-05	384,844	17,981	275,567	678,392	15,207	259,584	8,985	147,328	415,896	9,323
Sep-05	302,592	26,159	165,387	494,138	11,077	210,368	11,732	69,228	291,328	6,531
Oct-05	194,399	17,224	177,061	388,684	8,713	144,237	7,709	84,735	236,681	5,306
Nov-05	241,736	11,990	135,150	388,876	8,717	158,599	7,246	68,440	234,286	5,252
Dec-05	222,453	10,560	107,360	340,373	7,630	127,913	5,816	59,985	193,714	4,342
Jan-06	213,664	9,235	99,262	322,161	7,222	139,022	2,886	58,079	199,986	4,483
Feb-06	191,215	12,378	64,316	267,909	6,006	122,164	2,319	32,623	157,106	3,522
Mar-06	167,951	21,687	97,803	287,441	6,443	105,559	3,210	48,305	157,073	3,521
<b>2005-06</b>	<b>4,774,890</b>	<b>211,150</b>	<b>2,094,107</b>	<b>7,080,147</b>	<b>158,712</b>	<b>3,381,903</b>	<b>73,929</b>	<b>1,052,184</b>	<b>4,508,016</b>	<b>101,054</b>
Apr-06	283,294	7,428	108,741	399,464	9,164	153,461	1,578	67,294	222,333	5,101
May-06	234,449	23,719	119,939	378,107	8,674	123,803	4,661	34,624	163,088	3,741
Jun-06	129,841	10,832	130,278	270,951	6,216	59,940	4,210	42,977	107,127	2,458
Jul-06	133,723	7,670	99,537	240,930	5,527	67,153	2,818	45,357	115,328	2,646
Aug-06	265,603	6,587	175,416	447,607	10,269	147,064	2,943	75,395	225,401	5,171
Sep-06	299,603	8,190	119,087	426,880	9,793	170,716	4,158	48,322	223,196	5,120
Oct-06	178,350	4,793	88,721	271,864	6,237	113,547	875	36,830	151,252	3,470
Nov-06	356,655	9,748	123,385	489,788	11,236	226,967	2,673	53,134	282,774	6,487
Dec-06	175,906	11,639	61,708	249,253	5,718	107,756	4,351	28,803	140,910	3,233
Jan-07	209,980	5,947	78,622	294,550	6,757	131,594	1,236	33,460	166,291	3,815
Feb-07	176,420	10,422	56,768	243,609	5,589	100,214	1,612	28,629	130,456	2,993
Mar-07	178,347	18,238	73,401	269,986	6,194	97,117	3,250	24,714	125,080	2,869
<b>2006-07</b>	<b>2,622,171</b>	<b>125,213</b>	<b>1,235,603</b>	<b>3,982,988</b>	<b>91,374</b>	<b>1,499,332</b>	<b>34,365</b>	<b>519,540</b>	<b>2,053,237</b>	<b>47,103</b>

Source : NSE

\*excludes NDS-OM turnover





## Annexure 6 -2: Business Growth of WDM Segment

Month/Year	All Trades						Retail Trades				
	No. of Active Securities	Number of Trades	Turnover (Rs. mn)	Average Daily Turnover (Rs. mn.)	Average Trade Size (Rs. mn.)	Turnover (US \$ mn.)	Average Daily Turnover (US \$ mn.)	Number of Trades (Rs. mn.)	Turn-over (US \$ mn.)	Turn-over (US \$ mn.)	Share in Total Turn-over (%)
1994- 95 (June-March)	183	1,021	67,812	304	66.42	----	----	168	306		0.45
1995-96	304	2,991	118,677	408	39.68	----	----	1,115	2,072		1.75
1996-97	524	7,804	422,776	1,453	54.17	----	----	1,061	2,005		0.47
1997-98	719	16,821	1,112,633	3,850	66.15	----	----	1,390	2,887		0.26
1998-99	1,071	16,092	1,054,691	3,650	65.54	24,857	86	1,522	3,078		0.29
1999-00	1,057	46,987	3,042,162	10,348	64.74	69,742	237	936	2,185		0.07
2000-01	1,038	64,470	4,285,815	14,830	66.48	91,891	318	498	1,318	28.26	0.03
2001-02	979	144,851	9,471,912	32,775	65.39	194,097	672	378	1,094	22.42	0.01
Apr-02	254	12,164	773,337	32,222	63.58	16,281	678	32	73	1.54	0.01
May-02	206	8,662	532,461	21,298	61.47	11,210	448	30	99	2.08	0.02
Jun-02	237	8,875	544,774	21,791	61.38	11,469	459	22	68	1.43	0.01
Jul-02	230	14,996	977,254	36,195	65.17	20,574	762	46	158	3.33	0.02
Aug-02	232	15,483	1,002,256	38,548	64.73	21,100	812	56	164	3.45	0.02
Sep-02	251	10,439	682,692	28,446	65.40	14,372	599	81	209	4.40	0.03
Oct-02	265	16,587	1,061,424	42,457	63.99	22,346	894	143	406	8.55	0.04
Nov-02	260	21,052	1,322,216	55,092	62.81	27,836	1,160	172	349	7.35	0.03
Dec-02	245	18,807	1,173,826	48,909	62.41	24,712	1,030	152	359	7.56	0.03
Jan-03	253	21,335	1,397,180	51,747	65.49	29,414	1,089	131	322	6.78	0.02
Feb-03	229	10,728	669,736	29,119	62.43	14,100	613	115	238	5.01	0.04
Mar-03	276	8,650	549,858	23,907	63.57	11,576	503	272	550	11.58	0.10
<b>2002-03</b>	<b>1,123</b>	<b>167,778</b>	<b>10,687,014</b>	<b>35,983</b>	<b>63.70</b>	<b>224,990</b>	<b>758</b>	<b>1,252</b>	<b>2,995</b>	<b>63.05</b>	<b>0.03</b>
Apr-03	282	15,512	1,010,522	48,120	65.14	23,289	1,109	180	412	9.50	0.04
May-03	290	18,651	1,233,590	51,400	66.14	28,430	1,185	148	305	7.03	0.02
Jun-03	310	18,400	1,266,717	50,669	68.84	29,194	1,168	127	290	6.68	0.02
Jul-03	271	18,220	1,310,268	48,528	71.91	30,197	1,118	122	298	6.87	0.02
Aug-03	306	22,753	1,627,371	65,095	71.52	37,506	1,500	127	255	5.88	0.02
Sep-03	334	17,152	1,251,987	48,153	72.99	28,854	1,110	115	251	5.78	0.02
Oct-03	275	20,465	1,434,039	59,752	70.07	33,050	1,377	81	265	6.11	0.02
Nov-03	233	11,737	809,029	35,175	68.93	18,646	811	89	282	6.50	0.03
Dec-03	247	12,529	839,059	32,272	66.97	19,338	744	57	142	3.27	0.02
Jan-04	280	11,407	775,328	29,820	67.97	17,869	687	123	338	7.79	0.04
Feb-04	241	8,675	614,989	27,954	70.89	14,174	644	79	211	4.86	0.03
Mar-04	372	14,017	988,064	39,523	70.49	22,772	911	152	268	6.18	0.03
<b>2003-04</b>	<b>1,078</b>	<b>189,518</b>	<b>13,160,962</b>	<b>44,765</b>	<b>69.44</b>	<b>303,318</b>	<b>1,032</b>	<b>1,400</b>	<b>3,317</b>	<b>76.45</b>	<b>0.03</b>
Apr-04	285	19,075	1,334,778	60,672	69.98	30,509	1,387	33	112	2.56	0.01
May-04	275	13,097	913,397	38,058	69.74	20,878	870	27	79	1.80	0.01
Jun-04	347	11,382	824,528	31,712	72.44	18,846	725	56	176	4.03	0.02
Jul-04	302	9,303	660,124	24,449	70.96	15,089	559	55	167	3.81	0.03
Aug-04	243	9,241	638,063	25,523	69.05	14,584	583	68	212	4.85	0.03

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## Annexure 6-2: Business Growth of WDM Segment

Month/Year	All Trades						Retail Trades					
	No. of Active Securities	Number of Trades	Turnover (Rs. mn)	Average Daily Turnover (Rs. mn.)	Average Trade Size (Rs. mn.)	Turnover (US \$ mn.)	Average Daily Turnover (US \$ mn.)	Number of Trades	Turn-over (Rs. mn.)	Turn-over (US \$ mn.)	Share in Total Turn-over (%)	
Sep-04	288	12,659	876,945	35,078	69.27	20,044	802	103	368	8.41	0.04	
Oct-04	291	8,437	557,698	24,248	66.10	12,747	554	79	365	8.35	0.07	
Nov-04	329	5,767	455,414	19,801	78.97	10,409	453	134	436	9.96	0.10	
Dec-04	333	10,321	725,933	27,921	70.34	16,593	638	154	406	9.27	0.06	
Jan-05	273	8,384	612,049	25,502	73.00	13,990	583	131	450	10.29	0.07	
Feb-05	251	10,156	735,883	30,662	72.46	16,820	701	133	432	9.86	0.06	
Mar-05	303	6,486	538,124	22,422	82.97	12,300	513	305	899	20.54	0.17	
<b>2004-05</b>	<b>1151</b>	<b>124,308</b>	<b>8,872,936</b>	<b>30,283</b>	<b>71.38</b>	<b>202,810</b>	<b>692</b>	<b>1,278</b>	<b>4,101</b>	<b>93.74</b>	<b>0.05</b>	
Apr-05	204	6,079	546,165	24,826	89.84	12,243	557	98	371	8.32	0.07	
May-05	256	9,376	701,135	28,045	74.78	15,717	629	120	440	9.86	0.06	
Jun-05	268	14,213	961,083	36,965	67.62	21,544	829	108	270	6.05	0.03	
Jul-05	185	8,042	523,090	20,924	65.04	11,726	469	52	128	2.87	0.02	
Aug-05	274	5,361	447,174	17,887	83.41	10,024	401	108	361	8.09	0.08	
Sep-05	258	4,127	319,599	12,784	77.44	7,164	287	68	243	5.45	0.08	
Oct-05	192	2,987	253,872	12,089	84.99	5,691	271	57	216	4.84	0.09	
Nov-05	186	2,822	243,597	12,180	86.32	5,461	273	46	203	4.55	0.08	
Dec-05	222	2,505	207,711	9,441	82.92	4,656	212	60	275	6.16	0.13	
Jan-06	180	2,572	216,071	10,804	84.01	4,844	242	54	169	3.79	0.08	
Feb-06	145	2,075	164,854	8,677	79.45	3,695	194	39	169	3.79	0.10	
Mar-06	224	1,732	170,886	8,137	98.66	3,831	182	82	259	5.81	0.15	
<b>2005-06</b>	<b>897</b>	<b>61,891</b>	<b>4,755,235</b>	<b>17,547</b>	<b>76.83</b>	<b>106,596</b>	<b>393</b>	<b>892</b>	<b>3,104</b>	<b>69.58</b>	<b>0.07</b>	
Apr-06	159	1,962	231,843	13,638	118.17	5,319	313	19	71	1.63	0.03	
May-06	174	1,755	179,858	8,175	102.48	4,126	188	19	59	1.35	0.03	
Jun-06	168	950	117,902	5,359	124.11	2,705	123	47	117	2.68	0.10	
Jul-06	146	1,169	127,099	6,052	108.72	2,916	139	27	84	1.92	0.07	
Aug-06	170	2,341	235,606	10,709	100.64	5,405	246	39	135	3.10	0.06	
Sep-06	198	2,336	233,960	11,141	100.15	5,367	256	42	65	1.48	0.03	
Oct-06	124	1,676	158,102	8,321	94.33	3,627	191	-	-	0.00	-	
Nov-06	185	2,938	293,386	13,336	99.86	6,731	306	15	38	0.88	0.01	
Dec-06	170	1,244	148,682	7,080	119.52	3,411	162	33	38	0.86	0.03	
Jan-07	140	1,332	180,261	9,013	135.33	4,135	207	35	141	3.24	0.08	
Feb-07	108	920	142,446	7,914	154.83	3,268	182	49	136	3.12	0.10	
Mar-07	178	952	141,919	7,096	149.07	3,256	163	74	131	3.01	0.09	
<b>2006-07</b>	<b>762</b>	<b>19,575</b>	<b>2,191,065</b>	<b>8,980</b>	<b>111.93</b>	<b>50,265</b>	<b>206</b>	<b>399</b>	<b>1,015</b>	<b>23.29</b>	<b>0.05</b>	

Source : NSE



## Annexure 6-3: Security-wise and Participant wise Distribution of WDM Trades

(In percent)

Month/ Year	Security-wise Distribution				Participant-wise Distribution				
	Government Securities	T-Bills	PSU/Inst. Bonds	Others	Trading Members	FIs/MFs/ Corporates	Primary Dealers	Indian Banks	Foreign Banks
1994-95 (June-March)	44.63	38.84	12.15	4.38	57.82	6.43	0.02	14.16	21.57
1995-96	65.13	19.04	9.69	6.14	23.48	7.60	1.16	30.07	37.69
1996-97	64.70	25.92	6.55	2.84	22.95	3.81	6.10	30.01	37.13
1997-98	76.14	16.96	3.64	3.26	19.75	4.30	12.06	41.24	22.65
1998-99	80.19	10.15	4.78	4.88	15.48	4.93	14.64	42.12	22.83
1999-00	92.99	3.62	1.60	1.79	18.63	4.18	19.42	42.72	15.05
2000-01	91.22	5.40	1.84	1.54	23.24	4.18	22.14	33.54	16.90
2001-02	95.24	2.70	1.16	0.91	23.52	4.16	22.50	36.60	13.22
2002-03	93.62	3.02	1.87	1.49	24.81	3.77	22.03	38.77	10.62
Apr-03	91.01	4.95	2.67	1.37	32.55	3.40	18.65	35.91	9.49
May-03	93.36	3.07	2.09	1.48	32.28	3.83	18.74	36.89	8.26
Jun-03	95.80	2.32	1.11	0.77	33.59	3.58	19.03	37.08	6.72
Jul-03	94.48	3.20	1.67	0.65	33.15	5.10	17.77	37.37	6.61
Aug-03	94.53	2.60	2.15	0.72	33.34	4.97	16.34	39.09	6.26
Sep-03	91.32	5.17	2.56	0.95	36.13	5.33	15.32	37.01	6.21
Oct-03	92.74	3.92	2.40	0.94	35.78	5.81	16.38	35.86	6.17
Nov-03	91.62	5.72	1.68	0.98	40.68	5.16	14.61	33.90	5.65
Dec-03	91.31	5.34	2.24	1.11	35.49	4.25	16.00	37.65	6.61
Jan-04	90.71	5.98	1.66	1.65	35.78	4.47	17.38	34.85	7.52
Feb-04	90.89	6.42	1.78	0.91	36.32	3.93	17.28	32.54	9.93
Mar-04	89.29	5.79	2.48	2.44	36.21	3.96	16.30	33.82	9.71
<b>2003-04</b>	<b>92.60</b>	<b>4.23</b>	<b>2.06</b>	<b>1.11</b>	<b>34.80</b>	<b>4.56</b>	<b>17.03</b>	<b>36.36</b>	<b>7.25</b>
Apr-04	92.46	4.01	1.72	1.81	33.75	5.69	18.92	35.71	5.93
May-04	87.67	8.89	1.89	1.55	32.90	5.24	17.88	35.57	8.41
Jun-04	84.82	10.63	2.55	2.00	30.78	6.03	19.60	33.96	9.63
Jul-04	81.72	13.72	2.07	2.49	33.33	7.03	19.15	28.88	11.61
Aug-04	85.79	10.04	2.15	2.02	32.27	6.04	20.60	25.23	15.86
Sep-04	84.90	11.32	1.54	2.24	33.97	4.99	21.49	25.79	13.76
Oct-04	82.74	13.61	1.58	2.07	34.17	4.54	18.64	27.08	15.57
Nov-04	70.14	25.61	1.96	2.29	36.30	4.28	16.73	23.30	19.39
Dec-04	78.42	16.75	1.88	2.95	39.94	3.33	18.10	23.94	14.69
Jan-05	73.80	21.48	2.15	2.57	34.07	4.04	16.80	26.64	18.45
Feb-05	73.99	21.37	2.51	2.13	34.26	4.66	15.27	29.74	16.07
Mar-05	62.46	31.38	2.42	3.74	33.15	4.73	16.91	33.49	11.72
<b>2004-05</b>	<b>81.69</b>	<b>14.07</b>	<b>2.01</b>	<b>2.23</b>	<b>33.96</b>	<b>5.14</b>	<b>18.50</b>	<b>29.89</b>	<b>12.51</b>
Apr-05	56.02	39.82	1.87	2.29	31.34	4.28	17.15	31.77	15.46
May-05	73.20	22.71	1.42	2.67	31.72	4.29	23.11	28.21	12.67
Jun-05	90.06	6.46	1.86	1.62	30.05	3.72	22.71	29.07	14.45
Jul-05	86.73	8.54	2.32	2.41	30.93	2.43	26.42	25.71	14.51
Aug-05	60.06	32.95	3.40	3.59	34.44	3.81	19.56	27.82	14.37
Sep-05	69.49	21.66	4.52	4.33	35.57	5.83	18.74	31.77	8.09

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## Annexure 6-3: Security-wise and Participant wise Distribution of WDM Trades

(In percent)

Month/ Year	Security-wise Distribution				Participant-wise Distribution				
	Government Securities	T-Bills	PSU/Inst. Bonds	Others	Trading Members	FIs/MFs/ Corporates	Primary Dealers	Indian Banks	Foreign Banks
Oct-05	59.85	33.38	4.21	2.56	35.34	2.66	21.77	27.15	13.08
Nov-05	68.08	28.10	2.32	1.50	29.18	4.99	21.29	29.98	14.56
Dec-05	64.38	28.88	3.31	3.43	34.37	4.40	18.84	30.90	11.49
Jan-06	65.68	26.88	3.38	4.06	29.92	3.32	24.79	22.11	19.86
Feb-06	75.51	19.79	1.13	3.57	31.84	3.71	26.57	21.17	16.71
Mar-06	63.65	28.27	5.57	2.51	35.76	4.16	22.10	20.47	17.51
<b>2005-06</b>	<b>72.67</b>	<b>22.13</b>	<b>2.56</b>	<b>2.64</b>	<b>32.01</b>	<b>3.92</b>	<b>21.89</b>	<b>28.07</b>	<b>14.11</b>
Apr-06	66.87	29.03	2.21	1.89	26.13	2.31	23.05	29.11	19.40
May-06	71.43	19.25	2.79	6.53	30.34	2.58	22.11	28.21	16.76
Jun-06	54.41	36.45	4.25	4.89	29.40	3.18	24.39	29.24	13.79
Jul-06	55.05	34.92	2.88	6.00	29.60	1.85	20.56	24.33	23.66
Aug-06	63.67	32.00	0.85	3.48	26.44	2.93	17.69	29.68	23.26
Sep-06	74.75	20.65	1.54	3.06	32.27	2.48	19.48	29.80	15.97
Oct-06	72.37	23.30	1.44	2.89	31.93	1.46	22.08	27.31	17.22
Nov-06	78.27	18.11	1.35	2.27	28.53	2.80	19.04	29.07	20.56
Dec-06	75.40	19.37	1.16	4.07	33.32	3.18	17.59	23.48	22.43
Jan-07	73.69	18.56	2.63	5.12	31.91	2.41	24.81	21.18	19.69
Feb-07	71.48	20.10	2.04	6.38	42.33	3.16	12.44	17.10	24.97
Mar-07	70.72	17.41	3.02	8.85	35.13	4.43	13.70	14.91	31.83
<b>2006-07</b>	<b>70.00</b>	<b>23.71</b>	<b>2.02</b>	<b>4.27</b>	<b>30.88</b>	<b>2.70</b>	<b>19.82</b>	<b>26.03</b>	<b>20.57</b>



## Annexure 6-4: Market Capitalisation of WDM Securities

Month/ Year (end of period)	(In Rs. mn.)						(In per cent)					
	Govt. Securities	PSU bonds	State loans	T-bills	Others	Total	Total (US \$ mn.)	Govt. securities	PSU bonds	State loans	T-bills	Others
Mar-95	861,748	256,750	58,674	171,294	233,344	1,581,810	----	54.48	16.23	3.71	10.83	14.75
Mar-96	1,254,925	300,740	138,497	84,523	299,150	2,077,835	----	60.40	14.47	6.67	4.07	14.40
Mar-97	1,698,298	362,111	188,914	134,599	543,797	2,927,719	----	58.01	12.37	6.45	4.60	18.57
Mar-98	1,962,904	353,226	239,892	174,973	700,910	3,431,905	----	57.20	10.29	6.99	5.10	20.42
Mar-99	2,600,017	349,936	305,161	112,918	746,665	4,114,697	96,975	63.19	8.50	7.42	2.74	18.15
Mar-00	3,198,650	393,570	394,770	153,450	799,890	4,940,330	113,257	64.75	7.97	7.99	3.11	16.19
Mar-01	3,972,280	363,650	446,240	177,250	848,940	5,808,360	124,536	68.39	6.26	7.68	3.05	14.62
Mar-02	5,426,010	399,440	613,850	238,490	890,160	7,567,950	155,081	71.70	5.28	8.11	3.15	11.76
Mar-03	6,580,017	383,828	720,940	349,188	610,839	8,644,812	181,996	76.12	4.44	8.34	4.04	7.06
Apr-03	6,849,121	396,611	722,953	328,804	621,630	8,919,119	205,557	76.79	4.45	8.11	3.69	6.96
May-03	7,104,199	420,145	702,136	321,470	621,100	9,169,050	211,317	77.48	4.58	7.66	3.51	6.77
Jun-03	7,435,606	421,653	718,456	328,090	635,140	9,538,945	219,842	77.95	4.42	7.53	3.44	6.66
Jul-03	7,838,750	424,775	719,503	325,150	638,590	9,946,768	229,241	78.81	4.27	7.32	3.27	6.42
Aug-03	7,988,496	449,448	746,743	365,203	651,400	10,201,290	235,107	78.31	4.41	7.23	3.58	6.38
Sep-03	8,070,012	444,392	763,531	402,549	619,900	10,300,384	237,391	78.35	4.31	7.41	3.91	6.02
Oct-03	9,562,953	445,440	770,372	407,028	610,920	11,796,713	271,876	81.06	3.78	6.53	3.45	5.18
Nov-03	9,542,587	444,861	771,543	365,070	602,230	11,726,291	270,253	81.83	3.79	6.58	3.11	4.69
Dec-03	9,599,031	464,356	772,923	326,392	626,560	11,789,262	271,705	81.42	3.94	6.56	2.77	5.31
Jan-04	9,673,514	461,211	783,046	322,324	680,600	11,920,695	274,734	81.15	3.87	6.57	2.70	5.71
Feb-04	9,681,552	492,235	790,358	322,291	715,071	12,001,507	276,596	80.67	4.10	6.59	2.69	5.95
Mar-04	9,593,017	568,319	793,403	326,920	876,979	12,158,638	280,218	78.90	4.67	6.53	2.69	7.21
Apr-04	9,725,430	540,010	763,911	405,555	687,034	12,121,940	277,073	80.23	4.45	6.30	3.35	5.67
May-04	9,690,356	615,908	771,051	488,246	716,340	12,281,901	280,729	78.90	5.01	6.28	3.98	5.83
Jun-04	9,902,437	660,797	775,886	561,549	792,093	12,692,762	290,120	78.02	5.21	6.11	4.42	6.24
Jul-04	9,856,949	673,996	1,798,584	594,616	806,840	13,730,985	313,851	71.79	4.91	13.10	4.33	5.87
Aug-04	9,757,119	677,634	1,858,639	598,941	815,104	13,707,437	313,313	71.18	4.94	13.56	4.37	5.95
Sep-04	9,971,626	676,059	1,853,590	606,082	832,916	13,940,273	318,635	71.53	4.85	13.30	4.35	5.97
Oct-04	9,874,540	685,464	1,837,708	637,550	842,065	13,877,327	317,196	71.16	4.94	13.24	4.59	6.07
Nov-04	9,812,375	676,668	1,834,617	608,970	834,637	13,767,267	314,680	71.27	4.92	13.33	4.42	6.06
Dec-04	9,963,410	679,400	2,145,190	620,830	866,230	14,275,060	326,287	69.80	4.76	15.03	4.35	6.06
Jan-05	10,020,056	678,127	2,148,977	636,791	862,398	14,346,348	327,917	69.84	4.73	14.98	4.44	6.01
Feb-05	10,109,360	672,550	2,233,950	696,600	894,930	14,607,390	333,883	69.21	4.60	15.29	4.77	6.13
Mar-05	10,061,070	683,981	2,232,082	735,018	905,193	14,617,344	334,111	68.83	4.68	15.27	5.03	6.19
Apr-05	10,033,390	679,340	2,235,130	786,240	909,830	14,643,930	328,266	68.52	4.64	15.26	5.37	6.21
May-05	10,105,690	723,880	2,165,850	823,780	905,120	14,724,320	330,068	68.63	4.92	14.71	5.59	6.15
Jun-05	10,145,580	746,990	2,244,750	906,790	908,140	14,952,250	335,177	67.85	5.00	15.01	6.06	6.08
Jul-05	10,258,140	757,010	2,244,020	842,490	936,570	15,038,230	337,104	68.21	5.03	14.92	5.60	6.24
Aug-05	10,360,040	762,480	2,247,170	873,720	935,590	15,179,000	340,260	68.25	5.02	14.80	5.76	6.17
Sep-05	10,206,120	761,900	2,331,340	1,022,800	948,620	15,270,780	342,317	66.83	4.99	15.27	6.70	6.21
Oct-05	10,209,750	781,170	2,330,380	1,033,520	947,550	15,302,370	343,026	66.72	5.10	15.23	6.75	6.20
Nov-05	10,442,870	781,820	2,359,910	984,000	974,440	15,543,040	348,421	67.19	5.03	15.18	6.33	6.27
Dec-05	10,515,210	787,210	2,362,820	818,430	1,009,810	15,493,480	347,310	67.87	5.08	15.25	5.28	6.52
Jan-06	10,584,610	842,070	2,368,430	721,070	1,035,610	15,551,790	348,617	68.06	5.41	15.23	4.64	6.66
Feb-06	10,586,810	835,730	2,404,270	672,570	1,035,100	15,534,480	348,229	68.15	5.38	15.48	4.33	6.66
Mar-06	10,597,890	887,160	2,419,270	701,860	1,069,560	15,675,740	351,395	67.61	5.66	15.43	4.48	6.82
Apr-06	10,598,658	882,945	2,421,821	663,639	1,080,719	15,647,782	358,976	67.73	5.64	15.48	4.24	6.91
May-06	10,605,273	888,966	2,411,261	726,114	1,127,081	15,758,695	361,521	67.30	5.64	15.30	4.61	7.15
Jun-06	10,666,433	885,898	2,406,902	756,695	1,126,582	15,842,510	363,444	67.33	5.59	15.19	4.78	7.11
Jul-06	10,580,449	888,173	2,415,778	835,152	1,139,017	15,858,569	363,812	66.72	5.60	15.23	5.27	7.18
Aug-06	10,668,873	885,295	2,421,610	920,069	1,171,175	16,067,022	368,594	66.40	5.51	15.07	5.73	7.29
Sep-06	10,801,689	884,989	2,417,233	943,479	1,278,962	16,326,352	374,544	66.16	5.42	14.81	5.78	7.83
Oct-06	10,927,909	874,607	2,419,443	934,316	1,321,356	16,477,631	378,014	66.32	5.31	14.68	5.67	8.02
Nov-06	11,315,578	894,964	2,432,986	998,291	1,363,860	17,005,679	390,128	66.54	5.26	14.31	5.87	8.02
Dec-06	11,454,962	913,675	2,448,785	966,248	1,396,994	17,180,665	394,142	66.67	5.32	14.25	5.62	8.13
Jan-07	11,490,015	905,209	2,443,231	1,034,024	1,402,698	17,275,177	396,311	66.51	5.24	14.14	5.99	8.12
Feb-07	11,715,931	919,468	2,472,031	997,489	1,422,401	17,527,320	402,095	66.84	5.25	14.10	5.69	8.12
Mar-07	11,822,777	896,275	2,498,474	1,151,827	1,478,652	17,848,006	409,452	66.24	5.02	14.00	6.45	8.28

Source : NSE



## Annexure 6-5: FIMMDA NSE MIBID/MIBOR Rates

(In percent)

Month/Date	OVERNIGHT		14 DAY		1 MONTH RATE		3 MONTH RATE	
	AT 9.40 a.m.*		AT 11.30 a.m.**		AT 11.30 a.m.***		AT 11.30 a.m.***	
	MIBID	MIBOR	MIBID	MIBOR	MIBID	MIBOR	MIBID	MIBOR
29-Jun-98	6.81	7.12	-	-	-	-	-	-
31-Jul-98	3.25	4.18	-	-	-	-	-	-
31-Aug-98	8.59	8.88	-	-	-	-	-	-
30-Sep-98	8.18	8.38	-	-	-	-	-	-
30-Oct-98	8.63	8.81	-	-	-	-	-	-
30-Nov-98	8.00	8.06	8.44	9.06	-	-	-	-
31-Dec-98	-	-	8.87	9.45	9.45	10.24	10.43	11.28
30-Jan-99	8.33	8.51	8.80	9.34	9.32	10.04	10.40	11.08
27-Feb-99	9.12	9.27	9.23	9.82	9.87	10.46	10.94	11.45
31-Mar-99	10.87	12.97	9.09	10.06	9.44	10.35	10.30	11.20
29-Apr-99	8.25	8.45	8.25	9.01	8.93	9.72	9.83	10.63
31-May-99	8.04	8.19	8.44	8.93	9.01	9.78	9.80	10.72
30-Jun-99	-	-	8.48	9.11	9.11	9.84	9.89	10.68
31-Jul-99	8.18	8.31	8.36	8.86	8.79	9.37	9.36	10.09
31-Aug-99	9.93	10.09	9.24	9.83	9.46	10.11	9.86	10.57
30-Sep-99	-	-	9.11	9.64	9.57	10.20	10.06	10.70
30-Oct-99	8.10	8.26	8.82	9.62	9.45	10.17	10.31	11.08
30-Nov-99	7.95	8.04	8.40	9.02	9.08	9.75	10.05	10.70
31-Dec-99	7.07	7.57	8.61	9.27	9.12	9.89	9.76	10.53
31-Jan-00	8.09	8.19	8.33	8.85	8.78	9.32	9.60	10.31
29-Feb-00	8.99	9.10	8.76	9.66	8.98	9.80	9.38	10.24
31-Mar-00	14.10	16.52	9.98	10.93	9.90	10.82	9.96	10.96
29-Apr-00	6.96	7.06	7.35	8.11	8.03	8.68	8.78	9.47
31-May-00	6.92	7.02	7.76	8.66	8.25	9.12	8.92	9.64
30-Jun-00	-	-	9.80	11.25	9.71	10.92	9.78	11.13
31-Jul-00	8.20	8.33	9.14	10.11	9.62	10.49	10.28	11.11
31-Aug-00	13.94	14.31	13.02	14.33	12.54	13.61	11.58	12.67
30-Sep-00	10.10	10.28	10.29	11.23	10.55	11.49	10.75	11.76
31-Oct-00	8.10	8.26	8.77	9.48	9.34	10.16	9.89	10.73
30-Nov-00	7.98	8.06	8.68	9.33	9.12	9.82	9.73	10.54
29-Dec-00	8.24	8.46	9.21	9.96	9.49	10.20	9.85	10.64
31-Jan-01	9.66	9.85	9.41	10.05	9.63	10.28	10.00	10.57
28-Feb-01	7.71	7.84	8.11	8.80	8.67	9.38	9.40	10.10
31-Mar-01	10.22	12.18	9.03	9.89	9.08	9.86	9.26	10.25
30-Apr-01	7.25	7.39	7.55	8.33	8.15	8.83	8.83	9.54
31-May-01	6.79	6.95	7.40	8.04	7.89	8.57	8.41	9.08
29-Jun-01	7.20	7.34	7.25	7.85	7.69	8.41	8.16	8.87
31-Jul-01	6.91	7.04	7.29	7.88	7.58	8.17	7.99	8.66
31-Aug-01	6.92	7.03	7.01	7.40	7.34	7.82	7.82	8.32
28-Sep-01	7.77	8.21	7.52	8.14	8.07	8.70	8.33	8.98
31-Oct-01	8.47	8.77	7.15	7.72	7.39	8.03	7.61	8.37
29-Nov-01	6.42	6.59	6.74	7.23	7.26	7.80	7.77	8.32
31-Dec-01	7.80	8.11	7.42	8.04	7.63	8.26	7.88	8.57
31-Jan-02	6.51	6.64	6.89	7.40	7.15	7.73	7.73	8.41
28-Feb-02	6.94	7.16	6.84	7.33	7.23	7.78	7.79	8.37
30-Mar-02	7.44	11.09	7.41	8.06	7.39	8.05	7.63	8.29
30-Apr-02	6.45	6.61	6.58	7.13	7.01	7.63	7.53	8.19
31-May-02	6.01	6.16	6.64	7.29	7.17	7.79	7.48	8.24
28-Jun-02	4.99	5.35	6.04	6.56	6.35	6.98	6.80	7.50
31-Jul-02	5.65	5.75	5.80	6.16	6.01	6.42	6.35	6.84
31-Aug-02	5.67	5.75	5.73	6.02	5.98	6.34	6.37	6.81
28-Sep-02	5.70	5.77	5.73	6.07	5.91	6.32	6.28	6.81
31-Oct-02	5.45	5.53	5.50	5.71	5.65	5.87	5.85	6.23
30-Nov-02	5.21	5.39	5.45	5.65	5.59	5.82	5.77	6.10
31-Dec-02	5.59	5.71	5.50	5.69	5.60	5.90	5.80	6.21

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## Annexure 6-5: FIMMDA NSE MIBID/MIBOR Rates

Cont...

(In percent)

Month/Date	OVERNIGHT		14 DAY		1 MONTH RATE		3 MONTH RATE	
	AT 9.40 a.m.*		AT 11.30 a.m.**		AT 11.30 a.m.***		AT 11.30 a.m.***	
	MIBID	MIBOR	MIBID	MIBOR	MIBID	MIBOR	MIBID	MIBOR
31-Jan-03	6.02	6.20	5.60	5.97	5.67	6.04	5.82	6.30
28-Feb-03	6.29	6.52	5.62	5.92	5.66	6.13	5.73	6.27
31-Mar-03	6.69	7.13	5.66	6.30	5.83	6.37	5.73	6.36
30-Apr-03	4.61	4.88	5.00	5.32	5.18	5.51	5.33	5.76
31-May-03	4.78	4.96	4.93	5.26	5.03	5.36	5.19	5.60
30-Jun-03	4.76	4.99	4.91	5.14	4.96	5.30	5.14	5.52
31-Jul-03	4.83	5.00	4.97	5.13	5.01	5.23	5.06	5.39
31-Aug-03	4.37	4.50	4.50	4.66	4.53	4.73	4.69	4.94
30-Sep-03	4.45	4.59	4.41	4.63	4.49	4.73	4.64	4.94
31-Oct-03	4.42	4.53	4.69	4.96	4.73	5.02	4.82	5.21
30-Nov-03	4.25	4.48	4.47	4.62	4.54	4.70	4.66	4.93
31-Dec-03	4.31	4.50	4.45	4.62	4.50	4.72	4.66	4.91
31-Jan-04	4.27	4.49	4.47	4.67	4.57	4.77	4.70	5.00
29-Feb-04	4.29	4.47	4.45	4.63	4.56	4.72	4.72	5.00
31-Mar-04	4.30	4.51	4.44	4.68	4.57	4.82	4.73	5.05
30-Apr-04	4.11	4.46	4.37	4.55	4.45	4.65	4.59	4.90
31-May-04	4.27	4.50	4.35	4.55	4.44	4.64	4.56	4.83
29-Jun-04	4.24	4.49	4.33	4.51	4.41	4.62	4.55	4.83
31-Jul-04	4.22	4.49	4.37	4.56	4.46	4.67	4.62	4.89
31-Aug-04	4.25	4.46	4.44	4.65	4.53	4.76	4.67	4.94
29-Sep-04	4.45	4.59	4.50	4.69	4.58	4.81	4.74	5.03
30-Oct-04	4.68	4.84	4.78	5.03	4.85	5.11	5.00	5.31
30-Nov-04	4.74	4.85	4.99	5.30	5.05	5.39	5.16	5.57
31-Dec-04	5.54	5.78	5.22	5.49	5.20	5.48	5.38	5.68
31-Jan-05	4.69	4.80	4.87	5.13	5.00	5.30	5.35	5.70
28-Feb-05	4.66	4.77	4.87	5.25	5.01	5.51	5.44	6.10
31-Mar-05	4.77	4.92	5.06	5.46	5.23	5.63	5.62	6.11
30-Apr-05	4.90	5.04	5.13	5.33	5.28	5.55	5.56	5.98
31-May-05	4.97	5.06	5.14	5.33	5.27	5.51	5.49	5.93
30-Jun-05	5.51	5.69	5.32	5.46	5.39	5.63	5.60	5.94
30-Jul-05	4.80	5.02	5.05	5.27	5.22	5.50	5.54	6.02
31-Aug-05	4.97	5.05	5.20	5.36	5.32	5.51	5.66	5.96
30-Sep-05	5.03	5.14	5.32	5.53	5.46	5.73	5.71	6.06
31-Oct-05	5.26	5.33	5.35	5.47	5.48	5.65	5.85	6.10
30-Nov-05	5.32	5.43	5.56	5.82	5.68	5.98	5.98	6.30
31-Dec-05	6.83	7.03	6.25	6.76	6.20	6.78	6.27	6.88
31-Jan-06	7.35	7.56	6.92	7.42	7.08	7.53	7.08	7.62
28-Feb-06	6.61	6.73	6.80	7.15	6.92	7.31	7.20	7.65
31-Mar-06	6.60	6.81	7.30	7.91	7.63	8.24	7.86	8.48
29-Apr-06	5.57	5.68	5.64	6.16	5.91	6.45	6.37	6.97
31-May-06	5.50	5.60	5.78	6.11	6.00	6.39	6.39	6.82
30-Jun-06	5.78	5.85	5.79	6.19	6.14	6.61	6.59	7.09
31-Jul-06	6.01	6.10	6.01	6.33	6.27	6.62	6.66	7.20
31-Aug-06	6.02	6.10	6.05	6.36	6.30	6.68	6.72	7.21
29-Sep-06	6.95	7.17	6.30	6.64	6.46	6.86	6.74	7.21
31-Oct-06	6.76	6.89	6.68	7.04	6.85	7.29	7.21	7.63
30-Nov-06	6.12	6.20	6.68	7.00	6.94	7.32	7.34	7.70
30-Dec-06	14.47	15.79	7.82	10.47	8.00	10.30	8.24	9.56
31-Jan-07	7.71	7.84	7.26	8.21	7.64	8.55	8.57	9.19
28-Feb-07	6.01	6.11	7.74	8.51	8.53	9.47	9.53	10.22
30-Mar-07	58.15	68.27	9.03	12.62	9.43	11.66	9.71	11.65

Source : NSE



## Annexure 6-6: 1-day VaR (99%) for GoI Securities Traded on NSE-WDM as on March 30, 2007

Security Type	Security Name	Issue Name	VaR (%)				EVT	Clean Price (off NSE-ZCYC)
			Normal	Weighted Normal	Historical Simulation	Weighted Historical Simulation		
GS	CG2008	12.00%	0.61	0.95	0.82	1.14	0.68	103.90
GS	CG2009	6.65%	0.75	1.14	1.04	0.74	0.84	97.31
GS	CG2011	9.39%	0.88	1.18	1.04	0.83	0.87	104.61
GS	CG2014	7.37%	1.21	1.19	1.15	1.99	0.94	96.14
GS	CG2017	8.07%	1.52	1.36	1.39	1.18	1.11	99.43
GS	CG2021	7.94%	2.10	2.13	2.19	3.60	1.66	97.36
GS	CG2036	8.33%	4.19	5.18	5.21	5.02	3.67	98.19
TB	91D	290607	0.23	0.34	0.30	0.27	0.26	98.01

Source : NSE





## Derivatives Market

The Derivatives market in India commenced in June 2000, when the first index futures contracts were introduced at the NSE and the BSE. Over the years, the market has grown significantly in India, with the NSE accounting for around 99 % of the market.

NSE's derivatives market has been witnessing a tremendous advancement in terms of volumes and array of products accessible for trading. The market has achieved a growth of 52% over the past one year where the turnover has augmented to Rs. 73,562,711 million (US \$ 1,687,605 million) in 2006-07 from Rs. 48,242,504 million (US \$ 1,081,428 million) in 2005-06. Trading in Index Futures and Options contracts has been extended to three other indices viz. Nifty Junior, CNX 100 and Nifty Midcap 50.

**Index Futures and Options :** NSE started operations in the derivatives segment on June 12, 2000 with Index Futures. The trading in Index options commenced on June 04, 2001. Index Futures and Options were first traded on the benchmark index Nifty 50. (Nifty 50 constituted 99.64 % of the total number of index contracts traded on NSE, with 76.05% of the contract trades in Index Futures and 23.59 % in Index Options during the period 2006-07). Thereafter, trading was extended to CNX IT index on August 29, 2003 and Bank Nifty on June 09,

### Benchmark Indices Contracts & Volume in Futures & Options Segment of NSE (2006-07)

Products	Sr. No.	Contract Symbol	No of Contracts	Traded Value (Rs. Mn.)	Traded Value (US \$ million)	Percentage of contracts to total contracts(%)
Index Futures	1	NIFTY 50	81,100,169	25,221,379	578,605	76.05
	2	BANKNIFTY	350,127	163,539	3,752	0.33
	3	CNXIT	37,128	10,837	249	0.03
Index Options	1	NIFTY 50	25,155,760	7,918,658	181,662	23.59
	2	BANKNIFTY	1,224	335	8	0.0011
	3	CNXIT	454	132	3	0.0004
<b>Total of all Indices</b>			106,644,862	33,314,881	764,278	100.00
<b>Total of Nifty 50 Index Futures and Options</b>			106,255,929	33,140,037	760,267	99.64

2005.

**Stock Futures and Options:** At NSE, trading in options on individual securities commenced on July 02, 2001. The number of securities has increased to 221 as of December 2007. Single stock futures were launched on November 09, 2001. Stock Futures and Options have contributed 50% of the total number of contracts traded in the derivatives segment during 2006-07 with single stock futures being more popular and having a major share of 48%.



The Bombay Stock Exchange launched Index Derivative contracts trading on June 09, 2000 with the benchmark index - the BSE Sensex as the underlying. In addition to Sensex, six sectoral indices belonging to the BSE Sector Series Indices were launched for trading in Futures and Options segment of the BSE. These Sector Series indices are BSE PSU, BSE TECK, BSE FMCG, BSE Metal, BSE Bankex and BSE Oil & Gas.

## Global Derivatives Markets <sup>1</sup>

As per the FIA Annual Volume Survey the global overall futures and options contract volume was up nearly 18.91% in 2006. The individual futures and options contract volume registered a growth of 30.85% and 10.79% respectively, in the year 2006.

### Year Wise Trend of Derivatives Trading (in terms of contracts)

Year	(in millions)		
	US Exchanges	Non-US Exchanges	Global
1992	550.39	387.83	938.22
1993	523.36	538.36	1,061.72
1994	807.87	779.83	1,587.70
1995	776.64	905.99	1,682.63
1996	793.63	975.34	1,768.97
1997	905.16	1,025.07	1,930.23
1998	1,033.20	1,142.65	2,175.81
1999	1,100.86	1,301.98	2,405.84
2000	1,313.65	1,675.80	2,989.45
2001	1,578.62	2,768.70	4,347.32
2002	1,844.90	4,372.38	6,217.28
2003	2,172.52	5,990.22	8,162.54
2004	2,795.21	6,069.50	8,864.71
2005	3,525.00	6,448.67	9,973.67
2006	4,573.26	7,286.00	11,859.26

Looking at the individual sectors, growth have been fairly strong across the board. The trading in foreign currency/index has grown by 43.59% in 2006, followed by Energies which registered growth of 37.78%.

### Global Futures and Options Volume

GLOBAL	(in million)		
	2006	2005	(%) Change
Equity Indices	4,453.95	4,080.33	9.16
Interest Rate	3,193.44	2,536.77	25.89
Individual Equities	2,876.49	2,356.87	22.05
Energies	385.97	280.13	37.78
Agricultural	486.37	378.90	28.37
Metals	218.68	171.06	27.84
Currency	240.05	167.19	43.59
Others	4.31	2.59	66.69
<b>Total Volume</b>	<b>11,859.27</b>	<b>9,973.82</b>	<b>18.90</b>

<sup>1</sup> Data source is Futures Industry Magazine, March/April 2007



The details for the top 20 contracts for the year 2006 are presented in (Table 7-1). Kospi 200 options led with more than 2.41 billion contracts in 2006 followed by Euro-Dollar Futures of CME. The TIIE 28 Futures MexDer which had witnessed a huge decline of 51.55% in 2005 skipped up its position to number 5 in 2006 witnessing the highest percentage increase of 164.61 %. 10-Year T-Note Futures, CBOT and 5 Year T-Note Futures, CBOT stepped down by 3 ranks from their 04th and 11th position respectively.

NSE, too, has been making huge strides by moving upwards in the global ranking. NSE ranked first (1st) in the single stock future category (Table 7-2) in the year 2006. NSE ranked 15th in the global futures and options volume in 2006 (Table 7-3). In the top 40 Futures Exchanges of the World, NSE stands at the 8th position in 2006 (Table 7-4).

**Table 7-1: Top 20 Contracts for the year 2006**

(in millions - net of individual equities)

Rank	Contract	2006	2005	Volume Change	% Change
1	Kospi 200 Options, Korea Exchange	2,414.42	2,535.20	(120.78)	(4.76)
2	Eurodollar Futures, CME	502.08	410.36	91.72	22.35
3	Euro-Bund Futures, Eurex	319.89	299.29	20.60	6.88
4	Eurodollar Options, CME	268.96	188.00	80.96	43.06
5	TIIE 28-Day Interbank Rate Futures, Mexder	264.16	99.83	164.33	164.61
6	E-mini S&P 500 Index Futures, CME	257.96	207.10	50.86	24.56
7	10-Year T-Note Futures, CBOT	255.57	215.12	40.45	18.80
8	DJ Euro Stoxx 50 Futures, Eurex	213.51	139.98	73.53	52.53
9	Euribor Futures, Euronext.liffe	202.09	166.68	35.41	21.24
10	Euro-Bobl Futures, Eurex	167.31	158.26	9.05	5.72
11	Euro-Schatz Futures, Eurex	165.32	141.23	24.09	17.06
12	1-Day Interbank Deposit Futures, BM&F	161.65	121.25	40.40	33.32
13	DJ Euro Stoxx 50 Options, Eurex	150.05	90.81	59.24	65.24
14	5 Year T-Note Futures, CBOT	124.87	121.91	2.96	2.43
15	S&P 500 Index Options, CBOE	104.31	71.80	32.51	45.28
16	Taix Options, Taifex	96.93	80.10	16.83	21.01
17	30-Year T-Bond Futures, CBOT	93.75	86.93	6.82	7.85
18	Sterling Futures, Euronext.liffe	83.00	68.03	14.97	22.00
19	E-mini Nasdaq 100 Futures, CME	79.94	72.45	7.49	10.34
20	TA-25 Index Options, TASE	75.49	63.10	12.39	19.64

Source: FI Futures Industry, March/April 2007. The monthly magazine of the FIA.

**Table 7-2 : Futures on Individual Equities (Stock Futures)**

(Number of Contracts)

Exchange	2005	2006	% Change
<b>National Stock Exchange of India</b>	<b>68,911,754</b>	100,285,737	45.53
JSE South Africa	24,469,988	69,671,751	184.72
Eurex *	77,802	35,589,089	---
Euronext.liffe	12,158,093	29,515,726	142.77
MEFF	18,813,689	21,229,811	12.84

\* Single stock futures were introduced for trading in October 2005 at Eurex

Source: WFE 2006 Annual Report and Statistics.



Table 7-3: Global Futures and Options Volume

Rank		Exchange	Volume	
2006	2005		2006	2005
1	1	Korea Exchange	2,474,593,261	2,593,088,445
2	2	Eurex	1,526,751,902	1,248,748,152
3	3	Chicago Mercantile Exchange	1,403,264,034	1,090,351,711
4	5	Chicago Board of Trade	805,884,413	674,651,393
5	4	Euronext.liffe	730,303,126	757,926,860
6	6	Chicago Board of Options Exchange	674,735,348	468,249,301
7	7	International Securities Exchange	591,961,518	448,695,669
8	8	Sao Paul Stock Exchange (Bovespa)	287,518,574	268,620,460
9	11	Bolsa de Mercadorias & Futuros	283,570,241	199,446,464
10	9	New York Mercantile Exchange	276,152,326	204,610,365
11	15	Mexican Derivatives Exchange	275,217,670	108,177,276
12	12	Philadelphia Stock Exchange	273,093,003	162,618,812
13	10	American Stock Exchange	197,045,745	201,763,980
14	13	NYSE Arca Pacific Exchange	196,586,356	144,780,498
<b>15</b>	<b>14</b>	<b>National Stock Exchange of India</b>	<b>194,488,403</b>	<b>131,651,692</b>
16	16	OMX Exchanges	123,167,736	103,509,936
17	17	Dalian Commodity Exchange	117,681,038	99,174,714
18	18	Taiwan Futures Exchange	114,603,379	92,659,768
19	24	JSE Securities Exchange South Africa	105,047,524	51,318,175
20	20	Boston Options Exchange	94,390,602	78,202,185
21	26	ICE Futures (Formerly IPE)	92,721,050	42,055,085
22	19	London Metal Exchange	86,940,189	78,628,852
23	21	Tel-Aviv Stock Exchange	83,047,982	70,088,945
24	22	Sydney Futures Exchange	78,120,106	63,324,966
25	23	The Tokyo Commodity Exchange	63,686,701	61,814,289
26	25	Osaka Securities Exchange	60,387,375	44,172,264
27	29	Shanghai Futures Exchange	58,106,001	33,789,754
28	*	National Commodity & Derivatives Exchange (India) NCDE	53,278,108	51,547,081
29	27	MEFF (Spain)	46,973,668	40,217,657
30	31	Zhengzhou Commodity Exchange	46,298,117	28,472,570
31	*	Multi Commodity Exchange of India	45,634,210	20,490,881
32	28	New York Board of Trade	44,667,169	37,945,585
33	35	Hong Kong Exchanges & Clearing	42,905,915	25,523,007
34	30	Montreal Exchange	40,540,837	28,685,391
35	32	Singapore Exchange	36,597,743	26,026,128
36	40	Tokyo Financial Exchange	35,485,461	11,098,338
37	33	Italian Derivatives Market	31,606,263	25,870,521
38	36	Tokyo Stock Exchange	29,227,556	24,349,760
39	37	Australian Stock Exchange	22,452,328	23,587,690
40	34	Tokyo Grain Exchange	19,133,509	25,600,339
41	39	Mercado a Termino de Rosario	18,212,072	13,415,449
42	41	Budapest Stock Exchange	14,682,929	8,973,631
43	42	Oslo Stock Exchange	13,156,960	6,200,067
44	38	Central Japan Commodity Exchange	9,019,416	21,949,566
45	44	One Chicago	7,922,465	5,528,046

Contd...



Table 7-3: Global Futures and Options Volume

Contd...

Rank		Exchange	Volume	
2006	2005		2006	2005
46	*	Turkish Derivatives Exchange	6,848,087	1,832,871
47	43	Warsaw Stock Exchange	6,714,205	5,587,515
48	45	Kansas City Board of Trade	5,287,190	3,953,536
49	46	Malaysia Derivatives Exchange Berhad	4,161,024	2,459,745
50	48	Winnipeg Commodity Exchange	2,896,536	2,076,630
51	52	New Zealand Futures Exchange	1,826,027	986,073
52	50	Minneapolis Grain Exchange	1,655,034	1,422,386
53	51	Vienna stock Exchange	1,311,543	1,045,306
54	49	Osaka Mercantile Exchange	616,272	1,602,257
55	57	CBOE Futures Exchange	478,424	177,632
56	53	Kansai Commodities Exchange	318,483	1,828,750
57	58	Mercado a Termino de Buenos Aires	147,145	135,736
58	47	US Futures Exchange (Eurex US)	135,803	2,200,384

Table 7-4: Top 40 Futures Exchanges (Volume figures do not include options on futures)

Rank		Exchange	Volume		% Change
2006	2005		2006	2005	
1	1	Chicago Mercantile Exchange	1,101,712,533	883,118,526	24.75
2	2	Eurex	960,631,763	784,896,954	22.39
3	3	Chicago Board of Trade	678,262,052	561,145,938	20.87
4	4	Euronext.liffe	430,037,682	343,829,658	25.07
5	8	Mexican Derivatives Exchange	274,651,676	107,989,126	154.33
6	5	Brazilian Mercantile and Futures Exchange	258,466,105	187,850,634	37.59
7	6	New York Mercantile Exchange	216,252,995	166,607,470	29.80
<b>8</b>	<b>7</b>	<b>National Stock Exchange of India</b>	<b>170,571,964</b>	<b>116,286,968</b>	<b>46.68</b>
9	9	Dalian Commodity Exchange (China)	117,681,038	99,174,714	18.66
10	14	ICE Futures (U.K)	92,582,921	41,936,609	120.77
11	15	JSE Securities Exchange South Africa	87,036,273	36,456,767	138.74
12	10	London Metal Exchange	78,527,839	70,444,665	11.47
13	12	Sydney Futures Exchange	74,204,335	60,091,807	23.48
14	11	The Tokyo Commodity Exchange	63,672,011	61,780,446	3.06
15	13	Korea Exchange	60,169,114	57,883,098	3.95
16	17	Shanghai Futures Exchange	58,106,001	33,789,754	71.96
17	**	National Commodity & Derivatives Exchange (India)	53,278,108	51,547,081	3.36
18	19	Zhengzhou Commodity Exchange (China)	46,298,117	28,472,570	62.61
19	**	Multi Commodity Exchange of India	45,634,210	20,490,881	122.70
20	16	OMX Group *	45,039,885	34,142,225	31.92
21	20	Singapore Exchanges	36,201,370	25,867,661	39.95
22	18	New York Board of Trade	32,746,692	29,013,416	12.87
23	29	Tokyo Financial Exchange	31,508,764	11,057,134	184.96

Contd...



Table 7-4: Top 40 Futures Exchanges (*Volume figures do not include options on futures*)

Contd...

Rank		Exchange	Volume		% Change
2005	2004		2005	2004	
24	26	Osaka Securities Exchange	31,170,354	18,070,352	72.49
25	22	MEFF (Spain)	29,037,068	24,894,965	16.64
26	25	Montreal Exchange	27,578,059	18,240,633	51.19
27	23	Tokyo Stock Exchange	26,957,702	22,630,719	19.12
28	27	Hong Kong Exchanges & Clearing	19,863,299	13,433,386	47.87
29	21	Tokyo Grain Exchange	19,106,247	25,573,238	-25.29
30	28	Mercado a Termino de Rosario (Argentina)	18,053,184	13,051,248	38.33
31	31	Taiwan Futures Exchange	14,006,287	10,107,749	38.57
32	32	Budapest Stock Exchange	13,656,165	8,913,470	53.21
33	30	Italian Derivatives Market	12,729,596	10,832,975	17.51
34	24	Central Japan Commodity Exchange	9,019,416	21,949,566	-58.91
35	33	One Chicago	7,922,465	5,528,046	43.31
36	**	Turkish Derivatives Exchange	6,848,087	1,832,871	273.63
37	34	Warsaw Stock Exchange	6,386,377	5,378,517	18.74
38	37	Oslo Stock Exchange	6,044,271	2,359,161	156.20
39	35	Kansas City Board of Trade	4,771,711	3,690,025	29.31
40	36	Malaysia Derivatives Exchange	4,161,024	2,459,745	69.16

Source: FI Futures Industry, March/April 2007. The monthly magazine of the FIA.

\* Includes Stockholm, Helsinki and Copenhagen markets.

\*\* New additions in 2006

## Policy Developments

### I. Procedure for re-introduction of derivatives contracts and modified position limits

The procedure for introduction, dropping and re-introduction of derivatives contracts, market wide position limits for stock based derivatives and position limits for index derivatives was reviewed by the Secondary Market Advisory Committee (SMAC).

The procedure for introducing futures and option contracts on stocks for the first time will continue to be in the manner specified under Clause I(3) of Circular No. SMRP/DC/CIR-13/02 dated December 18, 2002, available on SEBI website [www.sebi.gov.in](http://www.sebi.gov.in)

The exit criteria is more flexible as compared to entry criteria in order to prevent frequent entry and exit of stocks in the derivatives segment. Therefore, for a stock to become ineligible, the criteria for market wide position limit is relaxed up to 10% of the criteria applicable for the stock to become eligible from derivative trading. The other eligibility conditions would be applicable *mutas mutandis* for the stock to become ineligible. The stock should fail to meet the criteria for three consecutive months for the stock to be dropped out of the derivatives segment. The procedure for dropping the stock would continue to be in the manner specified in Circular No. SMDRP/DC/DIR/13-02 dated December 18, 2002, available on the SEBI website [www.sebi.gov.in](http://www.sebi.gov.in).



## *II. RBI's Report Of The Internal Working Group On Currency Futures:*

During November 2007, RBI came out with its report of the Internal Working Group on Currency Futures in India which has provided the framework and recommendations for introduction of Currency Futures.

### **Framework for Introduction of Currency Futures / Recommendations**

Considering the international experiences and the current stage of development of the foreign exchange market in India, the Group felt that the introduction of currency futures in the domestic foreign exchange market can be considered. As regards the underlying, since the futures contract is aimed at participants seeking to hedge their foreign exchange exposure, the most liquid onshore currency pair, viz. USD-INR may be considered as an eligible underlying. Participants wishing to hedge specific currency exposures other than USD-INR may consider approaching forwards market for the same. Based on the market feedback and experiences gained, the introduction of other currency pairs could be considered at a later stage. In other words, the Group recommended that initially only USD-INR currency futures contract may be introduced. Other currency pairs may be considered later based on market feedback and experiences. Introducing only USD-INR pair would mean that liquidity is retained within one contract. While considering other major currency pairs such as Euro-INR or GBP-INR, it must be recognized that even now in OTC markets, such currency pairs are quoted synthetically. The flipside to such an arrangement would be that there would be no direct hedge available for participants with non-USD exposures.

**The major features of the proposed USD-INR futures contract, which would need consideration, are detailed below:**

#### **Contract design**

While attracting liquidity through product innovation is a feature of the competitive markets, in the initial phase, a standardized product across various exchanges (in terms of contract size, final settlement dates, settle a standardized product across various exchanges (in terms of contract size, final settlement dates, settlement procedure of contracts, tenors of contracts, etc) would invite greater participation and add to the liquidity of futures markets. This would also discourage situations of unhealthy competition among the exchanges.

#### **Size of the contract**

It is important that the contract size be kept at such a level that it facilitates price discovery as well as trading, particularly for retail segment of the market. Hence, the Group recommends that a single contract of notional value USD 1,000 could be introduced.

#### **Tenors of contracts**

The Group felt that, initially, the tenors of the contract may largely replicate the tenors of the currency forwards and to this end, the currency futures maturing in the first 12 calendar months could be offered.

### Settlement of Contracts

Given the complications that delivery based settlement entail, and the fact that Indian Rupee is not fully convertible on capital account, the Group proposes that in the initial phase, settlement only on cash basis based on spot Reserve Bank reference rate on the expiry date may be permitted. Cash settlement would also ensure convergence between regulations in respect of OTC markets and currency futures market, since cancellation of a forward contract on the date of maturity is akin to cash settlement. The Group also recommended that the methodology for fixing of the reference rate may be revisited since the same would be used for settlement of currency futures contracts.

### Settlement Cycle

The key issue was whether currency futures should have a maturity simultaneous with OTC forwards or not. The Group felt that in view of the fact that there have been considerable bunching of flows already in the month end owing to expiry of OTC contracts, the banks' capacity to manage incremental month end exposures may be somewhat limited. Hence, the Group proposes that the contract may be allowed to expire on the first working day after the fifteenth day of every month.

### Eligible Participants

The Group agreed that the requirement of an underlying exposure to trade in OTC foreign exchange market would be very difficult to implement in an exchange-traded regime. The Group recommends that no quantitative restrictions may be imposed on residents to trade in currency futures. This was likely to ensure greater liquidity and wider participation and would be in line with usual policy where liberalization is done first for residents. As regards non residents, the participation could be permitted in a gradual and phased manner. The Group is of the view that at the inception, the participation may be restricted to residents alone. This is suggested purely from the perspective of ascertaining the robustness of various systems such as surveillance, monitoring, reporting, etc. Once it is established that the systems are working properly, the Group recommends participation of only two categories of residents outside India, viz, Foreign Institutional Investors (FIIs) and Non Resident Indians (NRIs), as hedgers through designated ADC-I banks. Suitable position limits on such entities may also be prescribed.

### Unique Identification Number

In order to distinguish various classes of participants in the futures exchanges, allotment of unique client identification numbers, as practiced in futures exchanges in other jurisdictions, may be considered.

### Market Timings

To begin with, the currency futures market could operate between 10 am - 4 pm on every working day.

### Membership Type

The Group recommends that the membership may be of two types - hedgers and





speculators. The responsibility of fixing of margins for these categories may be left to the exchanges. The Group recommends that when residents outside India (only FIIs and NRIs) are permitted access to the currency futures market, they may be allowed membership as hedgers only.

### **Eligible Intermediaries**

The Group considered the aspect of desirability of members of the exchange and it was felt that banks may be allowed to become direct members of the futures exchanges, both as a trading-cum-clearing member and also a professional clearing member as banks can provide liquidity and are regulated entities.

As brokers facilitate depth and liquidity required in these markets, brokers could be permitted in the currency futures market, provided they meet "fit and proper" criteria as well as other eligibility norms. The brokers may be chosen on multiple criteria like net worth, market reputation, regulatory framework, participation in the derivatives segment, etc.

### **Clearing**

On the issue of whether there should be centralized clearing, the Group recommends that Exchange specific Clearing House approach is preferable since it is likely to lead to competitive pricing and services.

### **Margining**

While margin is an important credit risk mitigant, it could also be used effectively to deal with excessive leveraging. Thus, the regulator may have overriding powers to introduce specific margins for identified segments of the market, if considered necessary. In view of the recommendation that the settlement of the currency futures contracts be done at Exchange specific clearing houses, the day-to-day margining may be left to the discretion of such clearing houses.

### **Entity/entities which would serve as the Exchange**

Since over a period of time the product bouquet being offered on the exchanges may be enhanced to include contracts with non-linear pay-offs, the expertise of the exchanges dealing with such products should be an enabling factor. The criteria in this regard could be net worth and capital adequacy and there should be documented Rules and bye-laws of the Exchange. In addition to this, the participating exchanges should have requisite systems and IT infrastructure. The ownership of the exchanges must be well diversified. The shareholders and directors should satisfy the "fit and proper" criteria. FDI should not exceed the limits prescribed for financial infrastructure companies. Further, no person would be permitted to acquire or hold at any point of time more than five per cent in the equity capital of the exchange. The group felt that the eligible exchanges should have adequate financial resources to undertake IT up-gradation from time to time.

The Group is of the opinion that having a dedicated exchange for currency futures may be the preferred approach since it would ensure a clean regulatory and supervisory structure. The Group does not offer any exclusion principle and existing exchanges which

meet the eligibility criteria could also explore setting up of dedicated exchanges subject to other terms and conditions, as may be specified. Such a scenario would ensure that several advantages such as established reach, experience, cost efficiency, etc. of existing exchanges can be leveraged and desired synergy achieved.

### **Role of Reserve Bank**

The introduction of currency futures will not alter the role of Reserve Bank in the domain of exchange rate management. The Reserve Bank will continue to retain the right to stipulate or modify the participants and / or fixing participant-wise position limits or any other prudential limits in the interest of financial stability.

### **Reforms required in the OTC market**

Significant differences in regulatory norms, such as absence of requirements relating to the underlying, flexibility in unwinding of positions, transparency in pricing, etc in the futures market provides arbitrage opportunities for the participants. The pricing differential in both the markets could also interfere with the exchange rate policies. There is a need for progressive liberalization in respect of documentation and other procedures of the OTC market, in a phased manner.

### **Currency Futures Market: Surveillance and Reporting**

A key prerequisite for smooth functioning of the currency futures market at exchanges is to put in place a state-of-the-art surveillance system and an adequate reporting mechanism. Ideally, the surveillance system should be based on on-line trading system, with the capability of generating real time data, if required. It may also provide exception reporting at a fairly short interval of say every half-an-hour and be capable of providing warning mechanisms through alerts at the earliest possible. The surveillance system is of a critical importance, especially in respect of the generation of key reports on market manipulation. It should also be able to treat distinctly hedge, arbitrage, and speculative trades.

Structures for Surveillance Committee for currency futures merit close attention in the context of the proposed introduction of currency futures. The primary task of the Surveillance Committee should be to ensure that day-to-day monitoring by the exchange ensures compliance with the best of the surveillance abilities.

## ***III. SEBI plans new products in F&O Segment:***

On December 17, 2007, Securities and Exchange Board of India (SEBI) proposed the introduction of seven new products in the derivatives segment through the press note 'New Products in F&O Segment' released on its website [www.sebi.gov.in](http://www.sebi.gov.in). SEBI's decision to introduce new products in derivatives segment was based on the interim recommendations of the Derivatives Market Review Committee headed by Professor M. Rammohan Rao. The new products have been discussed below briefly.

### **1. Mini Contracts in Equity Indices**

Trading in Index futures enables participation in broader market moves with one trading



decision, in an efficient and cost-effective way, without having to select individual stocks. It also helps individual investors to hedge an underlying portfolio. Index futures and options contracts closely follow the price movement of their respective underlying indexes. These products are widely used by financial professionals as well as individual investors for portfolio protection as well as to gain from market movements.

Mini contract will be a fraction of normal derivative contract. Smaller contract size means greater affordability for individual investors. Smaller contract size, apart from helping the individual investor to hedge risks of a smaller portfolio, offers lower levels of risk in terms of smaller level of possible downside compared to a big size contract.

Popularity of mini contracts has been increasing due to the higher liquidity and the ability to get in and out of a trade quickly with low impact cost.

Chicago Mercantile Exchange, one of the leading derivatives exchanges in the world, provides wide range of E-mini future contracts on broad based and liquid indices such as the Nasdaq 100, S&P 500, S&P MidCap 400 and Russell 2000. For example, the E-mini S&P 500 futures contract, which is one of the broad-based and most liquid contracts, is one-fifth the size of the standard S&P 500 futures contract. Global Experience has been encouraging in the mini contracts. It is noted that overall market liquidity and participation generally increases with introduction of mini contracts. It was proposed to introduce initially mini contracts in both Index futures and Index Options with Sensex/Nifty 50 as the underlying. These two contracts were introduced on Jan 1, 2008.

## 2. Options Contracts with Longer Life/Tenure

Currently, in India, exchange-traded equity options have a maximum life of three months. Many of the investors who have a long term view on the market do not find a direct options product with which this could be achieved.

Structurally, long-term options are no different from short-term options, but the later expiration dates offer the opportunity for long-term investors to take a view on prolonged price changes without needing to use a combination of shorter-term option contracts. The premiums for long-term options tend to be higher than that of short-term options because the increased expiration period means increased possibility of larger movement in the price of the underlying.

Long-term options are proposed to be made available with expiration dates up to five years. These long-term options could be purchased not only for individual stocks, but also for equity indexes.

Longer term options offer a good alternative to a longer-term trader to gain exposure to a prolonged period in a given security without having to roll several short-term contracts.

Investors also use long-term calls to diversify their portfolios. Long-term puts provide investors with a means to hedge current stock holdings.

Many of the features of long-term options are the same for short-term options. However, they differ from short-term options in several ways including availability, pricing, time erosion vs. delta effect, and strategies.

During the interactions with various market participants it was brought out that existing options contracts traded on Indian stock exchanges have a maximum life/tenure of 3 months and, there is a need to have options contracts with longer life/tenure. It is

expected that these longer term options contracts will provide liquidity across the tenures in the market.

### 3. Volatility Index and F&O Contracts

World over, rapid changes in volatility are witnessed in securities markets from time to time. It is increasingly felt that an openly available and quoted measure of market volatility in the form of an index will help market participants. There are few exchanges that compute and disseminate volatility index.

Volatility Index is a measure of market expectations of near term volatility conveyed by the prices of stock index options or a basket of options on stocks. The Volatility Index is considered to be some kind of indicator of investor sentiment, with high values implying pessimism and low values implying optimism. A negative correlation is often noticed between Volatility Index and market movement.

Volatility Index provides a series of snapshots of expected stock market volatility over a specified time period. The Volatility Index is calculated in real-time and is continuously disseminated throughout each trading day.

Investors also use the implied volatility information given by the index, in identifying mis-priced options. In 1993, the Chicago Board Options Exchange (CBOE) introduced the CBOE Volatility Index (VIX) and it quickly became the benchmark for stock market volatility. CBOE has a family of derivative products based on this index as well.

It is proposed to create and suitably disseminate a volatility index. Futures and options on volatility index will be considered for introduction with progress of time and experience gained with regard to this index.

### 4. Options on Futures

Options on futures are derivative products where on exercise the options position is converted into a futures position instead of delivery of the underlying. A put is the option to sell a futures contract, and a call is the option to buy a futures contract. For both, the option strike price is the specified futures price at which the futures contract is acquired if the option is exercised.

Options on futures are generally of American style. In other markets, Options on futures are available on various underlying such as energy, interest rate, commodities, currency, etc. Options on futures contracts offer a wide and diverse range of investment opportunities. This will also provide one additional tool for risk management for the investors. Options on futures are the derivative instrument that will be added to the existing set of products. Introduction of options on futures on underlying such as interest rates which are currently not active in the derivative segment is expected to provide liquidity in the interest rate futures segment also.

Mostly options on futures are available for trading in US Exchanges. For example, Eurex has options on futures on money market instruments. Options on futures have been observed to have significant volumes on underlying as energy and interest rate. Options on futures with interest rate as underlying contributed 12% of the total options on futures volume for 2006 in US. Some of the prominent options on interest rate futures in US are: Euro dollar, 10 Year Treasury Note, 30 Year Treasury Bond, 5 Year Treasury Note.



Although futures contracts have been traded on U.S. exchanges since 1865, options on futures contracts were not introduced until 1982. Initially offered as part of a government pilot program, their success eventually led to widespread use of options on agricultural as well as financial futures contracts. The options on futures are traded in CBOT, CME, NYMEX, EUREX, EURONEXT.

Options on Fixed Income Futures are traded in Eurex. The exercise of an option on Fixed Income Futures results in the creation of a corresponding position in the Fixed Income Futures for the option buyer as well as the seller to whom the exercise is assigned. The position is established after the Post-Trading Full Period of the exercise day, and is based on the agreed exercise price. It is increasingly felt in the Indian market that there is a need to broaden the range of risk management products. Therefore, it is proposed to introduce Options on Futures on the existing interest rate products traded on exchanges.

## 5. Bond Index and F&O contracts

A bond index is used to measure the performance of bond markets.

The index can be used as a benchmark against which investment managers measure their performance. World wide, the two popular indexes for bonds are:

- Sovereign bond index
- Corporate bond index

A sovereign bond index is an index that tracks the performance of the bond issued by a national government. Corporate bonds Index reflects the market performance, on a total-return basis, of investment-grade bonds issued by companies in the Corporate Bond market. Some of the popular corporate bond indexes are issued by Dow Jones, Lehman, Morgan Stanley, Etc.

An index is regarded as a general indicator for market performance. Most financial and real asset markets usually monitor the performance of the market using indexes designed to monitor the general health. They also form a crucial input to the design of security portfolio of investors. Economists and statisticians use these indexes to study trends of growth pattern in economies.

Further, futures and options of wide variety can be launched on the bond indexes. These products are quite popular in many of the prominent exchanges abroad. Presently, Bond indexes and derivatives on them are traded in the following international exchanges:

- Eurex
- Chicago Mercantile Exchange
- Euronext
- Hong Kong exchange
- Tokyo stock exchange
- Chicago Board of trade
- Singapore exchange

At present, there is little activity in corporate bond market segment and in interest rate derivatives. It is proposed that bond indexes (both corporate and GoI) to be created and F&O on the same could be introduced on the lines of what has been permitted in equity. Further, possibility of introduction of exchange traded single bond futures and exchange traded credit derivatives could also be explored.

## 6. Exchange-traded Currency (Foreign Exchange) F&O Contracts

The foreign exchange or Forex market is the largest market in the world, with trades amounting to more than USD 3.5 trillion every day (mainly OTC). The high risk due to exchange rate fluctuations is dealt with effectively by undertaking hedging transactions using derivatives on a currency.

A currency future is a contract in which the parties agree to exchange cash flows in two different currencies at an agreed upon date in the future. A currency option is a contract that gives the buyer the right, but not the obligation, to exchange one currency for another at a predetermined exchange rate on or until the maturity date. These contracts when traded on the exchange floors becomes exchange traded currency F &O contracts.

It is expected that trading of F&O segment on organized exchanges, will help in concentrating order flow and provide a transparent venue for price discovery. The role of clearing corporation/house means minimal margin requirements and the low transactions costs, further mitigation of credit risks by daily marking to market of all futures positions, general lowering of transaction costs for participants are relatively low. A smaller contract size will also help Small and Medium Enterprises in hedging their exposure directly on an exchange.

There are many prominent exchanges that are involved in exchange traded currency derivatives products. On CBOT and CME Banks often use exchange traded currency futures contracts to hedge the positions acquired in OTC forward market. NYSE Euro next is also an prominent exchange that deals with the cross currency futures and options.

There is a growing need to help small and medium enterprises in hedging their foreign currency exposure through exchange traded small denomination currency (foreign exchange) F&O contracts. This will also help banks to improve their risk management in relation to positions taken in the over-the-counter (OTC) forward Forex market.

With the possibility of capital account convertibility at some time in future, it is felt that an enabling framework in this segment could also be put in place. Further, supervision of Forex F&O trading activities, prescription of risk containment and market integrity measures could be managed by appropriate authority. It is also felt that these contracts could possibly be traded on existing exchanges.

## 7. Exchange-traded Products Involving Different Strategies

An individual investor may want to create a strategy using options on a broad based index. However, it may not be very convenient for an individual investor. This may be due to the fact that the cost of buying all components of the stock and margin requirement on individual options may turn out to be fairly large. Further, buying of all stocks in the index may have a tracking error and would require re-shuffling of portfolio for changes in the Index. In addition to this, selling of near the money option on expiry of existing



option in the portfolio may also be time consuming and costly for the investor. The following two illustrations are for ready reference.

*(A) Buy-write Index*

For example, an individual investor wants to write covered call options on a broad based index but does not have all the resources required to track the performance of this strategy. In this situation, a 'buy-write index' works like a benchmark for the performance of hypothetical covered call i.e. buying of the underlying index portfolio and selling of the call option on the same portfolio in same notional amounts.

It is proposed that a buy-write index tracking a hypothetical portfolio of long stocks and short call options on a broad based index may be created. Initially the Index values to be disseminated to the market, and as a further step, derivative contracts to be introduced on this index.

*(B) Put-Write Index*

Now, say, another individual investor wants to create a strategy through buying short-term treasury bills and selling put options on a broad based index. But this individual investor may not be able to do this, due to the fact the money-market in India is mostly Institutional in nature and an individual investor may not be able to have a small portfolio of investment in the treasury bills. Further, selling of near the money option on expiry of existing option in the portfolio may also be time consuming and costly for the investor. In effect, it may not be feasible for the investor to track this portfolio in a cost-effective and efficient manner.

It is proposed that an index tracking a hypothetical portfolio of investment in short term T-Bills and short put options on a broad based index to be created. Initially the Index values to be disseminated to the market, and as a further step, derivative contracts to be introduced on the index.

### **Mini Derivative Contract**

Pursuant to the recommendation of the Derivatives Market Review Committee (DMRC) headed by Professor M. Rammohan Rao, it was decided to introduce mini derivative contract on Index (Nifty 50 and Sensex) on December 27, 2007.

The mini derivative (futures and options) contracts on Nifty 50 and Sensex were introduced for trading on January 1, 2008.

#### **Salient Features of Mini Nifty 50 :**

- Nifty 50 as underlying index, widely tracked and traded by the world.
- Lot size of 20, to provide easy access to retail investors.
- Better access for small investors.
- Arbitrage possible between Nifty 50 derivative contracts and Nifty 50 Mini derivative Contracts.
- Lower capital outlay (for margin) and lower trading costs for investors.
- Symbol - MINIFTY

The contract specification for Nifty 50 and Sensex are mentioned below:

### Contract specification for mini contracts on S&P CNX Nifty index

Parameter	Index Options	Index Futures
Underlying	Nifty 50	Nifty 50
Instrument	OPTIDX	FUTIDX
Underlying symbol	MINIFTY	MINIFTY
Expiry Date	DD-MMM-YYYY	DD-MMM-YYYY
Option Type	CE / PE	-
Trading Cycle	3 month trading cycle - the near month (one), the next month (two) and the far month (three)	3 month trading cycle - the near month (one), the next month (two) and the far month (three)
Expiry Day	Last Thursday of the expiry month. If the last Thursday is a trading holiday, then the expiry day is the previous trading day.	Last Thursday of the expiry month. If the last Thursday is a trading holiday, then the expiry day is the previous trading day.
Strike price	As applicable to existing index contracts	-
Strike Price Intervals	As applicable to existing index contracts	-
Permitted Lot Size	Based on contract value of atleast Rs 1 lac at the time of introduction	Based on contract value of atleast Rs 1 lac at the time of introduction
Expiry day	Last Thursday of the expiry month or the previous trading day if the last Thursday is a trading holiday	Last Thursday of the expiry month or the previous trading day if the last Thursday is a trading holiday
Settlement basis	Cash settlement	Cash settlement
Style of option	European	-
Price Steps	Rs.0.05	Rs.0.05
Operating Range	Upper Operating Range + 99% of base price or Rs.20, whichever is higher; Lower Operating Range Rs.0.05	10% of base price on either side
Quantity freeze	As applicable to existing index contracts	As applicable to existing index contracts

### Contract specification for mini futures and options contracts on Sensex index.

Security Name	Sensex® Mini
Security Symbol	MSX
Underlying	SENSEX®
Market Lot	5
Contract Period	1, 2 & 3 months & 1, 2 weeks
Exercise Style	European
Settlement Style	Cash
Tick size	0.05 i.e. 5 paisa
Price Quotation	In index points (SENSEX®)

*contd...*





contd...

Strike price Intervals (in case of options)	Shall have a minimum of 3 strikes (1 in the money, 1 near the money, 1 out of the money).
Trading Hours	9:55 a.m. to 3:30 p.m.
Last Trading/Expiration Day	Last Thursday of the contract month in case of monthly & last Friday of contract maturity in case of weekly options. If it is a holiday, then it would be the immediately preceding business day during which the underlying equity market is open for trading.
Final Settlement	The final settlement of the expiring futures / options contracts would be based on the closing value of the underlying BSE SENSEX®. The following algorithm is currently being used for calculating the closing value of the individual scrips constituting the BSE SENSEX® in the Equity Segment: <ul style="list-style-type: none"> <li>• <i>Weighted average price of all the trades in the last thirty minutes of the continuous trading session.</i></li> <li>• <i>If there are no trades during the last thirty minutes, then the last traded price in the continuous trading session would be taken as the official closing price.</i></li> </ul>
Exercise Notice Time (in case of options)	It would be a specified time (Exercise Session) on the last trading day of the contract. All in-the money options by certain specified ticks would be deemed to be exercised on the day of expiry unless the participant communicates otherwise in the manner specified by the Derivatives Segment.

## Market Design

Only two exchanges in India have been permitted to trade in derivatives contracts, the NSE and the BSE. NSE's contribution to the total turnover in the market is nearly 99%. Hence, the market design enumerated in this section is the derivative segment of NSE (hereafter referred to as the F&O segment).

### Trading Mechanism

The derivatives trading system at NSE is called NEAT-F&O system, which provides a fully automated screen-based, anonymous order driven trading system for derivatives on a nationwide basis. It provides tremendous flexibility by allowing users to place orders with their own time and price related conditions. Nevertheless, trading in derivatives segment is essentially similar to that of CM segment.

There are four entities in the trading system:

1. **Trading members:** Trading members can trade either on their own account or on behalf of their clients including participants. They are registered as members with NSE and are assigned an exclusive Trading member ID.
2. **Clearing members:** Clearing Members are members of NSCCL. They carry out risk management activities and confirmation/inquiry of trades through the trading system. These clearing members are also trading members and clear trades for themselves and/or others.
3. **Professional clearing members:** A professional clearing member (PCM) is a clearing member who is not a trading member. Typically, banks and custodians become PCMs 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 their trades through a single clearing member only.

### Membership Criteria

The members are admitted by NSE for its F&O segment in accordance with the rules and regulations of the Exchange and the norms specified by the SEBI. NSE offers a composite membership of two types for trading in the derivatives segment viz., membership of 'CM and F&O segment' or of 'CM, WDM and F&O segment'. Trading and clearing members are admitted separately. While, the trading members (TMs) execute the trades, the clearing members (CM) do the clearing for all his TMs, undertake risk management and perform actual settlement. The eligibility criteria for membership on F&O segment are summarized in (Table 7-5). The trading members are required to have qualified users and sales persons, who have passed a certification programme approved by SEBI. At the end of March 2007, there were 845 members in the F&O segment.

**Table 7-5A: Eligibility Criteria for Membership on F&O Segment of NSE**

Particulars	New Members		Existing Members in Capital Market membership in F&O -Trading
	CM and F&O Segment	CM, WDM and F&O Segment	
Net Worth <sup>1</sup>	Rs. 100 lakh	Rs. 200 lakh	Rs. 100 lakh
Interest Free Security Deposit (IFSD) <sup>2</sup>	Rs. 125 lakh	Rs. 275 lakh	Rs. 8 lakh
Collateral Security Deposit (CSD) <sup>2</sup>	Rs. 25 lakh	Rs. 25 lakh	-
Annual Subscription	Rs. 1 lakh	Rs. 2 lakh	Rs. 1 lakh

- Note: 1. No additional Net worth is required for self-clearing members in the F&O segment. However a Net worth of Rs. 300 lakh is required for members clearing for self as well as for other trading members (clearing members).
2. Additional Rs. 25 lakh is required for trading members clearing for self (Self clearing member) and for trading members clearing for self and other trading members (clearing member). 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 7-5B: Requirements for Professional Clearing Membership**

Particulars	F&O Segment	CM and F&O Segment
Eligibility	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 in the F&O segment.

*Source:* NSE.



### Contract Specifications

The index futures and index options contracts traded on NSE are based on Nifty 50 Index, CNX IT Index, Bank Nifty Index, CNX Nifty Junior, CNX 100 and Nifty Midcap 50 while stock Futures and options are based on individual securities. Presently, Stock Futures and Options are available on 221 (December 2007) securities. Interest rate Futures rate contracts are available on Notional 91 day t-bill and Notional 10 year bond (6% coupon bearing and zero coupon bond). While the index option are European style, stock options are American style.

The Exchange provides a minimum of 9 strike prices, for every call and put option for stock options. At any time, there are at least four strikes in-the-money (ITM), four strikes out-of-the-money (OTM) and one strike at-the-money (ATM). The strike price is the price at which the buyer has the right to purchase or sell the underlying. The number of strikes provided in options on Nifty 50, Nifty Junior, CNX 100, CNX IT, Bank Nifty and Nifty Midcap 50 is related to the range in which previous day's closing value of the respective indices falls as per the following table:

Index Level	Strike Interval	Scheme of strikes (ITM-ATM-OTM)
Upto 2000	25	4-1-4
>2001 upto 4000	50	4-1-4
>4001 upto 6000	50	5-1-5
>6000	50	6-1-6

Contract specifications for derivatives contracts are summarised in (Annexure 7-1).

In respect of equity derivatives, at any point of time, contracts with one month, two month and three months to expiry are available for trading. These contracts expire on last Thursday of the respective expiry months and have a maximum of 3- month expiration cycle. If the last Thursday is a trading holiday, the contracts expire on previous trading day. A new contract is introduced on the next trading day following the expiry of the near month contract. All the derivatives contracts are presently cash settled.

The interest rate futures contracts are available for a period of one year maturity with three months continuous contracts and fixed quarterly contracts for the entire year. New contracts are introduced on the trading day following the expiry of the near month contract. These contracts expire on the last Thursday of the expiry month. In case of the last Thursday being a holiday, the contracts expire on the previous trading day.

### Charges

The maximum brokerage chargeable by a trading member in relation to trades effected in the contracts admitted to the dealing on the F&O segment of NSE is fixed at 2.5% of the contract value in case of index futures and stock futures. In case of index options and stock options, it is 2.5% of notional value of the contract  $[(\text{Strike price} + \text{Premium}) \times \text{Quantity}]$  exclusive of statutory levies.

The transaction charges payable to the exchange by the trading member for the

trades executed by him on the F&O segment are fixed at Rs. 2 per lakh of turnover (0.002%) subject to a minimum of Rs. 1,00,000 per year. However, for the transactions in the options sub-segment the transaction charges will be levied on the premium value at the rate of 0.05% (each side) instead of on the strike price as levied earlier.

In order to encourage participation in the three indices viz. NIFTY Junior, CNX 100 and NIFTY Midcap 50, following fee structure would be applicable for futures & options contracts on these three indices from Jan 1, 2008 till March 2008.

- (i) No transaction charges will be levied on trades done in Nifty Junior, CNX 100 and NIFTY Midcap 50 in both futures and options segments.
- (ii) Additionally, if a trading member trades at least 10 contracts on the futures sub segment in any of the above 3 indices everyday in a calendar month, transaction charges waiver will be provided on Nifty futures turnover to the extent billable in that calendar month in the following manner provided, however, that only transactions where the counter party is different from self be considered for this purpose:-

Number of contracts traded on each trading day in a calendar month by a trading member.	Corresponding waiver of Transaction charges
10 to 30 (both inclusive )	2 times
31 and above	3 times

The trading members contribute to Investor Protection Fund of F&O segment at the rate of Re.1/- per Rs. 100 crore of the traded value (each side) in case of Futures segment and Rs.1/- per Rs. 100 crore of the premium amount (each side) in case of Options segment.

The trading members are also required to pay securities transaction tax (STT) on non-delivery transactions at the rate of 0.017% ( payable by the seller ) for derivatives W.e.f June 1, 2006

## Clearing and Settlement

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 the trades on the F&O segment and guarantees their settlement. The Clearing and Settlement process comprises of three main activities viz., Clearing, Settlement and Risk Management.

### 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 in the contracts traded of CMs are arrived at by aggregating the open positions of all the TMs and all custodial participants (CPs) clearing through him in contracts which they have traded. The open position of a TM is arrived at by summing up his proprietary open position and his clients' open positions. While entering orders on the



trading system, TMs identify the orders as either proprietary or client through 'Pro/Cli' indicator provided in the order entry screen. Proprietary positions are calculated on net basis for each contract and that of clients' are arrived at by summing together net positions of each individual client. A TM's open position is the sum of proprietary open position, client open long position and client open short position. (Table 7-6) illustrates determination of open position of a CM, who clears for two TMs having two clients.

**Table 7-6 : Determination of Open Position of a Clearing Member**

TMs clearing through CM	Proprietary Trades			Trades: Client 1			Trades: Client 2			Open Position	
	Buy	Sell	Net	Buy	Sell	Net	Buy	Sell	Net	Long	Short
ABC	4000	2000	2000	3000	1000	2000	4000	2000	2000	6000	--
PQR	2000	3000	-1000	2000	1000	1000	1000	2000	-1000	1000	2000
<b>Total</b>	<b>6000</b>	<b>5000</b>	<b>1000</b>	<b>5000</b>	<b>2000</b>	<b>3000</b>	<b>5000</b>	<b>4000</b>	<b>1000</b>	<b>7000</b>	<b>2000</b>

### *Settlement Mechanism*

The underlying for index futures/options on the index cannot be delivered; therefore, they have to be settled in cash. Futures and options on individual securities can be delivered as in the spot market. However, it has been currently mandated that stock options and futures would also be cash settled. The settlement amount for a clearing member is netted across all their TMs/clients, across various settlements. For the purpose of settlement, all CMs are required to open a separate bank account with NSCCL designated clearing banks for F&O segment.

### **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 is on the last trading day of the futures contract.

### **MTM Settlement for futures**

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 suffered a loss are required to pay MTM loss amount in cash, which is passed on to the clearing members who have made a MTM profit. This is known as the 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). After completion of daily settlement computations, all the open positions are reset to the daily settlement price. These positions become the open positions for the next day.

The settlement price for the contract for today is assumed to be 105. The (Table 7-7) gives the MTM charged on various positions. The margin charged on the brought forward contract is the difference between the previous day's settlement price of Rs.100 and today's settlement price of Rs.105. Hence on account of the position brought forward, the MTM shows a profit of Rs. 500. For contracts executed during the day, the difference between the buy price and the sell price determines the MTM. In this example, 200 units are bought @Rs. 100 and 100 units sold @Rs. 102 during the day. Hence the MTM for the position closed during the day shows a profit of Rs. 200. Finally, the open position of contracts traded during the day, is margined at the day's settlement price and the profit of Rs.500 credited to the MTM account. So the MTM account shows a profit of Rs. 1,200.

**Table 7-7: Computation of MTM at the end of the day**

Trade details	Quantity bought/sold	Settlement price	MTM
Brought forward from previous day	100@100	105	500
Traded during day			
Bought	200@100		
Sold	100@102	102	200
Open position (not squared up)	100@100	105	500
<b>Total</b>			<b>1200</b>

### Final Settlement of Futures

After the close of trading hours on the expiry day, NSCCL marks all positions of a CM to the final settlement price and the resulting profit/loss is settled in cash. 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.

### Settlement of Options Contracts on Index or Individual Securities

Options contracts have three types of settlements, daily premium settlement, interim exercise settlement in case of option contracts on securities and final settlement.

#### Daily Premium Settlement for options

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 and receivable are netted to compute the net premium payable or receivable for each client for each option contract. The CMs, who have a premium payable positions are required to pay the premium amount to NSCCL, which in turn is passed on to the members who have a premium receivable position. This is known as daily premium settlement. CMs are also 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 day. The premium payable and receivable are directly debited/credited to the CMs clearing bank account.



### Interim Exercise Settlement

Interim exercise settlement takes place only for option contracts on individual securities. An investor can exercise his in-the-money options at any time during trading hours through his TM. 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) randomly 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).

### Final Exercise Settlement

Final exercise settlement is effected for option positions at in-the-money strike prices existing at the close of trading hours on the day of expiry of the contract. All long positions at in-the-money strike prices are automatically assigned to short positions in option contracts with the same series, on a random basis. Index options are exercised using European style, while stock options using 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.

### *Settlement of Custodial Participant (CP) Deals*

NSCCL provides a facility to entities like institutions/foreign institutional investors (FIIs)/MFs to execute trades through any TM, which may be cleared and settled by their own CM. These entities are known as 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 him by NSCCL. All trades executed by a CP through any TM are required to have the CP code in the relevant field on the trading system at the time of order entry itself. These trades have to be confirmed by their own CM within the time specified by NSE through the on-line confirmation facility on the same day. Only then he is responsible for clearing and settling of deals of such custodial clients. Unless CP confirms the trade, the same is considered as a trade of the TM and the responsibility of settlement of such trade vests with CM of the TM.

FIIs have been permitted to trade in all the exchange traded derivative contracts within the position limits prescribed for them and their sub-accounts. A FII/a sub-account of the FII, intending to trade in the F&O segment of the exchange, are required to obtain a unique Custodial Participant (CP) code from the NSCCL. The FII/sub-account of FII should ensure that all orders placed by them on the Exchange carry the relevant CP code allotted by NSCCL.

## 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 Clearing Member. It specifies the initial margin requirements for each futures/options contract on a daily basis. It also follows Value-at-Risk (VaR) based margining computed through SPAN. The CM in turn collects the initial margin from the Trading Members (TMs) and their respective clients.
- 3) The open positions of the members are marked to market based on contract settlement price for each contract *at the end of the day*. The difference is settled in cash on a T+1 basis.
- 4) NSCCL's on-line position monitoring system monitors a CM's open position on a real-time basis. Limits are set for each CM based on his effective deposits. The on-line position monitoring system generates alert messages whenever a CM reaches 70 %, 80 %, 90 % and a disablement message at 100 % of the limit. NSCCL monitors the CMs for Initial Margin violation, Exposure margin violation, while TMs are monitored for Initial Margin violation and position limit violation.
- 5) CMs are provided with 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 the TM clearing and settling through him. NSCCL assists the CM to monitor the intra-day 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. Margin violations result in disablement 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 base capital of members.

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<sup>®1</sup> (Standard Portfolio Analysis of Risk). SPAN system is for the purpose of computation of on-line margins, based on the parameters defined by SEBI.

<sup>1</sup> SPAN<sup>®</sup> is a registered trademark of the Chicago Mercantile (CME) used here under license.





### **Risk Containment Measures**

*Position Limits* : The market wide limit of open position (in terms of the number of underlying stock) on futures and option contracts on a particular underlying stock should be 20% of the number of shares held by non-promoters in the relevant underlying security i.e. free-float holding. This limit is applicable on all open positions in all futures and option contracts on a particular underlying stock. The enforcement of the market wide limits is done in the following manner:

- At end of the day the exchange tests whether the market wide open interest for any scrip exceeds 95% of the market wide position limit for that scrip. In case it does so, the exchange takes note of open position of all client/TMs as at end of that day for that scrip and from next day onwards they can trade only to decrease their positions through offsetting positions.
- At the end of each day during which the ban on fresh positions is in force for any scrip, the exchange tests whether any member or client has increased his existing positions or has created a new position in that scrip. If so, that client is subject to a penalty equal to a specified percentage (or basis points) of the increase in the position (in terms of notional value). The penalty is recovered before trading begins next day.
- The normal trading in the scrip is resumed after the open outstanding position comes down to 80% or below of the market wide position limit. Further, the exchange also checks on a monthly basis, whether a stock has remained subject to the ban on new position for a significant part of the month consistently for three months. If so, then the exchange phases out derivative contracts on that underlying

### **Trading Member wise Position Limits**

#### **Index Futures Contract:**

Trading Member Position limits in equity index futures contracts: The trading member position limits in equity index futures contracts is higher of Rs.500 Crore or 15% of the total open interest in the market in equity index futures contracts. This limit is applicable on open positions in all futures contracts on a particular underlying index.

#### **Index Options Contract:**

The trading member position limits in equity index option contracts is higher of Rs.500 Crore or 15% of the total open interest in the market in equity index option contracts. This limit is applicable on open positions in all option contracts on a particular underlying index.

#### **Futures and Option contracts on individual securities :**

- i. For stocks having applicable market-wide position limit (MWPL) of Rs. 500 crores or more, the combined futures and options position limit is 20% of applicable MWPL or Rs. 300 crores, whichever is lower and within which stock futures position cannot exceed 10% of applicable MWPL or Rs. 150 crores, whichever is lower.

- ii. For stocks having applicable market-wide position limit (MWPL) less than Rs. 500 crores, the combined futures and options position limit would be 20% of applicable MWPL and futures position cannot exceed 20% of applicable MWPL or Rs. 50 crore whichever is lower. The Clearing Corporation specifies the trading member-wise position limits on the last trading day of the month which is reckoned for the purpose during the next month.

## Client Level Position Limits

### *Client level position limits for individual securities*

The gross open position for each client, across all the derivative contracts on an underlying, should not exceed 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) whichever is higher.

### *Disclosure for Client Positions in Index based contracts*

Any person or persons acting in concert who together own 15% or more of the open interest on a particular underlying index is required to report this fact to the Exchange/Clearing Corporation. Failure to do so is treated as a violation and attracts appropriate penal and disciplinary action in accordance with the Rules, Byelaws and Regulations of Clearing Corporation.

### *FII and MFs trading in Exchange traded derivatives*

The position limits for FII, Mutual Funds is as under:

1. *FII & MF Position limits in Index options contracts:* FII & MF position limit in all index options contracts on a particular underlying index is Rs.500 Crore or 15 % of the total open interest of the market in index options, whichever is higher. This limit would be applicable on open positions in all options contracts on a particular underlying index.
2. *FII & MF Position limits in Index futures contracts :* FII & MF position limit in all index futures contracts on a particular underlying index is Rs. 500 crores or 15 % of the total open interest of the market in index futures, whichever is higher. This limit would be applicable on open positions in all futures contracts on a particular underlying index.

In addition to the above, FIIs & MF's can take exposure in equity index derivatives subject to the following limits:

- a) Short positions in index derivatives (short futures, short calls and long puts) not exceeding (in notional value) the FII's / MF's holding of stocks.
- b) Long positions in index derivatives (long futures, long calls and short puts) not exceeding (in notional value) the FII's / MF's holding of cash, government securities, T-Bills and similar instruments.



The FIIs should report to the clearing members (custodian) the extent of the FIIs holding of stocks, cash, government securities, T-bills and similar instruments before the end of the day. The clearing member (custodian) in turn should report the same to the exchange. The exchange monitors the FII position limits. The position limit for sub-account is same as that of client level position limits.

### 3. *Stock Futures & Options:*

- a) For stocks having applicable market-wide position limit (MWPL) of Rs. 500 crores or more, the combined futures and options position limit is 20% of applicable MWPL or Rs. 300 crores, whichever is lower and within which stock futures position cannot exceed 10% of applicable MWPL or Rs.150 crores, whichever is lower.
- b) For stocks having applicable market-wide position limit (MWPL) less than Rs. 500 crores, the combined futures and options position limit is 20% of applicable MWPL and futures position cannot exceed 20% of applicable MWPL or Rs. 50 crore which ever is lower.

### **Eligibility Criteria for selection of stocks and indices for futures and options contracts**

The following criteria was adopted by the Exchange w.e.f September 22, 2006, for selecting stocks and indices on which Futures & Options contracts are to be introduced.

#### 1. Eligibility criteria of stocks

- The stock are to be chosen from amongst the top 500 stocks in terms of average daily market capitalisation and average daily traded value in the previous six months on a rolling basis.
- The stock's median quarter-sigma order size over the last six months should be not less than Rs. 0.10 million (Rs. 1 lac). For this purpose, a stock's quarter-sigma order size should 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 market wide position limit in the stock should not be less than Rs. 500 million (Rs. 50 crores). The market wide position limit (number of shares) is valued taking the closing prices of stocks in the underlying cash market on the date of expiry of contract in the month. The market wide position limit of open position (in terms of the number of underlying stock) on futures and option contracts on a particular underlying stock is :
  - o 20% of the number of shares held by non-promoters in the relevant underlying security i.e. free-float holding.
- If an existing security fails to meet the eligibility criteria for three months consecutively, then no fresh month contract can be issued on that security.

However, the existing unexpired contracts may be permitted to trade till expiry and new strikes may also be introduced in the existing contract months.

### Selection criteria for unlisted companies

For unlisted companies coming out with initial public offering, if the net public offer is Rs. 500 crore or more, then the Exchange may consider introducing stock options and stock futures on such stocks at the time of its' listing in the cash market.

#### Re-introduction of dropped stocks

- A stock which is dropped from derivatives trading may become eligible once again. In such instances, the stock is required to fulfill the eligibility criteria for three consecutive months to be re-introduced for derivatives trading.

### Eligibility criteria of stocks for derivatives trading especially on account of corporate restructuring

The eligibility criteria for stocks for derivatives trading on account of corporate restructuring is as under:

- I. All the following conditions should be met in the case of shares of a company undergoing restructuring through any means, for eligibility to re-introduce derivative contracts on that company from the first day of listing of the post restructured company/(s) (as the case may be) stock (herein referred to as post restructured company) in the underlying market,
  - a) the Futures and options contracts on the stock of the original (pre restructure) company were traded on any exchange prior to its restructuring;
  - b) the pre restructured company had a market capitalisation of at least Rs.1,000 crores prior to its restructuring;
  - c) the post restructured company would be treated like a new stock and if it is, in the opinion of the exchange, likely to be at least one-third the size of the pre restructuring company in terms of revenues, or assets, or (where appropriate) analyst valuations; and
  - d) in the opinion of the exchange, the scheme of restructuring does not suggest that the post restructured company would have any characteristic (for example extremely low free float) that would render the company ineligible for derivatives trading.
- II. If the above conditions are satisfied, then the exchange takes the following course of action in dealing with the existing derivative contracts on the pre-restructured company and introduction of fresh contracts on the post restructured company
  - a) In the contract month in which the post restructured company begins to trade, the Exchange introduce near month, middle month and far month derivative contracts on the stock of the restructured company.
  - b) In subsequent contract months, the normal rules for entry and exit of stocks in terms of eligibility requirements would apply. If these tests are not met, the exchange does not permit further derivative contracts on this stock and future month series are not introduced.



## 2. Eligibility criteria of Indices

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

The following procedure is adopted for calculating the Quarter Sigma Order Size :

1. The applicable VAR (Value at Risk) is calculated for each security based on the J.R. Varma Committee guidelines. (The formula suggested by J. R. Varma for computation of VAR for margin calculation is statistically known as 'Exponentially weighted moving average (EWMA)' method. In comparison to the traditional method, EWMA has the advantage of giving more weight to the recent price movements and less weight to the historical price movements.)
2. Such computed VAR is a value (like 0.03), which is also called standard deviation or Sigma. (The meaning of this figure is that the security has the probability to move 3% to the lower side or 3% to the upper side on the next trading day from the current closing price of the security).
3. Such arrived at standard deviation (one sigma), is multiplied by 0.25 to arrive at the quarter sigma.  
(For example, if one sigma is 0.09, then quarter sigma is  $0.09 \times 0.25 = 0.0225$ )
4. From the order snapshots (taken four times a day from NSE's Capital Market Segment order book) the average of best buy price and best sell price is computed which is called the average price.
5. The quarter sigma is then multiplied with the average price to arrive at quarter sigma price. The following example explains the same :

Security	XYZ
Best Buy (in Rs.)	306.45
Best Sell (in Rs.)	306.90
Average Price	306.70
One Sigma	0.009
Quarter sigma	0.00225
Quarter sigma price (Rs.) (Average Price $\times$ Quarter sigma)	0.70

6. Based on the order snapshot, the value of the order (order size in Rs.), which will

move the price of the security by quarter sigma price in buy and sell side is computed. The value of such order size is called Quarter Sigma order size. (Based on the above example, it will be required to compute the value of the order (Rs.) to move the stock price to Rs. 306.00 in the buy side and Rs. 307.40 on the sell side. That is Buy side = average price - quarter sigma price and Sell side = average price + quarter sigma price). Such an exercise is carried out for four order snapshots per day for all stocks for the previous six months period

7. From the above determined quarter sigma order size (Rs.) for each order book snapshot for each security, the median of the order sizes (Rs.) for buy side and sell side separately, are computed for all the order snapshots taken together for the last six months.
8. The average of the median order sizes for buy and sell side are taken as the median quarter sigma order size for the security.
9. The securities whose median quarter sigma order size is equal to or greater than Rs. 0.1 million (Rs. 1 Lac) qualify for inclusion in the F&O segment.
8. The average of the median order sizes for buy and sell side are taken as the median quarter sigma order size for the security.
9. The securities whose median quarter sigma order size is equal to or greater than Rs. 0.1 million (Rs. 1 Lac) qualify for inclusion in the F&O segment.

Futures & Options contracts may be introduced on new securities which meet the above mentioned eligibility criteria, subject to approval by SEBI.

New securities being introduced in the F&O segment are based on the eligibility criteria which take into consideration average daily market capitalization, average daily traded value, the market wide position limit in the security, the quarter sigma values and as approved by SEBI. The average daily market capitalisation and the average daily traded value would be computed on the 15th of each month, on a rolling basis, to arrive at the list of top 500 securities. Similarly, the quarter sigma order size in a stock would also be calculated on the 15th of each month, on a rolling basis, considering the order book snapshots of securities in the previous six months and the market wide position limit (number of shares) is valued taking the closing prices of stocks in the underlying cash market on the date of expiry of contract in the month.

The number of eligible securities may vary from month to month depending upon the changes in quarter sigma order sizes, average daily market capitalisation & average daily traded value calculated every month on a rolling basis for the past six months and the market wide position limit in that security.

### **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 and inter-month risk.



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:

1. Underlying market price.
2. Volatility (variability) of underlying instrument, and
3. Time to expiration.
4. Interest rate
5. 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 a complex option pricing calculation, which is 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.

NSCCL generates six risk parameters file for a day taking into account price and volatilities at various time intervals and are provided on the website of the Exchange.

## Margins

The margining system for F&O segment is as below:

- **Initial margin:** Margin in the F&O segment is computed by NSCCL upto client level for open positions of CMs/TMs. These are required to be paid up-front on gross basis at individual client level for client positions and on net basis for proprietary positions. NSCCL collects initial margin for all the open positions of a CM based on the margins computed by NSE-SPAN. A CM is required to ensure collection of adequate initial margin from his TMs up-front. The TM is required to collect adequate initial margins up-front from his clients.
- **Premium Margin:** In addition to Initial Margin, Premium Margin is charged at client level. This margin is required to be paid by a buyer of an option till the premium settlement is complete.
- **Assignment Margin for Options on Securities:** Assignment margin is levied in addition to initial margin and premium margin. It is required to be paid on assigned positions of CMs towards interim and final exercise settlement obligations for option contracts on individual securities, till such obligations are fulfilled. The margin is charged on the net exercise settlement value payable by a CM towards interim and final exercise settlement.



- *Exposure margins* :Clearing members are subject to exposure margins in addition to initial margins.
- *Client Margins*: NSCCL intimates all members of the margin liability of each of their client. Additionally members are also required to report details of margins collected from clients to NSCCL, which holds in trust client margin monies to the extent reported by the member as having been collected from their respective clients.

### *Margin/Position Limit Violations*

PRISM, the Parallel Risk Management System, is the real-time position monitoring and risk management system for the F&O market segment. The risk of each trading and clearing member is monitored on a real time basis by generating various alerts whenever a CM exceeds any limits set up by NSCCL. These are detailed below:

- *Initial Margin* -The initial margin is computed on a real time basis i.e. for each trade the amount of initial margin is reduced from the effective deposits of the CM held with the clearing corporation. For this purpose, effective deposits are computed by reducing the total deposits of the CM by Rs. 50 lakhs (referred to as minimum liquid net worth). The CM receives warning messages on his terminal when 70%, 80% and 90% of the effective deposits are utilized. At 100% the clearing facility provided to a CM is automatically withdrawn. Withdrawal of clearing facility of a CM in case of a violation leads to automatic withdrawal of trading facility for all TMs and/or custodial participants clearing and settling through such CM.

Similarly, the initial margins on positions taken by a TM is also computed on a real time basis at client level and compared with the TM limits set by his CM. As the TM limit is used up to 70%, 80%, and 90%, the member receives a warning message on his terminal. At 100%, the trading facility provided to the TM is automatically withdrawn.

A member is provided with adequate warnings on the violation before his trading/clearing facility is withdrawn.

- *Exposure Margin*: Clearing members are subject to exposure margins in addition to initial margins. Exposure margins in respect of index futures and short index option position has been currently specified as 3% of the notional value. For futures on individual securities and short options on individual securities, the exposure margins is higher, 5% or 1.5 standard deviation of the notional value of position. Exposure margins are adjusted from the liquid networth of a member on a real time basis.
- *Market-wide Position Limit*: Market wide positions limits have been specified as 20% of the number of shares held by non-promoters in the relevant underlying security i.e. 20% of the free float in terms of the number of shares of a company. When the market wide open interest in an underlying crosses 95% of the market wide position limit, no fresh position in respect of that security is permitted. Fresh positions are permitted only after market wide open interest is 80% or lower of the market wide position limit. NSCCL specifies the market-wide position limits once every month, at the beginning of the month, which is applicable for the subsequent month.





- *Member-wise Position Limit (Future and Option contracts on Equity index):* The member-wise position limits for Equity Index Futures and options have been prescribed. The open position in all index futures of any TM, cannot exceed 15% of the total open interest of the market or Rs. 500 crores, whichever is higher at any time, including during trading hours. Similar limits have been prescribed in respect of Index Options. In case a member violates the limits specified the trading facility provided to the TM is automatically withdrawn.
- *Member-wise Position Limit (Future and Option contracts on Individual Securities):* Member-wise position limit in respect of individual securities have been specified as
  - For stocks having applicable market-wide position limit (MWPL) of Rs. 500 crores or more, the combined futures and options position limit shall be 20% of applicable MWPL or Rs. 300 crores, whichever is lower and within which stock futures position cannot exceed 10% of applicable MWPL or Rs. 150 crores, whichever is lower.
  - For stocks having applicable market-wide position limit (MWPL) less than Rs. 500 crores, the combined futures and options position limit would be 20% of applicable MWPL and futures position cannot exceed 20% of applicable MWPL or Rs. 50 crore which ever is lower.
- *Client-wise Position Limit:* Client-wise Position limits has been specified as higher 1% of the free float market capitalization (in terms of no. of shares) or 5% of the open interest (in terms of number of shares), in all the futures and option contracts on the same underlying security.

## Market Outcome

### Trading Volumes

Derivatives are traded in India on only two exchanges viz., the NSE and the BSE (Table 7-8). The total exchange traded derivatives volume witnessed an increase of 53.71% to Rs. 74,152,784 million (US \$ 1,701,142 million) during 2006-07 as against Rs. 48,242,592 million (US \$ 1,081,430 million) during the preceding year. NSE emerged as a market leader in the Indian Market by accounting for about 99% of total turnover. Since more than 99% of volumes came from NSE, the further detailed analysis is based on NSE data.

During 2006-07, the F&O segment of NSE reported a total turnover for Rs. 73,562,714 million (US \$ 1,687,605 million) as against Rs. 48,242,504 million (US \$ 1,081,428 million) during the preceding year a rise of 52.48 %. The average daily trading value also witnessed an increase of Rs.295,433 million (US \$ 6,778 million) in 2006-07 as compared to Rs. 192,201 million (US \$ 4,308 million) during the fiscal 2005-06. The number of contracts traded in 2006-07 amounted to 217 millions as against 158 millions in the previous year. The segment witnessed a record turnover of Rs. 604,340 million on April 27, 2006 and a record in daily number of trades to the tune of 23.50 lakh on March 29, 2007. During the fiscal the highest turnover of Rs.7,424,013 was recorded during the month of May 2006. A steady



Table 7-8: Trade Details of Derivatives Market

Month/Year	NSE			BSE			TOTAL		
	No. of Contracts Traded	Turnover (Rs. mn.)	Turnover (US \$ Million)	No. of Contracts Traded	Turnover (Rs.mn.)	Turnover (US \$ Million)	No. of Contracts Traded	Turnover (Rs. mn.)	Turnover (US \$ million)
Apr-03	2,205,470	500,196	11,528	5,280	873	20	2,210,750	501,069	11,548
May-03	2,252,050	534,233	12,312	1,155	229	5	2,253,205	534,462	12,318
Jun-03	2,750,294	730,173	16,828	423	92	2	2,750,717	730,265	16,830
Jul-03	3,720,563	1,098,495	25,317	4,718	1,031	24	3,725,281	1,099,526	25,341
Aug-03	4,314,098	1,403,625	32,349	23,634	5,090	117	4,337,732	1,408,715	32,466
Sep-03	5,481,939	1,851,509	42,671	34,274	8,509	196	5,516,213	1,860,018	42,867
Oct-03	5,989,205	2,303,645	53,092	30,668	8,574	198	6,019,873	2,312,219	53,289
Nov-03	4,769,938	1,921,714	44,289	31,337	9,287	214	4,801,275	1,931,001	44,503
Dec-03	5,724,035	2,389,067	55,060	107,545	36,840	849	5,831,580	2,425,907	55,909
Jan-04	6,976,023	3,240,630	74,686	103,573	37,869	873	7,079,596	3,278,499	75,559
Feb-04	5,696,541	2,728,392	62,881	22,212	7,299	168	5,718,753	2,735,691	63,049
Mar-04	7,006,620	2,604,813	60,033	17,439	505	12	7,024,059	2,605,318	60,044
<b>2003-04</b>	<b>56,886,776</b>	<b>21,306,492</b>	<b>491,046</b>	<b>382,258</b>	<b>116,198</b>	<b>2,678</b>	<b>57,269,034</b>	<b>21,422,690</b>	<b>493,724</b>
Apr-04	6,568,668	2,202,995	50,354	2,892	850	19	6,571,560	2,203,845	50,374
May-04	6,481,198	1,947,629	44,517	1,146	390	9	6,482,344	1,948,019	44,526
Jun-04	5,822,819	1,583,055	36,184	0	0	0	5,822,819	1,583,055	36,184
Jul-04	6,134,513	1,753,454	40,079	10	3	0.07	6,134,523	1,753,457	40,079
Aug-04	5,978,503	1,760,057	40,230	0	0	0	5,978,503	1,760,057	40,230
Sep-04	5,931,706	1,783,796	40,772	39,788	20,560	470	5,971,494	1,804,356	41,242
Oct-04	5,666,914	1,822,237	41,651	115,298	32,900	752	5,782,212	1,855,137	42,403
Nov-04	5,314,655	1,758,045	40,184	157,458	46,950	1,073	5,472,113	1,804,995	41,257
Dec-04	7,515,469	2,682,275	61,309	154,902	49,470	1,131	7,670,371	2,731,745	62,440
Jan-05	7,246,915	2,652,899	60,638	43,942	14,150	323	7,290,857	2,667,049	60,961
Feb-05	6,661,661	2,535,514	57,955	9,213	3,040	69	6,670,874	2,538,554	58,024
Mar-05	7,694,164	2,988,571	68,310	7,070	2,430	56	7,701,234	2,991,001	68,366
<b>2004-05</b>	<b>77,017,185</b>	<b>25,470,526</b>	<b>582,183</b>	<b>531,719</b>	<b>170,743</b>	<b>3,903</b>	<b>77,548,904</b>	<b>25,641,269</b>	<b>586,086</b>
Apr-05	8,628,497	1,959,690	43,929	100	32	1	8,628,597	1,959,722	43,930
May-05	9,137,619	2,083,803	46,712	0	0	0	9,137,619	2,083,803	46,712
Jun-05	10,653,067	2,712,461	60,804	0	0	0	10,653,067	2,712,461	60,804
Jul-05	11,198,617	3,081,662	69,080	0	0	0	11,198,617	3,081,662	69,080
Aug-05	12,764,213	3,723,073	83,458	0	0	0	12,764,213	3,723,073	83,458
Sep-05	13,253,741	3,997,562	89,611	0	0	0	13,253,741	3,997,562	89,611
Oct-05	15,176,424	4,336,601	97,211	0	0	0	15,176,424	4,336,601	97,211
Nov-05	13,055,656	3,958,528	88,736	0	0	0	13,055,656	3,958,528	88,736
Dec-05	16,181,118	5,238,073	117,419	0	0	0	16,181,118	5,238,073	117,419
Jan-06	14,681,719	4,875,837	109,299	0	0	0	14,681,719	4,875,837	109,299

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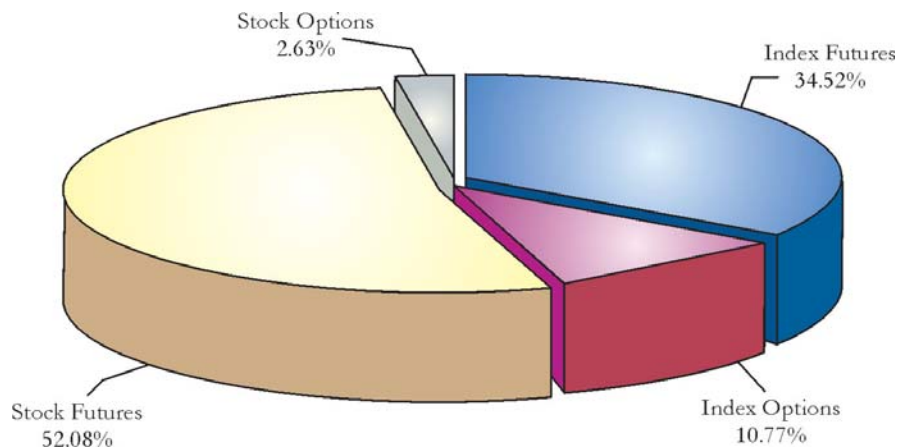
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Month/Year	NSE			BSE			TOTAL		
	No. of Contracts Traded	Turnover (Rs. mn.)	Turnover (US \$ Million)	No. of Contracts Traded	Turnover (Rs.mn.)	Turnover (US \$ Million)	No. of Contracts Traded	Turnover (Rs. mn.)	Turnover (US \$ million)
Feb-06	14,098,382	4,926,724	110,440	2	0.9	0.02	14,098,384	4,926,725	110,440
Mar-06	18,790,218	7,348,489	164,727	101	55	1	18,790,319	7,348,544	164,729
<b>2005-06</b>	<b>157,619,271</b>	<b>48,242,504</b>	<b>1,081,428</b>	<b>203</b>	<b>88</b>	<b>2</b>	<b>157,619,474</b>	<b>48,242,592</b>	<b>1,081,430</b>
Apr-06	17,818,153	7,378,387	169,268	24	10	0.23	17,818,177	7,378,397	169,268
May-06	18,764,064	7,424,013	170,315	-	-	-	18,764,064	7,424,013	170,315
Jun-06	16,854,514	5,568,040	127,737	346	180	4	16,854,860	5,568,220	127,741
Jul-06	13,784,858	4,772,549	109,487	996	260	6	13,785,854	4,772,809	109,493
Aug-06	14,824,058	4,696,657	107,746	2,362	690	16	14,826,420	4,697,347	107,762
Sep-06	15,757,466	5,229,463	119,969	8,902	2,650	61	15,766,368	5,232,113	120,030
Oct-06	14,313,726	5,056,583	116,003	6,170	1,960	45	14,319,896	5,058,543	116,048
Nov-06	17,284,519	6,498,287	149,077	236,501	79,860	1,832	17,521,020	6,578,147	150,910
Dec-06	17,516,726	6,691,622	153,513	277,888	95,040	2,180	17,794,614	6,786,662	155,693
Jan-07	16,232,446	6,274,563	143,945	309,320	109,530	2,513	16,541,766	6,384,093	146,458
Feb-07	20,821,144	7,034,922	161,388	392,670	131,890	3,026	21,213,814	7,166,812	164,414
Mar-07	32,911,899	6,937,629	159,156	546,491	168,000	3,854	33,458,390	7,105,629	163,011
<b>2006-07</b>	<b>216,883,573</b>	<b>73,562,714</b>	<b>1,687,605</b>	<b>1,781,670</b>	<b>590,070</b>	<b>13,537</b>	<b>218,665,243</b>	<b>74,152,784</b>	<b>1,701,142</b>

Source : NSE &amp; SEBI

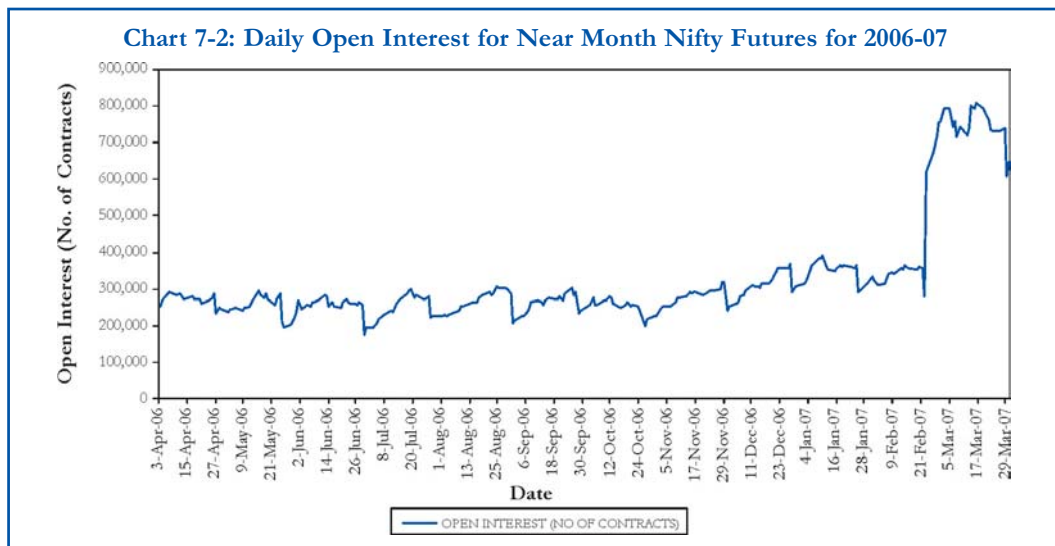
growth of turnover was noticed in all the other months. The business growth of the F&O segment is presented in (Annexure 7-2) and Most Active Futures contract and Options contract presented in (Annexure 7-5). It is evident from the statistics as presented in the (Annexure 7-2) and the (Chart 7-1) that the futures are more popular than options; futures contracts on securities being the most popular.

Chart 7-1: Product-wise Distribution of Turnover of F&amp;O Segment of NSE, 2006-07



## 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. The highest open interest in index futures at NSE was recorded at 808,890 contracts on March 16, 2007. The daily open interest for near month index futures at NSE is presented in (Chart 7-2).



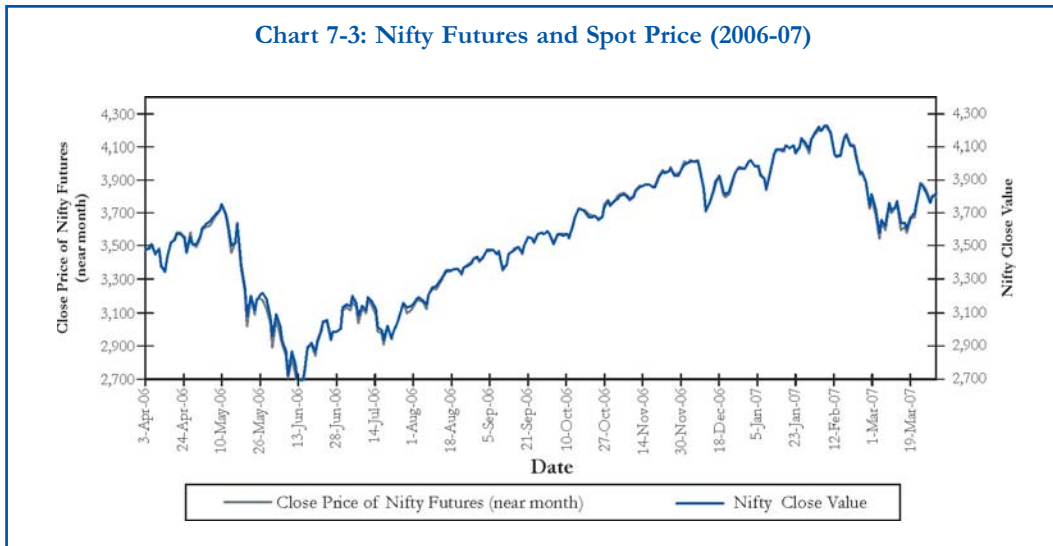
## Implied Interest Rate

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.

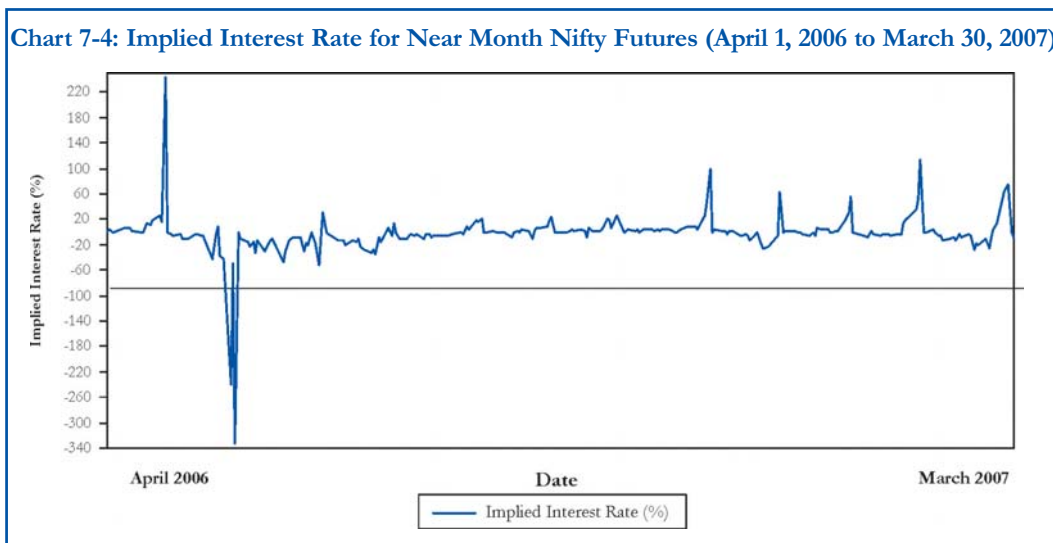
Implied interest rate is the percentage difference between the future value of an index and the spot value, annualised on the basis of the number of days before the expiry of the contract. Carry cost or implied interest rate plays an important role in determining the price differential between the spot 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.

The futures prices are available for different contracts at different points of time. (Chart 7-3) presents Nifty 50 futures close prices for the near month contracts, and the





spot Nifty 50 close values from April 2006 to March 2007. The difference between the future and the spot price is called basis. As the time to expiration approaches, the basis reduces. Daily implied interest rate for Nifty 50 futures from April 2006 to March 2007 is presented in (Chart 7-4). The implied interest rate for near month Nifty 50 futures as on last trading of the month is presented in (Table 7-9).



### 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 the speed of price change. To estimate future volatility, a time series analysis of historical volatility may be carried out to know the future movements of the underlying. Alternatively, one could work out implied volatility by

**Table 7-9: Implied Interest Rate for Near Month Nifty Futures (April 2006 - March 2007)**

Month	Expiry Date of near month Contract	Closing Future Price	Closing Spot Price	Implied Interest Rate (%)
Apr-06	25-May-2006	3180.15	3177.70	-4.82
May-06	29-Jun-2006	3003.00	2997.90	-15.94
Jun-06	27-Jul-2006	3153.50	3156.15	-4.37
Jul-06	31-Aug-2006	3411.80	3413.90	-11.95
Aug-06	31-Aug-2006	3411.80	3413.90	0.00
Sep-06	26-Oct-2006	3676.15	3677.55	-0.17
Oct-06	30-Nov-2006	3951.75	3954.50	2.68
Nov-06	30-Nov-2006	3951.75	3954.50	0.00
Dec-06	25-Jan-2007	4142.00	4147.70	0.55
Jan-07	22-Feb-2007	4054.50	4040.00	-7.88
Feb-07	29-Mar-2007	3800.50	3798.10	-6.50
Mar-07	26-Apr-2007	4179.15	4177.85	-7.70

*Note:*(1) The implied interest rate is calculated on the last trading day of the month for Near Month Nifty Futures (2) Number of days in a year have been taken as 365  
*Source:* NSE.

entering all parameters into an option pricing model and then solving it 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, and 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 estimate of how volatile the underlying will be from the present until the currency of option. If volatility is high, then the options premiums are relatively expensive and vice-versa. However, implied volatility estimate can be biased, especially if they are based upon options that are thinly traded samples.

### Settlement

All derivative contracts are currently cash settled. During 2006-07, the cash settlement amounted to Rs. 664,944.60 million (US \$ 15,254.52 million) with settlement of futures and of options accounting for Rs. 621,112.40 million (US \$ 14,248.97 million) and Rs. 43,832.20 million (US \$ 1,005.56 million) respectively. The detail of the settlement statistics in the F&O segment is presented in (Table 7-10).

### Other Derivative Products

India has seen a tremendous growth in its derivatives market. However, there are many products which are yet to be launched in the Indian market. A few of the derivative products not yet traded in India include Currency derivatives, Credit derivatives, Weather derivatives, Freight derivatives, Property derivatives etc. A brief account on these products is mentioned below:



Table 7-10: Settlement Statistics in F&amp;O Segment

Month/Year	Index/Stock Futures		Index/Stock Options		Total (In Rs. mn)	Total (In US \$ mn)
	MTM Settlement (Rs. mn)	Final Settlement (Rs. mn)	Premium Settlement (Rs. mn)	Exercise Settlement (Rs. mn)		
<b>2000-01</b>	<b>840.84</b>	<b>19.29</b>	--	--	<b>860.13</b>	<b>20.17</b>
Apr-01	80.43	0.88	--	--	81.31	1.67
May-01	37.76	1.13	--	--	38.88	0.80
Jun-01	48.52	0.10	14.69	2.75	66.07	1.35
Jul-01	66.95	1.35	58.76	14.28	141.35	2.90
Aug-01	45.94	1.36	98.31	50.62	196.22	4.02
Sep-01	336.87	5.00	156.22	139.09	637.18	13.06
Oct-01	112.69	1.01	179.61	114.22	407.53	8.35
Nov-01	283.75	7.09	245.55	202.14	738.52	15.13
Dec-01	789.41	37.62	174.67	82.14	1,083.84	22.21
Jan-02	1,125.28	21.69	305.71	177.55	1,630.22	33.41
Feb-02	1,088.70	122.14	244.00	88.57	1,543.42	31.63
Mar-02	1,036.18	19.88	170.08	68.10	1,294.25	26.52
<b>2001-02</b>	<b>5,052.49</b>	<b>219.25</b>	<b>1,647.58</b>	<b>939.46</b>	<b>7,858.79</b>	<b>161.04</b>
Apr-02	1,065.60	41.50	173.00	86.50	1,366.60	28.65
May-02	1,665.40	18.40	215.30	143.50	2,042.60	42.82
Jun-02	1,240.50	34.40	197.00	103.50	1,575.40	33.03
Jul-02	1,608.80	17.00	236.00	106.70	1,968.50	41.27
Aug-02	1,021.00	28.80	204.60	138.90	1,393.30	29.21
Sep-02	1,198.30	14.40	233.10	134.60	1,580.40	33.13
Oct-02	1,282.40	77.90	258.00	166.40	1,784.70	37.42
Nov-02	1,109.30	86.80	337.10	353.40	1,886.60	39.55
Dec-02	1,640.40	53.30	446.40	168.20	2,308.30	48.39
Jan-03	2,184.19	29.92	383.92	229.38	2,827.41	59.27
Feb-03	1,484.20	16.80	289.30	131.40	1,922.70	40.31
Mar-03	1,878.93	38.38	338.39	196.35	2,452.05	51.41
<b>2002-03</b>	<b>17,379.02</b>	<b>457.60</b>	<b>3,312.11</b>	<b>1,958.83</b>	<b>23,108.56</b>	<b>484.46</b>
Apr-03	2,058.06	47.93	459.95	300.07	2,866.01	66.05
May-03	1,635.92	57.42	380.39	304.30	2,378.03	54.81
Jun-03	2,202.33	38.58	487.81	464.99	3,193.71	73.60
Jul-03	3,897.88	80.24	694.32	447.68	5,120.12	118.00
Aug-03	5,696.01	85.82	773.16	588.14	7,143.14	164.63
Sep-03	10,318.74	92.38	781.23	304.09	11,496.44	264.96
Oct-03	11,880.49	141.09	991.48	603.07	13,616.13	313.81
Nov-03	9,393.49	238.60	634.00	221.13	10,487.22	241.70
Dec-03	9,054.58	178.99	699.91	410.95	10,344.44	238.41
Jan-04	26,682.05	128.24	1,074.58	426.73	28,311.59	652.49
Feb-04	13,296.98	164.00	682.56	244.20	14,387.74	331.59
Mar-04	12,103.23	136.18	930.00	445.84	13,615.25	313.79
<b>2003-04</b>	<b>108,219.77</b>	<b>1,389.48</b>	<b>8,589.38</b>	<b>4,761.19</b>	<b>122,959.81</b>	<b>2,833.83</b>

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Table 7-10: Settlement Statistics in F&amp;O Segment

Month/Year	Index/Stock Futures		Index/Stock Options		Total (In Rs. mn)	Total (In US \$ mn)
	MTM Settlement (Rs. mn)	Final Settlement (Rs. mn)	Premium Settlement (Rs. mn)	Exercise Settlement (Rs. mn)		
Apr-04	8,372.79	156.72	647.04	252.90	9,429.45	215.53
May-04	25,561.30	134.70	912.90	358.20	26,967.10	616.39
Jun-04	5,352.50	200.50	468.10	98.50	6,119.60	139.88
Jul-04	4,511.50	151.40	721.30	427.70	5,811.90	132.84
Aug-04	5,480.10	86.60	509.00	146.50	6,222.20	142.22
Sep-04	4,801.20	126.30	562.10	397.40	5,887.00	134.56
Oct-04	8,378.20	231.80	685.00	310.00	9,605.00	219.54
Nov-04	6,911.70	102.10	768.20	419.50	8,201.50	187.46
Dec-04	12,385.80	223.10	1,040.90	565.40	14,215.20	324.92
Jan-05	23,176.90	317.40	963.60	423.70	24,881.60	568.72
Feb-05	9,916.30	106.20	963.50	393.00	11,379.00	260.09
Mar-05	15,393.50	438.20	1,169.00	765.90	17,766.60	406.09
<b>2004-05</b>	<b>130,241.79</b>	<b>2,275.02</b>	<b>9,410.64</b>	<b>4,558.70</b>	<b>146,486.15</b>	<b>3,348.25</b>
Apr-05	17,369.10	311.50	828.30	303.20	18,812.10	421.70
May-05	9,436.90	417.40	725.40	449.50	11,029.20	247.24
Jun-05	10,957.90	351.80	931.60	713.20	12,954.50	290.39
Jul-05	15,675.20	384.90	928.60	588.50	17,577.20	394.02
Aug-05	25,448.00	365.60	1,189.40	267.80	27,270.80	611.32
Sep-05	23,667.00	173.10	1,359.10	958.50	26,157.70	586.36
Oct-05	34,791.00	1,204.60	1,439.20	792.00	38,226.80	856.91
Nov-05	18,314.00	321.70	1,226.30	757.10	20,619.10	462.21
Dec-05	24,878.00	227.40	1,397.20	670.50	27,173.10	609.13
Jan-06	20,346.00	1,071.70	1,395.20	520.60	23,333.50	523.06
Feb-06	18,866.00	444.70	1,466.80	568.60	21,346.10	478.50
Mar-06	36,106.00	704.50	2,318.70	1,588.90	40,718.10	912.76
<b>2005-06</b>	<b>255,855.10</b>	<b>5,978.90</b>	<b>15,205.80</b>	<b>8,178.40</b>	<b>285,218.20</b>	<b>6,393.59</b>
Apr-06	74,135.00	974.70	2,371.30	1,043.20	78,524.20	1,801.43
May-06	135,940.00	1,350.70	3,260.50	1,241.80	141,793.00	3,252.88
Jun-06	68,541.00	502.90	2,653.60	970.10	72,667.60	1,667.07
Jul-06	28,100.00	560.50	1,973.20	736.00	31,369.70	719.65
Aug-06	15,580.00	388.90	1,927.10	1,147.90	19,043.90	436.89
Sep-06	28,265.00	271.00	1,923.70	727.40	31,187.10	715.46
Oct-06	22,182.00	279.50	2,225.40	641.50	25,328.40	581.06
Nov-06	24,120.00	573.80	2,123.30	1,330.20	28,147.30	645.73
Dec-06	59,688.00	346.20	2,943.00	882.50	63,859.70	1,465.01
Jan-07	36,640.00	990.40	2,765.20	1,213.30	41,608.90	954.55
Feb-07	59,817.00	1,152.80	3,214.10	592.80	64,776.70	1,486.04
Mar-07	60,129.00	584.00	4,563.40	1,361.70	66,638.10	1,528.75
<b>2006-07</b>	<b>613,137.00</b>	<b>7,975.40</b>	<b>31,943.80</b>	<b>11,888.40</b>	<b>664,944.60</b>	<b>15,254.52</b>

Source : NSE





## *Currency Futures*

A **currency future**, is a futures contract to exchange one currency for another at a specified date in the future at a price (exchange rate) that is fixed on the last trading date. Currency futures was a sequel to the breakdown of the Bretton Woods system. The resultant currency volatility provided a business opportunity for launching futures contracts in foreign currencies. The Chicago Mercantile Exchange (CME) first conceived the idea of a currency futures exchange and it launched the same in 1972 amidst considerable skepticism, since traditionally futures market had traded agricultural commodities and not financial instruments.

Currency futures have been launched on various currencies like the Australian Dollar, British Pound, Canadian Dollar, Euro, Japanese Yen, Swiss Franc etc. Indian Rupee Futures contract was for the first time launched by the Dubai Gold and Commodity Exchange (DCGX) on June 7, 2007.

### *Launch of Indian Rupee Futures Contract.*

On June 07, 2007, the Dubai Gold and Commodity Exchange (DCGX) launched the Indian Rupee Contract (INR) versus the US \$. It was for first time in the world that an Indian rupee currency contract was traded on an organized exchange and provided individuals and companies the opportunity to hedge and trade their Indian Rupee risk on transparent and equal basis. The contracts, settled against the RBI fixing rate and along the usual IMM quarterly dates, have two near one month contracts

Each DGCX Indian rupee contract represents two million Rupees. Prices are quoted in US Cents per 100 Indian Rupees, with a minimum price fluctuation of 0.000001 US Dollars per Rupee (\$2 per contract). At any point in time the exchange can list the current and next two calendar months, plus the next three calendar quarterly months.

In India, currently there are a host of over-the-counter (OTC) products such as forwards, swaps and options available to the economic agents who want to hedge their currency risk. However, due to the growing integration of the Indian Economy with the world economies, a need has been felt to make available a wide choice of hedging instruments to market participants to enable them to cope better with the currency risk exposures.

The Committee on Fuller Capital Account Convertibility (FCAC) had recommended that currency futures may be introduced subject to risks contained through proper trading mechanism, structure of contracts and regulatory environment. In recognition of the perceived need for currency futures to enhance the menu of tools available for hedging currency exposure and considering the recommendations of the Committee on FCAC, the Reserve Bank of India in the Annual Policy Statement for the Year 2007-08 proposed to set up a Working Group on Currency Futures to study the international experience and suggest a suitable framework to operationalise the proposal, in line with the current legal and regulatory framework.

Accordingly, an Internal Working Group was set up with the following terms of reference:

- To study the product specifications, regulatory frameworks and international experience in respect of currency futures.
- To study the current legal and regulatory framework in India and suggest changes, if any.
- To suggest a suitable framework for introduction of currency futures, which could include suggestions on contract design, specifications, maturities/deliveries (months), settlement, expiries, margins, minimum price fluctuations (tick size), accounting norms, etc.
- To examine the infrastructure requirements for introduction of currency futures.
- To make suggestions about the entity/entities which would serve as the Exchange.
- To study the constraints if any, imposed by Foreign Exchange Management Act (FEMA), 1999 on the functioning of prospective currency futures exchange.
- To assess the likely impact of currency futures trading on the prices in the spot and forward markets as also on the effectiveness of intervention (if any) by Reserve Bank of India.
- To understand the liquidity implications for the spot market, if any.
- To examine the desirability of banks becoming members on the Exchange.

Accordingly, even the RBI's Internal Working Group has come out with its recommendations as discussed under Policy initiatives of this chapter.

### *Credit Derivatives*

A credit derivative is a financial instrument or derivative whose price and value is derived from the creditworthiness of the obligations of a third party. This derivative product aims at transferring credit risks in credit products to the counterparty of the derivative contract. The counterparty to the derivative contract could either be a market participant or could be the capital market through the process of securitisation. The purpose of this is to allow credit risks to be traded and managed in much the same way as market risks.

Credits can be extended in various forms like a loan, accounts receivable, installment credit or financial lease contract. However, every credit has risks and returns associated with it. There is always a probability that a credit asset may not yield the expected return because of the factors like account of default, losses, interest rate movements, exchange rate movement. The objective of a credit derivative contract is to create a trade in either some risk or all the risk of volatility of return in a credit risk. Credit derivatives can be defined as arrangements that allow one party to transfer for a premium, the defined credit risk, or all the credit risk computed which it may or may not own, to one or more other parties. In simple words, credit derivatives can be perceived as instrument by which credit risk inherent in loans, risky assets, market risk positions are transferred to third parties acting so called protection sellers.



## *Weather Derivatives*

Weather influences our daily lives and choices, and has an enormous impact on corporate revenues and earnings. The risks businesses face due to weather are somewhat unique. Weather conditions tend to affect volume and usage more than they directly affect price. An exceptionally warm winter, for example, can leave utility and energy companies with excess supplies of oil or natural gas (because people need less to heat their homes). Or, an exceptionally cold summer can leave hotel and airline seats empty. Although the prices may change somewhat as a consequence of unusually high or low demand, price adjustments don't necessarily compensate for lost revenues resulting from unseasonable temperatures. Weather risk is also unique in that it is highly localized, cannot be controlled and despite great advances in meteorological science, still cannot be predicted precisely and consistently. Until recently, insurance has been the main tool used by companies' for protection against unexpected weather conditions. But insurance provides protection only against catastrophic damage. Insurance does nothing to protect against the reduced demand that businesses experience as a result of weather that is warmer or colder than expected. Weather derivatives cover low-risk, high-probability events. Weather insurance, on the other hand, typically covers high-risk, low-probability events, as defined in a highly tailored, or customized, policy. For example, a company might use a weather derivative to hedge against a winter that forecasters think will be 5° F warmer than the historical average (a low-risk, high-probability event). In this case, the company knows its revenues would be affected by that kind of weather. But the same company would most likely purchase an insurance policy for protection against damages caused by a flood or hurricane (high-risk, low-probability events).

## *CME Weather Futures and Options*

In 1999, the Chicago Mercantile Exchange (CME) took weather derivatives a step further and introduced exchange-traded weather futures and options on futures - the first products of their kind. OTC weather derivatives are privately negotiated, individualized agreements made between two parties. But CME weather futures and options on futures are standardized contracts traded publicly on the open market in an electronic auction-like environment, with continuous negotiation of prices and complete price transparency.

Broadly speaking, CME weather futures and options on futures are exchange-traded derivatives that by means of specific indexes - reflect monthly and seasonal average temperatures of 15 U.S. and five European cities. These derivatives are legally binding agreements made between two parties, and settled in cash. Each contract is based on the final monthly or seasonal index value that is determined by Earth Satellite (EarthSat) Corp, an international firm that specializes in geographic information technologies. Other European weather firms determine values for the European contracts. EarthSat works with temperature data provided by the National Climate Data Center (NCDC), and the data it provides is used widely throughout the over-the-counter weather derivatives industry as well as by CME. The weather derivatives market centers on trades in heating degree days (HDDs) and cooling degree days (CDDs), which have hedges on volumetric risk



associated with temperature. However, the market continues to provide risk management opportunities for all manner of "exotic" hedges, such as hurricanes and precipitation.

### *Freight Derivatives*

A Freight derivative is a financial instrument for trading in future levels of freight rates, for dry bulk carriers and tankers. These instruments are settled against various freight rate indices published by the Baltic Exchange and Platt's FFAs are usually traded over the counter, but screen-based trading is becoming more popular as time passes by. Trades can be given up for clearing by the broker to one of the clearing houses that support such trades. There are four clearing houses on freight : NOS (Norwegian), LCH, Clearnet, NYMEX Clearport, SGX (Singapore). Freight derivatives are primarily used by ship-owners and operations, oil companies, trading companies and grain houses as tools for managing freight rate risk.

### *Property Derivatives*

A property derivative is a derivative (finance) whose price and value derives from the value of a real estate asset, usually represented in the form of an index. The product usually takes to form of a total return swap or forward and can adopt a funded format where the property derivative is embedded into a note structure. Under the total return swap or forward the parties will usually take contrary positions on the price movements of a property index.

The most common benchmarks used for property derivatives in the UK are the various property indices published by the Investment Property Databank. Property derivatives provide the investor with the ability to, gain or reduce exposure to the property market, hedge a current position in the physical assets, quickly change the composition of a portfolio, i.e. switch out a Retail property and into Industrial and to speculate on the property market. The Investment Property Databank (IPD) is a credible independent body that provides a number of Indices which relate to performance of commercial property.

There are many indices reflecting country, Sector and Sub-sector of the commercial property market. To date, much of the interest in property derivatives relates to the UK market and its sub sectors. The main index is: the UK Annual Index, which covers approximately £ 192 bn of directly held UK property investments. The Annual Index is published at the end of February every year. Its value relates to December the previous year. The components that make up the value of each of these and all other IPD indices are Income Return on commercial property, Capital Growth on commercial property.  $\text{Income Return} + \text{Capital Growth} = \text{Total Return}$ . Each of these components are calculated using information from the 3 main sectors of Retail Property, Office Property and Industrial Property.



## Annexure 7-1: Contract Specification for F&amp;O

Particulars	Index Futures	Stock Futures	Index Options	Stock Options	Interest Rate Futures
Security Description	FUTIDX Nifty 50 Index/CNX IT Index/ Bank Nifty Index/CNX Nifty Junior/ CNX 100 and Nifty Midcap 50	FUTSTK Individual Securities	OPTIDX Nifty 50 Index/CNX IT Index/ Bank Nifty Index/CNX Nifty Junior/ CNX 100 and Nifty Midcap 50	OPTSTK Individual Securities	FUTINT Notional 10 year bond (6% coupon), Notional 10 year zero coupon bond and Notional 91 day T-Bill
Underlying	NA	NA	European	American	NA
Style of Option	As specified by NSE subject to minimum value of Rs. 2 lakh	As specified by NSE subject to minimum value of Rs. 2 lakh	As specified by NSE subject to minimum value of Rs. 2 lakh	As specified by NSE subject to minimum value of Rs. 2 lakh	Permitted lot size is 2000
Contract Size	Rs. 0.05	Rs. 0.05	Rs. 0.05	Rs. 0.01	Rs. 0.01
Price Steps	3 near months	3 near months			One year
Expiration Months	A maximum of three month trading cycle - the near month (one), the next month (two) and the far month (three). New contract is introduced on the next trading day following the expiry of near month contract				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
Trading Cycle					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.
Last Trading/Expiration Day		Last Thursday of the expiry month or the preceding trading day, if last Thursday is a trading holiday			NA
Price Bands	Operating range of 10% of the base price	Operating range of 20% of the base price	Operating range of 99% of the base price	Operating range of 99% of the base price	NA
No. of Strike Prices	NA	NA	Nifty 50 Index/CNX IT Index/ Bank Nifty Index/CNX Nifty Junior/ CNX 100 and Nifty Midcap 50 Up to 2000 - 9 strikes (four 'in- the-money', one 'at the money' and four 'out of the money') for every option type (i.e. call and put) > 2001 upto 4000 - 9 strikes (four 'in-the-money', one 'at the money' and four 'out of the money' for every option type (i.e. call and put) > 4001 upto 6000 - 11 strikes (five 'in the money', one 'at the money' and five 'out of the money' for every option type (i.e. call and put) > 6000 - 13 strikes (six 'in the money', one 'at the money' and six 'out of the money') for every option type (i.e. call and put)	Minimum of 9 (four 'in the money', one 'at the money' and four 'out of the money') for every option type (i.e. call and put)	NA

Contd....



Contd.,

### Annexure 7-1: Contract Specification for F&O

Particulars	Index Futures	Stock Futures	Index Options	Stock Options	Interest Rate Futures
Strike Price Interval (in Rs.)	NA	NA	Up to 2000 2001-4000 4001-6000 > 6000	Between 2.5 and 50 depending on the price of underlying	NA
Settlement	In cash on T+1 basis	In cash on T+1 basis	In cash on T+1 basis	Daily settlement on T+1 basis and final settlement on T+2 basis	Daily Mark-to-Market settlement and Final Settlement will be on T+1 basis
Daily Settlement Price	Closing price of futures contract on the trading day	Closing price of futures contract on the trading day	Premium Value (net)	Premium Value (net)	As may be stipulated by NSCCL in this regard from time to time
Final Settlement Price	Closing value underlying index/ security on the last trading day of the futures contract.	Closing value underlying index security on the last trading day of the futures contract.	Closing value of such underlying security (index) on the last trading day of the options contract.	Closing value of such underlying security (index) on the last trading day of the options contract.	As may be stipulated by NSCCL in this regard from time to time
Settlement Day	-----	-----	Last trading day	-----	-----
Margins	-----	-----	-----	-----	-----
				Up-front initial margin on daily basis	

NA: Not applicable





Contd...

Annexure 7-2: Business Growth of Derivatives Segment

Month/ Year	Index Futures			Stock Futures			Interest Rate Futures			Index Options			Stock Option			Total			Average Daily Turnover (Rs. mn)	Average Daily Turnover (US \$ mn)	Open Interest at the end of			
	No. of Contracts Traded	Turnover (Rs.mn.)	No. of Contracts Traded	No. of Contracts Traded	Value (Rs. mn.)	No. of Contracts Traded	No. of Contracts Traded	No. of Contracts Traded	Call	Put	No. of Contracts Traded	No. of Contracts Traded	No. of Contracts Traded	Call	Put	No. of Contracts Traded	No. of Contracts Traded	No. of Contracts Traded			Turnover (Rs. mn.)	Turnover (US \$ million)	No. of Contracts	Turnover (Rs. mn.)
May-04	2,551,985	821,494	3,322,799	926,276	0	0	196,198	68,238	100,430	34,689	77,171	63,156	19,762	6,481,198	1,947,629	44,517	92,744	2,119,87	179,487	469,577				
Jun-04	2,152,644	640,171	3,125,283	783,916	0	0	158,784	49,141	117,041	35,589	193,687	53,395	75,380	20,843	5,822,819	1,583,055	36,184	1,644,73	201,871	536,730				
Jul-04	1,971,231	611,250	3,490,902	940,092	0	0	189,179	60,920	124,352	38,621	267,555	76,138	94,222	26,823	6,134,513	1,753,454	40,079	1,821,77	206,709	596,390				
Aug-04	1,803,263	579,263	3,577,911	995,909	0	0	127,779	41,921	98,616	31,927	284,013	84,991	86,919	26,044	5,978,503	1,760,057	40,230	1,828,63	261,185	733,169				
Sep-04	1,463,682	493,001	3,768,178	1,071,234	0	0	124,547	42,825	93,808	31,642	365,187	107,626	116,304	35,469	5,931,706	1,783,796	40,772	1,853,30	446,299	1,335,349				
Oct-04	1,320,173	471,906	3,660,047	1,116,951	0	0	138,099	50,298	97,628	35,003	357,625	116,838	93,342	31,241	5,666,914	1,822,237	41,651	91,112	2,082,36	321,545	984,505			
Nov-04	1,023,111	382,770	3,600,135	1,135,246	0	0	131,218	49,794	102,223	38,135	363,158	119,710	94,810	32,390	5,314,655	1,738,045	40,184	87,902	2,009,19	371,842	1,223,921			
Dec-04	1,447,464	583,330	5,238,498	1,793,867	0	0	130,557	53,553	108,650	43,561	481,349	169,515	108,951	38,449	7,515,469	2,682,275	61,309	116,621	2,665,61	426,606	1,522,114			
Jan-05	1,931,200	761,508	4,551,564	1,595,642	0	0	176,682	71,877	143,416	57,857	362,345	135,017	81,618	30,998	7,246,915	2,652,899	60,638	139,626	3,191,46	388,354	1,360,366			
Feb-05	1,729,103	715,456	4,167,787	1,517,428	0	0	168,594	71,280	144,627	59,982	367,707	138,902	83,843	32,465	6,661,661	2,535,514	57,955	126,776	2,897,73	404,809	1,490,047			
Mar-05	2,076,975	863,983	4,708,687	1,753,635	0	0	213,632	90,743	211,385	89,179	369,895	113,590	113,590	46,075	7,694,164	2,988,571	68,310	135,844	3,105,01	592,646	2,105,225			
Apr-05	3,332,361	655,981	4,225,023	1,061,289	0	0	1,870,647	693,729	1,422,911	525,807	3,946,979	1,320,660	1,098,133	367,921	77,017,185,25,470,526	58,2183	100,674	2,301,12	592,646	2,105,225	592,646	2,105,225		
May-05	3,545,971	704,663	4,466,404	1,128,823	0	0	382,530	77,258	333,975	70,560	288,137	76,415	100,602	26,094	9,137,619	2,083,803	46,712	94,718	2,123,25	977,984	1,586,340			
Jun-05	3,626,288	772,182	5,783,428	1,630,956	0	0	421,480	90,919	331,753	70,413	385,640	116,772	104,478	31,220	10,653,067	2,712,461	60,804	117,933	2,643,05	990,705	2,454,478			
Jul-05	3,451,684	773,987	6,537,794	1,996,376	0	0	358,867	81,297	389,154	86,423	376,129	117,352	84,989	26,227	11,988,617	3,081,662	69,080	154,083	3,454,00	1,024,749	2,719,762			
Aug-05	4,278,829	1,008,132	7,124,266	2,348,166	0	0	444,294	106,199	485,001	113,723	350,370	119,352	81,453	27,502	12,764,213	3,723,073	83,458	3,793,56	892,678	4,478,792				
Sep-05	4,701,774	1,189,051	6,995,169	2,369,450	0	0	523,948	133,697	583,081	145,498	363,872	129,171	85,897	30,695	13,253,741	3,997,562	89,611	4,267,21	1,023,343	3,400,008				
Oct-05	6,849,732	1,701,003	6,526,919	2,143,982	0	0	695,311	176,322	719,542	309,120	107,530	80,134	28,222	15,176,424	4,336,601	97,211	216,830	4,860,57	803,773	2,108,306				
Nov-05	5,238,175	1,354,777	6,252,736	2,165,257	0	0	595,900	155,818	604,657	154,908	287,136	100,691	77,052	27,077	13,055,656	3,298,528	88,736	197,926	4,436,22	821,223	2,416,555			
Dec-05	6,613,032	1,832,931	6,252,736	2,802,833	0	0	775,216	218,616	764,964	361,268	136,301	95,261	36,140	16,181,118	5,238,073	117,419	238,094	5,337,24	808,768	2,532,311				
Jan-06	5,760,999	1,661,273	7,134,199	2,630,419	0	0	663,684	193,916	666,782	191,294	365,493	142,648	90,562	36,287	14,681,719	4,875,837	109,299	243,792	5,464,96	925,680	3,007,797			
Feb-06	5,186,835	1,563,590	7,443,178	2,887,148	0	0	506,714	155,261	550,682	168,049	326,233	123,502	75,740	29,175	14,098,382	4,926,724	110,440	259,301	5,812,63	1,023,343	3,400,008			
Mar-06	5,952,206	1,920,348	10,844,400	4,732,507	0	0	683,979	224,068	772,372	246,904	444,604	185,759	92,657	38,903	18,790,218	7,348,489	164,727	334,022	7,487,61	1,028,003	3,846,947			
2005-06	58,537,886	15,137,907	79,586,852	27,917,206	0	0	6,413,467	1,686,317	6,521,649	1,698,371	4,165,996	1,437,524	1,074,780	365,178,560	6,304,824,504	1,081,428	192,201	4,308,48	1,028,003	3,846,947				
Apr-06	5,847,035	2,042,383	10,021,529	4,605,545	0	0	773,632	275,241	415,472	248,969	393,306	176,270	67,179	29,980	17,818,153	7,378,387	169,268	409,910	9,403,77	1,073,728	430,954			
May-06	7,666,525	2,573,277	9,082,184	4,094,027	0	0	1,118,170	341,578	793,228	238,139	206,960	87,668	57,527	25,408	16,854,514	5,568,040	127,737	242,089	5,553,77	580,877	188,259			
Jun-06	8,437,382	2,435,707	6,241,247	2,439,540	0	0	898,796	283,779	851,659	263,335	247,562	102,789	69,314	29,681	13,784,838	4,772,549	109,487	227,264	5,213,68	781,861	225,789			
Jul-06	6,103,483	1,867,583	5,614,044	2,225,382	0	0	807,014	272,579	789,241	203,300	358,753	112,730	87,767	27,716	14,824,058	4,696,657	107,446	213,848	4,897,55	762,210	237,852			
Aug-06	5,250,973	1,733,336	7,530,310	2,291,817	0	0	762,499	231,302	762,222	265,172	408,237	137,914	79,316	25,599	15,757,466	5,229,465	119,969	209,022	5,712,83	953,627	333,029			
Sep-06	4,081,055	1,175,178	8,644,137	2,754,298	0	0	622,933	231,947	729,558	200,410	400,618	138,727	74,318	25,526	14,317,276	5,026,583	116,003	252,929	5,800,16	1,127,460	395,096			
Oct-06	4,556,984	1,669,715	7,929,018	2,725,158	0	0	701,372	275,681	845,270	324,502	463,369	168,858	90,369	33,429	17,284,519	6,498,287	149,077	295,377	6,776,25	1,109,841	407,017			
Nov-06	4,644,632	1,807,813	10,539,507	3,888,004	0	0	619,242	383,034	1,002,753	414,156	369,743	139,888	64,862	24,193	17,516,726	6,691,621	153,513	334,381	7,675,64	1,126,624	415,900			
Dec-06	5,798,118	2,252,885	9,261,984	3,477,466	0	0	738,931	304,002	916,654	362,453	438,297	167,045	71,462	26,969	16,233,446	6,274,563	143,945	313,728	7,197,25	1,368,453	510,500			
Jan-07	4,716,781	1,905,919	9,364,321	3,508,174	0	0	1,332,380	435,078	1,440,592	483,089	384,994	142,726	73,643	25,127	20,821,144	7,034,920	161,388	370,259	8,494,13	2,307,054	488,331			
Feb-07	7,735,651	2,422,372	9,853,884	3,526,530	0	0	2,985,472	578,832	2,908,374	556,388	384,679	95,300	111,333	35,059	32,911,899	6,937,629	159,156	330,363	7,578,88	1,791,387	387,101			
Mar-07	15,648,805	2,909,567	10,873,236	2,773,782	0	0	12,632,349	3,982,122	15,225,079	3,936,934	4,994,622	1,619,010	889,016	319,093	26,883,573	73,562,711	1,687,505	6,777,53	1,791,387	387,101				
2006-07	81,487,424	25,395,755	104,955,401	38,309,722	0	0	12,632,349	3,982,122	15,225,079	3,936,934	4,994,622	1,619,010	889,016	319,093	26,883,573	73,562,711	1,687,505	6,777,53	1,791,387	387,101				

Note:

1. Notional Turnover = (Strike price + Premium) × Quantity
2. Index Futures, Index Options, Stock Options and Stock Futures were introduced in June 2000, June 2001, July 2001 and November 2001, respectively





**Annexure 7-3: List of Securities on which Futures & Options are available at NSE along with their market lot (as of Dec. 2007)**

Sr. No	List of Securities	SYMBOLS	Market Lot
1	3I Infotech Ltd.	3IINFOTECH	1350
2	Aban Offshore Ltd.	ABAN	200
3	ABB Ltd.	ABB	500
4	Aditya Birla Nuvo Limited	ABIRLANUVO	200
5	Adlabs Films Ltd	ADLABSFILM	450
6	AIA Engineering Limited	AIAENG	200
7	Allahabad Bank	ALBK	2450
8	Alok Industries Ltd.	ALOKTEXT	3350
9	Alstom Projects India Ltd	APIL	400
10	Ambuja Cements Ltd.	AMBUJACEM	2062
11	Amtek Auto Ltd.	AMTEKAUTO	600
12	Andhra Bank	ANDHRABANK	2300
13	Ansal Prop & Infra Ltd	ANSALINFRA	650
14	Aptech Limited	APTECHT	650
15	Arvind Mills Ltd.	ARVINDMILL	4300
16	Ashok Leyland Ltd	ASHOKLEY	4775
17	Associated Cement Co. Ltd.	ACC	375
18	Aurobindo Pharma Ltd.	AUROPHARMA	350
19	AXIS Bank Ltd.	AXISBANK	450
20	Bajaj Auto Ltd.	BAJAJAUTO	100
21	Bajaj Hindustan Ltd.	BAJAJHIND	1900
22	Ballarpur Industries Ltd.	BILT	1900
23	Balrampur Chini Mills Ltd.	BALRAMCHIN	4800
24	Bank of Baroda	BANKBARODA	1400
25	Bank of India	BANKINDIA	1900
26	Bata India Ltd.	BATAINDIA	1050
27	Bharat Earth Movers Ltd.	BEML	250
28	Bharat Electronics Ltd.	BEL	275
29	Bharat Forge Co Ltd	BHARATFORG	1000
30	Bharat Heavy Electricals Ltd.	BHEL	300
31	Bharat Petroleum Corporation Ltd.	BPCL	1100
32	Bharti Airtel Ltd	BHARTIARTL	500
33	Bhushan Steel & Strips Lt	BHUSANSTL	250
34	Biocon Limited.	BIOCON	450
35	Birla Corporation Ltd	BIRLAJUTE	850
36	Bombay Dyeing & Mfg. Co Ltd.	BOMDYEING	300
37	Bombay Rayon Fashions Ltd	BRFL	1150
38	Bongaigaon Refinery Ltd.	BONGAIREFN	4500
39	Cairn India Limited	CAIRN	2500
40	Canara Bank	CANBK	1600
41	Central Bank of India	CENTRALBK	2000
42	Century Textiles Ltd	CENTURYTEX	425
43	CESC Ltd.	CESC	550
44	Chambal Fertilizers Ltd.	CHAMBLFERT	6900
45	Chennai Petroleum Corporation Ltd.	CHENNPETRO	1800
46	Cipla Ltd.	CIPLA	1250
47	CMC LTD.	CMC	200
48	Corporation Bank	CORPBANK	1200
49	Crompton Greaves Ltd.	CROMPGREAV	1000
50	Cummins India Ltd	CUMMINSIND	950
51	Dabur India Ltd.	DABUR	2700
52	Deccan Aviation Limited	AIRDECCAN	1700
53	Dena Bank	DENABANK	5250
54	Develop Credit Bank Ltd	DCB	1400
55	Divi's Laboratories Ltd.	DIVISLAB	310
56	DLF Limited	DLF	400
57	Dr. Reddy's Laboratories Ltd.	DRREDDY	400

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**Annexure 7-3: List of Securities on which Futures & Options are available at NSE along with their market lot (as of Dec. 2007)**

Sr. No	List of Securities	SYMBOLS	Market Lot
58	Educomp Solutions Ltd	EDUCOMP	150
59	Escorts India Ltd.	ESCORTS	2400
60	Essar Oil Ltd.	ESSAROIL	5650
61	Everest Kanto Cylinder Ltd	EKC	1000
62	Federal Bank Ltd.	FEDERALBNK	1702
63	Financial Technologies (I) Ltd	FINANTECH	150
64	GAIL (India) Ltd.	GAIL	750
65	Gateway Distriparks Ltd.	GDL	2500
66	Gitanjali Gems Limited	GITANJALI	500
67	Glaxosmithkline Pharma Ltd.	GLAXO	300
68	Global Broadcast News Ltd	GBN	250
69	GMR Infrastructure Ltd.	GMRINFRA	5000
70	Grasim Industries Ltd.	GRASIM	88
71	Great Offshore Ltd	GTOFFSHORE	250
72	GTL Ltd.	GTL	1500
73	Gujarat Alkalies & Chem	GUJALKALI	1400
74	Gujarat Narmada Fertilizer Co. Ltd.	GNFC	2950
75	Havells India Limited	HAVELLS	400
76	HCL Technologies Ltd.	HCLTECH	650
77	HDFC Bank Ltd.	HDFCBANK	200
78	Hero Honda Motors Ltd.	HEROHONDA	400
79	Hindalco Industries Ltd.	HINDALCO	1595
80	Hinduja Ventures Ltd.	HINDUJAVEN	250
81	Hindustan Construction Co	HCC	1400
82	Hindustan Oil Exploration	HINDOILEXP	1600
83	Hindustan Petroleum Corporation Ltd.	HINDPETRO	1300
84	Hindustan Unilever Ltd	HINDUNILVR	1000
85	Hindustan Zinc Limited	HINDZINC	500
86	Hotel Leela Ventures Ltd	HOTELEELA	3750
87	Housing Development and Infrastructure Ltd.	HDIL	400
88	Housing Development Finance Corporation Ltd.	HDFC	150
89	HTMT Global Solutions Ltd.	HTMTGLOBAL	250
90	ICICI Bank Ltd.	ICICIBANK	350
91	Idea Cellular Ltd.	IDEA	2700
92	IFCI Ltd.	IFCI	7875
93	I-FLEX Solutions Ltd.	I-FLEX	150
94	India Cements Ltd.	INDIACEM	1450
95	India Infoline Limited	INDIAINFO	500
96	Indian Bank	INDIANB	2200
97	Indian Hotels Co. Ltd.	INDHOTEL	1750
98	Indian Oil Corporation Ltd.	IOC	600
99	Indian Overseas Bank	IOB	2950
100	Indusind Bank Ltd.	INDUSINDBK	3850
101	Industrial development bank of India Ltd.	IDBI	2400
102	Info Edge (I) Ltd	NAUKRI	150
103	Infosys Technologies Ltd.	INFOSYSTCH	100
104	Infrastructure Development Finance Company Ltd.	IDFC	2950
105	ispat industries limited	ISPATIND	4150
106	ITC Ltd.	ITC	2250
107	IVR Prime Urban Developers Ltd.	IVRPRIME	400
108	IVRCL Infrastructure & Projects Ltd.	IVRCLINFRA	500
109	J & K Bank Ltd.	J&KBANK	300
110	Jaiprakash Associates Ltd.	JPASSOCIAT	300
111	Jaiprakash Hydro-Power Ltd.	JPHYDRO	6250
112	Jet Airways (India) Ltd.	JETAIRWAYS	400

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**Annexure 7-3: List of Securities on which Futures & Options are available at NSE along with their market lot (as of Dec. 2007)**

Sr. No	List of Securities	SYMBOLS	Market Lot
113	Jindal Saw Limited	JINDALSAW	250
114	Jindal Stainless Ltd.	JSTAINLESS	2000
115	Jindal Steel & Power Ltd	JINDALSTEL	125
116	JSW Steel Ltd.	JSWSTEEL	550
117	Kesoram Industries Ltd	KESORAMIND	500
118	Kotak Mahindra Bank Ltd.	KOTAKBANK	550
119	Kpit Cummins Infosystems	KPIT	1650
120	Lakshmi Machines Ltd	LAXMIMACH	100
121	Lanco Infratech Ltd.	LITL	850
122	Larsen & Toubro Ltd.	LT	200
123	LIC Housing Finance Ltd	LICHSGFIN	1700
124	Lupin Ltd.	LUPIN	350
125	Mahanagar Telephone Nigam Ltd.	MTNL	1600
126	Maharashtra Seamless Ltd.	MAHSEAMLES	600
127	Mahindra & Mahindra Ltd.	M&M	312
128	Mahindra Lifespace Developers Ltd	MAHLIFE	350
129	Mangalore Refinery and Petrochemicals Ltd.	MRPL	8900
130	Maruti Udyog Ltd.	MARUTI	400
131	Matrix Laboratories Ltd.	MATRIXLABS	1250
132	Moser-Baer (I) Ltd	MOSERBAER	825
133	Motor Industries Co Ltd	MICO	50
134	Mphasis Ltd.	MPHASIS	800
135	Nagarjuna Constrn. Co. Ltd.	NAGARCONST	1000
136	Nagarjuna Fertiliser & Chemicals Ltd.	NAGARFERT	14000
137	National Aluminium Co. Ltd.	NATIONALUM	1150
138	National Thermal Power Corporation Ltd.	NTPC	1625
139	NDTV Ltd.	NDTV	1100
140	Network 18 Fincap Ltd.	NETWORK18	500
141	Neyveli Lignite Corporation Ltd.	NEYVELILIG	5900
142	Nicolas Piramal India Ltd	NICOLASPIR	1045
143	NIIT Limited	NIITLTD	1450
144	NIIT Technologies Ltd.	NIITTECH	600
145	Nucleus Software Exports	NUCLEUS	550
146	Oil & Natural Gas Corp. Ltd.	ONGC	225
147	Omaxe Ltd.	OMAXE	650
148	Orchid Chemicals Ltd.	ORCHIDCHEM	1050
149	Oriental Bank of Commerce	ORIENTBANK	1200
150	Oswal Chem. & Fert. Ltd.	BINDALAGRO	4950
151	Pantaloon Retail (I) Ltd	PANTALOONR	500
152	Parsvnath Developers Ltd.	PARSVNATH	700
153	Patel Engineering Ltd.	PATELENG	500
154	Patni Computer Syst Ltd	PATNI	650
155	Peninsula Land Limited	PENINLAND	2750
156	Petronet LNG Limited	PETRONET	4400
157	Polaris Software Lab Ltd.	POLARIS	1400
158	Power Finance Corporation Ltd.	PFC	2400
159	Power Grid Corporation of India Ltd.	POWERGRID	3850
160	Praj Industries Ltd.	PRAJIND	2200
161	Punj Lloyd Ltd.	PUNJLLOYD	1500
162	Punjab National Bank	PNB	600
163	Puravankara Projects Ltd.	PURVA	500
164	Rajesh Exports Ltd	RAJESHEXPO	550
165	Ranbaxy Laboratories Ltd.	RANBAXY	800
166	Redington (India) Ltd.	REDINGTON	500
167	Rel. Nat. Resources Ltd.	RNRL	7150

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**Annexure 7-3: List of Securities on which Futures & Options are available at NSE along with their market lot (as of Dec. 2007)**

Sr. No	List of Securities	SYMBOLS	Market Lot
168	Reliance Capital Ltd	RELCAPITAL	550
169	Reliance Communications Ltd.	RCOM	700
170	Reliance Energy Ltd.	REL	550
171	Reliance Industries Ltd.	RELIANCE	150
172	Reliance Petroleum Ltd.	RPL	3350
173	Rolta India Ltd	ROLTA	450
174	S Kumars Nationwide Ltd	SKUMARSYNF	2600
175	Sasken Commu Techno Ltd	SASKEN	550
176	Satyam Computer Services Ltd.	SATYAMCOMP	600
177	Sesa Goa Ltd.	SESAGOA	150
178	Shipping Corporation of India Ltd.	SCI	1600
179	Shree Cements Ltd	SHREECEM	200
180	Shree Renuka Sugars Ltd.	RENUKA	1000
181	Siemens Ltd	SIEMENS	188
182	Sobha Developers Ltd.	SOBHA	350
183	SRF Ltd.	SRF	1500
184	State Bank of India	SBIN	250
185	Steel Authority of India Ltd.	SAIL	2700
186	Sterling Biotech Ltd	STERLINBIO	1250
187	Sterlite Industries (I) Ltd	STER	438
188	Sterlite Optical Technology	STROPTICAL	1050
189	Strides Arcolab Ltd.	STAR	850
190	Sun Pharmaceuticals India Ltd.	SUNPHARMA	225
191	Sun TV Network Ltd.	SUNTV	500
192	Suzlon Energy Ltd.	SUZLON	200
193	Syndicate Bank	SYNDIBANK	3800
194	Tata Chemicals Ltd	TATACHEM	1350
195	Tata Consultancy Services Ltd	TCS	250
196	Tata Motors Ltd.	TATAMOTORS	412
197	Tata Power Co. Ltd.	TATAPOWER	400
198	Tata Steel Ltd.	TATASTEEL	764
199	Tata Tea Ltd.	TATATEA	550
200	Tata Teleserv(Maharashtra)	TTML	10450
201	Tech Mahindra Limited	TECHM	200
202	The Great Eastern Shipping Co. Ltd.	GESHIP	1200
203	The Karnataka Bank Ltd.	KTKBANK	1250
204	Titan Industries Ltd.	TITAN	206
205	Triveni Engg. & Inds. Ltd.	TRIVENI	7700
206	Tulip It Services Ltd	TULIP	250
207	TVS Motor Company Ltd.	TVSMOTOR	2950
208	Ultratech Cement Ltd.	ULTRACEMCO	200
209	Union Bank of India	UNIONBANK	2100
210	Unitech Ltd	UNITECH	900
211	United Phosphorous Ltd	UNIPHOS	700
212	United Spirits Ltd.	MCDOWELL-N	250
213	Videsh Sanchar Nigam Ltd	VSNL	525
214	Vijaya Bank	VIJAYABANK	6900
215	Voltas Ltd.	VOLTAS	3600
216	Welspun Guj St. Ro. Ltd.	WELGUJ	800
217	Wipro Ltd.	WIPRO	600
218	Wire & Wireless (I) Ltd.	WWIL	3150
219	Wockhardt Ltd.	WOCKPHARMA	600
220	Yes Bank Limited	YESBANK	1100
221	Zee Entertainment Enterprises Ltd.	ZEEL	700



**Annexure 7-4: List of Indices on which Futures & Options are available along with their market lot**

Indices	Market Lot
Nifty 50	50
CNX Nifty Junior	25
CNX IT	50
CNX 100	50
BANK Nifty	50
NIFTY MIDCAP 50	75

**Annexure 7-5: Top 5 most active Futures and Options contracts during the period 2006-07**

**Top 5 most active Futures contracts.**

Sr. No.	Contract Descriptor	No. of Contracts	Traded Value (Rs. Mn.)	Traded Value (US\$ million)	Percentage of contracts to total contracts
1	NIFTY MARCH 2007	17,053,716	3,186,803	73,109	9.15
2	NIFTY JUNE 2006	9,677,558	2,836,549	65,073	5.19
3	NIFTY MAY 2006	6,651,393	2,296,548	52,685	3.57
4	NIFTY JULY 2006	5,919,986	1,803,978	41,385	3.18
5	NIFTY AUGUST 2006	5,694,976	1,847,058	42,373	3.05
	OTHERS	141,445,196	51,734,541	1,186,844	75.87
<b>TOTAL</b>		<b>186,442,825</b>	<b>63,705,477</b>	<b>1,461,470</b>	<b>100.00</b>

**Top 5 most active Options contracts.**

Sr. No.	Contract Descriptor	No. of Contracts	Traded Value (Rs. Mn.)	Traded Value (US\$ million)	Percentage of contracts to total contracts
1	NIFTY MARCH 2007 CE 3800	716,904	138,315	3,173	2.36
2	NIFTY MARCH 2007 PE 3800	670,058	130,908	3,003	2.20
3	NIFTY MARCH 2007 CE 3700	629,563	119,249	2,736	2.07
4	NIFTY MARCH 2007 PE 3700	582,453	110,510	2,535	1.91
5	NIFTY MARCH 2007 PE 3600	445,012	81,658	1,873	1.46
	OTHERS	27,396,758	9,276,598	212,815	90.00
<b>TOTAL</b>		<b>30,440,748</b>	<b>9,857,237</b>	<b>226,135</b>	<b>100.00</b>



# Foreign Institutional Investors in India

## Foreign Institutional Investors

### Introduction

Since 1990-91, the Government of India embarked on liberalisation and economic reforms with a view of bringing about rapid and substantial economic growth and move towards globalisation of the economy. As a part of the reforms process, the Government under its New Industrial Policy, revamped its foreign investment policy recognising the growing importance of foreign direct investment as an instrument of technology transfer, augmentation of foreign exchange reserves and globalisation of the Indian economy. Simultaneously, the Government, for the first time, permitted portfolio investments from abroad by foreign institutional investors in the Indian capital market. The entry of FIIs seems to be a follow up of the recommendation of the Narsimhan Committee Report on Financial System. While recommending their entry, the Committee, however did not elaborate on the objectives of the suggested policy. The committee only suggested that the capital market should be gradually opened up to foreign portfolio investments.

From September 14, 1992 with suitable restrictions, FIIs were permitted to invest in all the securities traded on the primary and secondary markets, including shares, debentures and warrants issued by companies which were listed or were to be listed on the Stock Exchanges in India.

While presenting the Budget for 1992-93, the then Finance Minister Dr. Manmohan Singh had announced a proposal to allow reputed foreign investors, such as Pension Funds etc., to invest in Indian capital market. To operationalise this policy announcement, it had become necessary to evolve guidelines for such investments by Foreign Institutional Investors (FIIs). The policy framework for permitting FII investment was provided under the Government of India guidelines vide Press Note date September 14, 1992. **The guidelines formulated in this regard were as follows:**

- 1) Foreign Institutional Investors (FIIs) including institutions such as Pension Funds, Mutual Funds, Investment Trusts, Asset Management Companies, Nominee Companies and Incorporated/Institutional Portfolio Managers or their power of attorney holders (providing discretionary and non-discretionary portfolio management services) would be welcome to make investments under these guidelines.
- 2) FIIs would be welcome to invest in all the securities traded on the Primary and Secondary markets, including the equity and other securities/instruments of companies which are



listed/to be listed on the Stock Exchanges in India including the OTC Exchange of India. These would include shares, debentures, warrants, and the schemes floated by domestic Mutual Funds. Government would even like to add further categories of securities later from time to time.

- 3) FIIs would be required to obtain an initial registration with Securities and Exchange Board of India (SEBI), the nodal regulatory agency for securities markets, before any investment is made by them in the Securities of companies listed on the Stock Exchanges in India, in accordance with these guidelines. Nominee companies, affiliates and subsidiary companies of a FII would be treated as separate FIIs for registration, and may seek separate registration with SEBI.
- 4) Since there were foreign exchange controls in force, for various permissions under exchange control, along with their application for initial registration, FIIs were also supposed to file with SEBI another application addressed to RBI for seeking various permissions under FERA, in a format that would be specified by RBI for the purpose. RBI's general permission would be obtained by SEBI before granting initial registration and RBI's FERA permission together by SEBI, under a single window approach.
- 5) For granting registration to the FII, SEBI should take into account the track record of the FII, its professional competence, financial soundness, experience and such other criteria that may be considered by SEBI to be relevant. Besides, FII seeking initial registration with SEBI were be required to hold a registration from the Securities Commission, or the regulatory organisation for the stock market in the country of domicile/incorporation of the FII.
- 6) SEBI's initial registration would be valid for five years. RBI's general permission under FERA to the FII would also hold good for five years. Both would be renewable for similar five year periods later on.
- 7) RBI's general permission under FERA would enable the registered FII to buy, sell and realise capital gains on investments made through initial corpus remitted to India, subscribe/renounce rights offerings of shares, invest on all recognised stock exchanges through a designated bank branch, and to appoint a domestic Custodian for custody of investments held.
- 8) This General Permission from RBI would also enable the FII to:
  - a. Open foreign currency denominated accounts in a designated bank. (There could even be more than one account in the same bank branch each designated in different foreign currencies, if it is so required by FII for its operational purposes);
  - b. Open a special non-resident rupee account to which could be credited all receipts from the capital inflows, sale proceeds of shares, dividends and interests;
  - c. Transfer sums from the foreign currency accounts to the rupee account and vice-versa, at the market rate of exchange;
  - d. Make investments in the securities in India out of the balances in the rupee account;
  - e. Transfer repatriable (after tax) proceeds from the rupee account to the foreign currency account(s);
  - f. Repatriate the capital, capital gains, dividends, incomes received by way of interest, etc. and any compensation received towards sale/renouncement of rights offerings of shares subject to the designated branch of a bank/the custodian being authorised



to deduct with holding tax on capital gains and arranging to pay such tax and remitting the net proceeds at market rates of exchange;

- g. Register FII's holdings without any further clearance under FERA.
- 9) There would be no restriction on the volume of investment minimum or maximum-for the purpose of entry of FIIs, in the primary/secondary market. Also, there would be no lock-in-period prescribed for the purposes of such investments made by FIIs. It was expected that the differential in the rates of taxation of the long term capital gains and short term capital gains would automatically induce the FIIs to retain their investments as long term investments.
- 10) Portfolio investments in primary or secondary markets were subject to a ceiling of 30% of issued share capital for the total holdings of all registered FIIs, in any one company. The ceiling was made applicable to all holdings taking into account the conversions out of the fully and partly convertible debentures issued by the company. The holding of a single FII in any company would also be subject to a ceiling of 10% of total issued capital. For this purpose, the holdings of an FII group would be counted as holdings of a single FII.
- 11) The maximum holdings of 24% for all non-resident portfolio investments, including those of the registered FIIs, were to include NRI corporate and non-corporate investments, but did not include the following:
- a. Foreign investments under financial collaborations (direct foreign investments), which are permitted upto 51% in all priority areas.
  - b. Investments by FIIs through the following alternative routes:
    - i. Offshore single/regional funds;
    - ii. Global Depository Receipts;
    - iii. Euro convertibles
- 12) Disinvestment would be allowed only through stock exchange in India, including the OTC Exchange. In exceptional cases, SEBI may permit sales other than through stock exchanges, provided the sale price is not significantly different from the stock market quotations, where available.
- 13) All secondary market operations would be only through the recognised intermediaries on the Indian Stock Exchange, including OTC Exchange of India. A registered FII would be expected not to engage in any short selling in securities and to take delivery of purchased and give delivery of sold securities.
- 14) A registered FII can appoint as Custodian an agency approved by SEBI to act as custodian of Securities and for confirmation of transactions in Securities, settlement of purchase and sale, and for information reporting. Such custodian should establish separate accounts for detailing on a daily basis the investment capital utilisation and securities held by each FII for which it is acting as custodian. The custodian was suppose to report to the RBI and SEBI semi-annually as part of its disclosure and reporting guidelines.
- 15) The RBI should make available to the designated bank branches a list of companies where no investment will be allowed on the basis of the upper prescribed ceiling of 30% having been reached under the portfolio investment scheme.





- 16) Reserve Bank of India may at any time request by an order a registered FII to submit information regarding the records of utilisation of the inward remittances of investment capital and the statement of securities transactions. Reserve Bank of India and/or SEBI may also at any time conduct a direct inspection of the records and accounting books of a registered FII.
- 17) FIIs investing under this scheme will benefit from a concessional tax regime of a flat rate tax of 20% on dividend and interest income and a tax rate of 10% on long term (one year or more) capital gains.

These guidelines were suitably incorporated under the SEBI (FIIs) Regulations, 1995. These regulations continue to maintain the link with the government guidelines through an inserted clause, that the investment by FIIs should also be subject to Government guidelines. This linkage has allowed the Government to indicate various investment limits including in specific sectors.

## Policy Developments

This section throws light on the policy measures for FIIs initiated during April 2006 to October 2007.

### *RBI Initiative:*

#### **I. Maintenance of collateral by FIIs for transactions in derivative segment- Opening of demat accounts by Clearing Corporations and Clearing Members**

With a view to further liberalise the procedure of offering foreign sovereign securities with AAA rating as collateral to recognized stock exchanges in India for their transactions in the derivatives segment, it has been decided in consultation with the Government of India and SEBI to permit SEBI approved clearing corporations of stock exchanges and their clearing members to undertake the transactions as mentioned below, subject to the guidelines issued from time to time by SEBI in this regard :

- i) To open and maintain demat accounts with foreign depositories and to acquire, hold, pledge and transfer the foreign sovereign securities, offered as collateral by FIIs;
- ii) To remit the proceeds arising from corporate action, if any, on such foreign sovereign securities; and
- iii) To liquidate such foreign sovereign securities if the need arises.

Clearing Corporations are required to report, on a monthly basis, the balances of foreign sovereign securities, held by them as non-cash collaterals of their clearing members to the Reserve Bank of India. The report should be submitted by the 10th of the following month to which it relates.

## SEBI Initiative:

### I. FII investments in Debt Securities

In April 2006, Government of India raised the cumulative debt investment limits from US \$ 1.75 billion to US \$2 billion and US \$ 0.5 billion to US \$1.5 billion for FII/Sub Account investments in Government Securities and Corporate Debt, respectively.

In January 2007, these limits were further enhanced. The existing limit of US \$ 2 billion available for investment by FIIs in Government Securities/ T-Bills was raised to US \$ 2.60 billion. The incremental limit of US \$ 0.6 billion was added to the existing headroom of US \$ 55 million available for investment by 100% debt FIIs in Government Securities/ T-Bills.

The enhanced limit was allocated among the 100% debt and general 70:30 FIIs/ Sub Accounts in the following manner.

(figures in USD Bn.)			
Types of FII	100 % debt	70:30	Total permissible limit
<b>Existing Limits</b>			
Govt. securities/T-bills	1.4	0.6	2.00
Corporate debt	1.0	0.5	1.50
<b>Total</b>			<b>3.50</b>
<b>Revised Limits</b>			
Govt. securities/T-bills	2.0	0.6	2.60
Corporate Debt	1.0	0.5	1.50
<b>Total</b>			<b>4.10</b>

### II. FII Investment in Upper Tier II Instruments

The Reserve Bank of India in its Circular dated July 21, 2006 reviewed the guidelines governing the Innovative Perpetual Debt Instruments eligible for inclusion as Tier 1 Capital and Debt Capital Instruments qualifying for Upper Tier II Capital. As per the aforementioned Circular, investment by FIIs in Upper Tier II instruments raised in Indian Rupees should be outside the limit for investment in corporate debt instruments, i.e. USD 1.5 billion. However, investment by FIIs in these instruments would be subject to a separate ceiling of USD 500 million as mentioned below:

- The limit of USD 500 million would be allocated among the 100% debt and general 70:30 FIIs/ sub accounts in the following manner:

(in US \$ million)			
Type of FIIs	100% Debt	70:30	Total Permissible limit
Limit Allocated	390	110	500
<b>Total</b>			<b>500</b>



- A 'headroom' of USD 20 million would be maintained for investments by general 70:30 FIIs/ sub accounts in Upper Tier II instruments i.e. the FIIs/ Sub Accounts would be free to invest till the total investment limit reaches USD 90 million. Thereafter, the approvals for limit allocation would be granted as per the procedure mentioned laid down by SEBI (vide Circular No.IMD/FII/16/2004 dated November 2, 2004, available on their website [www.sebi.gov.in](http://www.sebi.gov.in)). For the same, SEBI reserves the right to withdraw unused allocation in case there is demand from any FII which has already exhausted the limits, in order to enable optimum use of the allocations.

### III. Foreign Investment in Infrastructure companies in securities markets

Few of the policies framed by the Government of India regarding foreign investments in infrastructure companies in the securities markets, namely stock exchanges, depositories and clearing corporations are mentioned herewith :-

- Foreign investment upto 49% would be allowed in these companies with a separate Foreign Direct Investment (FDI) cap of 26% and Foreign Institutional Investment (FII) cap of 23%;
- FDI would be allowed with specific prior approval of FIPB;
- FII would be allowed only through purchases in the secondary market;
- FII should not seek and would not get representation on the Board of Directors;
- No foreign investor, including persons acting in concert, would hold more than 5% of the equity in these companies.

The aforesaid limits for foreign investment in respect of recognised stock exchanges would be subject to the limit of 5% shareholding by any person, directly or indirectly, as prescribed under the Securities Contracts (Regulation) (Manner of Increasing and Maintaining Public Shareholding in Recognised Stock Exchanges) Regulations, 2006.

### IV. Acceptance of Foreign Sovereign Securities as collateral from Foreign Institutional Investors (FIIs) for Exchange Traded Derivative Transactions

Presently, in Exchange Traded Derivative transactions, FIIs deposit the collateral with the clearing members, in the form of cash. Under the existing guidelines for clearing members, for collateral purposes, at least 50% of the liquid assets, should be in the form of cash or cash equivalents, and the rest can be in the form of non-cash components.

Reserve Bank of India (RBI) as per its circular dated July 19, 2007 has permitted clearing corporations and clearing members to adopt the following-

- i) To open and maintain demat accounts with foreign depositories and to acquire, hold, pledge and transfer the foreign sovereign securities, offered as collateral by FIIs;
- ii) To remit the proceeds arising from corporate action, if any, on such foreign sovereign securities; and



iii) To liquidate such foreign sovereign securities if the need arises.

Accordingly, clearing members are now permitted to accept foreign sovereign securities with 'AAA' rating / sovereign securities as collateral from FII client with the following necessary safeguards:

- i) Before accepting sovereign securities as collateral from FII, the clearing member should enter into a written agreement with the FII and also with the clearing corporation, containing, among other things, the following terms-
  - In the event of any dispute regarding liquidation or return of the sovereign securities tendered as collateral, or any other incidental matter, the courts in India will have jurisdiction to decide such disputes. Alternatively, the agreement may contain an arbitration clause.
  - The agreement should also contain the right of the clearing corporation as well as the clearing member to liquidate the sovereign securities tendered as collateral, in the event of default by clearing member or FII, as the case may be.
- ii) The clearing member should take due care to ensure that the sovereign securities tendered as collateral are available for liquidation in the event of insolvency of the FII or any intermediary or any other person located overseas through whom the securities are held.
- iii) The clearing corporation should also take due care to ensure that sovereign securities tendered as collateral are available for liquidation in the event of insolvency of the clearing member or any intermediary or other person located overseas through whom the securities are held.
- iv) The clearing corporation should also take adequate care to ensure that the sovereign securities accepted by it as margin are tendered under a mechanism which does not unduly hinder timely liquidation in the event of default by the clearing member.

The clearing corporation should value the collateral tendered by applying due haircuts. The haircut may either be a fixed percentage or VaR based. A higher haircut may be considered to cover the expected time frame for liquidation. A market determined price as obtained from an internationally recognized data vendor would be considered for valuation. The prices should be converted into rupee terms on a daily basis. The rupee value so used for conversion would be the "RBI Reference rate". The RBI reference rate should be disclosed by the clearing corporation to the clearing members, so as to enable them to report the value of the margins collected from FIIs.

The sovereign securities tendered as collateral should be treated as part of the cash component of the liquid assets of the clearing member, and should be subject to the condition that the value of the sovereign securities should not be more than 10% of the total value of the cash component of the liquid assets of the clearing member.

The existing procedure for acceptance and release of collateral tendered by domestic investors in the case of domestic securities should be adopted *mutatis mutandis* for the sovereign securities tendered by FII, except to the extent specifically provided otherwise.



To begin with, US Government securities, with 'AAA' rating, have been eligible to be tendered as collateral by Foreign Institutional Investors (FIIs) for Exchange Traded Derivative Transactions.

## *Other Initiatives*

### **I. Recommendation of the Tarapore Committee on 'Fuller Capital Account Convertibility': FII Related Issues**

The Tarapore Committee II on fuller capital account convertibility in its report submitted to RBI, suggested several measures to further open up the capital account, along side concomitant steps regarding fiscal, monetary and exchange rate policy etc. The Committee on Fuller Capital Account Convertibility submitted its report in July 2006 with some recommendations pertaining to FII segment and NRIs:

- i) The limit of FII Investment in Government Securities could be gradually raised to 10 percent of gross issuance by the Centre and States by 2009-10. The allocation by SEBI of the limits between 100 percent debt funds and other FIIs should be discontinued.
- ii) FII investment limits in government bonds to be increased in 3 phases up to 6, 8 and 10 percent of total gross issuance by Centre and States in a year.
- iii) FII investment limit in corporate bonds to be increased to 15 and 25 % of fresh issuance in phase II and phase III.
- iv) FIIs to be prohibited from investing through promissory Notes (PN); existing PN-holders to be phased out.
- v) Foreign institutions to be allowed to raise rupee bonds, subject to a ceiling.
- vi) Repo facility in Government facility should be widened by allowing all market players without any restrictions.
- vii) Non-resident investors, especially longer term investors, could be permitted entry without any restrictions.
- viii) Non-resident (other than NRIs) to be allowed access to FCNR(B) and NR(E)RA deposits.

## **Market Design**

*Foreign Institutional Investors* means an institution established or incorporated outside India which proposes to make investment in India in securities. A Working Group for Streamlining of the Procedures relating to FIIs, constituted in April, 2003, inter alia, recommended streamlining of SEBI registration procedure, and suggested that dual approval

process of SEBI and RBI be changed to a single approval process of SEBI. This recommendation was implemented in December 2003.

Currently, entities eligible to invest under the FII route are as follows:

- i) As FII:* Overseas pension funds, mutual funds, investment trust, asset management company, nominee company, bank, institutional portfolio manager, university funds, endowments, foundations, charitable trusts, charitable societies, a trustee or power of attorney holder incorporated or established outside India proposing to make proprietary investments or with no single investor holding more than 10 per cent of the shares or units of the fund).
- (ii) As Sub-accounts:* The sub account is generally the underlying fund on whose behalf the FII invests. The following entities are eligible to be registered as sub-accounts, viz. partnership firms, private company, public company, pension fund, investment trust, and individuals.

FIIs registered with SEBI fall under the following categories:

- a) Regular FIIs- those who are required to invest not less than 70 % of their investment in equity-related instruments and 30 % in non-equity instruments.
- b) 100 % debt-fund FIIs- those who are permitted to invest only in debt instruments.

The Government guidelines for FII of 1992 allowed, inter-alia, entities such as asset management companies, nominee companies and incorporated/institutional portfolio managers or their power of attorney holders (providing discretionary and non-discretionary portfolio management services) to be registered as FIIs. While the guidelines did not have a specific provision regarding clients, in the application form the details of clients on whose behalf investments were being made were sought. While granting registration to the FII, permission was also granted for making investments in the names of such clients. Asset management companies/portfolio managers are basically in the business of managing funds and investing them on behalf of their funds/clients. Hence, the intention of the guidelines was to allow these categories of investors to invest funds in India on behalf of their 'clients'. These 'clients' later came to be known as sub-accounts. The broad strategy consisted of having a wide variety of clients, including individuals, intermediated through institutional investors, who would be registered as FIIs in India.

FIIs are eligible to purchase shares and convertible debentures issued by Indian companies under the Portfolio Investment Scheme.

### **Registration Process of FIIs**

A FII is required to obtain a certificate by SEBI for dealing in securities. SEBI grants the certificate by taking into account the following criteria :

- i) The applicant's track record, professional competence, financial soundness, experience, general reputation of fairness and integrity.
- ii) Whether the applicant is regulated by an appropriate foreign regulatory authority.



- iii) Whether the applicant has been granted permission under the provisions of the Foreign Exchange Regulation Act, 1973 (46 of 1973) by the Reserve Bank of India for making investments in India as a Foreign Institutional Investor.
- iv) Whether the applicant is-
- a) an institution established or incorporated outside India as a pension fund, mutual fund, investment trust, insurance company or reinsurance company
  - b) an International or Multilateral Organisation or an agency thereof or a Foreign Governmental Agency or a Foreign Central Bank.
  - c) an asset management company, investment manager or advisor, nominee company, bank or institutional portfolio manager, established or incorporated outside India and proposing to make investments in India on behalf of broad based funds and its proprietary funds in if any or
  - d) university fund, endowments, foundations or charitable trusts or charitable societies. Further, while considering applications from university fund, endowments foundations or charitable trusts or charitable societies, SEBI may take into account the following criteria:
    - Whether the applicant has been in existence for a period of at least 5 years.
    - Whether it is legally permissible for the applicant to invest in securities outside the country of its incorporation or establishment.
    - Whether the applicant has been registered with any statutory authority in the country of their incorporation or establishment.
    - Whether any legal proceeding has been initiated by any statutory authority against the applicant.
    - If the broad based fund (i.e a fund established or incorporated outside India, which has at least twenty investors, with no single individual investor holding more than 10 percent of the shares or units of the fund) has institutional investors it should not be necessary for the fund to have twenty investors. Further, if the broad based fund has an institutional investor who holds more than 10 percent of the shares or units in the funds, then the institutional investor must itself be broad based fund
  - v) Whether the grant of certificate to the applicant is in the interest of the development of the securities market
  - vi) Whether the applicant is a fit and proper person

The SEBI's initial registration is valid for a period of three years from the date of its grant of renewal.

### *Investment Conditions and Restrictions for FIIs:*

A Foreign Institutional Investor may invest only in the following:-



- (a) securities in the primary and secondary markets including shares, debentures and warrants of companies, unlisted, listed or to be listed on a recognised stock exchange in India;
- (b) units of schemes floated by domestic mutual funds including Unit Trust of India, whether listed or not listed on a recognised stock exchange ;
- (c) dated Government securities and
- (d) derivatives traded on a recognised stock exchange;
- (e) commercial paper;
- (f) security receipts.

The total investments in equity and equity related instruments (including fully convertible debentures, convertible portion of partially convertible debentures and tradeable warrants) made by a Foreign Institutional Investor in India, whether on his own account or on account of his sub-accounts, should not be less than seventy per cent of the aggregate of all the investments of the Foreign Institutional Investor in India, made on his own account and on account of his sub-accounts. However, this is not applicable to any investment of the foreign institutional investor either on its own account or on behalf of its sub-accounts in debt securities which are unlisted or listed or to be listed on any stock exchange if the prior approval of the SEBI has been obtained for such investments. Further, SEBI while granting approval for the investments may impose conditions as are necessary with respect to the maximum amount which can be invested in the debt securities by the foreign institutional investor on its own account or through its sub-accounts. A foreign corporate or individual is not eligible to invest through the hundred percent debt route.

Even investments made by FIIs in security receipts issued by securitization companies or asset reconstruction companies under the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002 are not eligible for the investment limits mentioned above. No foreign institutional should invest in security receipts on behalf of its sub-account.

**In respect of investments in the secondary market, the following additional conditions should apply:-**

**Additional conditions for Investment in secondary markets:**

- (a) no transactions on the stock exchange should be carried forward;
- (b) the transaction of business in securities should be only through stock brokers who has been granted a certificate by the Board under sub-section (1) of section 12 of the Securities and Exchange Board of India Act, 1992 (i.e. Registration of Stock brokers, sub brokers and share transfer agents) provided that:
  - transactions in government securities, commercial papers including treasury bills should be carried out in a manner specified by the Reserve Bank of India.
  - Transaction of business in securities does not apply to sale of securities by a Foreign Institutional investor in response to a letter of offer sent by an acquirer in accordance with the Securities and Exchange Board of India (Substantial Acquisition of Shares and Takeovers) Regulations, 1997) or to sale of securities by a Foreign Institutional





Investor in response to an offer made by any promoter or acquirer in accordance with the SEBI (Delisting of Securities) Guidelines, 2003)

- In case of an offer by a company to buy back its securities through a stock broker who has been granted certificate by SEBI, the foreign institutional investor, may sell the securities held by it to such company, in accordance with Securities and Exchange Board of India (Buy-back of securities) Regulations, 1998.]
  - The transaction of business in securities through SEBI certified broker should not apply to divestment of securities by the FII in response to an offer by Indian Companies in accordance with operative guidelines for Disinvestment of Shares by Indian companies in overseas market through issue of American Depository Receipts (ADR) or Global Depository Receipts (GDR).
  - The transaction of business in securities should not apply to any bid for or acquisition of securities by a FII in response to an offer for disinvestment of shares made by the Government or any State Government or purchase or sale of security receipts by a foreign institutional investor.
- (c) a Foreign institutional Investor or a sub-account having an aggregate of securities which are worth Rs.10 crore or more as on the latest balance sheet should be subject to such instructions as may be issued by SEBI from time to time and settle these transactions only through demat form.

Unless otherwise approved by SEBI, securities should be registered -

- (a) in the name of the Foreign Institutional Investor, provided the Foreign Institutional Investor is making investments on his own behalf; or
- (b) in his name on account of his sub-account, or in the name of the sub-account, in case he is investing on behalf of the sub-account:

It is required that the names of the sub-accounts on whose behalf the Foreign Institutional Investor is investing are disclosed to the SEBI by the Foreign Institutional Investor.

### *General Obligations and Responsibilities*

General Obligations and Responsibilities relating to appointment of domestic custodians, designated bank, investment advice in publicly accessible media etc. laid down by the FII Regulations 1995 are as follows:

- 1) ***Appointment of domestic custodians:*** A Foreign Institutional Investor or a global custodian acting on behalf of the Foreign Institutional Investor, should enter into an agreement with a domestic custodian to act as custodian of securities for the Foreign Institutional Investor. The Foreign Institutional Investor should ensure that the domestic custodian takes steps for -
  - monitoring of investments of the Foreign Institutional Investor in India;
  - reporting to SEBI on a daily basis the transactions entered into by the Foreign Institutional Investor;



- preservation for five years of records relating to his activities as a Foreign Institutional Investor; and
- furnishing such information to SEBI as may be called for by SEBI with regard to the activities of the Foreign Institutional Investor and as may be relevant for the purpose of this regulation.

A Foreign Institutional Investor may appoint more than one domestic custodian with prior approval of SEBI, but only one custodian may be appointed for a single sub-account of a Foreign Institutional Investor.

- 2) **Appointment of designated bank:** A Foreign Institutional Investor should appoint a branch of a bank approved by the Reserve Bank of India for opening of foreign currency denominated accounts and special non-resident rupee accounts.
- 3) **Investment advice in publicly accessible media:** A foreign institutional investor or any of his employees should not render directly or indirectly any investment advice about any security in the publicly accessible media whether real-time or non real-time, unless a disclosure of his interest including long or short position in the said security has been made, while rendering such advice. In case of an employee of the foreign institutional investor is rendering such advice, he should 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.
- 4) **Maintenance of proper books of accounts, records, etc:** Every Foreign Institutional Investor should keep or maintain, as the case may be, the following books of accounts, records and documents, namely:
  - (a) true and fair accounts relating to remittance of initial corpus for buying, selling and realising capital gains of investment made from the corpus;
  - (b) accounts of remittances to India for investments in India and realising capital gains on investments made from such remittances;
  - (c) bank statement of accounts
  - (d) contract notes relating to purchase and sale of securities; and
  - (e) communication from and to the domestic custodian regarding investments in securities.

The FII is suppose to intimate SEBI in writing the place where such books, records and documents will be kept or maintained.

- 5) **Preservation of books of accounts, records, etc:** Every Foreign Institutional Investor should preserve the books of accounts, records and documents mentioned above.
- 6) **Appointment of compliance officer:** Every FII should appoint a compliance officer who would be responsible for monitoring the compliance of the Act, rules and regulations, notifications, guidelines, instructions, etc, issued by the SEBI or the central government. The compliance office officer has to immediately and independently report to the SEBI any non-compliance observed by him.



- 7) **Information to SEBI:** Every Foreign Institutional Investor is required to submit to SEBI or the Reserve Bank of India, as the case may be, any information, record or documents in relation to his activities as a Foreign Institutional Investor as SEBI or as the Reserve Bank of India may require. Further, the FII should disclose information concerning the terms of and parties to off-shore derivative instruments such as Participatory notes, Equity Linked Notes or any other such instruments, by whatever names they are called, entered into by it or its sub-accounts or affiliates relating to any securities listed or proposed to be listed in any stock exchange in India as and when and in such form as SEBI may require.

### *Code of Conduct for FIIs*

- 1) A FII and its key personnel are required to observe high standards of integrity, fairness and professionalism in all dealings in the Indian Securities market with intermediaries, regulatory and other Government authorities.
- 2) A FII should at all times render high standards of service, exercise due diligence and independent professional judgement.
- 3) A FII should ensure and maintain confidentiality in respect of trades done on its own behalf and/or on behalf of its sub-accounts/clients.
- 4) A FII should ensure the following:
  - a) clear segregation of its own money/securities and sub-accounts money/securities.
  - b) arms length relationship between its business of fund management/investment and its other business.
- 5) A FII should maintain an appropriate level of knowledge and competency and abide by the provisions of the Act, regulations made thereunder and the circular and guidelines, which may be applicable and relevant to the activities carried on by it. Every FII should also comply with the award of the Ombudsman and decision of SEBI under SEBI (Ombudsman) Regulations 2003.
- 6) A FII should not make any untrue statement or suppress any material fact in any documents, reports or information furnished to SEBI.
- 7) A FII should ensure that good corporate policies and corporate governance are observed by it.
- 8) A FII should ensure that it does not engage in fraudulent and manipulative transactions in the securities listed in any stock exchange in India.
- 9) A FII or any of its directors or managers should not either through its/his own account or through any associate or family members, relatives or friends indulge in any insider trading.
- 10) A FII should not be a party to or instrumental for -
  - a) creation of false market in securities listed or proposed to be listed in any stock exchange in India;



- b) price rigging or manipulation of prices of securities listed or proposed to be listed in any stock exchange in India;
- c) passing of price sensitive information to any person or intermediary in the securities market.

### ***Prohibitions On Investments:***

FIIIs are not permitted to invest in equity issued by an Asset Reconstruction Company. They are also not allowed to invest in any company which is engaged or proposes to engage in the following activities:

- 1) Business of chit fund or
- 2) Nidhi Company or
- 3) Agricultural or plantation activities or
- 4) Real estate business, or construction of farm houses (real estate business does not include development of townships, construction of residential/commercial premises, roads or bridges.
- 5) Trading in Transferable Development Rights (TDRs)

### ***Risk Management:***

#### **Forward Cover & Cancellation and Rebooking**

Authorized Dealer Banks can offer forward cover to FIIIs to the extent of total inward remittance of liquidated investment. Rebooking of cancelled forward contracts is allowed up to a limit of 2 % of the market value of the entire investment of FIIIs in equity and/or debt in India. The limit for calculating the eligibility for rebooking will be based upon market value of the portfolio as at the beginning of the financial year (April-March). The outstanding contracts have to be duly supported by underlying exposure at all times. The AD Category -I bank has to ensure that (i) that total forward contracts outstanding doesn't exceed the market value of portfolio and (ii) forward contracts permitted to be rebooked doesn't exceed 2 % of the market value as determined at the beginning of the financial year. The monitoring of forward cover is to be done on a fortnightly basis.

Initially, FIIIs were permitted to hedge their investments in debt instruments in India only with respect to currency risk. On June 11, 1998, forward cover to FIIIs on their investment in equity was also allowed subject to the maximum of the difference in dollar terms between the market value of investment on June 11, 1998 converted at RBI reference rate and the market value of investment at the time of providing cover, or fresh inflows since June 11, 1998. Subsequently, in November, 2002, forward cover up to a maximum of 15 per cent of the outstanding position as on March 31, 1999 plus the increase in market value after March 31, 1999 was also permitted. With this 15 per cent limit liberalised to 100 per cent of portfolio value, FIIIs have had unrestricted access to currency hedging from January 8, 2003 onwards. In June 1998, the proposed legal basis for trading in equity derivatives coincided with permission



for FIIs to invest in equity derivatives. With the advent of trading in equity derivatives in June 2000, and permission - albeit limited in the beginning - to FIIs to participate in this market opened up further avenues for FIIs to hedge their positions in the spot market.

### **FII Position limits in Derivatives Contracts**

SEBI registered FIIs are allowed to trade in all exchange traded derivative contracts on the stock exchanges in India subject to the position limits as prescribed by SEBI from time to time. The SEBI registered FII/sub-account may open a separate sub-account of their Special Non-Resident Rupee Account through which all receipts and payments pertaining to trading/investment in exchange traded derivative contracts including initial margin and mark to market settlement, transaction charges, brokerage etc, will be made. Further, transfer between the Special Non-Resident Rupee Account and the sub-account maintained for the purpose of trading in exchange traded derivative contracts can be freely made. However, repatriation of the rupee amount would be made only through their Special Non-Resident Rupee Account subject to payment of relevant taxes. The authorized Dealer banks have to keep proper records of their Special Non-Resident Rupee Account and submit them to Reserve Bank as and when required.

### **FII Position limits in index options contracts:**

FII position limit in all index options contracts on a particular underlying index should be Rs.500 crores or 15 % of the total open interest of the market in index options, whichever is higher. This limit would be applicable on open positions in all options contracts on a particular underlying index.

### **FII Position limits in index futures contracts:**

FII position limit in all index futures contracts on a particular underlying index should be Rs.500 crores or 15 % of the total open interest of the market in index futures, whichever is higher. This limit would be applicable on open positions in all futures contracts on a particular underlying index.

### **Additional exposure in equity index derivatives**

In addition to the above limits, in index futures and options, FIIs should take exposure in equity index derivatives subject to the following limits:

- a. Short positions in index derivatives (short futures, short calls and long puts) not exceeding (in notional value) the FII's holding of stocks.
- b. Long positions in index derivatives (long futures, long calls and short puts) not exceeding (in notional value) the FII's holding of cash, government securities, T-Bills, money market mutual funds and gilt funds and similar instruments.

In this regard, if the open position of an FII exceeds the limits as stated in index futures and option contract, such surplus would be deemed to comprise of short and long positions in the same proportion of the total open positions individually. Such short and long positions in

excess of the said limits should be compared with the FII's holding in stocks, cash etc as stated above.

### **FII Position limits in interest rate futures**

The notional value of gross open position of a FII in exchange traded interest rate derivative contracts should be USD 100 million.

In addition to the above, the FII may take exposure in exchange traded interest rate derivative contracts to the extent of the book value of their cash market exposure in government securities

### **FII Position limits on individual securities**

1. For stocks having applicable market-wide position limit (MWPL) of Rs. 500 crores or more, the combined futures and options position limit should be 20% of applicable MWPL or Rs. 300 crores, whichever is lower and within which stock futures position cannot exceed 10% of applicable MWPL or Rs. 150 crores, whichever is lower.
2. For stocks having applicable market-wide position limit (MWPL) less than Rs. 500 crores, the combined futures and options position limit should be 20% of applicable MWPL and stock futures position cannot exceed 20% of applicable MWPL or Rs. 50 crores which ever is lower.

### **Computation of Position Limits**

The position limits should be computed on a gross basis at the level of a FII and on a net basis at the level of individual sub-accounts/schemes and proprietary positions. The open position for all derivative contracts would be valued as the open positions multiplied with the closing price of the respective security/index in the underlying market.

### **Index Futures and Options**

Any sub-account of FII/ scheme of MF or persons acting in concert who together own 15% or more of the open interest of all derivative contracts on a particular underlying index are required to report this fact to the Exchange/Clearing Corporation. Failure to do so should be treated as a violation and should attract appropriate penal and disciplinary action in accordance with the Rules, Byelaws and Regulations of Clearing Corporation.

### **Futures and Options on individual securities**

The gross open position across all futures and options contracts on a particular underlying security, of a sub-account of an FII or scheme of MF, should not exceed the higher of:

1% of the free float market capitalisation (in terms of number of shares)

or

5% of the open interest in the derivative contracts on a particular underlying stock (in terms of number of shares).



These position limits should be applicable on the combined position in all futures and options contracts on an underlying security on the Exchange.

### **Interest Rate Futures**

The position limits for sub-account of FIIs should be for the near month contracts and should be higher of 15% of the open interest or Rs. 100 crores.

### **Monitoring of Position Limits for FII**

Clearing Corporation monitors the open positions of the FII/ sub-account of the FII for each underlying security and index, against the position limits specified at the level of FII/ sub-accounts of FII respectively, at the end of each trading day.

In the event of an FII breaching the position limits on any underlying, the Clearing Corporation advises the Exchange to withdraw the facility granted to such FII to take any fresh positions in any derivative contracts. Such FIIs are required to reduce their open position in such underlying, in accordance with the mechanism provided by the Clearing Corporation from time to time. The facility withdrawn may be reinstated upon due compliance of the position limits.

It should also be obligatory on FIIs to report any breach of position limits by them / their sub-account/s/schemes, to the Clearing Corporation and ensure that such sub-account/s/schemes do not take any fresh positions in any derivative contracts in such underlying.

### **Monitoring of investment position by RBI**

The Reserve Bank of India monitors the investment position of FIIs in listed Indian Companies, reported by Custodian Banks on a daily basis in Form LEC(FII).

### **Caution List**

When the total holdings of FIIs/NRIs under the Scheme reach the trigger limit, which is 2 % below the applicable limit. Reserve Bank issues a notice to all the designated branches of an Authorised Dealer banks stating that any further purchases of shares of the particular Indian company will require prior approval of Reserve Bank. (For companies with paid-up capital of Rs.1,000 crore and above, the trigger limit is 0.5 % below the applicable limit). RBI gives case-by case approvals to FIIs for purchase of shares of companies included in the Caution List. This is done on first-come-first served basis.

### **Ban List**

Once the shareholding by FIIs/NRIs reaches the overall ceiling/sectoral cap/statutory limit, Reserve Bank puts the company on the Ban List. Once a company is placed on the Ban List, no FII or NRI can purchase the shares of the company under the Portfolio Investment Scheme.

The Reserve Bank of India monitors the ceilings on FII/NRI/PIO investments in Indian companies on a daily basis. For effective monitoring of foreign investment ceiling limits, the Reserve Bank has fixed cut-off points that are two percentage points lower than the actual ceilings. The cut-off point, for instance, is fixed at 8 per cent for companies in which NRIs/



PIOs can invest up to 10 per cent of the company's paid up capital. The cut-off limit for companies with 24 per cent ceiling is 22 per cent and for companies with 30 per cent ceiling, is 28 per cent and so on. Similarly, the cut-off limit for public sector banks (including State Bank of India) is 18 per cent.

Once the aggregate net purchases of equity shares of the company by FIIs/NRIs/PIOs reach the cut-off point, which is 2% below the overall limit, the Reserve Bank cautions all designated bank branches so as not to purchase any more equity shares of the respective company on behalf of FIIs/NRIs/PIOs without prior approval of the Reserve Bank. The link offices are then required to intimate the Reserve Bank about the total number and value of equity shares/convertible debentures of the company they propose to buy on behalf of FIIs/NRIs/PIOs. On receipt of such proposals, the Reserve Bank gives clearances on a first-come-first served basis till such investments in companies reach 10 / 24 / 30 / 40/ 49 per cent limit or the sectoral caps/statutory ceilings as applicable. On reaching the aggregate ceiling limit, the Reserve Bank advises all designated bank branches to stop purchases on behalf of their FIIs/NRIs/PIOs clients. The Reserve Bank also informs the general public about the 'caution' and the 'stop purchase' in these companies through a press release. The list of companies allowed to attract investments from FIIs/NRIs/PIOs with their respective ceilings as of November 2007, is presented in the **(Annexure 8-1)**

### Margin Requirements

SEBI registered FIIs/sub-accounts are allowed to keep with the trading member/clearing member amount sufficient to cover the margins prescribed by the exchange/Clearing House and such amounts as may be considered to meet the immediate needs.

### *Investment by FIIs under Portfolio Investment Scheme:*

RBI has given general permission to SEBI registered FIIs/sub-accounts to invest under the Portfolio Investment Scheme (PIS). Total holding of each FII/sub account under this scheme should not exceed 10% of the total paid up capital or 10 % of the paid up value of each series of convertible debentures issued by the Indian company.

Total holding of all the FIIs/sub-accounts put together should not exceed 24 % of the paid up capital or paid up value of each series of convertible debentures. This limit of 24 % can be increased to the sectoral cap / statutory limit as applicable to the Indian Company concerned, by passing a resolution of its Board of Directors followed by a special resolution to that effect by its General Body.

A domestic asset management company or portfolio manager, who is registered with SEBI as an FII for managing the fund of a sub-account can make investments under the Scheme on behalf of:

- i. A person resident outside India who is a citizen of a foreign state or
- ii. A body corporate registered outside India.

However, such investment should be made out of funds raised or collected or brought from outside through normal banking channel. Investments by such entities should not exceed 5 % of the total paid up equity capital or 5 % of the paid up value of each series of convertible





debentures issued by an Indian company, and should also not exceed the overall ceiling specified for FIIs.

### *Allocation of Funds*

The SEBI registered FII should restrict allocation of its investment between equities and debt in the Indian Capital Market in the ratio 70:30. The FII may form a 100 % debt fund and get such fund registered with SEBI. Investment in debt securities by FIIs are subject to limits if any stipulated by SEBI in this regard.

### *Private Placement with FIIs*

SEBI registered FIIs have been permitted to purchase shares/convertible debentures of an Indian company through offer/private placement subject to the ceilings prescribed above, i.e individual FII/sub account -10 % and all FIIs/sub accounts put together - 24 % of the paid up capital of the Indian company. Indian company is permitted to issue such shares provided that:

- (i) in the case of public offer, the price of shares to be issued is not less than the price at which shares are issued to residents and
- (ii) in the case of issue by private placement, the price is not less than the price arrived at in terms of SEBI guidelines issued by the erstwhile Controller of Capital issues as applicable. Purchases can also be made of Partially Convertible debentures, Fully Convertible debentures, Rights/Renunciations/Warrants/Units of Domestic Mutual Fund Schemes.

### *Accounts with ADs*

FIIs/sub-accounts can open a Foreign Currency denominated Account and / or a Special Non-Resident Rupee Account for the purpose. They can transfer sums from the foreign currency account to the rupee account for making genuine investments in securities in terms of the SEBI (FII) Regulations, 1995. The sums may be transferred from foreign currency account to rupee account at the prevailing market rate and the Authorised Dealer bank may transfer repatriable proceeds (after payment of tax) from the rupee account to the foreign currency account. The Special Non-Resident Rupee Account may be credited with the proceeds of sale of shares / debentures, dated Government securities, Treasury Bills, dividend, income received by way of interest, forward contracts booked etc., by compensation received towards sale / renouncement of right offerings of shares and income earned on securities lent under SEBI's Securities Lending Scheme, 1997 after deduction of appropriate tax, if any. Such credits are allowed, subject to the condition that the Authorized Dealer bank should obtain confirmation from the investee company / FII concerned that tax at source, wherever necessary, has been deducted from the gross amount of dividend / interest payable / approved income to the share / debenture / Government securities holder at the applicable rate, in accordance with the Income Tax Act. The Special Non-Resident Rupee Account may be debited for purchase of shares / debentures, dated Government securities, Treasury Bills etc., and for



payment of fees to applicant FIIs' local Chartered Accountant / Tax Consultant where such fees constitute an integral part of their investment process.

### *FII and Capital Account Convertibility*

**1997:** The Committee on Capital Account Convertibility (1997) headed by S. S. Tarapore was asked to examine the case for capital account convertibility, namely the freedom to convert domestic financial assets into foreign financial assets and vice-versa. As regards FIIs, the committee recommended certain procedural relaxations, such as dispensing with prior RBI approval for FIIs' private placement/primary market investment, and prior approval under exchange controls for disinvestments, and removal of restrictions on debt instrument, including maturity restrictions and on investment in treasury bills. These recommendations were accepted, and the entry and exit processes of FII's investment were liberalised. The present position is that no RBI approval is required for the same.

**2006:** On July 31, 2006, report of the committee on '**Fuller Capital Account Convertibility**' was submitted. The present position of portfolio investment in India through stock exchanges in shares/debentures is that investment by non-residents is permitted under the Portfolio Investment Scheme to entities registered as FIIs and their sub accounts under SEBI (FII) Regulations and is subject to ceiling indicated therein. No RBI approval is required for registration of FIIs. The transactions are subject to daily reporting by designated Authorised dealers to RBI.

The committee recommendations are as follows:

- 1) Fresh inflows under Participatory Notes should be banned and existing P-Notes should be phased out over a period of one year.
- 2) Corporates should be allowed to invest in Indian stock markets through SEBI registered entities (including Mutual Funds and Portfolio Management Schemes), who will be individually responsible for fulling KYC and FATF (Financial Action Task Force) norms. The money should come through bank accounts in India.

## **MARKET OUTCOME**

### *Foreign Porfolio Investment flows to India:*

Portfolio investments in India include investments in American Depository Receipts (ADRs)/ Global Depository Receipts (GDRs), Foreign Institutional Investments and investments in Offshore funds. Before 1992, only Non-Resident Indians (NRIs) and Overseas Corporate Bodies were allowed to undertake portfolio investments in India. Thereafter, the Indian stock markets were opened up for direct participation by FIIs. They were allowed to invest in all the securities traded on the primary and the secondary market including the equity and other securities/instruments of companies listed/to be listed on stock exchanges in India. It can be observed from the table below that India is one of the preferred investment destination for FIIs over the years. As of March 2007, there were 996 FIIs registered with SEBI.



SEBI Registered FIIs in India	
Year	End of March
1992-93	0
1993-94	3
1994-95	156
1995-96	353
1996-97	439
1997-98	496
1998-99	450
1999-00	506
2000-01	527
2001-02	490
2002-03	502
2003-04	540
2004-05	685
2005-06	882
2006-07	996

Source : SEBI

During the initial year 1992-93, the FII flows amounted to US \$ 1 million and formed only a mere 0.41 % of the total foreign portfolio investments. However, within a year, the FIIs contribution to Foreign Portfolio Investments (FPI) rose sharply to 46.68 % during 1993-94. Thereafter, the FII inflows witnessed a dip of 7.37 %, contributing 39.30 % in the Foreign Portfolio Investments in 1994-95. The year 1995-1996 witnessed a turnaround, gliding up the contribution of FII to a massive of 73.11 % . (Table 8-1)

During 1996-97, there was an increase in portfolio investment mainly because of Indian GDRs which were raised in large amounts due to a number of relaxations regarding issuance of GDRs. Investment by FIIs during 1996-1997 remained almost of the level of the proceeding year. This period was ripe enough for FII Investments because at that time where international capital markets were in the phase of overheating; the Indian economy posted strong fundamentals, stable exchange rate expectations and offered investment incentives and congenial climate for investment of these funds in India.

During 1997-98, FII inflows posted a year -on- year fall of 49 %. This slack in investments by FIIs was primarily due to the South-East Asian Crisis and the period of volatility experienced between November 1997 and February 1998.

The net investment flows by FIIs have always been positive from the year of their entry. Only in the year 1998-99, an outflow to the tune of US \$ 390 million was witnessed for the first time. This was primarily because of the economic sanctions imposed on India by the US, Japan and other industrialized economies. These economic sanctions were the result of the testing of series of nuclear bombs by India in May 1998. Thereafter, the FII portfolios investments quickly recovered and showed positive net investments for all the subsequent years . FII investments contributed 70.56 % to total foreign portfolio inflows during 1999.

Table 8-1: Composition of Foreign Portfolio Investment in India

(US \$ Mn)

Year	GDR/ADRs	FII@	Off-shore funds and others	Total Foreign Portfolio Investments	% contribution of FIIs to Total Foreign Portfolio Flows
1992-93	240	1	3	244	0.41
1993-94	1,520	1,665	382	3,567	46.68
1994-95	2,082	1,503	239	3,824	39.30
1995-96	683	2,009	56	2,748	73.11
1996-97	1,366	1,926	20	3,312	58.15
1997-98	645	979	204	1,828	53.56
1998-99	270	(390)	59	(61)	(639.34)
1999-00	768	2,135	123	3,026	70.56
2000-01	831	1,847	82	2,760	66.92
2001-02	477	1,505	39	2,021	74.47
2002-03	600	377	2	979	38.51
2003-04	459	10,918	-	11,377	95.97
2004-05	613	8,686	16	9,315	93.25
2005-06	2,552	9,926	14	12,492	79.46
2006-07P	3,776	3,225	2	7,003	46.05

Source: RBI

P:Provisional

-:Nil/Negligible

@ Data represents net inflow of funds by FIIs

( ) negative values / outflows

Foreign portfolio investments declined from US \$3,026 million during 1999-2000 to US \$ 2,760 million during 2000-01. FII inflows had declined to US \$ 1,847 million during 2000-01 from US \$2,135 million during 1999-2000. FII investment posted a y-o-y decline of 13 % in 2000-01, 19 % in 2001-02 and 75 % in 2002-03. Investments by FII posted a fall of 80 % in 2002-03 as compared with investments in the period of 2000-01.

Investments by FIIs rebounded from depressed levels from the year 2003-04 and witnessed an unprecedented surge. Portfolio flows were recycled to India following readjustment of global portfolios of institutional investors, triggered by robust growth in Indian economy and attractive valuations in the Indian equity market as compared with other emerging market economies in Asia.

Foreign Investment flows moderated during May-July 2004, but bounced back in the second half of the year. The slowdown in the first half was on account of global uncertainties caused by hardening of crude oil prices and the upturn in the interest rate cycle. The resumption in the net FII inflows to India from August 2004 continued till end 2004-05. The inflows of FIIs during the year 2004-05 was US \$ 8,686 million.

Portfolio equity flows increased further during 2005-06 led by higher inflows from foreign institutional investors (FIIs). Net inflows by FIIs in the Indian stock markets increased by 14.28 % to US \$ 9,926 million. This rise can be attributed to strong corporate profitability and better growth prospects



During 2006-07 the Foreign institutional investors continued to invest large funds in Indian securities market, contributing 46.05 % to the Foreign Portfolio Investment. However, due to global developments like meltdown in global commodities markets and equity market during the three month period between May 2006 to July 2006, fall in Asian Equity markets, tightening of capital controls in Thailand and its spill over effects, there was a slack in FII investments.

### *Trends in Foreign Institutional Investments (FIIs)*

Gross Purchases and Gross Sales by FIIs increased in the 2006-07 as compared to 2005-06. The cumulative net FII investment touched Rs. 2,181,376 million (US \$ 51,967 million) by end March 2007. The strong risk adjusted returns of the Indian market have led FIIs to make more allocations to India. FII net investments was highest during the month of November 2006, amounting to Rs. 101,860 million.(US \$ 2,213 million). The month of May 2006 witnessed the largest single-month pull-out of FII funds, when FII withdrew over Rs.66,470 million (US \$ 1,473 million). During the same month, Nifty 50 saw a decline of 13.68 %. (Table:8-2 & Table 8-3). The correlation coefficient between net investment by FIIs and NSE Nifty 50 during 2006-07 was 0.29 percent. (Chart 8-1).

Though the volume of trades done by FIIs is not very high as compared to other market participants, to a considerable extent, they are the driving force in determination of market sentiments. The FIIs registered net investments of Rs. 308,410 million (US \$ 6,708 million) in the current year as against Rs.394,660 million (US \$ 9,334 million) during the previous year 2005-06. (Table:8-2 & Table 8-3).

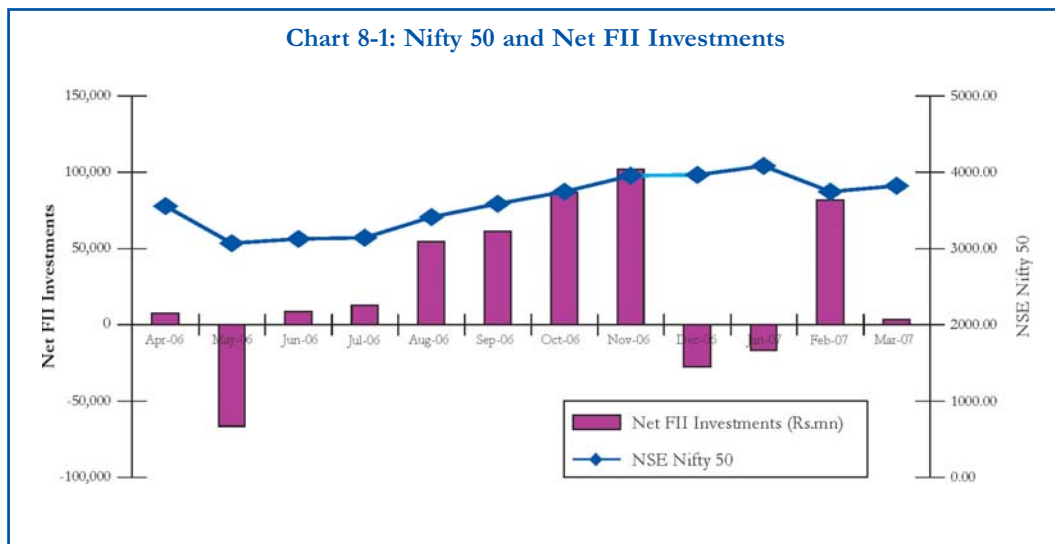


Table 8-2: Trends in FII Investment

Period	Purchases (Rs. mn.)	Sales (Rs. mn.)	Net Investment (Rs. mn.)	Cumulative Net Investment (Rs. mn.)	Net Investment (US \$ mn.)	Cumulative Net Investment (US \$ mn.)
1994-95	76,311	28,348	47,963	47,963	1,528	3,167
1995-96	96,935	27,516	69,420	117,384	2,036	5,202
1996-97	155,539	69,794	85,745	203,129	2,432	7,634
1997-98	186,947	127,372	59,574	262,703	1,650	9,284
1998-99	161,150	176,994	(15,845)	246,857	(386)	8,898
1999-00	568,555	467,335	101,219	348,077	2,339	11,237
2000-01	740,506	641,164	99,342	447,419	2,159	13,396
2001-02	499,199	411,650	87,552	534,972	1,846	15,242
2002-03	470,601	443,710	26,889	561,861	562	15,804
2003-04	1,448,575	990,940	457,645	1,019,506	9,949	25,754
2004-05	2,169,530	1,710,730	458,800	1,478,306	10,173	35,927
Apr-04	196,920	129,720	67,200	1,086,706	1,483	27,237
May-04	156,550	192,010	(35,460)	1,051,246	(806)	26,431
Jun-04	108,940	111,680	(2,740)	1,048,506	(57)	26,374
Jul-04	112,470	105,340	7,130	1,055,636	157	26,531
Aug-04	128,560	103,350	25,210	1,080,846	550	27,081
Sep-04	130,970	105,220	25,750	1,106,596	556	27,637
Oct-04	160,630	140,350	20,280	1,126,876	439	28,076
Nov-04	213,020	131,170	81,850	1,208,726	1,783	29,859
Dec-04	258,410	157,020	101,390	1,310,116	2,229	32,088
Jan-05	175,020	178,190	(3,170)	1,306,946	(75)	32,013
Feb-05	243,600	151,510	92,090	1,399,036	2,101	34,114
Mar-05	284,440	205,170	79,270	1,478,306	1,813	35,927
<b>2005-06</b>	<b>3,449,780</b>	<b>3,055,120</b>	<b>394,660</b>	<b>1,872,966</b>	<b>9,334</b>	<b>477,063</b>
Apr-05	162,100	176,860	(14,760)	1,463,546	(338)	35,589
May-05	156,190	170,050	(13,860)	1,449,686	(318)	35,271
Jun-05	259,600	207,020	52,580	1,502,266	1,210	36,481
Jul-05	257,170	179,560	77,610	1,579,876	1,784	38,265
Aug-05	283,590	237,370	46,220	1,626,096	1,062	39,327
Sep-05	266,510	221,940	44,570	1,670,666	1,023	40,350
Oct-05	271,660	317,940	(46,280)	1,624,386	(1,054)	39,296
Nov-05	235,000	216,260	18,740	1,643,126	420	39,716
Dec-05	335,480	251,870	83,610	1,726,736	1,831	41,547
Jan-06	334,150	326,580	7,570	1,734,306	603	42,150
Feb-06	356,710	282,350	74,360	1,808,666	1,660	43,810
Mar-06	531,620	467,320	64,300	1,872,966	1,451	45,261
<b>2006-07</b>	<b>5,205,090</b>	<b>4,896,680</b>	<b>308,410</b>	<b>2,181,376</b>	<b>6,708</b>	<b>51,967</b>

Cont.



Cont.

Period	Purchases (Rs. mn.)	Sales (Rs. mn.)	Net Investment (Rs. mn.)	Cumulative Net Investment (Rs. mn.)	Net Investment (US \$ mn.)	Cumulative Net Investment (US \$ mn.)
Apr-06	452,340	444,640	7,700	1,880,666	174	45,433
May-06	487,380	553,850	(66,470)	1,814,196	(1,473)	43,960
Jun-06	404,080	395,320	8,760	1,822,956	193	44,153
Jul-06	269,670	256,700	12,970	1,835,926	285	44,438
Aug-06	283,950	229,480	54,470	1,890,396	1,173	45,611
Sep-06	340,570	279,230	61,340	1,951,736	1,318	46,929
Oct-06	395,740	309,040	86,700	2,038,436	1,879	48,808
Nov-06	548,590	446,730	101,860	2,140,296	2,213	51,021
Dec-06	442,070	469,730	(27,660)	2,112,636	(599)	50,422
Jan-07	457,700	474,520	(16,820)	2,095,816	(370)	50,052
Feb-07	582,570	500,620	81,950	2,177,766	1,834	51,886
Mar-07	540,430	536,820	3,610	2,181,376	82	51,967

Source: SEBI.

( ) negative values.

Table 8-3: Net Investments by FIIs and Nifty 50 closing values during 2006-07

Month/Year	Net Investments by FIIs (Rs. Million)	NIFTY 50	Monthly Returns of Nifty 50
Mar-06	64,300	3402.55	
Apr-06	7,700	3557.60	4.56
<b>May-06</b>	<b>(66,470)</b>	<b>3071.05</b>	<b>(13.68)</b>
Jun-06	8,760	3128.20	1.86
Jul-06	12,970	3143.20	0.48
Aug-06	54,470	3413.90	8.61
Sep-06	61,340	3588.40	5.11
Oct-06	86,700	3744.10	4.34
Nov-06	101,860	3954.50	5.62
Dec-06	(27,660)	3966.40	0.30
Jan-07	(16,820)	4082.70	2.93
Feb-07	81,950	3745.30	(8.26)
Mar-07	3,610	3821.55	2.04

Source: SEBI



### Foreign Institutional Investments Equity and Debt

FII's were allowed to invest in the Indian Capital Market securities from September 1992, however investment by them were first made in January 1993. Till December 1998, investments related to equity only as the Indian gilts market was opened up for FII investment in April 1998 and investments in debt were made from January 1999. Foreign Institutional Investors (FIIs) continued to invest large funds in the Indian securities market. For two consecutive years in 2003-04 and 2004-05, net investment in equity showed year-on-year increase of 10%.

Highest net investment in equity by FIIs was seen in 2005-06 of Rs.485,420 million (US \$ 11,136 million), However, in 2006-07, net investment in equity dropped by 48.01 % and amounted to Rs.252,360 million (US \$ 5,789 million) as compared with net investment of Rs.485,420 million (US \$ 11,136 million) in 2005-06. This fall can be attributed to some unfavourable global events like meltdown in global equity and commodities market during May 2006 to July 2006, tightening of capital controls in Thailand during December 2006. (Table 8-4)

**Table 8-4: Net Investments by Foreign Institutional Investors in Equity and Debt**

Year	(Rs. Million)	
	FIIs	
	Net Investment in Equity	Net Investment in Debt"
2001-02	80,670	6,850
2002-03	25,280	600
2003-04	399,590	58,050
2004-05	441,230	17,590
2005-06	485,420	(70,650)
2006-07	252,370	56,070
Apr-06	5,220	2,490
May-06	(73,540)	7,070
Jun-06	4,800	3,960
Jul-06	11,450	1,520
Aug-06	46,430	8,050
Sep-06	54,250	7,090
Oct-06	80,130	6,570
Nov-06	93,800	8,060
Dec-06	(36,670)	9,010
Jan-07	4,920	(21,740)
Feb-07	72,400	9,560
Mar-07	(10,820)	14,430

Source : SEBI





Highest net investment in debt by FIIs was seen in the 2003-04 of Rs.58,050 million (US \$ 1,338 million). Net Investment in debt witnessed a huge drop in the year 2005-06 with a net outflow of Rs. 70,650 million, (US \$ 1,584 million). However, net investments in debt picked up by a massive 179.33 % during 2006-07 amounting to Rs.56,050 million. (US \$ 1,286 million) (Table 8-4)

### *Foreign Institutional Investments (FII) investment in Equity and Derivative Market Segments of the Exchange.*

#### *Equity Market Segment*

The FII turnover in Cash Market Segment of NSE accounted for Rs.6,862,973 million (US \$ 157,444 million) i.e. 17.64 % of the total turnover of Rs. 38,905,732 million (US \$ 892,538 million) during 2006-07. During the fiscal 2006-07, contribution of FII turnover to total turnover was the highest in January 2007 at Rs. 717,566 million (US \$ 16,462 million). (Table 8-5)

**Table 8-5: FII investment in Cash Market Segment of the Exchange**

Month/Year	(In Rs. Million)		(In US \$ . Million)		Contribution of FII Turnover to total Turnover (%)
	FII Turnover (Buy + Sell)	Total Turnover on NSE	FII Turnover (Buy + Sell)	Total Turnover on NSE	
Apr-06	587,047	3,547,449	13,467	81,382	16.55
May-06	720,263	4,028,181	16,524	92,411	17.88
Jun-06	525,390	3,021,001	12,053	69,305	17.39
Jul-06	352,647	2,373,966	8,090	54,461	14.85
Aug-06	354,159	2,615,921	8,125	60,012	13.54
Sep-06	451,125	2,886,776	10,349	66,226	15.63
Oct-06	495,884	2,767,644	11,376	63,493	17.92
Nov-06	644,262	3,797,269	14,780	87,113	16.97
Dec-06	653,313	3,402,107	14,988	78,048	19.20
Jan-07	717,566	3,502,939	16,462	80,361	20.48
Feb-07	688,283	3,603,405	15,790	82,666	19.10
Mar-07	673,034	3,359,074	15,440	77,061	20.04
<b>2006-07</b>	<b>6,862,973</b>	<b>38,905,732</b>	<b>157,444</b>	<b>892,538</b>	<b>17.64</b>

Source : NSE

Note : Cash Market FII turnover identified after custodial confirmations and completion of settlement

#### *Derivative Market Segment*

The FII turnover in the F&O Segment of NSE during 2006-07 was Rs.12,862,114 million

(US \$ 295,070 million) which was 8.74 % of the total derivatives market turnover of Rs.147,124,840 million (US \$ 3,375,197 million). Highest turnover of Rs. 1,381,482 million (US \$ 31,693 million) was reported in the month of March 2007. (Table 8-6).

**Table 8-6: FII investment in Derivatives Market Segment of the Exchange**

Month/Year	(In Rs. Million)		(In US \$ . Million)		Contribution of FII Turnover to total Turnover (%)
	FII Turnover (Buy + Sell)	Total Turnover	FII Turnover (Buy + Sell)	Total Turnover	
Apr-06	1,083,905	14,756,640	24,866	338,533	7.35
May-06	1,290,693	14,847,800	29,610	340,624	8.69
Jun-06	1,026,904	11,135,940	23,558	255,470	9.22
Jul-06	829,384	9,545,100	19,027	218,975	8.69
Aug-06	753,159	9,393,240	17,278	215,491	8.02
Sep-06	894,324	10,458,920	20,517	239,939	8.55
Oct-06	961,191	10,113,160	22,051	232,006	9.50
Nov-06	987,467	12,996,580	22,654	298,155	7.60
Dec-06	1,150,795	13,383,240	26,400	307,025	8.60
Jan-07	1,206,348	12,549,120	27,675	287,890	9.61
Feb-07	1,296,462	14,069,840	29,742	322,777	9.21
Mar-07	1,381,482	13,875,260	31,693	318,313	9.96
<b>2006-07</b>	<b>12,862,114</b>	<b>147,124,840</b>	<b>295,070</b>	<b>3,375,197</b>	<b>8.74</b>

Source : NSE

### *Share of FIIs in NSE Listed Companies*

The FII ownership of shares in various sectors of NSE listed companies is presented in (Table 8-7). FIIs held the highest stake of 18.41 % in the Banking sector followed by Finance and Media & Entertainment of 18.18 % and 15.20 % respectively. The total number of shares held by FIIs across different sectors was 15,315 million which was 10.78 % of the total shares of the companies listed on NSE as at end March 2007.

### *FII Stock Market Indicators*

The FIIs interest in the Indian Stock Market can be gauged from various indicators like, Market Capitalisation ratio, Turnover ratio and Value Traded ratio.

The most commonly used indicator of stock market development is the size of the market, measured by Market Capitalisation ratio. Market Capitalisation ratio is the value of listed shares on the country's exchanges divided by GDP of the country. In the year 2006-07, market capitalisation ratio of the FIIs (Market capitalisation of FII holdings / GDP ) on



**Table 8-7: FII Share in different sectors of companies listed on NSE at the end of March 2007**

Category	Foreign Institutional Investors
Banks	18.41
Engineering	11.45
Finance	18.18
FMCG	11.91
Information Technology	14.53
Infrastructure	7.15
Manufacturing	9.57
Media & Entertainment	15.20
Petrochemicals	5.83
Pharmaceuticals	11.17
Services	13.09
Telecommunication	11.17
Miscellaneous	8.19
Number of shares	15,315,196,488
% to total number of shares	10.78

Source : NSE

NSE was 13.14 %. The share of FIIs market capitalisation to the total market capitalization of NSE as end March 2007 was 16.10 %.

The Turnover ratio equals the total value of shares traded on a country's stock exchange divided by stock market capitalisation (Turnover of FIIs during the year 2006-07/ market capitalisation of FII holdings). It is used as a measure of trading activity or liquidity in the stock markets. Another variable is the value traded ratio which equals the total value of domestic stocks traded on domestic exchanges as a share of GDP.

The turnover ratio of FII was 126.60% during the current year 2006-07. The value traded ratio was 16.63 %. These figures are given in Table: 8-8.

### *Offshore Derivative Instruments (ODIs):*

Offshore Derivative Instruments include Participatory Notes, Equity-Linked Notes, Capped Return Note, Participating Return Note, Investment Note and similar instruments issued by FIIs/Sub Accounts outside India against their underlying investments in India.

#### Participatory Notes (PNs)

Participatory Notes are the most common type of ODIs. PNs are instruments used by foreign funds not registered in the country for trading in the domestic market. They are a derivative instrument issued against an underlying security that permits the holder to share in the capital appreciation and /income from the underlying security. PNs are similar to contract notes

Table 8-8: FII Stock Market Indicators 2006-07

	(Rs. mn)
<b>Market Capitalisation Ratio</b>	<b>13.14%</b>
Market Capitalisation of FII holdings	5,421,606
GDP	41,257,250
<b>Turnover Ratio</b>	<b>126.60%</b>
Turnover -Cash Market of FIIs	6,862,973
Market Capitalisation of FIIs holding	5,421,606
<b>Value Traded Ratio</b>	<b>16.63%</b>
Turnover -Cash Market of FIIs	6,862,973
GDP	41,257,250
<b>Market Capitalisation of FIIs holding to Total Market Capitalisation of NSE</b>	<b>16.10%</b>
Market Capitalisation- FII holding	5,421,606
Market Capitalisation- Total of NSE	33,673,499.66

Source : NSE, Central Statistical Organisation

issued by FIIs to their overseas clients who may not be eligible to invest in the Indian stock markets. PNs are used as an alternative to sub-accounts by ultimate investors generally based on the consideration related to transaction costs and record keeping overheads.

On October 16, 2007, there was a discussion paper released by SEBI which took note of the year on year increase in ODIs, the anonymity that the ODIs provides to the investors and the copious inflows into the country from the foreign investors.

### Current Scenario:

The discussion paper described the current scenario of 34 FIIs / Sub-accounts issuing ODIs as against 14 in March 2004. The notional value of PNs outstanding which was at Rs.31,875 crores (20% of AUCs- Assets under Custody of all FIIs/Sub Accounts) in March 2004 has grown to Rs.3,53,484 crores (51.6% of AUC) by August 2007. The value of outstanding ODIs with underlying as derivatives currently stands at Rs1,17,071 crores, which is approximately 30% of total PNs outstanding. The notional value of outstanding PNs, excluding derivatives as underlying as a percentage of AUC is 34.5% at the end of August 2007.

On October 25, 2007 SEBI Board discussed various issues relating to registration of FIIs. The details were brought about by SEBI vide their press release dated October 25, 2007.



### *Policy measures on Offshore Derivative Instruments*

1. It was proposed that "FIIs and their sub-accounts shall not issue/renew ODIs with underlying as derivatives with immediate effect. They are required to wind up the current position over 18 months, during which period SEBI will review the position from time to time."

It was clarified by SEBI that there was no proposed bar on ODI contracts, expiring during October 2007 or in the following months, being renewed, provided the renewal does not go beyond 18 months. It was further made clear that this proposal did not in any manner seek to restrict renewal or rollover of Indian Exchange Traded Derivative Contracts by the FIIs.

FIIs/sub-accounts were free to invest in derivatives traded on recognized stock exchanges.

SEBI decided that starting from the date of implementation of the proposal, they can not issue P-Notes that are based on such derivatives.

2. It was proposed that "further issuance of ODIs by the sub-accounts of FIIs would be discontinued with immediate effect. They would be required to wind up the current position over 18 months, during which period SEBI would review the position from time to time."

SEBI decided that from the date of implementation of the proposal, no sub-account could issue fresh ODIs. Existing ODI issuing sub-accounts have to ensure that they wind up all their ODIs within 18 months of implementation of the proposal.

SEBI had received several requests from existing P-Note issuing sub-accounts on the above proposal. Taking note of the transition being made by the sub-accounts currently issuing participatory notes, into FIIs, and in order to ensure implementation of the proposals in a non-disruptive manner, SEBI has decided that that these applicants be treated as if they were FIIs as on the date decided for calculation of the AUC for the above proposals.

3. It was proposed that "The FIIs who were currently issuing ODIs with notional value of PNs outstanding (excluding derivatives) as a percentage of their AUC in India of less than 40% should be allowed to issue further ODIs only at the incremental rate of 5% of their AUC in India."

SEBI confirmed the proposal with the understanding that 5% incremental issuance allowed to such FIIs would be applicable on an annual basis, till such time that the percentage reaches 40%, after which the entity will abide by the proposal applicable to entities above the 40% limit.

4. It was proposed that "Those FIIs with notional value of PNs outstanding (excluding derivatives) as a percentage of their AUC in India of more than 40% shall issue PNs only against cancellation / redemption / closing out of the existing PNs of at least equivalent amount." SEBI confirmed the proposal.
5. SEBI discussed several possible dates for implementation of the above proposals. Taking into account the fact that reporting of P-Notes/ODIs by FIIs is on a monthly basis and

the last available data with SEBI was in respect of September 2007, SEBI decided that the effective date for calculation of the AUC for the purpose of determining the notional value of PNs issued as a percentage of AUC, for the above proposals shall be September 30, 2007. It was decided that the proposal would however be effective after close of trading hours on October 25, 2007.

In view of the submissions of some PN-holders that they would like to register with SEBI directly, instead of participating through the P-Note route but are unable to adhere to the eligibility criteria prescribed under the FII Regulations, the SEBI Board has agreed to the following changes to the registration criteria

1. The "broad-based" criteria would now be modified to include entities having at least 20 investors, no single investor holding more than 49% (instead of 10% at present).
2. Track record of individual fund managers would be considered for the purpose of ascertaining the track record of a newly set up fund, subject to such fund manager providing its disciplinary track record details.
3. Issuance of ODIs/PNs would be limited to only "regulated" entities and not "registered" entities.
4. FII and sub-account registrations would be perpetual, subject to payment of fees.
5. SEBI further discussed the issue of registration of Pension Funds, Foundations, Endowments, University Funds and Charitable trusts or societies, which are not regulated with any regulatory authority and having regard to the nature of these entities, advised that these entities may be registered as FIIs without imposing the requirement of their being "regulated".

## Rules for NRIs to Invest in Indian Stock Market

### *Non Resident Indian (NRI)*

Non Resident Indian (NRI) means a person who has gone out of India or who stays outside India, in either case for or on taking up employment outside India, or for carrying on outside India a business or vocation outside India, or for any other purpose, in such circumstances as would indicate his intention to stay outside India for an uncertain period. Simply, it means a person resident outside India who is a citizen of India or is a Person of Indian Origin.

### *Person of Indian Origin (PIO)*

1. For the purposes of availing of the facilities of opening and maintenance of bank accounts and investments in shares/securities in India, Person of Indian Origin means any person:
  - a) who at any time, held an Indian passport; or
  - b) he/she or either of his/her parents or any of his /her grandparents was a citizen of India by virtue of the Constitution of India or the Citizenship Act, 1955(57 of 1955) or



- c) the person is a spouse of an Indian citizen or a person referred to in clause (a) or (b) above.
2. For investments in immovable properties;  
Person of Indian Origin means an individual (not being a citizen of Pakistan or Bangladesh or Afghanistan or Bhutan or Sri Lanka or Nepal or China or Iran):
    - a) who at any time, held an Indian passport or
    - b) who or either of whose father or whose grandfather was a citizen of India by virtue of the Constitution of India or the Citizenship Act, 1955 (57 of 1955).

Facilities available to NRIs:

1. Maintenance of bank accounts in India.
2. Investment in securities/shares of, and deposits with Indian firms/companies.
3. Investments in immovable properties in India.

### ***Bank Accounts:***

NRIs/PIOs are permitted to open bank accounts in India out of funds remitted from abroad, foreign exchange brought in from abroad or out of funds legitimately due to them in India, with Authorised Dealer.

Such accounts can be opened with banks specially authorised by the Reserve Bank in this behalf [Authorised Dealer (AD)].

There are three types of non-resident accounts:

### ***Rupee Accounts***

- 1) Non-Resident (External) Rupee Accounts (NRE Accounts)

NRIs and PIOs, are eligible to open NRE Accounts. These are rupee denominated accounts. Accounts can be in the form of savings, current, recurring or fixed deposit accounts. Accounts can be opened by remittance of funds in free foreign exchange. Foreign exchange brought in legally, repatriable incomes of the account holder, etc. can be credited to the account. Joint operation with other NRIs/PIOs is permitted. Power of attorney can be granted to residents for operation of accounts for limited purposes.

The deposits can be used for all legitimate purposes. The balance in the account is freely repatriable. Interest lying to the credit of NRE accounts is exempt from tax in the hands of the NRI.

Funds held in NRE accounts may be freely transferred to Foreign Currency Non Resident (FCNR) accounts of the same account holder. Likewise, funds held in FCNR accounts may be transferred to NRE accounts of the same account holders.

- 2) Ordinary Non-Resident Rupee Accounts (NRO Accounts)

These are Rupee denominated non-repatriable accounts and can be in the form of savings, current, recurring or fixed deposits. These accounts can be opened jointly with residents in India. When an Indian National/PIO resident in India leaves for taking up employment, etc.

outside the country, other than Nepal or Bhutan his bank account in India gets designated as NRO account.

The deposits can be used to make all legitimate payments in rupees. Interest income, from NRO accounts is taxable. Interest income, net of taxes is repatriable. Authorised Dealers may allow remittances up to US \$ 1 million, per calendar year, out of balances held in NRO account for any bonafide purpose.

### *Foreign Currency Accounts*

#### 3) Foreign Currency Non Resident (Banks) Accounts (FCNR (B) Accounts)

NRIs/PIOs are permitted to open FCNR (B) Accounts in Canadian Dollars and Australian dollars also besides the existing provision of maintaining such accounts in US dollars, Japanese Yen, Sterling Pounds, Euro. The account may be opened only in the form of term deposit for any of the three maturity periods viz; (a) one year and above but less than two years (ii) two years and above but less than three years and (iii) three years only.

Interest income is tax free in the hands of NRI until he maintains a non-resident status or a resident but not ordinarily resident status under the Indian tax laws.

FCNR(B) accounts can also be utilized for local disbursements including payment for exports from India, repatriation of funds abroad and for making investments in India, as per foreign investment guidelines.

Reserve Bank has granted general permission to NRIs/PIOs, for undertaking direct investments in Indian companies, under the Automatic Route, purchase of shares under Portfolio Investment Scheme, investment in companies and proprietorship/partnership concerns on non-repatriation basis and for remittances of current income. NRIs/PIOs do not have to seek specific permission for approved activities under these schemes.

The Reserve Bank of India has now further simplified financial transactions by NRIs/PIOs by granting general permissions to:

- 1) To resident individuals, partnership/proprietorship concerns to avail of interest bearing rupee loans from NRIs/PIOs out of funds remitted by them from abroad or out of funds held in their bank accounts in India, on non-repatriation basis.
- 2) NRIs/PIOs to transfer by way of gift shares held by them in Indian companies and to transfer by way of gift immovable property held by them in India subject to compliance with other applicable rules/regulations including the provisions of Foreign Contribution Regulations Act, 1976 by the charitable trust/organisation concerned.
- 3) All domestic public/private sector mutual funds for issue of Units to NRIs/PIOs on both repatriation as well as non-repatriation basis.
- 4) NRIs/PIOs to place deposits with Indian firms, on non-repatriation basis and with Indian companies including Non-banking financial companies on non-repatriation basis out of domestic sources.
- 5) NRIs/PIOs for sale of shares acquired under direct investment Schemes on stock exchanges in India.





- 6) NRIs /PIOs for transfer of shares, by way of sale under private arrangement to another NRI or to a resident.

NRIs/PIOs have been granted General Permission to invest in Government Securities and Treasury Bills.

Taking into account the facilities that are already available, and the above new measures, NRIs/PIOs will not have to seek specific permission of the Reserve Bank for a whole variety of approved financial/investment transactions. This should considerably reduce paper work and time taken for undertaking such transactions.

After the above changes come into effect, the areas in which facilities available to NRIs/PIOs will be the same as available to domestic residents except relating to investment by NRIs/PIOs in real estate/agriculture and plantation business, Chit Funds, Nidhis or Print Media.

NRIs can invest in India as under:

- 1) Investment under Automatic Route with repatriation benefits.
- 2) Investment with Government approval.
- 3) Other investments with repatriation benefits.
- 4) Investments upto 100% equity without repatriation benefits.
- 5) Other investments by NRIs without repatriation benefits.

### *Portfolio Investments:*

NRIs are permitted to make portfolio investment in shares/debentures (convertible and non-convertible) of Indian companies (except print media sector), with or without repatriation benefit provided the purchase is made through a stock exchange and also through designated branch of an authorised dealer. NRIs are required to designate only one branch authorised by Reserve Bank for this purpose. For NRIs to invest in Indian Stock Market, it is mandatory to have a PAN (Permanent Account Number) Card.

### *General Conditions For Purchase With Repatriation Or Non-repatriation Rights*

- Investments in equity shares and convertible debentures is permitted subject to an overall ceiling of (a) 5 per cent of the total paid-up equity capital/paid-up value of each series of convertible debentures of the company concerned; for individual NRIs (b) 10 per cent of the total paid-up equity capital/paid-up value of each series of the convertible debentures issued by the company concerned for all NRIs taken together both on repatriation and on non-repatriation basis.
- The purchase of shares and debentures under the scheme is required to be made at the ruling market price.
- Indian companies listed on recognised stock exchanges in India are however permitted to allow NRIs to acquire shares/debentures up to 24% instead of the 10% limit after a resolution in General Body and necessary information to RBI.



### *Investment On Non-repatriation Basis*

NRI's intending to invest on non-repatriation basis should submit the application to a designated branch of an Authorised Dealer (AD). The AD will grant general permission to purchase shares/debentures to NRI subject to the condition that the payment for such investment is received through inward remittance or from the investor's NRE/FCNR/NRO Account.

Securities acquired by NRI's under PI scheme on a non-repatriation basis can be sold without any permission on the floor of a stock exchange.

Dividend and interest income is fully repatriable.

### *Investment On Repatriation Basis*

NRI's intending to invest with repatriation benefits should submit the application to the designated branch of AD. The AD will grant to NRI permission for purchase of shares/debentures subject to the conditions that -

- The payment is received through an inward remittance in foreign exchange or by debit to the investor's NRE/FCNR account.
- Investment made by any single NRI investor in equity/preference shares and convertible debentures of any listed Indian company does not exceed 5% of its total paid-up equity or preference capital or 5% of the total paid-up value of each series of convertible debentures issued by it.
- NRI's take delivery of the shares/convertible debentures purchased and give delivery of the shares/convertible debentures sold under the Scheme.

NRI's can freely sell securities acquired by them with repatriation benefits, without any permission, through a stock exchange. Dividend and interest income is also fully repatriable.

### *Investment In The Units Of Domestic Mutual Funds On Non-repatriation/Repatriation Basis*

Same procedure as indicated in paragraphs for Investment on Non-Repatriation Basis and Repatriation Basis above is applicable. However, approvals already granted for portfolio investment in shares/debentures of Indian companies will also be valid for purchase of units of domestic mutual funds.

No investments can be made through foreign currency. All investments have to be in Indian Rupees. A convenient way to invest would be through the NRE Accounts. Mutual Funds Scheme can be gifted to relatives in India by NRI's. If the investment is made on a repatriation basis, the net income or capital gains (after tax) arising out of investment are eligible for repatriation subject to some compliance. If the investment is made on a non-repatriation basis, only the net income, that is, dividend (after tax), arising out of investment is eligible for repatriation.

Indexation benefit is made available to NRI's in case mutual fund units are held for more than twelve months.



### *Investment In Exchange Trade Derivative Contracts*

NRIs are allowed to invest in Exchange Trade Derivative Contracts approved by SEBI from time to time of Rupee Funds held in India on non-repatriation basis subject to the limits prescribed by SEBI.

Shares purchased by NRIs on the stock exchange under the Portfolio Investment Scheme cannot be transferred by way of sale under private arrangement or by way of gift to a person resident in India or outside India without prior approval of RBI.

### *Investments Not Permitted By NRIs:*

Investments in shares or convertible debentures of an Indian Company engaged in following type of activities are not permitted.

- Chit Fund or Nidhi Company
- Agricultural or Plantation activities
- Real Estate Business
- Construction of farm houses or
- Dealing in Transfer of Development Rights (TDRs).



## Annexure 8-1: List of companies with respective ceilings as of November 2007

**LIST OF COMPANIES WHICH HAVE RAISED THE CEILING FROM 10% IN RESPECT OF NRIs INVESTMENTS UNDER PIS (W.E.F AS ON NOVEMBER 12, 2007)**

1	Alembic Chemical Works Co. Ltd.	42	India Securities Ltd.
2	Amar Investments Ltd., Calcutta.	43	Indiabulls Financial Services Ltd
3	Anglo- India Jute Mills Co. Ltd.	44	Igarashi Motors India Ltd
4	Arvind Mills, Ahmedabad.	45	IVP Ltd
5	Ashima Syntex Ltd, Ahmedabad.	46	Jagatjit Industries Ltd,
6	Ashoka Viniyoga Ltd.	47	Jai Parabolic Springs Ltd.
7	Bharat Nidhi Ltd.	48	Jaysynth Dyechem Ltd.
8	BLB Shares & Financial Services Ltd	49	Jindal Strips Ltd.
9	BPL Ltd.	50	Jindal Iron & Steel Co. Ltd.
10	Burr Brown (India) Ltd	51	JJ Spectrum Silk Ltd.
11	Camac Commercial Company Ltd.	52	Kartjikeya Paper & Boards Ltd.
12	Ceenik Exports (India) Ltd.	53	K Sera Sera Productions Ltd
13	Cifco Finance Ltd., Mumbai.	54	Lakhani India Ltd.
14	Classic Financial Services & Enterprises Ltd, Calcutta.	55	M.P. Agro Fertilisers Ltd., Bhopal.
15	CPPL Ltd, (Reliance Ind. Infrastructure Ltd) Mumbai.	56	Macleod Russel (I) Ltd.
16	Crest Communication Ltd.	57	Matsushita Television and Audio India Ltd.
17	CRISIL	58	Max India Ltd
18	DCM Ltd.	59	Mazda Enterprises Ltd., Mumbai.
19	DCM Shriram Consolidated Ltd.	60	Media Video Ltd.
20	Dharani Sugars & Chemicals Ltd	61	Multimetals Ltd., Mumbai
21	Dolphin Offshore Enterprises ( I ) Ltd.	62	National Steel Industries Ltd.
22	Emco Ltd.	63	Nicholas Laboratories India Ltd., Mumbai.
23	Essar Oil Ltd.	64	O.P. Electronics Ltd., Mumbai.
24	Essar Shipping Ltd., B'lore	65	Oriental Housing Development Finance Corp. Ltd.
25	Essar Steel Ltd.	66	Pabacea Biotec Ltd.
26	Eveready Industries India Ltd.	67	Padmini Technologies Ltd.
27	Fabworth (I) Ltd.	68	Pearl Polymers Ltd., New Delhi.
28	Federal Bank Ltd.	69	Piramal Healthcare Ltd.
29	Ferro Alloys Corporation Ltd., Tumsar.	70	PNB Finance & Industries Ltd
30	Gammon India Ltd	71	Rajath Leasing & Finance Ltd.
31	Grasim Industries Ltd.	72	Rama Petrochemicals Ltd.
32	GTL Ltd.(formerly Global Tele-Systems Ltd.)	73	Rajesh Exports Limited
33	GTL Infrastructure Ltd	74	Rama Phosphates Ltd.
34	Hamco Mining & Smelting Ltd.	75	Reliance Industries Ltd., Mumbai.
35	HCL Infosystems Ltd.	76	Rishra Investment Ltd., Calcutta
36	HEG Ltd	77	Rossell Industries Ltd., Calcutta.
37	Hindustan Development Corp. Ltd, Calcutta.	78	Sahu Properties Ltd
38	Hindustan Nitroproducts (Gujarat) Ltd.	79	Sanghvi Movers Ltd
39	Hindustan Transmission Products Ltd., Mumbai	80	Saurashtra Paper & Board Mills Ltd.
40	HMG Industries Ltd., Mumbai.	81	Saw Pipes Ltd.
41	Indiabulls Real Estate Ltd.	82	Sayaji Hotel Ltd.
		83	SB & T International Ltd
		84	Sharyans Resources Ltd.

Cont.



*Cont.*

85	Shanti Gears Ltd.	98	The Investment Trust of India Ltd.
86	Shibir India Ltd., Calcutta	99	The Morarjee Gocaldas Spinning & Weaving Co Ltd, Mumbai.
87	Shrenuj & Company Ltd.	100	Tolani Bulk Carrier Ltd.
88	Shriram Industries Enterprises Ltd., N. Delhi.	101	Unitech Limited.
89	Silverline Industries Ltd.	102	Uniworth International Ltd.
90	Sonata Software Ltd.	103	Vaibhav Gems Ltd.
91	SRF Ltd.	104	Valecha Engineering Ltd.
92	Sterling Lease Finance Ltd., Mumbai.	105	VisualSoft Technologies Ltd.
93	Sujana Metal Products Ltd	106	Weltermann International Ltd.
94	Svam Software Ltd.	107	Woolworth (India) Ltd.
95	Synthetics and Chemicals Ltd., Mumbai.	108	Yes Bank Ltd.
96	The Champdany Industries Ltd., Calcutta.	109	Zora Pharma Ltd.
97	The Dharamsi Morarji Chemical Co. Ltd .		

Upto 17%

1	Garware Shipping Corporation Ltd.
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**LIST OF COMPANIES IN WHICH FII INVESTMENT IS ALLOWED UPTO 30% OF THEIR PAID UP CAPITAL UNDER PIS (w.e.f 26th November, 2007)**

1	Asian Paints (India) Ltd	10	Orchid Chemicals and Pharmaceuticals Ltd
2	Capital Trust Ltd	11	Penta Soft Tec(Pentafor Communications Ltd)
3	Container Corporation of India	12	Polyplex Corporation Ltd
4	Divi's Laboratories Ltd	13	Ranbaxy Laboratories Ltd
5	Ferro Alloys Corporation Ltd	14	Shasun Chemicals Ltd
6	Garware Polyester Ltd	15	Sonata Software Ltd
7	GIVO Ltd (formerly KB & T Ltd)	16	The Paper Products Ltd
8	Infotech Enterprises Ltd	17	Vikas WSP Ltd
9	Mahindra Gesco Developers Ltd		

**LIST OF COMPANIES IN WHICH FII INVESTMENT IS ALLOWED UPTO 40% OF THEIR PAID UP CAPITAL**

1	Adlabs Films Ltd.	17	Padmini Technologies Ltd.
2	Aftek Infosys Ltd.	18	Rajasthan Spinning & Weaving Mills Ltd
3	Balaji Telefilms Ltd.	19	Rico Auto Industries Ltd.
4	Bharat Forge Ltd	20	Shanti Gears Ltd.
5	Burr Brown (India )Ltd	21	Silverline Technologies Ltd.
6	Cipla Ltd.	22	Suven Life Sciences Ltd.
7	Elbee Services Ltd	23	The India Cements Ltd.
8	Glenmark Pharmaceuticals Ltd	24	The Indian Hotels Company Ltd
9	Gujarat Ambuja Cements Ltd	25	Thiru Arooran Sugars Ltd.
10	HEG Ltd	26	UTV Software Communications Ltd
11	Hero Honda Motors Ltd	27	Visual Soft Technologies Ltd.
12	Jindal Steel & Power Ltd	28	Ways India Ltd.
13	Jyoti Structures Ltd	29	Welspun Gujarat Stahal Rohren Ltd
14	Maars Software International Ltd	30	Welspun India Ltd
15	Max India Ltd	31	Zicom Electronic Security Systems Ltd
16	Mount Everest Mineral Water Ltd		

*Cont.*

*Cont.***LIST OF COMPANIES IN WHICH FII INVESTMENT IS ALLOWED UPTO 49% OF THEIR Paid Up Capital**

1	Alok Industries	28	McDowell & Co Ltd
2	Auribindo Pharma Ltd.	29	NIIT Ltd.
3	Arvind Mills Ltd	30	NIIT Technologies Ltd.
4	Bajaj Hindustan Ltd	31	Panacea Biotec Ltd.
5	Balakrishna Industries Ltd	32	Parekh Aluminex Ltd.
6	Blue Dart Express Ltd	33	Reliance Capital Ltd.
7	Core Projects & Tech Ltd	34	Reliance Energy Ltd.
8	CRISIL	35	Reliance Industries Ltd.
9	Digital GlobalSoft Ltd.	36	Reliance Petroleum Ltd.
10	Dr. Reddy's Laboratories Ltd.	37	SB & T International Ltd.
11	D. S. Kulkarni Developers Ltd.	38	Sadbhav Engineering Limited
12	Federal Bank Ltd.	39	Sintex Industries Ltd.
13	Financial Technologies (I) Ltd	40	S. Kumars Nationwide Ltd
14	HDFC Bank Ltd	41	Soffia Software Ltd
15	Himachal Futuristic Communications Ltd.	42	Strides Arcolabs Ltd
16	Hindustan Lever Ltd.	43	Sun Pharmaceutical Industries Ltd.
17	Hughes Software Ltd.	44	Swaraj Mazda Ltd
18	ICICI Bank Ltd.	45	The South Indian Bank Ltd
19	Ind-Swift Laboratories Ltd.	46	United Breweries (Holdings) Ltd
20	Infrastructure Development Finance Co Ltd	47	United Breweries Ltd
21	Jain Irrigation Systems Ltd.	48	United Phosphorus Ltd
22	Karnataka Bank Ltd.	49	UTI Bank Ltd.
23	LIC Housing Finance Ltd.	50	Vimta Labs Ltd.
24	Marksans Pharma Ltd.	51	Wockhardt Ltd.
25	Mahindra & Mahindra Ltd.	52	Yes Bank Ltd.
26	Mastek Ltd	53	Zeefilms Ltd.
27	Max India Ltd		

**LIST OF COMPANIES IN WHICH FII INVESTMENT IS ALLOWED UPTO LIMITS FIXED BY COMPANIES AS INDICATED AGAINST THEIR NAMES**

1	Amtek Auto Ltd (74%)	16	CREW B.O.S. Products Ltd. -(49%)
2	Advanta India Limited 49%	17	DCM Ltd - (49%)
3	Amtek India Ltd (74%)	18	Development Credit Bank Ltd. - (49%)
4	Ahmednagar Forgings Ltd (74%)	19	Emco Ltd - (49%)
5	Anant Raj Industries Ltd. (40%)	20	Escorts Ltd - (49%)
6	ANG Auto Ltd (49%)	21	Era Construction (India) Ltd - (40%)
7	Apollo Hospitals (74%)	22	Fedders Lloyd Corporation Limited (74%)
8	Aptech Ltd (74%)	23	Gammon India Ltd - (49%)
9	Bombay Rayon Fashions Ltd (40%)	24	Garware Offshore Services Ltd-(60%)
10	Bajaj Auto Finance Ltd (30%)	25	Godrej Consumer Products Ltd (35%)
11	Balrampur Chini Mills Ltd (60%)	26	Great Offshore Limited-(49%)
12	Core Projects & Technologies Ltd.(74%)	27	GTL Ltd. – (74%)
13	Cranes Software International Limited (60%)	28	GTL Infrastructure Ltd. – (74%)
14	Crest Communication Ltd (50%)	29	Housing Development Finance Corporation Ltd. – (74%)
15	CEESC Ltd. (49%)		

*Cont.*

Cont.

30	HTMT Global Solutions Ltd.-(74%)	59	Prajay Engineers Syndicate Ltd (74%)
31	Igarashi Motors India Ltd. - (40%)	60	Prithvi Nandy Communications Ltd (60%)
32	Il & FS Investment Managers Ltd- 74%	61	Provogue (India) Ltd. (49%)
33	ICSA (INDIA) Ltd. - (49%)	62	PTC India Ltd. - (40%)
34	I-Flex Solutions Ltd. (60%)	63	Punjab Tractors Ltd. (64%)
35	Infrastructure Development Finance Company Limited (74%)	64	PVR Ltd (50%)
36	IOL Broadband Ltd. - (49%)	65	Pyramid Saimira Theatre Ltd. (40%)
37	Jaiprakash Associates Ltd. (45%)	66	Rajesh Exports Ltd (49%)
38	JSW Steel Limited – (49%)	67	Rolta India Ltd (75%)
39	Jupiter Bioscience Ltd. - (70%)	68	Sakthi Sugars Ltd (50%)
40	Kamdhenu Ispat Ltd. (49%)	69	Sanghvi Movers Ltd.(35%)
41	KEI Industries Ltd. - (49%)	70	Satnam Overseas Ltd (51%)
42	Kotak Mahindra Bank Ltd (30%)	71	Satyam Computer Services Ltd (60%)
43	Laxmi Energy & Foods Ltd (Lakshmi Overseas Industries Ltd) (49%)	72	Shree Renuka Sugars Ltd. – (49%)
44	Lloyd Electric & Engineering Ltd (74%)	73	Sical Logistics Ltd. (49%)
45	Logix Microsystems Ltd - (74%)	74	Sintex Industries Ltd. (74%)
46	Mahindra & Mahindra Financial Services Ltd (35%)	75	Srei Infrastructure Finance Ltd (64%)
47	McDowell Holdings Ltd -(49%)	76	Subex Systems Ltd. (74%)
48	Mercator Lines Ltd (70%)	77	Sun Pharma Advance Research Company Ltd. (49%)
49	Moser Baer India Ltd (74%)	78	SSI Ltd (74%)
50	Nagarjuna Construction Company Ltd. (74%)	79	Tata Motors Ltd.(35%)
51	NITCO Tiles Ltd. (49%)	80	Tata Tea Ltd (35%)
52	Northgate Technologies Ltd (74%)	81	The Tata Power Company Ltd (35%)
53	Om Metals Infra projects Ltd.(49%)	82	The Jammu & Kashmir Bank Ltd. (46.85%)
54	Opto Circuits (India) Ltd (40%)	83	Tanla Solutions Ltd. (49%)
55	Paramount Communications Ltd(39%)	84	Unichem Laboratories Ltd (39%)
56	Pati computers Ltd (74%)	85	Vaibhav Gems Ltd (60%)
57	Pioneer Investcorp Limited (40%)	86	Vakrangee Softwares Ltd. (49%)
58	The Phoenix Mills Limited. (49%)	87	Venus Remedies Limited- (49%)
		88	Voltas Limited (30%)
		89	Zicom Electronic Security System Ltd(74%)

**LIST OF COMPANIES IN WHICH FII INVESTMENT IS ALLOWED UPTO SECTORAL CAP/ STATUTORY CEILING OF THEIR PAID UP CAPITAL**

1	AZTEC Software and Technology Services Ltd - (100%)	11	IVRCL Infrastructures & Projects Ltd (100%)
2	Educomp Solutions Limited. –(100%)	12	India Infoline Ltd. (100%)
3	Indiabulls Real Estate Limited –(100%)	13	Mascon Global Ltd. – (100%)
4	Gateway Distriparks Ltd - (100%)	14	Mphasis BFL Ltd – (100%)
5	Geodesic Information Systems Ltd- (100%)	15	Pentamedia Graphics Ltd.- (100%)
6	Geometric Software Solutions Ltd – (100%)	16	Pentasoftware Technologies Ltd. – (100%)
7	HCL Infosystems Ltd. – (100%)	17	Reliance Communications Ltd – (74%)
8	Hexaware Technologies Ltd – (100%)	18	Sujana Metal Products Ltd - (100%)
9	Indiabulls Financial Services Ltd – (100%)	19	Sujana Towers Limited-(100%)
10	Infosys Technologies Ltd. – (100%)	20	Sujana Universal Industries Ltd - (100%)
		21	Unitech Limited – (100%)

Cont.



*Cont.*

**LIST OF PRINT MEDIA COMPANIES IN WHICH FDI / FII INVESTMENT IS ALLOWED**

1	Jagran Prakashan -26%	3	Network 18 Fincap Ltd -26% (FIIs upto 13%)
2	Deccan Chronicle Holdings Ltd – 24% (FIIs upto 14%)		

**Companies in which overall FII ceiling has reached and no further purchases are allowed**

**Companies falling under 24 %**

1	Pantaloon Retail (India) Ltd	2	Gujarat NRE Coke Limited
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**Companies falling under 30 %**

1	None
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**Companies falling under 49% limit**

1	None
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**Companies where NRI/PIO Investment has already reached 10 % and no further purchases can be allowed**

1	Chandraprabhu Housing Ltd	8	IQMS Software Ltd
2	Coxswain Technology Ltd (Kaveri Biotech Ltd)	9	Madras Aluminium Co. Ltd.
3	Dev Sugars Ltd	10	Rama Phosphates Ltd
4	Dharendra Industries Ltd	11	SGN Telecom
5	DSQ Biotech Ltd	12	SPL Ltd.
6	Fintech Communications	13	Squared Biotech Ltd
7	Global Trust Bank Ltd	14	Tai Industries Ltd.

**Companies in which the Ban limit in respect of maximum permissible foreign holding including GDR/ADR/FDI/NRI/PIO/FII Investment as stipulated by Government has been reached.**

1	Television Eighteen Ltd	3	Network 18 Fincap Ltd
2	Zee News Ltd		

**Companies in which the Caution limit in respect of maximum permissible foreign holding including GDR/ADR/FDI/NRI/PIO/FII Investments as stipulated by Government has reached.**

1	Entertainment Network( I) Ltd
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**Print Media Companies in which the Caution limit in respect of maximum permissible foreign holding including FDI/NRI/PIO/FII Investments as stipulated by Government has reached.**

1	Jagran Prakashan Pvt Ltd	2	Deccan Chronical Holdings Ltd.
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*Cont.*





*Cont.*

**Print Media Companies in which the Ban limit in respect of maximum permissible foreign holding including FDI/NRI/PIO/FII Investments as stipulated by Government has reached.**

1	Mid-Day Multimedia Limited	
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**Public Sector banks in which 20% limit has been reached and no further investments are permitted**

1	Bank of Baroda	3	Punjab National Bank
2	Oriental Bank of Commerce	4	State Bank of India
		5	Union Bank of India

**Private Sector Banks in which the Caution limit in respect of maximum permissible foreign holding including GDR/ADR/FDI/NRI/PIO/FII Investments as stipulated by Government has reached**

1	ING Vysya Bank Limited	
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**Private Sector Banks in which the Ban limit in respect of maximum permissible foreign holding including GDR/ADR/FDI/NRI/PIO/FII Investments as stipulated by Government has reached**

1	None	
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**Private Sector Banks in which the Caution limit in respect of FIIs Investment has reached.**

1	South Indian Bank Ltd	
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**Private Sector Banks in which the Ban limit in respect of FIIs Investment has reached.**

1	None	
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**Companies where 38% FII limit has been reached and further purchases are allowed with prior approval of RBI.**

1	None	
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**Companies where 28% FII limit has been reached and further purchases are allowed with prior approval of RBI.**

1	None	
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*Cont.*

*Cont.*

**Companies where 22% FII limit has been reached and further purchases will be allowed with prior approval of RBI**

1	Indraprastha Gas Ltd	4	Tata Steel Limited
2	Grasim Industries Ltd	5	Dhanalakshmi Bank Ltd
3	Sesa Goa Limited.	6	Jindal South West Holdings Ltd
		7	Bhagwati Banquets and Hotels Limited

**Companies where the NRI investment has reached the trigger point of 8 % and further purchases are allowed only with prior permission of RBI**

1	Codura Exports Ltd	4	Garden Silk Mills Ltd.
2	Dalmia Cement (Bharat) Ltd	5	Nexus Software Ltd
3	Deccan Cements Ltd	6	Premier Explosives Ltd

**Public Sector banks in which 18% caution limit has been reached and further purchases by FIIs/NRIs/PIOs are allowed only with prior permission of RBI**

1	Andhra Bank	4	Vijaya Bank
2	Canara Bank	5	Allahabad Bank
3	Indian Overseas Bank		

**Source : RBI**



## Knowledge Initiatives

Several initiatives have been taken over the last few years with a view to develop the skills of market intermediaries, educate the investors and promote high quality research in the securities market. In order to further improve the skills and widen the knowledge base of people involved in the securities market, SEBI has set up the National Institute of Securities Markets (NISM). NISM would design and implement the entire gamut of educational initiatives, including education, training, certification, research and consultancy in the area of securities market and allied subjects for securities market professionals in India and neighboring countries.

### Quality Intermediation

In some of the developed and developing markets, there is a system of testing and certification for persons joining market intermediaries. This ensures that these personnel have a minimum required knowledge about the market and the existing regulations. The benefits of this system are wide spread. While the intermediaries are assured of qualified staff, the employees get an opportunity to improve their career prospects. This in turn instills confidence in the investors to be associated with the securities market.

The formal educational or training programme on securities markets is not adequate to cover their areas of operations. For instance, no academic course teaches how to maintain depository accounts or to sell mutual fund products, issue contract notes or clear and settle trades on a stock exchange. As a result, a need for certification was being increasingly felt by the regulators as well as by the securities industry.

### *NSE's Certification in Financial Markets*

National Stock Exchange's Certification in Financial Markets (NCFM), a testing and certification mechanism, has become extremely popular and is sought after by the candidates as well as employers due to its unique on-line testing and certification programme. It offers all the certifications mandated by SEBI, NSDL, AMFI, FIMMDA and NSE itself. The entire process from generation of question paper, invigilation, testing, assessing, scores reporting and certifying is fully automated—there is absolutely no human intervention. It allows tremendous flexibility in terms of testing centres, dates and timing by providing easy accessibility and convenience to candidates as they can be tested at any time and from any location. The purpose is to test the practical knowledge and



skills that are required to operate in the financial markets, in a very secure and unbiased manner.

NCFM offers a comprehensive range of modules covering many different areas in finance. Some of these modules enjoy regulatory and /or industry patronage. NCFM currently tests expertise in the modules mentioned below in Table 9-1 and Table 9-2.

**Table 9-1: NCFM currently tests expertise in the following modules**

Sl. No.	Name of Modules
1	Financial Markets: A Beginners' Module
2	Derivatives Market (Dealers) Module
3	Capital Market (Dealers) Module
4	Securities Market (Basic) Module
5	FIMMDA-NSE Debt Market (Basic) Module
6	Surveillance in Stock Exchanges Module
7	NSDL - Depository Operations Module
8	Commodities Market Module
9	AMFI - Mutual Fund (Basic) Module
10	AMFI - Mutual Fund (Advisors) Module
11	Corporate Governance Module
12	Compliance Officers (Brokers) Module
13	Compliance Officers (Corporates) Module
14	Information Security Auditors Module (Part-1)
	Information Security Auditors Module (Part-2)

Through a system of certification, it can be ensured that intermediation is carried out by trained personnel. This would induce investors to use their services. Industry/SROs/Regulators have made a modest beginning, but adequate attention is not given to this dimension of the market. Though NCFM has been offering a wide range of modules, there is still scope to offer such certifications for each category of intermediary/activity. SEBI also specified certification as a mandatory requirement for all operational level employees for all types of intermediaries. Thus, it is required that all new employees joining the intermediaries and all intermediaries joining the market, should be certified. The employees should also be required to update their skills and expertise by seeking certification at intervals of five years. There should be an arrangement to maintain a database of certified professionals and enforce a code of conduct for them so as to enable prospective employers access the database to meet their personnel requirements. This would enhance the knowledge and skill of the intermediaries (including regulators and SROs), who, in turn, can educate and guide the investors in securities and issuers of securities.

## Research Initiatives

Knowledge management is very important in today's competitive world. It acts as a tool which helps to acquire the cutting edge in a globalised financial market. The regulators and SROs have been actively promoting academicians and market participants to carry out research about various topics in the various segments of securities market.



Table 9-2: NCFM Modules Test Details

Sr. No.	Name of Module	Total Module Fees (Rs.)	Test Duration (in minutes)	No. of Questions	Maximum Marks	Pass Marks (%)	Certificate Validity (in years)
1	Financial Markets: A Beginners' Module	500	60	50	100	50	5
2	Derivatives Market (Dealers) Module	1000	120	60	100	60	3
3	Capital Market (Dealers) Module	1000	105	60	100	50	5
4	Securities Market (Basic) Module	1000	105	60	100	60	5
5	FIMMDA-NSE Debt Market (Basic) Module	1000	120	60	100	60	5
6	Surveillance in Stock Exchanges Module	1000	120	50	100	60	5
7	NSDL-Depository Operations Module	1000	75	60	100	60 *	5
8	AMFI-Mutual Fund (Basic) Module	1000	90	62	100	50	No limit
9	AMFI-Mutual Fund (Advisors) Module	1000	120	72	100	50	5
10	Commodities Market Module	1200	120	60	100	50	3
11	Corporate Governance Module	1000	90	100	100	60	5
12	Compliance Officers (Brokers) Module	1000	120	60	100	60	5
13	Compliance Officers (Corporates) Module	1000	120	60	100	60	5
14	Information Security Auditors Module (Part-1)	1500	120	90	100	60	2
	Information Security Auditors Module (Part-2)	1500	120	90	100	60	

\* Candidates securing 80% or more marks in NSDL - Depository Operations Module only are awarded 'Certified Trainer' certificate. Details of the certifications are given on NSEs website [www.nseindia.com](http://www.nseindia.com) under the title 'NCFM'



### *NSE Research Initiative*

NSE administers a scheme called the NSE Research Initiative. This aims at improving the market efficiency further. The initiative fosters research with a purpose to support and facilitate stock exchanges to design market microstructure, to help participants frame their strategies, assist regulators to frame regulations, and in general to broaden the knowledge horizon of the securities market. The initiative has received tremendous response from the academics as well as the market participants from within and outside the country. The studies completed under the research initiative are presented in Table 9-3.

**Table 9-3: Studies under the NSE Research Initiative**

SL. No.	Title of Study
<i>Completed Papers</i>	
1	Econometric Estimation of Systematic Risk of S&P CNX Nifty Constituents
2	Stock Market Development and its Impact on the Financing Pattern of the Indian Corporate Sector
3	Efficiency of the Market for Small Stocks
4	Determinants of Financial Performance of Indian Corporate Sector in the Post-Liberalization Era: An Exploratory Study
5	Should pension funds invest in equities? An analysis of risk-return tradeoff and asset allocation decisions
6	Changes in liquidity following exposure to foreign shareholders: The effect of foreign listings, inclusion in country funds and issues of American Depositary Receipts
7	Is the Spread Between E/P Ratio and Interest Rate Informative for Future Movement of Indian Stock Market?
8	Merger Announcements and Insider Trading Activity in India: An Empirical Investigation
9	Achieving an Individual Investor Friendly System using the power of the Internet
10	Improved Techniques for using Monte Carlo in VaR estimation
11	Short selling and its Regulation in India in International Perspective
12	Empirical investigation of multi-factor asset pricing models using Artificial Neural Network
13	Idiosyncratic Factors in Pricing Sovereign Bonds: An Analysis of the Government of India Bond Market
14	The Extreme Value Volatility Estimators and Their Empirical Performance in Indian Capital Markets
15	Equity Market Interlinkages: Transmission of Volatility - A Case Of US and India
16	Institutional Investors and Corporate Governance in India
17	Dividend policy of Indian Corporate Firms : An Analysis of Trends & Determinants
18	Market Microstructure Effects of Transparency of Indian Banks
19	Futures Trading, Information and Spot Price Volatility of NSE-50 Index Futures Contract
20	Measuring productive efficiency of stock exchanges using price adjustment coefficients
21	Do Futures and Options trading increase stock market volatility?
22	Section switching stock market price effect in the Indian capital market and the policy implications thereof
23	Study of Common Stochastic Trend and Co-integration in the Emerging Markets - A case study India, Singapore and Taiwan
24	Market Discipline in the Indian Banking Sector: An Empirical Exploration
25	Conditional CAPM and Cross sectional returns - A study on Indian Securities Market

*Cont.*



*Cont.*

- 26 Evaluating index fund implementation in India
- 27 Measuring Volumes in the Indian Financial Markets Some Terminological and Conceptual Issues
- 28 Corporate Social Responsibility Initiatives by NSE NIFTY Companies - Content, Implementation Strategies & Impact.
- 29 Measures for Improving Common Investor Confidence in Indian Primary Market : A Survey
- 30 Informational Content of Trading Volume And Open Interest – An Empirical Study of Stock Options Market In India
- 31 An analysis of the Dynamic Relationships Between South Asian and Developed Equity Markets
- 32 Corporate Governance and Market reactions
- 33 Insider Ownership, Corporate Governance and Corporate Performance
- 34 Improving Index Fund Implementation in India
- 35 Seasoned Capital Offerings: Earnings Management and Long-Run Operating Performance of Indian Firms
- 36 Volatility Spillovers Across Stock, Call Money And Foreign Exchange Markets
- 37 Understanding the Microstructure in Indian Markets
- 38 Price and Volume Effects of S&P CNX Nifty Index Reorganization
- 39 Lead-Lag relationship between Equities and Stock Index Futures Market and its variation around Information Release: Empirical Evidence from India
- 40 On The New Transformation-Based Approach To Measuring Value-At-Risk: An Application To Forex Market In India
- 41 Optimal Hedge Ratio and Hedging Effectiveness of Stock Index Futures : Evidence from India
- 42 Evaluating Corporate Governance Risk: A Fuzzy logic approach
- 43 Do the S&P CNX Nifty Index and Nifty Futures Really Lead/Lag? Error Correction Model: A Cointegration Approach
- 44 Under-Pricing and long run performance of Initial Public Offerings in Indian Stock Market

## *Data Dissemination*

NSE compiles, maintains and disseminates high quality data to market participants, researchers and policy-makers. This acts as a valuable input for formulating strategy, doing research and making policies. NSE has been maintaining the historical database of all the details of every order placed on its trading system and every trade executed. This data is disseminated through monthly CD releases which are priced at a nominal rate. The following information is available on CDs:

- Summary information about each security's high price, low price, closing price and last traded price, turnover (value and volume), and number of trades for each trading day.
- Database of stock market indices computed by IISL. Both intra day and end of day information is available for Nifty 50, Nifty Junior and Defty.
- Snapshots of limit order book of NSE at different points during a day.
- Database of circulars issued during the month. Every development in the market in terms of market design is documented in these circulars.

Besides, NSE's web-site itself is a storehouse of information.



## Investor Awareness and Education

NSE has been carrying out investor awareness and education seminars on a regular basis in various centres across the country. Informative brochures and booklets have been prepared for educating investors which are distributed free of cost at the seminars. Around 100 investor seminars are conducted each year. Besides the investor awareness seminars which are being carried out regularly, some of the other initiatives in investor education and awareness are as follows :-

### *Financial Literacy Campaign :*

There is a large population in the country with little or no knowledge about finance and money management. Keeping this in mind, NSE launched a financial literacy campaign among the students of higher secondary schools and colleges. The financial literacy campaign was launched in a modest way in Kerala in October 2006. The overwhelming response received, especially from students, encouraged the roll out of this campaign on a wider scale. The financial literacy seminars are now being organized on a state - wide basis, in towns and semi urban areas. So far, in 951 institutions the financial literacy campaign has been carried out. A presentation of about one and a half hours on finance and financial markets is made by an instructor to the students, which is followed by question and answer sessions by the students. In many colleges the presentations are made in the regional languages. Over 4,700 financial literacy seminars have been carried out in Kerala, Karnataka, Tamil Nadu, Andhra Pradesh and Gujarat. Over 2,36,000 students have participated in these financial literacy seminars. Students are from Commerce, Science, Arts, Engineering etc. background.

### *CNBC Pehla Kadam :*

India's first dedicated business and consumer channel - CNBC Awaaz - launched 'Pehla Kadam' in partnership with NSE and NDSL. It is an initiative to create a platform for answering the various market related queries which first time investors have. The Honorable Finance Minister, Shri. P. Chidambaram launched the event on July 19, 2006 at New Delhi. CNBC Awaaz 'Pehla Kadam' takes into account the challenges that first time investors face while venturing into the stock market and endeavors to educate them about the intricacies involved with various aspects of financial planning, investment and risk management, importance of equities and the basics of equity markets etc.

*A weekly show on CNBC Awaaz :* A weekly 30 minutes show is featured on the CNBC Awaz channel every weekend on Saturdays (12:30 pm and 7:00 pm) and on Sundays (6:30 pm). Various subjects and topics of interests of first time investors, such as opening a demat account, investing in IPOs, mutual funds, market intermediaries, analyzing companies etc. are discussed. Industry experts are called to discuss the topics and simplify the subjects for the first time investors.

*Learner's kit for investors :* A learner's kit is available which act as a handy guide and answers queries related to investment basics alongwith insights and information on the





markets, all prepared in an easy to understand format. This would be given to all new investor opening a demat account with NSDL

*The Pebla Kadam website* : A website has been developed with a focus on giving basic information, guiding and educating first time investors. It also helps investors to post their queries through the website which are then answered by a panel of experts.

### *CBSE - NSE joint certification in Financial markets :*

In another a recent initiative, CBSE and NSE have introduced a joint certification in Financial Markets for std. XI and XII. This is perhaps the first such exercise to introduce financial literacy in schools and would provide an early exposure to young adults to the world of finance. The course, titled "Financial Markets Management" has been introduced by CBSE for academic year 2007 - 2008. Students can opt for this course instead of Science, Arts, Commerce etc. The new course comprises of various subjects, such as Languages, Economics, Business Studies, Accounting for Business etc. Besides these, two financial market related subjects, "Introduction to Financial Markets - I" and "Introduction to Financial Markets - II" will be taught in Std. XI and XII respectively. Students opting for the course would be required to take the NCFM on-line tests in "Financial Markets : A Beginners Module" in Std. XI and both "Capital Markets (Dealers) Module and Derivatives Markets (Dealers) Module", in Std. XII.

### *Comic book on 'Understanding the Stock Market index' :*

A comic book on the index 'Understanding the stock market index' has been developed for distributing among investors, students etc. as a part of educating them on the stock index. This comic book explains in a very simple and lucid language the intricacies of what is an index, how to interpret the index numbers, how an index is constructed, what are the uses of the indexes etc. The comic book has also been inserted as a supplement in the recent issues of Readers Digest and India Today magazines.

### *Advertisements on the Nifty 50 index in magazines :*

The index has many uses in the financial markets today besides being a barometer of the economy. In order to educate the general readers on the index and to build the awareness of the Nifty 50 a series of advertisement campaign was carried out in 15 leading magazines of the country in English and regional languages.

### *Investor protection advertisements*

Various misleading and incorrect information keep appearing on some websites, print and electronic media which may confuse investors. To caution investors against the various rumours, recommendations and promises of large returns etc., advertisements have been issued in the leading newspapers of the country. Through these advertisements investors are advised not to be misled by rumours or inducements / advertisements that promise large returns and to do a thorough evaluation before trading in any security.

## Investor Protection Fund

Despite the various efforts taken by the regulators and exchange, some problems do arise. A cushion in the form of Investor Protection Funds (IPFs) is set up by the stock exchanges. The purpose of the IPF is to take care of investor claims, which may arise out of non-settlement of obligations by the trading members. The IPF is also used to settle claims of such investors whose trading member has been declared a defaulter. Further, the stock exchanges have been allowed to utilise interest income earned on IPF for investor education, awareness and research.

The Companies Act, 1956 also provides for an Investor Education and Protection Fund (IEPF) to protect the interests of small shareholders. The fund is utilised for conducting direct education programmes, organising seminars, promoting research activities and providing legal assistance to genuine investor litigants through investor grievances forums. The fund is managed by a committee comprising both government and non-government members. The IEPF is constituted from grants received from the government and from the unclaimed dividends, share application money, matured deposits and unclaimed debentures of the corporates.

IEPF provides financial assistance to any organisation/entity/person with a viable project proposal on investors' education and protection. The eligible entities are those registered under the Societies Registration Act or formed as Trusts or incorporated Companies. They should be in existence for a minimum period of 2 years employing a minimum of 20 members and be governed by properly established rules, regulations and or by-laws prior to its date of application for registration. In addition, they should not be a profit making entity. 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.

### **During 2007, following research papers were completed.**

- 1) Evaluating Corporate Governance Risk: A Fuzzy logic approach
- 2) Optimal Hedge Ratio and Hedging Effectiveness of Stock Index Futures : Evidence from India
- 3) Do the S&P CNX Nifty Index and Nifty Futures Really Lead/Lag? Error Correction Model: A Cointegration Approach
- 4) Under-pricing And Long-run Performance Of Initial Public Offerings In Indian Stock Market

These four papers have been presented in the following pages.



# Evaluating Corporate Governance Risk: A Fuzzy logic approach

By Sadhalaxmi Vivek Rao and Sumit Kumar Bose

## Abstract

Assessment of the corporate governance risk of firms is made based on a subjective evaluation of the important attributes that characterize the monitoring mechanisms. The evaluation process relies on the rule of thumb, is inherently characterized by vagueness and imprecision and, is often expressed in terms of the linguistic constructs for the governance variables. This paper explores the possibility of applying fuzzy logic theory for handling vagueness and imprecision that characterize the decision making process. To prevent the exponential growth of rules with a large set of input attributes, hierarchical fuzzy logic framework is developed to carry out the required analysis for arriving at the governance rating of the firms.

*Keywords:* Hierarchical Fuzzy logic, Corporate Governance, Fuzzy Sets

## 1. Introduction

Assessing corporate governance risk is important for rating agencies and various institutional investors. Decision makers use linguistic concepts to describe the governance variables of the firms. For example, the natural way for the decision makers to express the adverse impact of the low institutional ownership on the ownership structure risk of the firms would be "If institutional ownership is low then the ownership structure risk is high." The use of such linguistic features as "high" or "low" is an inherent characteristic of the human reasoning process. The lack of objectivity and the lack of unanimity among the experts regarding the definitions of the governance variables and their influence on the governance risk forces the decision makers to incorporate heuristic information, rely on the rule of thumb and on their personal intuition while characterizing the state of the governance variables. One distinctive methodology appropriate for characterizing the imprecision and vagueness inherent in such subjective assessments is the fuzzy logic framework.

Fuzzy based decision making method is founded upon the fuzzy sets of Zadeh (1965) and approximate reasoning of Zadeh (1975a, 1975b, 1976), Dubois (1989). The fuzzy logic



approach to decision-making uses fuzzy sets to represent the decision-maker's subjective assessments for the attributes. The fuzzy sets gainfully employ the existence of ambiguous situations whereby the boundaries of the sets, due to the lack of formal definitions, are not crisply defined; instead the sets have overlapping and inexact boundaries. Membership function is framed for every linguistic state in the set of states defined for each of the governance variables. Membership functions define the extent to which a value in the domain of the governance variable belongs to a certain fuzzy set. The values in the domain of the governance variables for which there is no ambiguity regarding the linguistic state it belongs to, the membership grade of such values is assigned 1 to the fuzzy set that represents the said linguistic state. This restricts the membership to only one particular set. Thus, the membership grade for all other states is null. However the values for which there is ambiguity regarding the state to which it belongs to, the membership grade only defines the extent to which it can belong to a particular state. For example there is unanimity amongst the financial and economics experts in believing that a board size of 2 is "low" as it is not only illegal to have less than 3 directors on the board of public companies but also affects the quality of discussion adversely. Hence a board of size 2 belongs to the fuzzy set "low" with a membership grade of 1 and belongs to the fuzzy set "high" and "medium" with a membership grade of 0. In other words a board of size 2 completely belongs to the fuzzy set "low" and is not even remotely related to the fuzzy sets "high" and "medium". On the other hand there is conflicting opinion regarding a board of size 6. Say 4 out of 10 experts would concur that a board size of 6 is definitely "low" while the remaining 6 experts would agree that a board size of 6 is definitely not "low". Such ambiguous definitions result in the board size of 6 belonging to the fuzzy set "low" only to the extent of 0.4. Thus, the membership grade of a board of size 6 in the fuzzy set "low" is 0.4 only. This way the threshold till which it is conventionally accepted that a governance variable completely satisfy the characteristics of becoming a member of a fuzzy set, the membership grade is granted 1 with respect to the said set and the membership grade is granted 0 with respect to all the other fuzzy sets. The fuzzy logic reasoning then carries the deductive inference based on the ambiguous premises underlying these sets.

The conventional method of corporate governance risk rating is the scoring model. The models identify a set of indicators appropriate for evaluating the corporate governance risk. Weights are then assigned to each of the indicators based on their relative importance in determining the corporate governance risk. Companies are then evaluated across each of these parameters. The overall corporate governance risk is then calculated by weighting the evaluated value of each of the attributes with the relative importance of the attributes. Such inference mechanisms of the classical scoring models often lack the ability to deal with linguistic inexactness and to incorporate imprecise knowledge of the decision makers. This is what makes the fuzzy logic framework an attractive and a natural choice for determining corporate governance risk. The intent of the present work is not to make a comparative assessment of the developed fuzzy model with the existing scoring models but is only to provide a new approach i.e., rational fuzzy logic framework for assessing the corporate governance risk<sup>2</sup>.

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<sup>2</sup> A company with highly effective corporate governance structures will have low corporate governance risk



In section 2 we discuss the constructs for corporate governance risk analysis. We summarize the basic fuzzy concepts for corporate governance risk analysis along with the computational experience in section 3. Section 4 concludes the paper by giving some useful future research directions.

## 2. Corporate Governance

In the words of Berle and Means (1932), the separation of ownership from management leads to agency costs. The literature on corporate governance enumerates various internal and external control mechanisms to contain these agency costs incurred by the shareholders. Broadly the internal control mechanisms comprises of managerial ownership, the board structure, leadership structure and the managerial compensation. On the other hand, the external control mechanisms comprises of the market for corporate control and the legal environment dealing with protection of the minority shareholders. Prior empirical work in this area has documented the evidence that these mechanisms reduce the agency cost to the shareholders and this in turn leads to value maximization. A few of the important studies related to corporate governance mechanisms are discussed below.

The most important finding about the relationship between managerial ownership and firm performance (when the managerial ownership is considered exogenous) is that of Morck et al (1988). They argue that at lower levels of managerial ownership (at 1%), the managers like to earn more profits and hence align their interests with that of the shareholders. This, in the literature, is known as the alignment effect. But at higher levels of managerial ownership (at 5%) the entrenchment effect and the empire building effect is higher than the alignment effect, and at still higher levels of managerial ownership (30%) alignment affect dominates the entrenchment effect. Findings by Hermalin and Weisbach (1988) corroborate the findings of Morck et al (1988). In the Indian context, Sarkar and Sarkar (2000) study the role of large shareholders in corporate governance. The authors conclude that, except for the Indian Institutional investors, the increase in stake of all large shareholders beyond the threshold limit of 25% increases the company value (the alignment effect).

Composition of the board of directors<sup>3</sup> is a vital element for the efficient functioning of a company. Of late, there is much emphasis on the independence of the non-executive directors. The study by Weisbach (1988) finds a positive correlation between stock performance and board dominated by independent directors.

Jensen (1993) argues that the board size should be either 7 or 8 for optimal performance of a firm. Larger size of the board leads to communication and coordination problems and hence will negatively affect the firm performance. While a few studies, Brickley et al (1997), Donaldson and Davis (1991) and Boyd's (1995), show that *CEO duality*<sup>4</sup> improves the level of performance of companies; other studies by Finkelstein and D'aveni (1994), Rechner and Dalton (1991) show the effectiveness of non-dual CEO.

<sup>3</sup> Board of directors comprise of executive and non-executive directors

<sup>4</sup> CEO is also the Chairperson of the Board of Directors

All the above studies relate to the impact of individual corporate governance variable on the firm performance. Studies dealing with the influence of all the governance variables, taken together, on the performance of a firm are limited. Developing the corporate governance index requires studying the combined impact of all the governance variables on the firm performance. In the Indian context, there are only two studies dealing with the corporate governance index. Mohanty (2002) constructs an index of corporate governance by giving weightage to the provisions dealing with the different stakeholders protection. Points for each stakeholder are allocated based on the criteria of the provision being positive, negative or neutral. Shareholders are allocated higher weight factors than other stakeholders. Vedpurishwar and Marishetty (2004) use the S&P rankings to construct the corporate governance index. The authors find that average mispricing of stocks for well-governed companies is lower than poorly-governed companies.

La Porta et al (1999b) construct a Corporate Governance index for 49 countries on the basis of investor protection given through legal structures, enforcement and corporate laws. They empirically evaluate the impact of this index on the financial structure of the respective countries. The main findings of the study are that 'common law' countries like United States, United Kingdom etc. have very high level of investor protection due to which such countries have dispersed shareholdings. On the other hand, in the case of the 'French civil law' countries, the investor protection is weak as a result of which there is a concentration of ownership holding. They further argue that the concentration of holding in the French civil law countries has developed as an alternative to inefficient legal system so as to protect the minority shareholders. They provide equal weights to all the provisions that protect the shareholders.

Gompers et al (2003) construct a governance index to find its impact on the stock returns earned by the investors. The index is constructed based on the shareholders rights protected by the company charter in the event of takeover. They find that the companies with higher shareholder rights will earn abnormal returns of 8.5% more than the companies in which the shareholder rights is low (companies which favor the management by providing poison pills etc. in their charter).

From the description of the literature above it is clear that there exists conflicting opinion on the nature of the impact of the various factors on the level of corporate governance rating. Moreover the literature talks in terms of linguistic constructs such as higher level of retrenchment, lower level of management ownership etc, which are qualitative and are representative of subjectivity and vagueness. The corporate governance index constructed in the above studies does not deal with the subjectivity, ambiguity and vagueness inherent in such reasoning processes. In our study we propose to address this question and deliver a more accurate index with the help of hierarchical fuzzy logic framework. Moreover, in the absence of any meaningful literature on the combined impact of the corporate governance variables on the governance risk, we logically deduce the rules that relate to the combined impact of all such variables on the corporate governance risk, the subjectivity of which is taken care of by the fuzzy logic system.



### 3. Hierarchical Fuzzy Logic Framework For Corporate Governance Risk Assessment

To introduce the fuzzy logic framework for evaluating the corporate governance risk we discuss the hierarchical system, membership functions, linguistic variables and the rule base in the corporate governance context.

#### 3.1. Membership Functions and Linguistic Variables

The relationship between the indicator  $u$  and its membership grade  $\mu_F(u)$  can have many different forms (for the different forms, see Klir and Yuan (2001)). For the implementation of the fuzzy sets in the present paper both asymmetric and symmetric membership functions are used, though it is restricted to only standard membership functions. For the ease of inference purposes, only triangular and trapezoidal membership functions defined by straight-line equations are considered. For real numbers  $0 \leq a \leq b \leq c \leq U$ , the triangular membership function is defined as:

$$\mu_{F^{tr}}(u) = \left\{ \begin{array}{ll} 0 & \text{if } u \leq a \\ \frac{(u-a)}{(b-a)} & \text{if } a < u \leq b \\ \frac{(c-u)}{(c-b)} & \text{if } b < u \leq c \\ 0 & \text{if } u \geq c \end{array} \right\}$$

While for real numbers  $0 \leq a \leq b \leq c \leq d \leq U$  trapezoidal membership function is defined as :

$$\mu_{F^{tp}}(u) = \left\{ \begin{array}{ll} 0 & \text{if } u \leq a \\ \frac{(u-a)}{(b-a)} & \text{if } a < u \leq b \\ 1 & \text{if } b < u \leq c \\ \frac{(d-u)}{(d-c)} & \text{if } c < u \leq d \\ 0 & \text{if } u \geq d \end{array} \right\}$$

Table 1: Set of Descriptors

Evaluation Parameter	Linguistic Variable name	Linguistic Values	Universe of Discourse	Membership function
Institutional Ownership	INSTIOWN	Low	[0,100]	(0, 5, 10)
		Medium		(5, 10, 15)
		High		(10, 15, 100)
Promoter Ownership	PROMOWN	Low	[0,100]	(0, 15, 32.5)
		Medium		(15, 32.5, 50)
		High		(32.5, 50, 100)
Foreign Institutional Ownership	FIIOWN	Low	[0,100]	(0, 2, 6)
		Medium		(2, 6, 12)
		High		(6, 12, 100)
Size of Board	BOARDSIZE	Low	[0,20]	(0, 4, 8)
		Medium		(4, 8, 12)
		High		(8, 12, 20)
Proportion of Independent Directors	INDPDIREC	Small	[0,1]	(0, 0.33, 0.5)
		Medium		(0.33, 0.5, 0.75)
		Large		(0.5, 0.75, 1.0)
CEO-Duality	CEODUAL	Yes	0 or 1	1
		No		0

For computation purposes, we require three fuzzy operators-union, intersection and complementation. If  $A_1$  and  $A_2$  are two fuzzy sets defined over the universe of discourse  $U$ , then union of  $A_1$  and  $A_2$  is a fuzzy set denoted by  $A_1 \cup A_2$  with the membership function  $\mu_{A_1 \cup A_2}(u) = \mu_{A_1}(u) \vee \mu_{A_2}(u)$ , where  $a \vee b$  means  $\max(a, b)$ . Intersection of  $A_1$  and  $A_2$  is a fuzzy set denoted by  $A_1 \cap A_2$  with the membership function  $\mu_{A_1 \cap A_2}(u) = \mu_{A_1}(u) \wedge \mu_{A_2}(u)$ , where  $a \wedge b$  means  $\min(a, b)$ . The complement  $\bar{A}_1$  of  $A_1$  is a fuzzy set with the membership function  $\mu_{\bar{A}_1}(u) = 1 - \mu_{A_1}(u)$ . For each of the fuzzy sets defined over the discourse of the input variables, complements of the sets are also defined. Table 1 gives the entire set of descriptors used in the present analysis.

The fuzzy sets are assigned after scanning the existing literature on corporate governance and from values derived from a sample set of companies. Thus, the domain knowledge is essential for defining the fuzzy sets over the range of the governance variables. For example Hartzell and Starks (2003) provide evidence that institutional investors not only are good monitors but also ensure appropriateness of executive compensation contracts. They show that higher institutional ownership results in lower risk to the shareholders as they effectively monitor the remuneration paid to the managers. To scientifically assign the values of the membership functions to ownership structures, we randomly select 40 companies from Prowess. Out of the 40 companies, complete information of the ownership structure is available for 38 companies only. The ownership data of sample companies for the financial year ended 2003 is provided as Annexure I, at the end of this paper. For each component of the ownership structure Quartile-1 (Q1),





Median and Quartile-3 (Q3) are calculated. Based on the Q1, Median, and Q3 we obtain the values for the membership functions. With respect to the institutional ownership, we find that the median shareholding is 10% (the figures are rounded-off to the nearest integer), Q1 is 5% and Q3 is 15%. This data suggests that the institutional ownership can be considered as definitely low if the share holding is below 5%, medium if the share holding is around 10% and high for a value greater than 15 %. It is for these reasons that three linguistic values - low(L), medium(M) and high(H) are used to define the percentage of the Indian institutional ownership in the firms. Since  $u_{instiown} \in$ , the fuzzy sets L, M, H have the following membership functions:

$$\mu_L(u_{instiown})=(0,5,10),$$

$$\mu_M(u_{instiown})=(5,10,15),$$

$$\mu_H(u_{instiown})=(10,15,100).$$

The membership functions of the linguistic variables related to the INSTIOWN variable is depicted in figure 1. The vagueness inherent in the assessment is reflected through the gradual transition of the membership values from 0 to 1 and vice versa, for each of the fuzzy sets.  $\mu_L$ ,  $\mu_M$  and  $\mu_H$  convey the vagueness arising from incorporating the semantics of the natural language (for example use of the word around 10%) in the decision making framework.

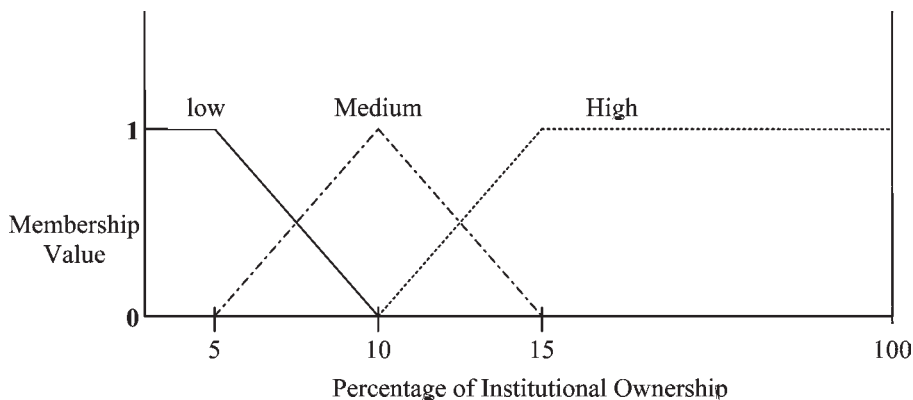


Figure 1 : Membership Functions for INSTIOWN

In the context of Indian companies, Sarkar and Sarkar (2000) find that the foreign shareholding and company performance are positively related. For the period 2001 to 2003, Bhattacharyya and Rao (2005) find that ownership by foreign institutional investors reduces the agency costs of the Indian companies, corroborating the results obtained by Sarkar and Sarkar (2000). There is no incentive for the foreign institutional investors to monitor if their shareholding is low. Based on Q1, Median and Q3 values obtained from the sample, foreign institutional shareholding can be called as low for values less than 2 %, medium for value around 6 % and high for above 12%. The membership functions of the foreign institutional ownership are shown in figure 2.

Morck et al (1988) find that the managerial ownership is positively related to firm performance if their shareholding below 1% (the alignment effect), negatively related when their shareholding is between 1% to 5% (the entrenchment effect), again positively related from 5-20% (alignment effect), and thereafter negatively related. Mudambi and Nicosia (1988) confirms the curvilinear relationship in their study on the financial services industry in the United Kingdom. However, in the Indian context, Sarkar and Sarkar (2000) provide evidence in support of positive relationship between insider ownership and company value beyond 25% of insider ownership and is negatively related to the performance of companies upto 25%. Annexure I provides information on Q1, Median and Q3 of the promoter ownership. Based on this data, we can classify the promoter ownership as low if shareholding is less than 15 %, medium for shareholding around 32.5% and high for shareholding above 50%.

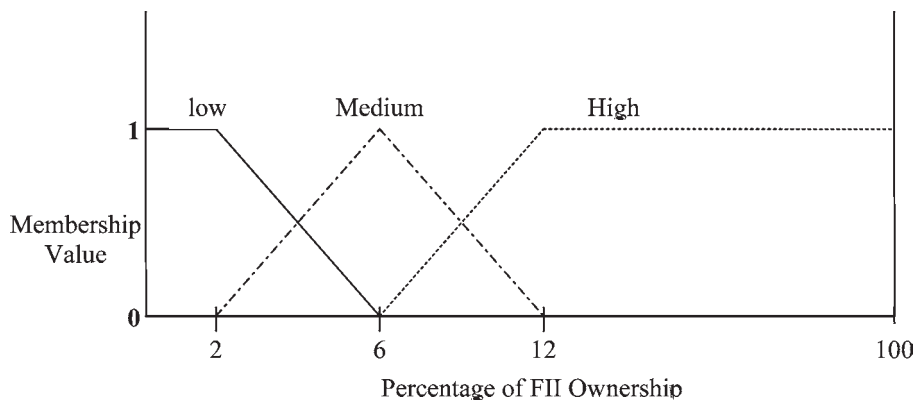


Figure 2 : Membership Functions for FIIOWN

An appropriate structure of the board of directors is imperative for the enhanced performance of any company. Independent directors, due to their expertise, bring in objective judgment in strategic and financial decisions. Having little or no conflict of interest with the company, they strive for excellence in their occupation. A Board with higher proportion of the independent directors is successful in monitoring the managers than a Board with lower proportion of independent directors. The results of Weisbach (1988) support the argument that boards with more independent directors would increase the stock performance. According to the Kumaramangalam Birla Committee atleast 1/3<sup>rd</sup> of the directors should be independent. It is for these reasons that we define that proportion of independent directors in the Board as low if it is below 33.33%, medium if it is between 33.33% and 75% and, high beyond 75%. For each of the components of the ownership structure we take minimum as 0% and maximum as 100%.

The informal power of the CEO to misappropriate funds increases when he is also the chairperson of the board. The results of Finkelstein and D'aveni (1994), Rechner and Dalton (1991) corroborate this argument. They find that companies where the posts of CEO and chairperson of board of directors are held by separate persons perform better than companies where CEO is also the chairperson of board of directors. Based on these arguments we purport that companies with no CEO duality will have lower risk, while those with CEO duality will have higher risk.



The board size is an important component of the board structure. Jensen (1993) argues that the ideal size of the board should be either 7 or 8. Too few members dilute the ability of the board to provide a strategic direction to the company. Too many members, on the other hand, prove costly and ineffective to the company. Therefore board size is considered low for below 4 members, medium around 8 and high above 12 members. The maximum members permitted to be on the Board of directors of any company is 12, and it can be increased to 20 with the prior approval of the Central Government.

### 3.2. Hierarchical Inference Process

The proposed fuzzy inference system has 6 input variables - foreign institutional ownership (FIIOWN), promoter ownership (PROMOWN), institutional ownership (INSTIOWN), size of the board (BOARDSIZE), proportion of independent directors (INDPDIREC), CEO-duality (CEODUAL). Consideration of even a modest number of fuzzy sets for each of these input variables will result in an abruptly high number of fuzzy rules. For example, defining three fuzzy sets for each of the variables will require 36 rules, many of which may be insignificant. Therefore, increasing the number of variables and/or the number of fuzzy sets will result in combinatorial explosion in the number of fuzzy rules. Such a problem is called the "curse of dimensionality".

Moreover, designing such a huge knowledge base would be a tremendously cumbersome process. One solution to this problem is to decompose the entire problem into logical and more manageable subsystems. The component modules are hierarchically distributed and are logically connected to one another such that the output of one subsystem forms the input to the next higher level of subsystem. Such hierarchical decomposition of the inference process into multi level rule base makes the problem more manageable. Figure 3 shows the proposed hierarchical architecture for assessing the corporate governance risk. The overall inferential mechanism is hierarchically decomposed into three fuzzy blocks. Fuzzy block 3 receives its input from the output of the fuzzy block 1 and 2. Computing corporate governance risk requires assessing risk that arises on account of ownership structure and composition of the board. The input variables that define the ownership structure, therefore, are grouped under the ownership structure inference module and the input variables that define the composition of the board are grouped together in the board structure inference module. Each of these component module is shown separately in figure 4, 5 and 6.

Figure 4 shows the ownership structure risk inference process. Since the three variables-institutional ownership, promoter ownership and foreign institutional investor ownership define the ownership structure, the values of these variables form input to the Ownership Risk Inference module-the output of which is a measure of the risk that arise due to the composition of the ownership in the company.

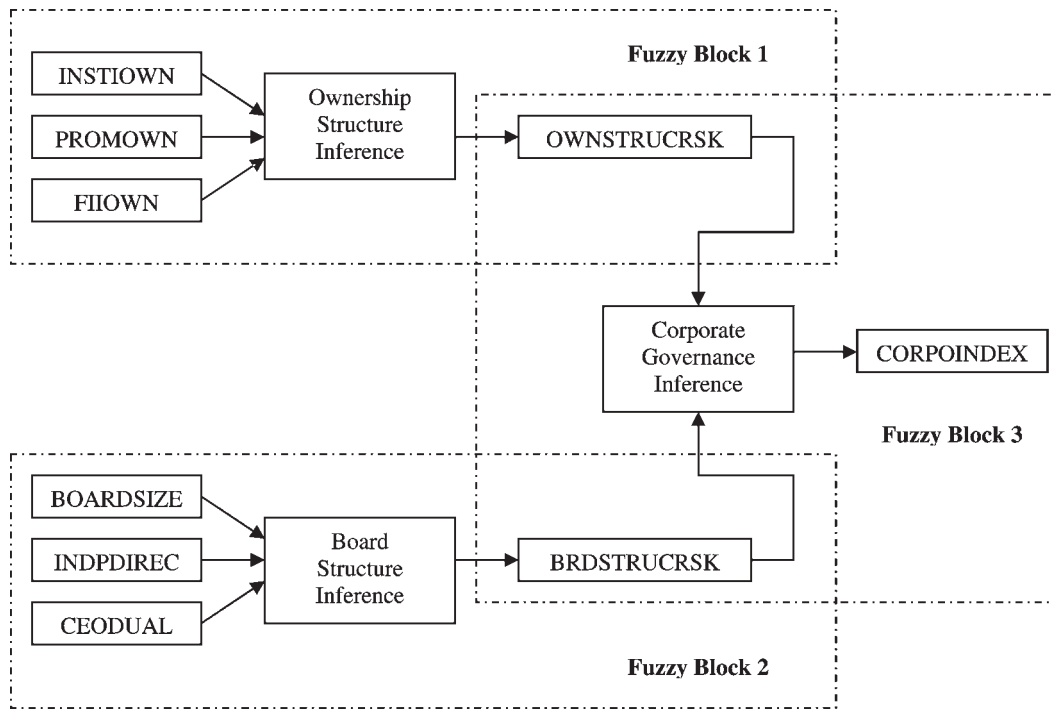


Figure 3: Hierarchical Corporate Governance Risk Inference Process

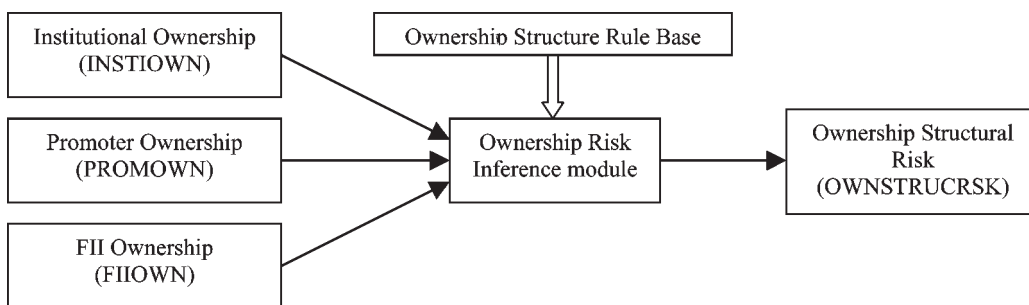


Figure 4: Ownership Structure Risk Inference Process

Similarly, Figure 5 represents diagrammatically the board structure risk inference process. Since the three variables—the size of the board, the percentage of independent directors and CEO-duality define the structure of the board, the values of these variables, therefore, would affect the risk that arise on account of the composition of the board. The outputs—ownership structure risk (OWNSTRUCRSK) and the board structure risk (BRDSTRUCRSK) from fuzzy

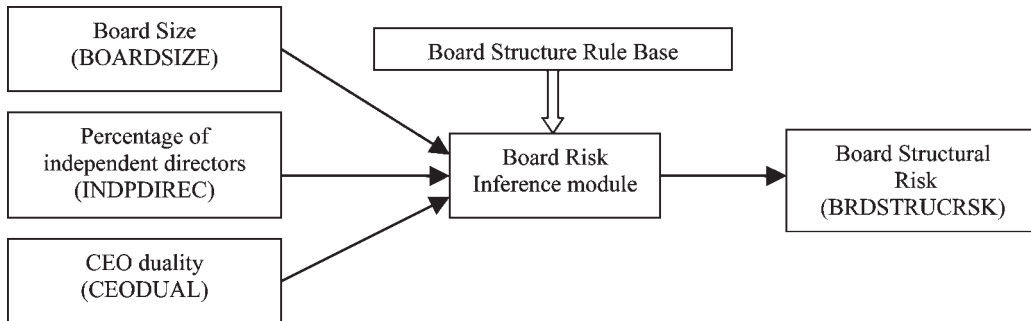


Figure 5: Board Structure Risk Inference Process

blocks 1 and 2 respectively form inputs to the fuzzy block 3, which is the corporate governance risk inference module. Based on the inputs of the values of OWNSTRUCRSK and BRDSTRUCRSK, the corporate governance risk inference module deduces the overall corporate governance risk for the firm.

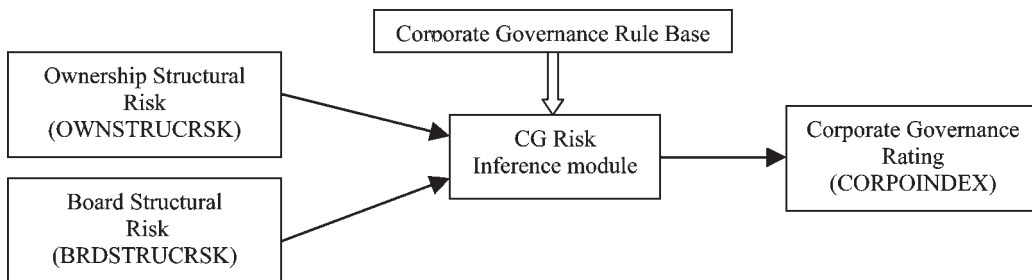


Figure 6: Corporate Governance Risk Inference Process

### 3.3. Rule Base

The fuzzy variables are combined into a set of rules. The set of rules are formulated based on extensive study of the literature on corporate governance and elaborate discussion with other academicians. Each rule has a number of antecedent terms but only one consequent term. These rules capture the semantic imprecision of the human language. Tables 2, 3 and 4 gives a few characteristic examples of the fuzzy rules used in the present decision making process.

In table 2 a representative set of rules that reflect the effect of different ownership structure on the ownership risk is shown. Higher levels of promoter and foreign institutional ownerships have a positive impact on the performance of the company (Sarkar and Sarkar (2000)) (Rule 5) and vice-versa. Companies with low promoter and foreign institutional shareholding may not perform well because the promoters may not have the monetary incentive to improve the performance; and at the same time the foreign institutional investors do not have adequate motivation to monitor the managers and hence the ownership risk in this case is high (Rule 1). Other rules can be interpreted in a similar manner.

Table 2: Rules expressing the risk due to ownership structure

Foreign Institutional Ownership (FIOWN)	Institutional ownership (INSTIOWN)	Promoter Ownership (PROMOWN)	Ownership Structure Risk (OWNSTRUCRSK)
Low	Low	Low	High
Low	Low	Medium	High
High	High	High	Low
High	High	Medium	Low
High	Medium	High	Low
High	Medium	Medium	Medium
Medium	High	Low	Medium
Medium	Medium	High	Medium
High	Low	High	Medium
High	Medium	Low	Medium
Medium	High	High	Low
Low	Medium	High	Medium

Table 3 gives a set of rules that is used to infer the board structure risk. A board with high number of independent directors, medium size (Jensen (1993)) and a non-dual CEO (Rechner and Dalton(1991)) will have lower board structure risk as all these components enhance the performance of the company (for example Rule 9). On the other hand, companies with high board size, CEO duality and low proportion of independent directors will be poorly governed. This is because, the CEO being the chairperson of the

Table 3: Rules expressing the risk arising due to board composition

Board Size (BOARDSIZE)	CEO Duality (CEODUAL)	Independent Directors (INDPDIREC)	Board Structure Risk (BRDSTRUCRSK)
Low	No	Low	Medium
Low	No	Medium	Low
Low	No	High	Low
Low	Yes	Low	Medium
Low	Yes	Medium	Medium
Low	Yes	High	Medium
Medium	No	Low	Medium
Medium	No	Medium	Medium
Medium	No	High	Low
Medium	Yes	Low	High
Medium	Yes	Medium	Medium
Medium	Yes	High	Medium
High	No	Low	Medium
High	No	Medium	Medium
High	No	High	Medium
High	Yes	Low	High
High	Yes	Medium	High
High	Yes	High	Medium



board possess high informal power. Furthermore, as the proportion of independent directors is low, the board may not be able to monitor the activities of CEO effectively. Hence, in this case we expect that the board structure risk will be high (for example Rule 16). Similar interpretations hold for other rules.

The ownership structure risk and the board structure risk together determines the overall corporate governance risk of a company and is shown in table 4. Low ownership structure risk together with low board structure risk reduces the overall corporate governance risk of the company (Rule 1). Low ownership structure risk is characterized by high promoter ownership and high institutional ownership. Low board structure risk is characterized by high proportion of independent directors, CEO non-duality and medium size board. Lower board structure risk implies efficient board capable of providing strategic directions to the company. On the other hand, a company with high ownership structure risk and high board structure risk inevitably has higher corporate governance risk (Rule 9).

**Table 4: Rules for calculating Corporate Governance risk**

Ownership Structure Risk (OWNSTRUCRSK)	Board Structure Risk (BRDSTRUCRSK)	Corporate Governance Risk (CORPOINDEX)
Low	Low	Low
Low	Medium	Medium
Low	High	Medium
Medium	Low	Medium
Medium	Medium	Medium
Medium	High	Medium
High	Low	Medium
High	Medium	Medium
High	High	High

### 3.4. Evaluation

The process of combining the effects of several fuzzy rules is called fuzzy inferencing. During the evaluation process the inferential engine of the model tries to capture the imprecision associated with a partial match between the antecedent terms of the rules with the input data. Mamdani inference principles are applied in the proposed decision making framework (for review of other inference principles like TSK see Klir and Yuan (2001)). Input aggregation, also called matching, is done based on the min operator. Since all the inputs are scalars quantities, thus if  $u_{instiown}$  takes the input  $u'_{instiown}$  then a partial match is performed by carrying out the operation  $(1 \wedge \mu_F(u'_{instiown}))$ , where F is the fuzzy set. Owing to the fact that the inputs are always singletons the matching operation would always return the membership value of  $u'_{instiown}$  in the set F, that is  $\mu_F(u'_{instiown})$ . Result aggregation is done by applying the max operator. Thus if  $u'_{instiown}$ ,  $u'_{promown}$  and  $u'_{fiown}$  are the inputs to the fuzzy inference system 1 and where  $k \in \mathbf{N}$  denotes the  $k^{th}$  rule, then aggregation is done according to the equation:

$$R^N = \bigvee_k R^k \quad (1)$$

$$\mu_R^k(\mathbf{u}'_{instiown}, \mathbf{u}'_{promown}, \mathbf{u}'_{fiiown}) = \bigvee_k (\mu_{F_{instiown}}^k(\mathbf{u}'_{instiown}) \wedge \mu_{F_{promown}}^k(\mathbf{u}'_{promown}) \wedge \mu_{F_{fiiown}}^k(\mathbf{u}'_{fiiown})) \quad (2)$$

In other words, logical AND operator is used to connect the various antecedent terms of a rule and the implication method based on the min operator is used to draw conclusions. Finally the max operator is used to aggregate the different rules. Different rules contribute differently towards the output membership function. Thus, a fuzzy envelope over the output variable range represents the combined effect of all the rules. By means of defuzzification, a single value of the CORPOINDEX variable is obtained, from the combined membership function that is got over the range of the CORPOINDEX variable. As the output surface resulting from the fuzzy inference process is due to the geometrical aggregation of the fuzzy sets, the geometrical center of the output membership surface takes into consideration even the slightest contribution of any of the sets. Therefore, we adopt the center of area (COA) method for defuzzification (for other methods see Klir and Yuan (2001)). The COA method calculates the center of area of the combined output membership function  $\mu(\mathbf{u}_{corpindex})$  of the variable  $\mathbf{u}_{corpindex}$  as follows:

$$\mathbf{u}_{COA} = \frac{\int_S \mathbf{u}_{corpindex} * \mu(\mathbf{u}_{corpindex}) d\mathbf{u}}{\int_S \mu(\mathbf{u}_{corpindex}) d\mathbf{u}} \quad (3)$$

Where S stands for the ranges of values  $\mathbf{u}_{corpindex}$  covered by the combined output surface, also called the *support* of  $\mathbf{u}_{corpindex}$ .

The inference blocks were designed according to the concepts of the fuzzy logic described above and was implemented in the computational environment of Fuzzytech 5.54m. The results of four of the test cases that we experimented with are shown below in table 6. We explain how the 'matching' step is carried out in the fuzzy block 1 with the example of Bajaj Auto Ltd. In this case we observe that the input values  $\mathbf{u}'_{instiown} = 6.69$ ,  $\mathbf{u}'_{fiiown} = 12.99$  and  $\mathbf{u}'_{promown} = 28.57$  are scalar quantities-that is non-fuzzy. From table 1 we get the membership values of the three basic terms of INSTIOWN to be  $\mu_{low} = (6.69) = 0.662$ ,  $\mu_{medium} (6.69) = 0.338$ ,  $\mu_{high} (6.69) = 0$ . As already mentioned, the inputs being scalar quantities, the matching step returns the corresponding values to be  $\min(1, 0.662) = 0.662$ ,  $\min(1, 0.338) = 0.338$ ,  $\min(1, 0) = 0$  respectively. Likewise the membership grade for the three linguistic values of FIIOWN are  $\mu_{low} (12.99) = 0$ ,  $\mu_{medium} (12.99) = 0$  and  $\mu_{high} (12.99) = 1$ . The matching step in a similar manner returns  $\min(1, 0) = 0$ ,  $\min(1, 0) = 0$ ,  $\min(1, 1) = 1$  respectively. Similarly, the membership grade for the three terms of PROMOWN are  $\mu_{low} (28.57) = 0.225$ ,  $\mu_{medium} (28.57) = 0.775$ ,  $\mu_{high} (28.57) = 0$  and the matching step returns the following values  $\min(1, 0.225) = 0.225$ ,  $\min(1, 0.775) = 0.775$ ,  $\min(1, 0) = 0$  respectively. Combining these grades with the antecedents of the rules listed in table 2, we get table 5. For example, the antecedent of the first rule from table 2 is 'FIIOWN = low and INSTIOWN = low and PROMOWN = low' then from equation 2 we get:  $\mu_R^{k=1} (6.69, 28.57, 12.99) = (0.662 \wedge 0.225 \wedge 0.0)$ . To connect the various antecedent terms of the rule, we compute:  $\min(0.662, 0.225, 0.0) = 0$ . Continuing with





rule 1 in table 2, for the 'implication' step we compute  $\mu_{FG}(v) = \min(0, \mu_{FG}(v))$  where FG' is the approximate fuzzy outcome for the given set of input data and FG is one of the many fuzzy sets G defined on the range of output values. This gives rise to fuzzy sub-envelope. The fuzzy sub-envelopes obtained this way from different rules of table 2 is aggregated using the max operator (denoted in equation 2 by  $\vee_k$ ) to get the ultimate outcome-one complete fuzzy set over the range of output values of the ownership structure risk (OWNSTRUCRSK). This together with the board structure risk (BRDSTRUCRSK) computed in a similar manner, forms input to the Corporate Governance risk inference module which again in a similar manner computes the Corporate Governance risk. The only difference while calculating the Corporate Governance risk (CORPOINDEX), the inputs as defined by ownership structure risk (OWNSTRUCRSK) and board structure risk (BRDSTRUCRSK) would be fuzzy as opposed to the scalar inputs of INSTIOWN, FIIOWN and PROMOWN while calculating the OWNSTRUCRSK.

**Table 5: Results of the 'matching' stage of ownership structure risk inference process in the case of Bajaj AutoLtd.**

Foreign Institutional Ownership (FIIOWN)	Institutional ownership (INSTIOWN)	Promoter Ownership (PROMOWN)
0	0.662	0.225
0	0.662	0.775
1	0	0
1	0	0.775
1	0.338	0
1	0.338	0.775
0	0	0.225
0	0.338	0
1	0.662	0
1	0.338	0.225
0	0	0
0	0.338	0

Of the four cases that we report here, it can be seen that the Corporate Governance Risk index is the least for Novartis India Ltd and the highest for Bajaj Auto Ltd. The reason for this is not too hard to fathom. In the case of Novartis India Ltd, the company has an optimal board size of 8 with no CEO duality. The risk associated with the likelihood of expropriation by the CEO is reduced due to presence of large proportion of independent directors. At the same time the insiders own more than 50% of the shareholding, which enhances the operational performance of the company (alignment effect). Low corporate governance risk of Novartis India Ltd suggests that the company is well governed.

Whereas in the case of Bajaj Auto Ltd, the company is not only characterized by a large size of the board but also has CEO who at the same time is the chairperson of the board of directors. The probability of misappropriation by the CEO increases as a result. Moreover large size of board results in increased communication and coordination problems.

Table 6: Results of the test cases

Company Name <sup>5</sup>	BOARD- SIZE	CEO- DUAL	FIOWN INSTIOWN	PROMOWN	INDPDIREC	CORPO- INDEX
Bajaj Auto Ltd	10	1	12.99	6.69	28.57	6.16
Novartis (I) Ltd	8	0	4.43	18.78	50.99	1.25
Satyam Comp Ltd	6	0	33.76	19.14	25.6	3.12
Zee Telefilms	7	1	17.94	6.77	59.61	5.00

Board structure can therefore be easily seen to be not so effective. Additionally, the promoters own only 29% of the shareholding, which may not adequately motivate them to increase the firm value. For these reasons the risk index of Bajaj Auto Ltd. is very high compared to other cases. This suggests that Bajaj Auto Ltd is a poorly governed company. This explanation shows that the ratings derived by the fuzzy index are in sync with desirable values.

Since few studies provide evidence of the ineffectiveness of the Indian Institutional Investors ownership on company performance, we try to calculate the corporate governance risk ratings for the above companies by excluding the Indian Institutional Investors shareholding. The risk ratings in that case would be 6.10, 1.25, 3.10 and 5.00 for Bajaj Ltd, Novartis Ltd, Satyam Ltd and Zee Ltd, respectively. Thus, we find that if we exclude the Indian Institutional Investors ownership from the risk calculations, the corporate governance risk index remains almost the same. This result supports the finding of Sarkar and Sarkar (2000), where they do not observe any effect of Indian Institutional ownership on company performance.

#### 4. Conclusion

In this paper we use the fuzzy logic approach to model the subjective characteristics of human nature in the decision making process involved in assessing the corporate governance risk. Mamadani inference along with the Center of Area method of defuzzification allowed taking into consideration even the slightest influence of a rule. Further research would be needed to conclude the effect of various other fuzzy operators, input aggregation operators, result aggregation operators and defuzzification methods on the final rating.

<sup>5</sup> Publicly traded companies in India



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## Annexure-I

Table 7: Ownership Structure of Sample Companies for the Financial Year Ended 2003

Company Name <sup>6</sup>	BOARD-SIZE	CEO-DUAL	FIIOWN
Arvind Mills Ltd.	38.07	8.77	18.18
Asian Paints (India) Ltd.	42.60	14.26	18.59
Bharat Gears Ltd.	32.46	14.34	2.00
Bharat Petroleum Corpn. Ltd.	66.20	15.01	10.21
Centurion Bank Ltd.	44.22	2.13	18.83
Cholamandalam Invst & Finance Co. Ltd.	48.99	2.40	2.52
Cummins India Ltd.	58.02	15.04	12.00
Emmessar Biotech & Nutrition Ltd.	14.30	10.35	0.00
E-Serve International Ltd.	44.38	11.68	6.27
Essel Propack Ltd.	37.15	10.15	7.52
Grasim Industries Ltd.	20.42	24.12	14.11
Gujarat Ambuja Cements Ltd.	27.51	23.49	14.96
Hero Honda Motors Ltd.	52.00	8.52	22.53
Himachal Futuristic Communications Ltd.	9.07	4.01	6.45
Hindalco Industries Ltd.	24.37	26.50	11.65
I D B I Bank Ltd.	71.39	8.05	1.06
Indian Petrochemicals Corpn. Ltd.	79.98	7.29	1.09
Indusind Bank Ltd.	49.86	3.03	5.44
Kesoram Industries Ltd.	23.87	20.64	1.97
Mahindra & Mahindra Ltd.	26.26	36.43	7.36
Moser Baer India Ltd.	18.54	3.43	15.53
Mphasis B F L Ltd.	0	12.23	9.80
Orchid Chemicals & Pharmaceuticals Ltd.	14.04	6.13	0.05
Pentamedia Graphics Ltd.	1.33	0.77	4.44
Pritish Nandy Communications Ltd.	35.02	5.50	14.38
Pudumjee Pulp & Paper Mills Ltd.	49.37	11.89	2.01
Ray Ban Sun Optics India Ltd.	0.00	2.95	0.03
Saven Technologies Ltd.	13.84	3.00	1.50
Silverline Technologies Ltd.	2.74	0.95	0.39
South Indian Bank Ltd.	4.77	15.20	0.00
Steel Authority Of India Ltd.	85.82	8.73	1.00
T V S Motor Co. Ltd.	58.81	12.72	4.89
Tata Chemicals Ltd.	30.56	26.37	0.02
Tata Power Co. Ltd.	32.54	29.06	6.50
Tata Tea Ltd.	29.48	28.82	7.21
Unichem Laboratories Ltd.	49.47	7.62	3.50
Uniphos Enterprises Ltd.	34.07	23.94	7.93
Vision Organics Ltd.	11.84	2.30	2.00
<b>Quartile-1 (Q1)</b>	<b>15.36</b>	<b>4.68</b>	<b>1.62</b>
<b>Median</b>	<b>32.50</b>	<b>10.25</b>	<b>5.86</b>
<b>Quartile-3 (Q3)</b>	<b>49.28</b>	<b>15.16</b>	<b>11.79</b>

<sup>6</sup> Publicly traded companies in India

# Optimal Hedge Ratio and Hedging Effectiveness of Stock Index Futures

Evidence from India

-Saumitra. N. Bahduri & S. Raja Sethu

## Executive Summary

In a free capital mobile world with increased volatility, the need for an optimal hedge ratio and its effectiveness is warranted to design better hedging strategy with future contracts. The conventional wisdom suggest a naïve strategy of 1:1 position; to effectively hedge one unit of spot position is to hold one unit of future contract. This strategy failed to deliver as the spot and future prices behave differently. Recent advances in time series analysis comes in hand to resolve this problem with alternative model specification and methods. This study analyses four competing models names, simple ordinary least squares (OLS) , vector autoregression model (VAR), vector error correction model (VECM) and a class of multivariate generalized autoregressive conditional heteroscedastic model (GARCH). With multivariate GARCH model we can estimate the time varying hedge ratio whereas the other models give a single point estimate.

Two sets of data are used in this study. For developing the model, daily data on NSE Stock Index Futures and S&P CNX Nifty Index for the time period from 4th September 2000 to 4th August 2005 and for out of sample validation daily data from 5th August 2005 to 19th September 2005 is considered. The effectiveness of the optimal hedge ratios derived from these competing models are examined in two ways. First, the mean returns of the hedged and the unhedged position and second, the average variance reduction between the hedged and the unhedged position with the hedge ratios for 1, 5, 10 and 20 days horizon.

The results clearly vote for the time varying hedge ratio derived from the multivariate GARCH model with higher mean return and higher average variance reduction across hedged and unhedged position. The potential use of this multivariate GARCH model cannot be sublined because of its estimation complexities. This method bears some additional benefits over the other simple techniques in terms of mean returns and variance reduction. Sophisticated models are warranted to cut into the complexities of the dynamics of a volatile world.



# Optimal Hedge Ratio and Hedging Effectiveness of Stock Index Futures

## Evidence from India

### 1. Introduction

The effective use of futures contract in hedging decisions has become focus and center of debate on finding out an optimal hedge ratio and hedging effectiveness in empirical financial research. The recent advances in the time series econometrics has also helped to rethink on the conventional methods adopted so far and revamped entire gamut of empirical research to effectively determine the hedge ratio.

The conventional wisdom suggests about the optimal hedge ratio is to have 1:1 position; to effectively hedge one unit of spot position is to hold one unit of future contract. This strategy often called as naïve-hedging strategy failed to deliver as the movement between the spot and futures prices are not synchronized. This has brought a renewed interest at the theoretical level by the works of Johnson (1960) and Stein (1961). They adopted a portfolio approach to determine the optimal hedging strategy based on the expected-utility maximization that boils down to minimum variance analysis as a special case. Following this Ederington (1979) developed a measure of hedging effectiveness as a percent reduction in the variance between the hedged and the unhedged returns. Until then the optimal hedge ratio has been estimated from a simple regression between the historical data on realized returns of spot and futures prices and the R-squared of that regression has been considered as the measure of hedging effectiveness. Kroner and Sultan (1993) criticized the hedge ratio obtained from the regression method, as it becomes a biased one if there exists a cointegrating relationship between the spot and the futures return. They proposed a vector error correction model to estimate the hedge ratio.

Two criticisms have been suggested against these empirical methods. First, the simple regression hedge ratio has been derived from the unconditional second moments while the actual minimum variance hedge ratio is based on the conditional second moments. Second, a constant hedge ratio duly not considers the fact that the joint distribution of spot and futures prices varies over time (Cecchetti et al, 1988). Recent advances in time series econometric techniques have tried to address this problem. A multivariate GARCH method developed by Bollerslev *et al* (1988) has used to estimate the time varying hedge ratio by considering the conditional variance and covariance of the spot and futures returns. Following this many empirical studies have compared the

constant hedge ratio with the time varying hedge ratio in perpetuating the return and the variance reduction (Holmes, 1995, Park and Switzer, 1995, Chou et al, 1996, Yang and Allen, 2005)

This study focuses on estimating optimal hedge ratio for stock index futures in India and comparing its hedging effectiveness. Daily data on NSE Stock Index Futures and S&P CNX Nifty Index for the time period from 4<sup>th</sup> September 2000 to 4<sup>th</sup> August 2005 has been considered for this study. Two important aspects contribute the significance of this study. First, compared to other countries the futures market, particularly that of stock index futures in India is fairly a new market in its earlier stage of development. Second, as an emerging market India attracts more foreign investments that induces volatility in the market. Effective hedging strategy would be highly imperative towards efficient risk management in a more volatile environment. This paper organizes as follows: Section 2 gives a brief overview of the methodology used in estimating the hedge ratio. Section 3 provides the strategy for calculating hedging effectiveness. Section 4 presents a description of the data used in this study. Section 5 discusses the empirical results and the final section concludes with a summary.

## 2. Methodology for calculating Hedge Ratio

This study focuses on four different methods for estimating the hedge ratio and test its effectiveness for both in-sample and out-sample data with 1, 5, 10 & 20 days horizon.

### 2.1 The Regression Method

A conventional method of finding an optimal hedge ratio is using simple ordinary least square (OLS) estimation of the following linear regression model:

$$r_{st} = \alpha + \beta r_{ft} + \varepsilon_t \quad (1)$$

where  $r_{st}$  and  $r_{ft}$  are the spot and futures returns for period  $t$ .  $\beta$  provides an estimate of the optimal hedge ratio.

### 2.2 The Bivariate VAR Method

A major disadvantage of the simple regression method described above is that there exists a possibility for the residuals being autocorrelated. To overcome this the bivariate vector autoregressive (VAR) model has been used. The optimal lag length for spot and futures returns  $m$ ,  $n$  are decided by iterating for each lag until the autocorrelation in the residuals are fully eliminated from the system.

$$r_{st} = \alpha_s + \sum_{i=1}^m \beta_{si} r_{st-i} + \sum_{j=1}^n \gamma_{sj} r_{ft-j} + \varepsilon_{st} \quad (2)$$

$$r_{ft} = \alpha_f + \sum_{i=1}^m \beta_{fi} r_{st-i} + \sum_{j=1}^n \gamma_{fj} r_{ft-j} + \varepsilon_{ft} \quad (3)$$

After estimating the system of equation, the residual series are generated to calculate the hedge ratio. Let  $\text{var}(\varepsilon_{st}) = \sigma_s$ ,  $\text{var}(\varepsilon_{ft}) = \sigma_f$  and  $\text{cov}(\varepsilon_{st}, \varepsilon_{ft}) = \sigma_{sf}$ , then the minimum variance hedge ratio is  $h^* = \sigma_{sf} / \sigma_f$





### 2.3 The Error Correction Method

If the level series of spot and future index are non-stationary and integrated of order one then the following vector error correction model has been used estimate the hedge ratio.

$$r_{st} = \alpha_s + \sum_{i=1}^m \beta_{si} r_{st-i} + \sum_{j=1}^n \gamma_{sj} r_{ft-j} + \lambda_s Z_{t-1} + \varepsilon_{st} \quad (4)$$

$$r_{ft} = \alpha_f + \sum_{i=1}^m \beta_{fi} r_{st-i} + \sum_{j=1}^n \gamma_{fj} r_{ft-j} + \lambda_f Z_{t-1} + \varepsilon_{ft} \quad (5)$$

where  $Z_{t-1} = S_{t-1} - \delta F_{t-1}$  is error correction term with  $(1-\delta)$  as cointegrating vector and  $\lambda_s, \lambda_f$  as adjustment parameters. Same procedure of generating the residual series and calculate the variance, covariance of the series to estimate the minimum variance hedge ratio depicted in the bivariate VAR model has been followed.

### 2.4 The Multivariate GARCH Method

As most of the financial time series data posses ARCH effects, the hedge ratio from the VAR models has turned out to be extraneous. To take care of ARCH effects in the residuals of error correction model, a VEC multivariate GARCH model of Bollerslev et al (1988) has been deployed. The main advantage of this model is that it simultaneously model the conditional variance and covariance of two interacted series. So we can able retrieve the time varying hedge ratios based on the conditional variance and covariance of the spot and the futures prices. A standard MGARCH (1,1) model is expressed as follows

$$\begin{bmatrix} h_{ss} \\ h_{sf} \\ h_{ff} \end{bmatrix}_t = \begin{bmatrix} c_{ss} \\ c_{sf} \\ c_{ff} \end{bmatrix}_t + \begin{bmatrix} \alpha_{11} & \alpha_{12} & \alpha_{13} \\ \alpha_{21} & \alpha_{22} & \alpha_{23} \\ \alpha_{31} & \alpha_{32} & \alpha_{33} \end{bmatrix} \begin{bmatrix} \varepsilon_s^2 \\ \varepsilon_s \varepsilon_f \\ \varepsilon_f^2 \end{bmatrix}_{t-1} + \begin{bmatrix} \beta_{11} & \beta_{12} & \beta_{13} \\ \beta_{21} & \beta_{22} & \beta_{23} \\ \beta_{31} & \beta_{32} & \beta_{33} \end{bmatrix} \begin{bmatrix} h_{ss} \\ h_{sf} \\ h_{ff} \end{bmatrix}_{t-1} \quad (6)$$

where  $h_{ss}, h_{ff}$  are the conditional variance of the errors  $(\varepsilon_{st}, \varepsilon_{ft})$  from the mean equations. In this paper the mean equation is the bivariate vector error correction model. As the model has 21 parameters to be estimated, Engle and Wooldridge (1988) proposed a restricted version of the above model with  $\alpha$  and  $\beta$  matrix have only diagonal elements. This Diagonal Vec (DVEC) model is expressed as

$$h_{sst} = c_{ss} + \alpha_{11} \varepsilon_{st-1}^2 + \beta_{11} h_{sst-1} \quad (7)$$

$$h_{sft} = c_{sf} + \alpha_{22} \varepsilon_{st-1} \varepsilon_{ft-1} + \beta_{22} h_{sft-1} \quad (8)$$

$$h_{fft} = c_{ff} + \alpha_{33} \varepsilon_{ft-1}^2 + \beta_{33} h_{fft-1} \quad (9)$$

The time varying hedge ratio has been calculated as the ratio between covariance of spot and futures price with variance of futures price. So  $h_{sft}/h_{fft}$  will be the time varying hedge ratio.

### 3. Estimating Hedging Effectiveness

The performance of the hedging strategies developed in the previous section has been examined by finding the hedging effectiveness of each strategy. To compare, the un-hedged portfolio is constructed as the composition of shares with same proportion held in the spot price index. The hedged portfolio is constructed with the combination of both the spot and the futures contract held. The hedge ratios estimated from each strategy determines the number of futures contract. The hedging effectiveness is calculated by the variance reduction in the hedged portfolio compared to that of un-hedged portfolio. The return of un-hedged and hedged portfolios are simply expressed as follows:

$$R_{unhedged} = S_{t+1} - S_t \quad (10)$$

$$R_{hedged} = (S_{t+1} - S_t) - h^*(F_{t+1} - F_t) \quad (11)$$

where  $R_{unhedged}$  and  $R_{hedged}$  are return on un-hedged and hedged portfolio.  $S_t$  and  $F_t$  are logged spot and futures prices at time  $t$  with  $h^*$  is optimal hedge ratio. Similarly the variance of the un-hedged and hedged portfolio is expressed as

$$Var_U = \sigma_s^2 \quad (12)$$

$$Var_H = \sigma_s^2 + h^{*2} \sigma_f^2 - 2h^* \sigma_{sf} \quad (13)$$

where  $Var_U$  and  $Var_H$  are variance of un-hedged and hedged portfolios with  $\sigma_s$ ,  $\sigma_f$  and  $\sigma_{sf}$  are standard deviations of spot and futures price and covariance between them respectively. Ederington (1979) proposed a measure of hedging effectiveness as the percentage reduction in variance of the hedged and the un-hedged portfolios. The hedging effectiveness is calculated as  $\frac{Var_U - Var_H}{Var_U}$ . This measure is calculated for both in-sample and out-sample data with 1, 5, 10 & 20 days horizon for evaluation.

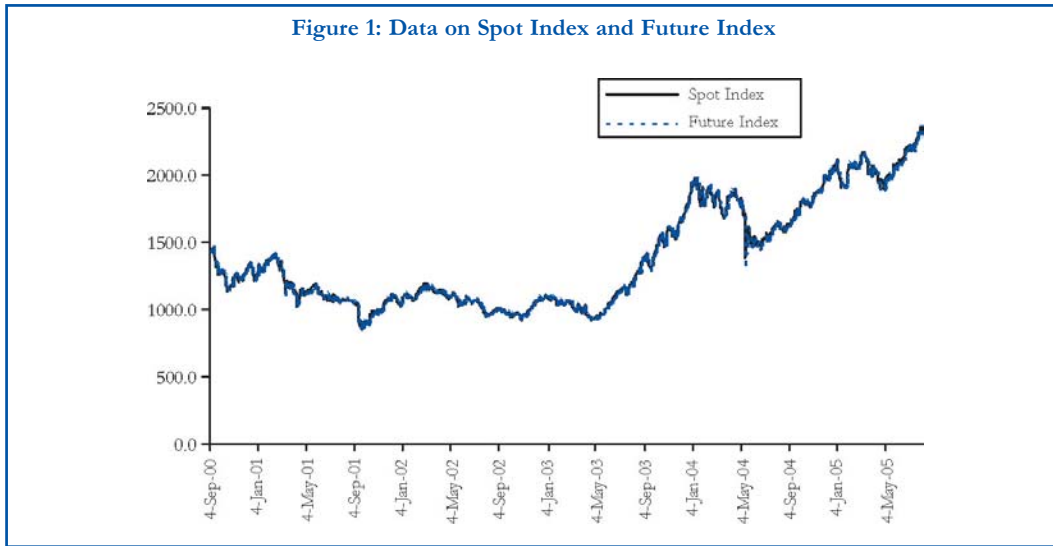
### 4. Data

This study uses Daily data on NSE Stock Index Futures and S&P CNX Nifty Index for the time period from 4<sup>th</sup> September 2000 to 4<sup>th</sup> August 2005. The data are collected from the NSE website ([www.nseindia.com](http://www.nseindia.com)). Figure 1 graphs the data on spot index and the future index.

Let  $S$  be the log of S&P CNX Nifty Index and  $F$  is the log of NSE Stock Index Futures. The standard unit root test establishes that the series  $S$  and  $F$  are non-stationary at levels and the return series ( $rs$  and  $rf$ ) are stationary. Table 1 provides the unit root test results.

The cointegration test is conducted using the Johansen's (1991) maximum likelihood method. We have used four lags in short-run specification of the model as suggested by Akaike information, Schwartz, Hannen-Quin criteria and likelihood ratio test. The results of cointegration tests are presented in Table 2. The trace and max-eigen value statistics suggest existence of one cointegrating vector at 1 % level of significance. The cointegrating





**Table 1: Unit Root Test**

Variable	ADF Statistics	Variable	ADF Statistics
$S$	0.290	$r_s$	-26.57**
$F$	0.246	$r_f$	-26.47**

\*\* denote significance at 1% level.

vector normalized with respect to  $S$  show that the long run cointegrating coefficients with respect to  $F$  is statistically significant.

**Table 2: Cointegration Analysis**

Hypothesis	Eigenvalue	$\lambda$ TRACE	95 % Critical Value	$\lambda$ MAX	95 % Critical Value
$r = 0$	0.0475	60.96**	12.53	60.21**	11.44
$r \leq 1$	0.0006	0.75	3.84	0.75	3.84

$r$  is valid cointegration vectors. \*\* denote significance at 1% level.

The corresponding unrestricted cointegrating vector normalized on  $S$  is given as

$S$	$F$
1	-1.000185(0.00008)

Standard errors are in the parentheses.

## 5. Empirical Results

In this section, we calculate the optimal hedge ratio from four different models described in section 2 and compare the measures of hedging effectiveness of these hedging models.

### 5.1. Estimates of Optimal Hedge Ratio

First, the optimal hedge ratio is calculated from a simple OLS regression (1). Table 3 reports the results from the regression model. The optimal hedge ratio is 0.928642.

**Table 3: OLS Regression Model**

	Coefficient
$a$	0.00003(0.000104)
$\beta$	0.928642**(0.0070)
$R^2$	0.933977

Standard errors are in the parentheses.

\*\* denote significance at 1% level.

To calculate the optimal hedge ratio from a Bivariate VAR model, we estimated the equations (2) and (3) with four lags and the results are presented in Table 4.

In the parentheses are standard errors. \* (\*\*) denote significance at 5 % and 1% level respectively.

**Table 4: Estimates of Bivariate VAR Model**

Equation (2)	Coefficient	Equation (3)	Coefficient
$\alpha_s$	0.0003 (0.0003)	$\alpha_f$	0.0003 (0.0004)
$\beta_{s1}$	0.3849** (0.117)	$\beta_{f1}$	0.6840** (0.121)
$\beta_{s2}$	0.0380 (0.121)	$\beta_{f2}$	0.2779* (0.126)
$\beta_{s3}$	0.0044 (0.120)	$\beta_{f3}$	0.1045 (0.125)
$\beta_{s4}$	0.1540 (0.114)	$\beta_{f4}$	0.2359* (0.119)
$\gamma_{s1}$	-0.2437* (0.112)	$\gamma_{f1}$	-0.5765** (0.116)
$\gamma_{s2}$	-0.1731 (0.117)	$\gamma_{f2}$	-0.3885** (0.122)
$\gamma_{s3}$	0.0524 (0.116)	$\gamma_{f3}$	-0.0267 (0.121)
$\gamma_{s4}$	-0.0614 (0.110)	$\gamma_{f4}$	-0.1367 (0.115)
$R^2$	<b>0.04737</b>	$R^2$	<b>0.04922</b>



The optimal hedge ratio is derived as  $h^* = \sigma_{sf} / \sigma_f$ . Where  $\sigma_{sf}$  is covariance ( $\varepsilon_s \varepsilon_f$ ) and  $\sigma_f$  is variance ( $\varepsilon_f$ ) with  $\varepsilon_s$  and  $\varepsilon_f$  are the residuals from the equations (2) and (3). Table 5 presents the estimates of optimal hedge ratio from the Bivariate VAR Model.

**Table 5: Optimal Hedge Ratio from the Bivariate VAR Model**

	Values
Covariance ( $\varepsilon_s \varepsilon_f$ )	0.000195
Variance ( $\varepsilon_f$ )	0.000209
$h^*$	<b>0.932921</b>

To calculate the optimal hedge ratio from a Vector Error Correction (VEC) model, we estimated the equations (4) and (5) with four lags and the results are presented in Table 6. From the results we see that the speed of adjustment parameter  $\gamma$  is significant only in the futures equation with a positive value, which signifies that the future index is converging to movements in spot index and not the vice versa.

**Table 6: Estimates of Vector Error Correction Model**

Equation (4)	Coefficient	Equation (5)	Coefficient
$\alpha_s$	0.0003 (0.0003)	$\alpha_f$	0.0003 (0.0004)
$\beta_{s1}$	0.2898* (0.130)	$\beta_{f1}$	0.4780** (0.135)
$\beta_{s2}$	-0.0408 (0.130)	$\beta_{f2}$	0.1070 (0.135)
$\beta_{s3}$	-0.0555 (0.1258)	$\beta_{f3}$	-0.0253 (0.130)
$\beta_{s4}$	0.1100 (0.117)	$\beta_{f4}$	0.1408 (0.121)
$\gamma_{s1}$	-0.1508 (0.126)	$\gamma_{f1}$	-0.3750** (0.130)
$\gamma_{s2}$	-0.0974 (0.122)	$\gamma_{f2}$	-0.2244* (0.135)
$\gamma_{s3}$	0.1098 (0.125)	$\gamma_{f3}$	0.0976 (0.126)
$\gamma_{s4}$	-0.0195 (0.113)	$\gamma_{f4}$	-0.0459 (0.117)
$\lambda_s$	0.1352 (0.082)	$\lambda_f$	0.2931** (0.085)
$R^2$	<b>0.04943</b>	$R^2$	<b>0.05817</b>

In the parentheses are standard errors. \* (\*\*) denote significance at 5 % and 1% level respectively.

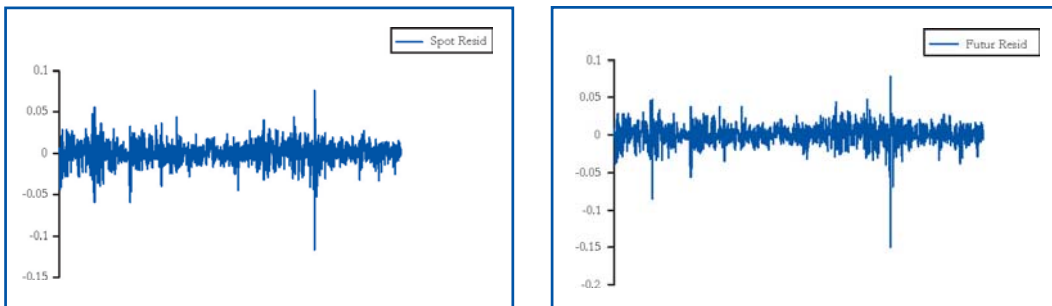
The optimal hedge ratio is derived as  $h^* = \sigma_{sf} / \sigma_f$ . Where  $\sigma_{sf}$  is covariance ( $\epsilon_s \epsilon_f$ ) and  $\sigma_f$  is variance ( $\epsilon_f$ ) with  $\epsilon_s$  and  $\epsilon_f$  are the residuals from the equations (4) and (5). Table 7 presents the estimates of optimal hedge ratio from the VEC Model.

**Table 7: Optimal Hedge Ratio from the VEC Model**

	Values
Covariance ( $\epsilon_s \epsilon_f$ )	0.000194
Variance ( $\epsilon_f$ )	0.000207
<b><math>h^*</math></b>	<b>0.937400</b>

To examine the efficiency of both the Bivariate VAR model and the VEC Model, the features of the residuals are examined. Figure 2 plots the residuals from equation (2) and (3) and Figure 3 plots the residuals from equation (4) and (5). It clearly shows the presence of ARCH effects. This is also confirmed by the analysis proposed by McLeod and Li (1983), which examine the sample autocorrelation functions of the mean equation. In that the squared residuals from the estimated mean equation is checked for a significant Q-statistic at a given lag. The results, which show a high significance for the Q-statistic for each given lag, are reported in Table 8 for Bivariate VAR model and Table 9 for VEC model.

**Figure 2: Residual series from Spot and Future equation in Bivariate VAR model.**



**Figure 3: Residual series from Spot and Future equation in VEC model.**

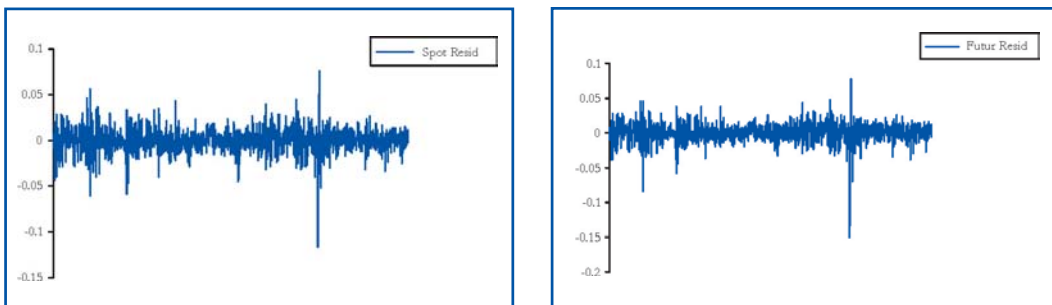


Table 8: Squared residuals from the Bivariate VAR Model  
Equation (2)









































Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	0.521	0.521	336.53	0.000
		2	0.156	-0.159	366.76	0.000
		3	0.051	0.056	370.00	0.000
		4	0.107	0.108	384.12	0.000
		5	0.100	-0.015	396.50	0.000
		6	0.051	-0.002	399.68	0.000
		7	0.039	0.034	401.55	0.000
		8	0.071	0.046	407.88	0.000
		9	0.114	0.062	423.98	0.000
		10	0.064	-0.043	429.02	0.000
		11	0.010	-0.006	429.13	0.000
		12	0.021	0.035	429.69	0.000
		13	0.055	0.016	433.43	0.000
		14	0.078	0.040	441.07	0.000
		15	0.025	-0.046	441.86	0.000
		16	-0.004	0.003	441.88	0.000
		17	0.001	-0.001	441.88	0.000
		18	0.007	-0.019	441.94	0.000
		19	0.031	0.046	443.17	0.000
		20	0.020	-0.017	443.66	0.000

Equation (3)









































Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	0.426	0.426	224.58	0.000
		2	0.092	-0.109	235.06	0.000
		3	0.040	0.054	237.07	0.000
		4	0.111	0.101	252.31	0.000
		5	0.083	-0.010	260.78	0.000
		6	0.039	0.009	262.63	0.000
		7	0.018	0.003	263.04	0.000
		8	0.061	0.054	267.67	0.000
		9	0.151	0.121	295.14	0.000
		10	0.046	-0.091	298.80	0.000
		11	0.012	0.039	298.97	0.000
		12	0.015	-0.003	299.25	0.000
		13	0.051	0.020	302.47	0.000
		14	0.069	0.045	308.47	0.000
		15	0.015	-0.045	308.74	0.000
		16	0.004	0.023	308.77	0.000
		17	0.002	-0.021	308.78	0.000
		18	-0.002	-0.032	308.78	0.000
		19	0.025	0.061	309.57	0.000
		20	0.004	-0.044	309.59	0.000



**Table 9: Squared residuals from the VEC Model  
Equation (4)**

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	0.515	0.515	327.84	0.000
		2	0.145	-0.163	353.77	0.000
		3	0.047	0.062	356.47	0.000
		4	0.105	0.104	370.16	0.000
		5	0.093	-0.021	380.94	0.000
		6	0.049	0.008	383.89	0.000
		7	0.038	0.028	385.65	0.000
		8	0.069	0.045	391.60	0.000
		9	0.116	0.071	408.29	0.000
		10	0.066	-0.045	413.70	0.000
		11	0.008	-0.009	413.78	0.000
		12	0.018	0.033	414.17	0.000
		13	0.057	0.022	418.18	0.000
		14	0.077	0.033	425.56	0.000
		15	0.022	-0.044	426.18	0.000
		16	-0.006	0.005	426.22	0.000
		17	-0.001	-0.004	426.22	0.000
		18	0.008	-0.014	426.30	0.000
		19	0.036	0.050	427.90	0.000
		20	0.025	-0.016	428.66	0.000

**Equation (5)**

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	0.401	0.401	198.81	0.000
		2	0.073	-0.104	205.40	0.000
		3	0.030	0.047	206.50	0.000
		4	0.104	0.098	220.02	0.000
		5	0.070	-0.016	226.05	0.000
		6	0.034	0.017	227.50	0.000
		7	0.015	0.000	227.80	0.000
		8	0.054	0.048	231.37	0.000
		9	0.153	0.132	260.65	0.000
		10	0.051	-0.081	263.92	0.000
		11	0.008	0.028	264.01	0.000
		12	0.008	-0.002	264.10	0.000
		13	0.053	0.027	267.66	0.000
		14	0.065	0.036	272.88	0.000
		15	0.013	-0.038	273.07	0.000
		16	0.002	0.019	273.08	0.000
		17	0.001	-0.019	273.08	0.000
		18	0.000	-0.030	273.08	0.000
		19	0.032	0.062	274.37	0.000
		20	0.010	-0.035	274.50	0.000





The residual plots and Q-Statistic from the squared residual series denotes the presence of ARCH effects. This implies that the assumption of constant variance over time and the estimation of constant hedge ratios may be inappropriate. The estimation of time-varying variances and covariances and as a consequence time-varying hedge ratios based on a GARCH model are therefore expected to give better results. We estimated the Diagonal VEC multivariate GARCH model of Engle and Wooldridge (1988). The estimated results of the DVEC model specified in equations (7)-(9) are presented in Table 10.

**Table 10: Estimates of the DVEC-GARCH Model**

	Coefficient
$C_{ss}$	0.0000156** (0.0000017)
$C_{sf}$	0.0000146** (0.0000015)
$C_{ff}$	0.0000148** (0.0000015)
$\alpha_{11}$	0.7746040** (0.0156636)
$\alpha_{22}$	0.7883055** (0.0146405)
$\alpha_{33}$	0.7917804** (0.0139856)
$\beta_{11}$	0.1293227** (0.0126181)
$\beta_{22}$	0.1183799** (0.0115152)
$\beta_{33}$	0.1182199** (0.0106835)

In the parentheses are standard errors.

\*\* denote significance at 1% level.

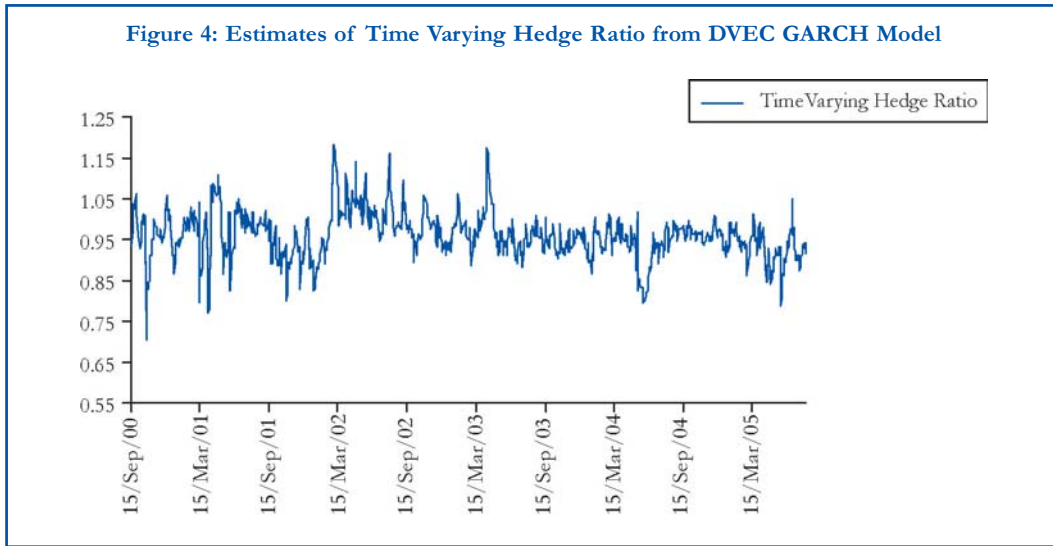
Figure 4 depicts the time varying hedge ratio derived from the DVEC GARCH model. The average value of the time varying hedge ratio series is 0.95885.

The optimal hedge ratio estimated from four different models are listed in Table 11.

## 5.2. Estimates of Hedging Effectiveness

Daily data on NSE Stock Index Futures and S&P CNX Nifty Index for the time period from 4<sup>th</sup> September 2000 to 4<sup>th</sup> August 2005 has been used for constructing the optimal hedge ratio and test its effectiveness with 1, 5, 10 & 20 day horizon. For out of sample validation, data from 5<sup>th</sup> August 2005 to 19<sup>th</sup> September 2005 has been used.

Traditionally the hedging effectiveness is equal to R-squared of the OLS regression. But to compare across competing strategies, we consider a standard method explained in section 3



**Table 11: Estimates of Optimal Hedge Ratio**

Method	$b^*$
OLS	0.92864
BVAR	0.93292
VECM	0.93740
DVEC-GARCH	0.95885

to test the hedging effectiveness for the optimal hedge ratios derived from all the models. A hedging strategy is effective only if the mean return from the strategy is higher than the competing strategies and it reduced a significant portion of the variance with respect to its unhedged strategy. The mean returns and average variance reduction has been calculated for non overlapping 1, 5, 10 & 20 day horizon for both within sample and out of sample validations. Table 12 gives within sample mean returns and Table 13 gives the average variance reduction for different hedging ratios.

**Table 12: Mean Return for within sample**

Method	$b^*$	1-Day	5-Day	10-Day	20-Day
OLS	0.92864	0.041%	0.040%	0.037%	0.031%
BVAR	0.93292	0.041%	0.040%	0.037%	0.032%
VECM	0.93740	0.042%	0.041%	0.038%	0.032%
DVEC-GARCH	0.95885	0.043%	0.041%	0.038%	0.033%
DVEC-GARCH	Time Varying	<b>0.044%</b>	<b>0.042%</b>	<b>0.038%</b>	<b>0.034%</b>



The table clearly establishes the fact that the time varying hedge ratio from the DVEC-GARCH specification has given a higher mean returns compared to any other derived optimal hedge ratios. The mean return is almost higher by more than 100 percent from the other strategies

**Table 13: Average Variance Reduction for within sample**

Method	$b^*$	1-Day	5-Day	10-Day	20-Day
OLS	0.92864	<b>93.36%</b>	<b>83.67%</b>	89.69%	91.41%
BVAR	0.93292	93.36%	83.60%	89.68%	91.41%
VECM	0.93740	93.35%	83.52%	89.66%	91.41%
DVEC-GARCH	0.95885	93.26%	83.07%	89.52%	91.36%
DVEC-GARCH	Time Varying	<b>92.96%</b>	<b>83.24%</b>	<b>89.71%</b>	<b>91.44%</b>

The variance reduction depicts a slightly different picture, for smaller time horizons the optimal hedge ratio derived from OLS is performing better than the other competing strategies whereas for longer time horizons it is DVEC-GARCH time varying hedge ratio performs better. But the out of sample mean returns and average variance reduction vote for time varying hedge ratio from the DVEC-GARCH specification. Table 14 and Table 15 present the results.

**Table 14: Mean Return for out of sample**

Method	$b^*$	1-Day	5-Day	10-Day	20-Day
OLS	0.92864	0.029%	0.024%	0.024%	0.024%
BVAR	0.93292	0.028%	0.020%	0.020%	0.020%
VECM	0.93740	0.027%	0.015%	0.015%	0.015%
DVEC-GARCH	0.95885	0.025%	-0.008%	-0.008%	-0.008%
DVEC-GARCH	Time Varying	<b>0.037%</b>	<b>0.026%</b>	<b>0.025%</b>	<b>0.025%</b>

**Table 15: Average Variance Reduction for out of sample**

Method	$b^*$	1-Day	5-Day	10-Day	20-Day
OLS	0.92864	91.92%	93.20%	93.27%	93.16%
BVAR	0.93292	91.84%	93.11%	93.19%	93.07%
VECM	0.93740	91.75%	93.00%	93.09%	92.97%
DVEC-GARCH	0.95885	91.25%	92.43%	92.56%	92.44%
DVEC-GARCH	Time Varying	<b>92.36%</b>	<b>93.35%</b>	<b>93.37%</b>	<b>93.18%</b>

## 6. Conclusion

The conventional naïve strategy of 1:1 position for hedging has faced several criticisms as the spot and future prices behave differently. In a free capital mobile world with an increased volatility the need for an effective hedging strategy is highly imperative for the fund managers to optimize. This paper tries to give an overview of the competing models in calculating optimal hedge ratio. The effectiveness of these strategies is compared with mean returns and average variance reduction with respect to the unhedged position. Daily data on NSE Stock Index Futures and S&P CNX Nifty Index for the time period from 4<sup>th</sup> September 2000 to 4<sup>th</sup> August 2005 has been considered for developing the optimal hedge ratio and the data from 5<sup>th</sup> August 2005 to 19<sup>th</sup> September 2005 has been considered for out of sample validation. The results clearly establishes that the time varying hedge ratio derived from DVEC-GARCH model gives a higher mean returns and higher average variance reduction compared to other counterparts. This DVEC-GARCH model cannot be ignored for its modeling complexities as it provides a far better outcome in terms of effective hedging against simple naïve and OLS strategies.

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# Do the S&P CNX Nifty Index And Nifty Futures Really Lead/Lag?

## Error Correction Model: A Co-integration Approach

-Shalini Bhatia

### *Abstract*

*Applying the Co-Integration approach to study the long run relationship between Nifty futures and spot index and the Error Correction Model to examine the short-term adjustment process, using high frequency data, the study finds that, price discovery happens in both, the futures and the spot market. However the S&P CNX Nifty Futures Index is more efficient than the S&P CNX Nifty Index and leads the spot index by 10 to 25 minutes. Such a finding is consistent with similar studies in U.S and U.K markets.*

**Keywords :** lead-lag relationships, Co-integration Analysis, Error Correction Model and Granger Causality

## Introduction\*

When a security is traded in more than one market, investors have different avenues to trade and exploit information. An investor who wants to trade the S&P CNX Nifty index can do so in the spot market through basket trading<sup>1</sup> or in the futures market at the National Stock Exchange. Where frictionless and continuous information sharing across markets exists, trading should be considered as taking place in a single market with simultaneous price changes in stocks, stock indices and derivative instruments. In such a scenario an investor would be indifferent between trading in the spot or futures markets. However, if the markets were not frictionless, some markets would appear to be more attractive than others because of concerns

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<sup>1</sup>Basket trading is an online order entry that enables a trading member to buy or sell Nifty index in one shot. Trading-members, participating in the NEAT F&O trading segment, can buy or sell the Nifty-50 stocks according to the existing weightage. As per this facility, a trading member, on defining the value of a portfolio to be transacted, can arrive at the quantity of each security in the portfolio to be bought or sold. This is arrived at as per the weightage (market capitalisation) of each security in the portfolio. The weightage is calculated using the latest traded price in the market thus minimising the errors caused due to price movement.



relating to transaction costs, regulation and liquidity, leading to differences in price discovery across the different markets. In an efficient market, information processing should be expeditious and the most efficient market should lead the others. Hence, information transmission or price discovery is an indication of the relative market efficiencies of related assets. Therefore it is important to determine the nature and location of price discovery.

Stock index futures contracts are usually priced using the forward pricing model which, given perfect capital markets and non-stochastic interest rates and dividend yields, implies that contemporaneous rates of returns of the futures contract and the underlying index portfolio should be contemporaneously correlated. Relevant new information should be theoretically impounded simultaneously into both the futures and cash prices and therefore, price movements in one market should neither lead nor lag the prices in the other market. However, on small time intervals (high frequency) it is often noticed that some price series consistently lead other closely related prices. Such lead-lag relations indicate that one market processes new information faster than the other market. Due to arbitrage restrictions that link these markets, lead and lag correlation coefficients between price change series will generally be small although it is possible that one market consistently leads or lags the other. Several studies examine temporal relationships between futures and cash index returns<sup>2</sup>. The results frequently suggest that the futures returns lead the cash return and that this effect is stronger when there are more stocks included in the index. But the relationship is not completely unidirectional: the cash index may also affect the futures although this lead is almost always much shorter.

Research in this area is important for several reasons. Firstly it is important to determine the nature and location of price discovery and to find out which market is most efficient. Secondly, the lead lag relationship and its behaviour are of particular interest to arbitrageurs who are required to complete both legs of an index arbitrage transaction within a short time span. Thirdly existing research has concentrated largely on the U.S and U.K index futures markets. It is of interest to extend this work to a different market environment. The existing empirical works on the Indian market points towards a lead lag relationship between futures and spot markets, however, the direction of this relationship is inconclusive.

The purpose of the present research is to examine the robustness of the previous findings about the contribution of derivatives on the price discovery process involving index securities. The lead lag relationship between Nifty futures index and Nifty spot index will be investigated using high frequency data. Engle and Granger's Co-integration Analysis and Error Correction Model will be applied to study the interrelationship between the two markets. The rest of the paper is organised in four sections. Section I explains the Cost of Carry model for pricing index futures and briefly reviews the existing literature on lead-lag relationship. It also covers the various issues because of which, there could be a lead-lag relationship, between the futures index and its corresponding underlying. Section II elaborates on the methodology and data used in the study. The empirical findings and their implications are discussed in section III. The last section gives the concluding observations.

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<sup>2</sup>Herbst (1987), Kawaller (1987), Stoll and Whaley (1990) Chan (1992), Tang, Mak and Choi (1992), Iihara, Kato and Tokunga (1996), Abhyankar (1998) etc.



## Section I

### Theoretical background

In a no-arbitrage world, the futures price and cash price reflect the value of the same underlying asset. The difference in prices is attributed to the cost-of-carry (COC Model) in the relationship. Any deviation from the relationship will be eliminated by arbitrage activities, wherein, investors would take offsetting positions in the two markets to earn an assured risk free return and in turn bringing the prices in the two markets in line with each other.

Stock index futures can be priced by using the COC Model given in equation (1).

$$F(t, T) = S(t) e^{r(T-t)} - D(t, T) \quad (1)$$

Where  $F(t, T)$  equals the futures price at time  $t$ , for a contract that matures at time  $T$ ,  $S(t)$  is the spot index value at time  $t$ ,  $r(T-t)$  is the risk-free interest rate compounded continuously<sup>3</sup> for the period  $T-t$  and  $D(t, T)$  is the value of dividends paid on the component stocks for the period from  $t$  to  $T$ .

The above cost-of-carry relationship will hold good, as long as, the markets are perfect, interest rates are non-stochastic and the dividends paid by the underlying basket of shares are known with certainty. Hence, if the futures price ( $F$ ) and the cash price ( $S$ ) share the same (stochastic) trend in their price dynamics, i.e. they move together, they are regarded as co-integrated. If this relationship holds good then there would be no lead-lag relationship between the two markets.

An assumption of the COC model is that the two markets are perfectly efficient, frictionless and act as perfect substitutes. Accordingly profitable arbitrage opportunities should not exist because new information arrives simultaneously to both the markets and is reflected immediately in both futures and spot prices. However, numerous empirical studies, in the international markets, have established the existence of lead-lag relationship between price changes in spot and futures markets.

Herbst, McCormick, and West (1987) find that futures prices for Value Line and S&P 500 tend to lead their corresponding spot prices. Even though there are indications of significant lead at longer time spans, the spot index reacts initially in less than one minute. Consequently, knowledge of lead-lag relationship is unlikely to provide profitable trading advantage. Kawaller, Koch and Koch (1987) document that S&P 500 futures price and its spot price are mostly simultaneously related throughout the trading day, with futures price leading the spot price at times by as much as twenty minutes. However the lead from spot price to futures price does not last for more than one minute. They attribute this futures leading spot relationship to

<sup>3</sup>There are two reasons why continuous compounding is preferable to discrete compounding. First, it is computationally easier in a spreadsheet. Second, it is internally consistent. For example, interest rate is always quoted on an annual basis but the compounding frequency may be different in different markets. Bond markets use half-yearly compounding; banks use quarterly compounding for deposits and loans; and money markets may use overnight or weekly or monthly intervals for compounding. With continuous compounding, we do not have to specify the frequency of compounding. This is the reason why academics prefer continuous compounding to discrete compounding.





infrequent trading in the stock market. Stoll and Whaley (1990) find that index futures lead their spot prices by about five to ten minutes, even after purging microstructure effects such as infrequent trading. They also find some evidence that spot returns lead futures returns in early inception period of futures trading. Chan (1992) and Ghosh (1993) further report the dominant role of S&P 500 futures index in the price discovery process. However using a Cointegration approach, Wahab and Lashgari (1993) finds that error correcting price adjustments occur significantly in both the S&P 500 futures and cash markets in price discovery.

Abhyankar (1995) investigates the lead lag relationship in return and volatilities between FTSE 100 stock index futures and underlying cash markets, utilizing hourly intra day data. The author finds a strong contemporaneous relationship between futures and cash prices along with some significant evidence that futures markets lead spot market during times of high volatility. Abhyankar (1998) revisited the relationship using 5-minute returns by regressing spot returns on lagged spot and futures returns, and futures returns on lagged spot and futures returns using Exponential Generalised Auto Regressive Conditional Heteroskedasticity (EGARCH). It was found that the futures returns led the spot returns by 15-20 minutes. Min and Najand (1999) used intraday data from the Korean market, found that the futures market leads the cash market by as long as 30 minutes.

In India, little work has been done in this area. The lead-lag analysis by Thenmozhi (2002) showed that the returns on futures lead the spot market returns. The study lent credence to the belief that the futures market tends to lead spot market and the index futures market serves as a primary market of price discovery. The study also showed that the cash index does not lead the futures returns. Though the futures lead the spot market returns by one day, the exact time by which the futures lead the spot market returns was not identified as the study was conducted using daily returns due to lack of data in terms of minute -by-minute or hourly returns.

Mukherjee and Mishra (2006) used intraday data from April to September 2004 to investigate the lead lag relationship between Nifty spot index and Nifty futures. They found that there was a strong bidirectional relationship among returns in the futures and the spot markets. The spot market was found to play a comparatively stronger leading role in disseminating information available to the market and therefore said to be more efficient. The results relating to the informational effect on the lead-lag relationship exhibit that though the leading role of the futures market wouldn't strengthen even for major market-wide information releases, the role of the futures market in the matter of price discovery tends to weaken and sometimes disappear after the release of major firm-specific announcements.

The two studies on the lead lag relationship in the Indian market have come up with diametrically opposing views. According to Thenmozhi, futures markets lead the spot market. Whereas, according to Mukherjee and Mishra the spot market had a major role to play in price discovery and leads over the futures market. The general conclusion of previous research is that the returns in the futures market seem to lead cash market returns and there is some evidence of the predictive ability from cash to futures returns.

It has been argued that the persistence in the lead-lag relationship between index futures and spot index prices can be traced to one or more market imperfections, such as transaction costs, liquidity differences between the two markets, non-synchronous trading effects, the automation of one or the other market, short selling restrictions, different taxation regimes, dividend uncertainties and non-stochastic interest rates. In the following are reviewed some of the market imperfections that have been demonstrated in the literature to have had a major impact on the lead-lag relationship between spot and futures index price changes.

One of the reasons for persistence of lead-lag relationship between spot and futures market is the difference in transaction costs. The Trading Cost Hypothesis<sup>4</sup> predicts that the market with the lowest transaction costs will react more quickly to new information and will lead price changes in the other markets. Transaction costs are substantially lower when trading a futures contract against a basket of spot index stocks. When market-wide information suggests a need to hedge portfolios, the futures contract trade can be executed at lower cost, leading to an asymmetric price relationship with the underlying index in the cash market lagging the index futures price. Abhyankar (1995) considers the lead-lag relationship when transaction costs on the London equity market were decreased. Consistent with the Trading Cost Hypothesis, his evidence points to a reduction in the size and the asymmetric lead of the FT-SE100 futures returns over that of the underlying spot index.

According to Brooks, Garrett and Hinich (1999) "In the absence of transaction costs arbitrage between stock and stock index futures markets is based on deviations of the futures price from its fair value as given by the spot price adjusted for the cost of carrying the underlying portfolio to maturity of the futures contract. In the presence of transaction costs, however, there are bounds on such deviations within which arbitrage will not be triggered. Therefore, there will be thresholds within which the relative difference between the futures and spot price can fluctuate without triggering arbitrage. The result of this is nonlinearity in the relationship between stock and stock index futures markets and this nonlinearity may spill over into the lead-lag relationship between the markets"

The lead lag relationship between the two markets may be induced by infrequent trading of the stocks comprising the index. Component stocks may not trade every instant, as a result observed prices may not reflect the true value of the index. The spot index would not update actual developments in the component stocks, thereby lagging actual developments in the stock market. An index futures contract, however, represents a single claim, as opposed to a portfolio of component securities and therefore, should not suffer from asynchronous trading problem observed for the spot index [Stoll and Whaley (1990)]. Therefore, if futures prices reflect current information instantaneously, the cash index with some stale prices will lag the futures price. A number of studies have questioned whether non-synchronous trading was suitable as a sole explanation for the lead-lag relationship. Harris (1989), Stoll and Whaley (1990), Chan (1992), Wahab and Lashgari (1993), impose some form of non-synchronous

<sup>4</sup>Fleming J., Ostdiek B. and Whaley R.1996.Trading Costs and the Relative Rates of Price Discovery in Stock Futures and Option Markets. *Journal of Futures Markets*, 16 (4):353-387.



trading adjustment. They find that non-synchronous trading accounted for only part of the asymmetric lead-lag relation.

Market frictions such as capital requirements and short selling restrictions may make it optimal for some to trade in the derivatives market rather than the cash market. Informed traders may find that they can act on their private information more rapidly and at a lower cost in the futures market than in the spot market. They are expected to trade in derivatives markets given the higher leverage effect they offer as compared to the underlying market. By doing so, they exploit at the most their advantage since derivatives require smaller capital outlays. Iihara, Kato and Tokunaga (1996) investigate the impact of the imposition of a higher initial margin and tightening special price quotation in the Nikkei Stock Average (NSA) index futures. They document a shorter lead-time of the NSA futures over the index in intraday return dynamics after the stricter measures were introduced. Their results imply that the lead from futures, if any, will reduce if the upfront cost is elevated.

By using index derivatives, investors can easily and rapidly carry out strategies on the basis of their expectations about the general market trends, without having to consider transaction costs (including mainly the bid-ask spread) and specific changes in each stock that constitutes the index. Long and short positions can be established more easily and less expensively in futures market, more so than in the spot market, trading based on revised expectations can take place more frequently in the futures market. Therefore futures prices may move first, followed by spot price movements in response to changes in expectations about the stock market.

Differences in liquidity between the spot and futures markets could also induce a lead-lag relationship. If the average time between trades for constituent firms in the index is longer than the average time between trades for the futures contracts, information will be impounded in futures prices more rapidly than the spot prices, resulting in a lead-lag relationship between spot and futures prices. The lead-lag relationship is a function of the relative liquidity of the two markets rather than their absolute liquidity.

A stronger lead from spot market to futures market may not be inconceivable since the value of the spot index and its more recent changes represent part of the information set used by futures traders. Changes in the spot market may induce changes in the futures market sentiment that would be reflected in subsequent futures price changes, giving rise to a tendency for index futures to lag index spot.

The present study examines the robustness of the previous findings about the contribution of derivatives, to the price discovery process, using index securities. It investigates the lead lag relationship between Nifty futures index and Nifty spot index by using high frequency data. Engle and Granger's Co-integration Analysis and Error Correction Model is applied to study the interrelationship between the two markets<sup>5</sup>.

<sup>5</sup>Some of the other studies that have applied this methodology are Wahab and Lashgari (1993) Ghosh (1993) and Tse (1995)

## Section II

### Methodology

The finding that many time series may contain a unit root has spurred the development of the theory of non-stationary time series analysis. Engle and Granger (1987) pointed out that a linear combination of two or more non-stationary series may be stationary. If such a stationary, linear combination exists, then the non-stationary time series are said to be cointegrated. The stationary linear combination is called the cointegrating equation and may be interpreted as a long-run equilibrium relationship between the variables. Although the two series may be non-stationary they may move closely together in the long run so that the difference between them is stationary. This section outlines the methodology of the Co-integration Analysis to study the relationship between Nifty spot index and Nifty futures index.

Two series  $S_t$  and  $F_t$  are said to be integrated of the order one, denoted by  $I(1)$ , if they become stationary after first difference. If there are two such series which are  $I(1)$  integrated and their linear combination is stationary, then these two series are said to be cointegrated. This relationship is the long run equilibrium relationship between  $S_t$  and  $F_t$ . A principal feature of cointegrated variables is that their time paths are influenced by the extent of any deviation from long-run equilibrium. If the system is to return to its long-run equilibrium, the movement of at least one variable must respond to the magnitude of the disequilibrium. If cointegration exists between  $S_t$  and  $F_t$ , then Engle and Granger representation theorem suggests that there is a corresponding Error Correction Model (ECM). In an ECM, the short term dynamics of the variables in the system are influenced by the deviations from the equilibrium.

The present research, seeks to determine whether there exists an equilibrium relationship between Nifty spot index and Nifty futures index. Engle and Granger suggest a four step procedure to determine if the two variables are cointegrated. The first step in the analysis is to pre-test each variable to determine its order of integration, as cointegration necessitates that the two variables be integrated of the same order. Augmented Dickey-Fuller (ADF) test has been used to determine the order of integration. If the results in step one show that both the series are  $I(1)$  integrated then the next step is to establish the long run equilibrium relationship in the form

$$S_t = \beta_0 + \beta_1 F_t + e_t \quad (2)$$

Where  $S_t$  is the log of spot index price;  $F_t$  is the log of futures index prices at time  $t$  and  $e_t$  is the residual term. In order to determine if the variables are cointegrated we need to estimate the residual series from the above equation. The estimated residuals are denoted as  $(\hat{e})$ . Thus the  $\hat{e}$  series are the estimated values of the deviations from the long run relationship. If these deviations are found to be stationary, then the  $S_t$  and  $F_t$  series are cointegrated of the order (1,1). To test if the estimated residual series is stationary Engle-Granger test for co-integration was performed.



The third step is to determine the ECM from the saved residuals in the previous step.

$$\Delta S_t = \alpha_1 + \alpha_s \hat{\epsilon}_{t-1} + \text{lagged}(\Delta S_t, \Delta F_t) + \epsilon_{st} \quad (3)$$

$$\Delta F_t = \alpha_2 + \alpha_f \hat{\epsilon}_{t-1} + \text{lagged}(\Delta S_t, \Delta F_t) + \epsilon_{ft} \quad (4)$$

In equation 3 and 4,  $\Delta S_t$  and  $\Delta F_t$  denote, respectively, the first differences in the log of spot and futures prices for one time period.  $\hat{\epsilon}_{t-1}$  is the lagged error correction term from the cointegrating equation and  $\epsilon_{st}$  and  $\epsilon_{ft}$  are the white noise disturbance terms. Equations 3 and 4 describe the short-run as well as long-run dynamics of the equilibrium relationship between spot index and futures index. They provide information about the feedback interaction between the two variables.

Equation (3) has the interpretation that, change in  $S_t$  is due to both, short-run effects, from lagged futures and lagged spot variables and to the last period equilibrium error ( $\hat{\epsilon}_{t-1}$ ), which represents adjustment to the long-run equilibrium. The coefficient attached to the error correction term measures the single period response of changes in spot prices to departures from equilibrium. If this coefficient is small then spot prices have little tendency to adjust to correct a disequilibrium situation. Then most of the correction will happen in the other variable, in this case futures prices.

The last step involves testing the adequacy of the models by performing diagnostic checks to determine whether the residuals of the error correction equations approximate white noise. The reverse representation of Engle and Granger's Co-integration analysis along with the empirical findings has been given in the appendix. A pair wise Granger Causality test was done to establish the cause and effect relationship between spot index and futures index.

## Data

The NSE provides a fully automated screen based trading system for futures and spot market transactions, on a nationwide basis and an online monitoring and surveillance mechanism. It supports an order driven market which provides complete transparency of trading operations and operates on strict price-time priority. The derivatives trading on the NSE commenced with the S&P CNX Nifty Index futures on June 12, 2000. NSE is the largest derivatives exchange in India, in terms of volume and turnover. Currently, the derivatives contracts have a maximum of 3-month expiration cycles. Three contracts are available for trading with 1-month, 2-months and 3-months expiry.

To examine the lead-lag relationship between the underlying spot market and the futures market, the basic data used in this study consists of intraday price histories, for the nearby contract of S&P CNX Nifty and S&P CNX Nifty futures. Nifty is a well diversified 50 stock index accounting for 22 sectors of the economy. It is used for a variety of purposes such as benchmarking fund portfolios, index based derivatives and index funds. Nifty stocks represent about 59.49% of the total market capitalization as on Sep 29, 2006. The index futures contracts has S&P CNX Nifty as the underlying index. The number of shares in the index is not too

large, and it comprises of the most actively traded securities. Therefore, the risk of the spot index lagging behind the futures index due to non synchronous trading is negligible.

I have used tick by tick transaction data, for one year from April 2005 to March 2006. The data is filtered by using simultaneous data for spot and futures prices, at 5 minute interval. Within an interval the first observed price has been recorded for Nifty spot index and Nifty futures index. For index futures, prices quoted for the near month contract have been used. As the near month contract approaches expiration date, price data was rolled over to the next month. To maintain uniformity, next month price quotes were used three days before the contract expires. In NSE trading starts at 9.55 am and ends at 3.30 pm. I have taken the first quote at 10.am and then data is collected at every 5 minute interval. The last quote on each day is at 3.25 pm. For each trading day there are 67 observations and my total sample size is 15576. The analysis is based on 5 minute return data, so as to avoid any distortion in the results, overnight returns have been excluded. Trading data for few days was deleted like a special trading session on Saturday, Diwali trading etc. The logarithms of price series are analysed in this study. Data relating to the spot as well as the futures market in India has been collected from the historical data CD-ROM's made available, by the National Stock Exchange. These CD's have high frequency tick by tick data and they keep records of every trade that takes place. STATA<sup>6</sup> software has been used to extract the relevant data from the CD ROM's.

### Section III

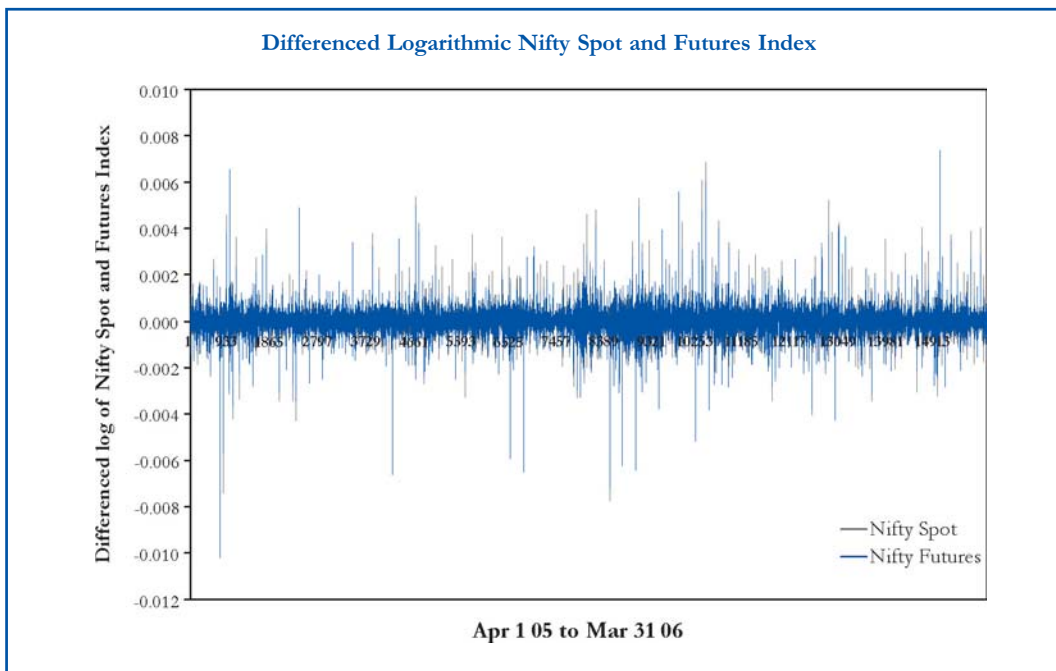
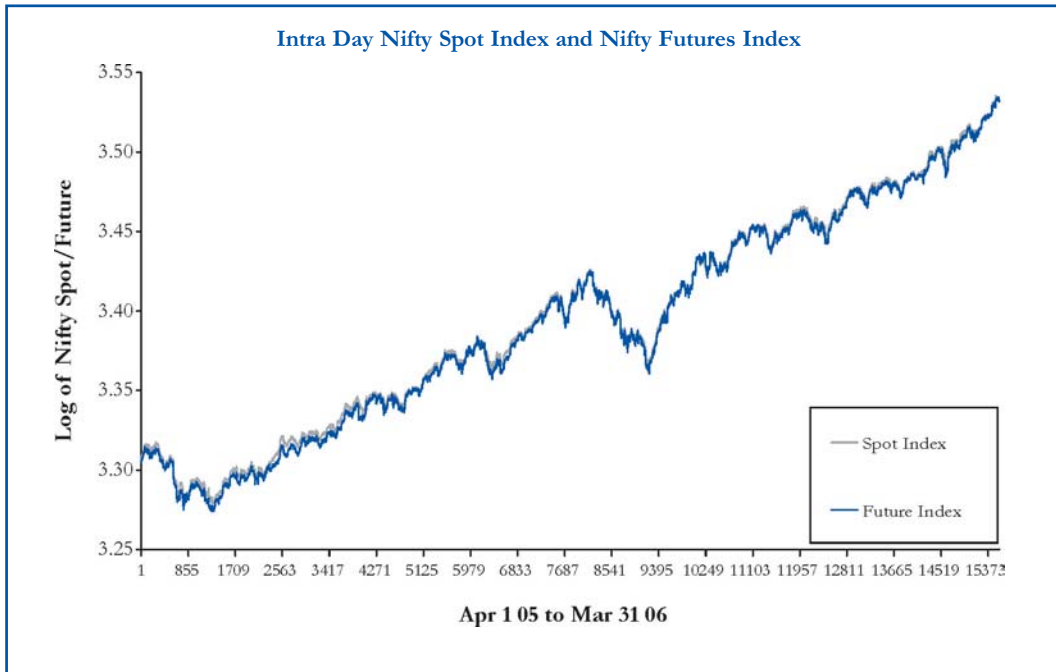
#### Empirical Findings

The data set consist of 15576 pairs of observations for Nifty spot index and Nifty futures index. These observations were at 5 minute interval, for a period of one year, from 1 April, 2005 to 31 March, 2006. In figure (1) the logarithmic values of spot index and futures index are plotted. Figure 2 shows the first differenced values of log of spot index and log of futures index. Inspection of the figures suggests that each of the series is non stationary in their level form, however both the series appear to have a common stochastic trend and seem to be cointegrated. The plot of the first differenced logarithmic values appears to be stationary suggestive of the series being integrated in I(1) form.

Augmented Dickey-Fuller test was performed to substantiate findings from graphical analysis. Table (1a and 1b) gives the results of ADF test. The test used log values of spot index and futures index. In both the cases, the null hypothesis that the series has unit root is accepted, as the ADF test statistics is more than the critical values. This shows that Nifty spot as well as futures are not stationary in their level form. The ADF test when done on the first differenced values of log Nifty spot and futures index gives a test statistics which is lower than the critical

<sup>6</sup>STATA is a data analysis and statistical software.





**Table 1(a)**  
**Augmented Dickey-Fuller Test On Nifty Spot Index and Nifty Futures Index Level Form**

ADF Test Statistic                      0.672121                      1% Critical Value\*                      -3.4340

\*MacKinnon critical values for rejection of hypothesis of a unit root.

Dependent Variable: D(LNNIFTY)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNNIFTY(-1)	4.62E-05	6.87E-05	0.672121	0.5015
D(LNNIFTY(-1))	-0.081902	0.008013	-10.22083	0.0000
D(LNNIFTY(-2))	-0.029798	0.008037	-3.707593	0.0002
D(LNNIFTY(-3))	0.028219	0.008036	3.511580	0.0004
D(LNNIFTY(-4))	0.029656	0.008012	3.701644	0.0002
C	-0.000142	0.000233	-0.606788	0.5440

ADF Test Statistic                      0.520434                      1% Critical Value\*                      -3.4340

\*MacKinnon critical values for rejection of hypothesis of a unit root.

Dependent Variable: D(LNNIFTY FUTURE)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNFUTURE(-1)	3.59E-05	6.90E-05	0.520434	0.6028
D(LNFUTURE(-1))	-0.067720	0.008016	-8.447798	0.0000
D(LNFUTURE(-2))	-0.004511	0.008019	-0.562486	0.5738
D(LNFUTURE(-3))	0.038649	0.008018	4.820162	0.0000
D(LNFUTURE(-4))	0.037105	0.008004	4.636016	0.0000
C	-0.000108	0.000234	-0.459977	0.6455

**Table 1(b)**  
**Augmented Dickey-Fuller Test On Nifty Spot Index and Nifty Futures Index First Differenced Form**

ADF Test Statistic                      -54.94275                      1% Critical Value\*                      -3.4340

\*MacKinnon critical values for rejection of hypothesis of a unit root.

Dependent Variable: D(DNIFTY)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DNIFTY(-1)	-1.049608	0.019104	-54.94275	0.0000
D(DNIFTY (-1))	-0.032313	0.017141	-1.885131	0.0594
D(DNIFTY (-2))	-0.062209	0.014783	-4.208254	0.0000
D(DNIFTY (-3))	-0.033508	0.011807	-2.838055	0.0045
D(DNIFTY (-4))	-0.003621	0.008016	-0.451732	0.6515
C	1.51E-05	4.66E-06	3.232265	0.0012





ADF Test Statistic -53.58602 1% Critical Value\* -3.4340

\*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(DNIFTY FUTURE)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D FUTURE (-1)	-0.992285	0.018518	-53.58602	0.0000
D(D FUTURE (-1))	-0.075471	0.016704	-4.518137	0.0000
D(D FUTURE (-2))	-0.079934	0.014517	-5.506176	0.0000
D(D FUTURE (-3))	-0.040923	0.011717	-3.492739	0.0005
D(D FUTURE (-4))	-0.003692	0.008010	-0.460847	0.6449
C	1.41E-05	4.73E-06	2.967895	0.0030

values. The null hypothesis of unit root is rejected ( at 1% critical values) implying that Nifty spot index and Nifty futures index are I(1) integrated. One of the necessary conditions for any two series to be cointegrated is that they should be integrated of the same order. Both the series are I(1) integrated so, the long-run relationship between spot index and futures index can be tested.

A simple regression with log Nifty as the dependent variable and log futures as the independent variable was done by applying equation (2). The results of the regression are given in table 2. The coefficient of log futures is 0.989457 and is highly significant. The probability of the variable being insignificant is zero, therefore, the null hypothesis that there is no relationship between Nifty spot and Nifty futures index, is rejected. The R-squared term is close to 1 showing that there is a very strong relationship between the two variables.

Residuals were estimated from the regression equation and Engle-Granger test was performed on the estimated residuals. Table 3 gives the results of the Engle-Granger test.

**Table 2**  
**Cointegration Equation For Nifty Spot and Nifty Futures Index**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.037959	0.000539	70.36354	0.0000
LNFUT	0.989457	0.000159	6223.594	0.0000
R-squared	0.999598	Mean dependent variable		3.394740
Adjusted R-squared	0.999598	S.D. dependent variable		0.067825
S.E. of regression	0.001360	Akaike info criterion		10.36284
Sum squared residual	0.028797	Schwarz criterion		10.36186
Log likelihood	80707.82	F-statistic		3873319
Durbin-Watson stat	0.066039	Probability(F-statistic)		0.000000



**Table 3**  
**Engle-Granger Test on Cointegration Equation Residuals**

ADF Test Statistic                      -7.903632                      1% Critical Value\*                      -3.921

\*Critical values for Engle-Granger Co-integration test

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESID1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID1(-1)	-0.014924	0.001888	-7.903632	0.0000
D(RESID1(-1))	-0.463922	0.008103	-57.25092	0.0000
D(RESID1(-2))	-0.216083	0.008857	-24.39825	0.0000
D(RESID1(-3))	-0.113266	0.008833	-12.82291	0.0000
D(RESID1(-4))	-0.048719	0.008007	-6.084240	0.0000
C	6.64E-08	2.52E-06	0.026282	0.9790
R-squared	0.187728	Mean dependent variable		1.46E-08
Adjusted R-squared	0.187467	S.D. dependent variable		0.000349
S.E. of regression	0.000315	Akaike info criterion		-13.28744
Sum squared residual	0.001545	Schwarz criterion		-13.28450
Log likelihood	103455.4	F-statistic		719.4618
Durbin-Watson stat	2.002767	Probability (F-statistic)		0.000000

Since the test statistic is lower than the critical values at 1% level of significance it shows that the residual variable is stationary. The Durbin Watson statistic is close to 2 showing that there is no serial correlation in the residual variable. The results indicate that spot index and futures index are cointegrated and both the variables have a stable long-run equilibrium relationship.

If the spot index and the futures index are cointegrated in the long run, then according to Engle and Granger there exists a corresponding Error Correction Representation. The ECM describes the short-run as well as long-run dynamics of the two variables. To estimate ECM equation (3) and (4) are used, in which lagged estimated residuals ( $\hat{\epsilon}_{t-1}$ ) from the cointegration equation and lagged changes in the spot index and futures index have been included. Error correction equation is estimated using Ordinary Least Squares, adding lagged variables, one at a time, upto Eight lags. It was found that the 7th and 8th lags were insignificant for both futures as well as spot index, therefore the lags were restricted to Six periods for both the variables. The Akaike information criterion was also lowest at 6 lags. The results of the ECM are given in table 4 and 5.

The estimates of  $\alpha$  (-0.007934) is very small it is close to 0, but it is significant at 5% level. This implies that there is very little correction required in the spot index to adjust to the long term equilibrium value because most of the information gets absorbed in the first five



**Table 4**  
**Error Correction Model For Change in Nifty Spot Index**

ECM with change in spot index as the dependent variable.

$$\Delta S_t = \alpha_1 + \alpha_s \hat{\epsilon}_{t-1} + \text{lagged}(\Delta S_t, \Delta F_t) + \epsilon_{st}$$

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.41E-05	4.51E-06	3.116643	0.0018
RESID1(-1)	-0.007934	0.003380	-2.347339	0.0189
DSPOT(-1)	-0.502943	0.015423	-32.60983	0.0000
DSPOT(-2)	-0.228351	0.016841	-13.55900	0.0000
DSPOT(-3)	-0.118804	0.017105	-6.945733	0.0000
DSPOT(-4)	-0.063898	0.017077	-3.741830	0.0002
DSPOT(-5)	-0.058415	0.016751	-3.487311	0.0005
DSPOT(-6)	-0.039873	0.014888	-2.678256	0.0074
DFUT(-1)	0.469819	0.014716	31.92577	0.0000
DFUT(-2)	0.215180	0.016403	13.11847	0.0000
DFUT(-3)	0.145039	0.016643	8.714724	0.0000
DFUT(-4)	0.089148	0.016634	5.359382	0.0000
DFUT(-5)	0.053255	0.016386	3.250011	0.0012
DFUT(-6)	0.051396	0.014996	3.427227	0.0006
R-squared	0.074645	Mean dependent variable		1.43E-05
Adjusted R-squared	0.073871	S.D. dependent variable		0.000583
S.E. of regression	0.000561	Akaike info criterion		-12.13119
Sum squared residual	0.004903	Schwarz criterion		-12.12431
Log likelihood	94449.24	F-statistic		96.51999
Durbin-Watson stat	1.999564	Probability (F-statistic)		0.000000



**Table 5**  
**Error Correction Model For Change in Nifty Futures Index**

ECM with change in futures index as the dependent variable.

$$\Delta F_t = \alpha_2 + \alpha_f \hat{\epsilon}_{t-1} + \text{lagged}(\Delta St, \Delta Ft) + \epsilon_{ft}$$

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.43E-05	4.74E-06	3.027706	0.0025
RESID1(-1)	0.005917	0.003550	1.666821	0.0956
DSPOT(-1)	-0.068864	0.016199	-4.251135	0.0000
DSPOT(-2)	-0.016186	0.017689	-0.915027	0.3602
DSPOT(-3)	0.009548	0.017965	0.531462	0.5951
DSPOT(-4)	0.016041	0.017936	0.894325	0.3712
DSPOT(-5)	-0.001216	0.017594	-0.069114	0.9449
DSPOT(-6)	-8.37E-05	0.015637	-0.005351	0.9957
DFUT(-1)	-0.010844	0.015456	-0.701577	0.4830
DFUT(-2)	0.016352	0.017228	0.949123	0.3426
DFUT(-3)	0.031206	0.017480	1.785210	0.0742
DFUT(-4)	0.023056	0.017471	1.319707	0.1870
DFUT(-5)	0.004011	0.017211	0.233077	0.8157
DFUT(-6)	0.009378	0.015751	0.595419	0.5516
R-squared	0.008571	Mean dependent variable		1.45E-05
Adjusted R-squared	0.007742	S.D. dependent variable		0.000592
S.E. of regression	0.000590	Akaike info criterion		-12.03301
Sum squared residual	0.005409	Schwarz criterion		-12.02613
Log likelihood	93684.97	F-statistic		10.34414
Durbin-Watson stat	1.999535	Probability (F-statistic)		0.000000

minutes. Since the coefficient of  $\alpha_2$  is negative whatever little correction takes place in the short-run in the spot index, is a downward adjustment. The lagged spot as well as lagged futures terms are highly significant upto 6 lags. This shows that the spot market reacts to lagged prices in the spot as well as futures market. Last, half an hour information in the spot and futures index is relevant for short term corrections in the spot market. The first 3 coefficients of lagged spot index and futures index are high, the other coefficients are relatively small. This shows that most of the correction in the spot market happens in the first 15 minutes and the entire correction takes place in maximum 30 minutes.



In table 5 the lagged residual term is 0.005917 which is also very small but is significant at 10% level of significance. The futures index also has a very small correction in the short term, to adjust to the long term equilibrium. Very small value of the correction term reinforces the fact that most of the price discovery happens in the first five minutes. The positive value of the correction term suggests that there is an upward correction in the futures index. In table 5 only lag 1 coefficient of the spot index is significant. All other lagged terms for the spot index and the futures index are insignificant. This shows that the futures index reacts to the immediately preceding spot index value. Only the first 5 minutes spot market information is relevant for the futures index. Any information prior to that period has no relevance for the futures market. Also the futures market is not influenced by any of the lagged variables in the same market. This implies whatever information is available in the futures market is immediately absorbed in the current futures price. Lagged futures index has no impact on the current value of the futures index. All publicly available information is immediately reflected in the prevailing futures prices. Beyond 5 minutes even the lagged spot index has no impact on the futures index. This shows that the futures market is highly efficient and all available information is quickly absorbed and reflected in the prevailing market prices.

To test the adequacy of the models diagnostic checks were performed to determine whether the residuals of the error correction equations approximate white noise. The results of ADF test are given in table 6 and 7. The ADF test statistic is lower than the critical value at 1% level of significance, implying that the residuals of the error correction model are stationary. This shows that the ECM is a good fit. Only the first residual is significant so it is a Markov chain of first degree which indicates that innovation embeds itself into the data generating process. The entire exercise was repeated by obtaining a reverse representation of Engle and Grangers co-integration regression. Simple regression analysis with log futures index as a dependent variable and log of spot index as the independent variable was done. The estimated residuals from this equation were substituted in the two error correction specifications. Almost identical results were obtained in the reverse representation. The results of the reverse representation are given in the appendix.

Granger causality test was done to study the cause and effect relationship between spot index and futures index. Results of the same are given in table 8. Here the null hypothesis that futures does not cause spot index is rejected and the second hypothesis that Spot index does not cause futures index is also rejected. This means that futures index causes spot index and vice versa. Therefore there is a bidirectional relationship and both the variables are influencing each other.

**Table 6**  
**Augmented Dickey-Fuller Test On Residuals Of Error Correction Model For Nifty Spot Index**

ADF Test Statistic                      -55.91913                      1% Critical Value\*                      -3.4340

\*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESIDS)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESIDS(-1)	-1.002577	0.017929	-55.91913	0.0000
D(RESIDS(-1))	0.002886	0.016032	0.179992	0.8572
D(RESIDS(-2))	0.002631	0.013885	0.189450	0.8497
D(RESIDS(-3))	0.002678	0.011338	0.236235	0.8133
D(RESIDS(-4))	0.001489	0.008018	0.185663	0.8527
C	-4.54E-08	4.50E-06	-0.010098	0.9919
R-squared	0.499813	Mean dependent variable		-6.01E-08
Adjusted R-squared	0.499653	S.D. dependent variable		0.000793
S.E. of regression	0.000561	Akaike info criterion		-12.13249
Sum squared residual	0.004900	Schwarz criterion		-12.12954
Log likelihood	94421.02	F-statistic		3109.279
Durbin-Watson stat	1.999844	Probability (F-statistic)		0.000000

**Table 7**  
**Augmented Dickey-Fuller Test On Residuals Of Error Correction Model For Nifty Futures Index**

ADF Test Statistic                      -55.80565                      1% Critical Value\*                      -3.4340

\*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESIDF)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESIDF(-1)	-1.000389	0.017926	-55.80565	0.0000
D(RESIDF(-1))	0.000640	0.016033	0.039913	0.9682
D(RESIDF(-2))	0.000393	0.013886	0.028277	0.9774
D(RESIDF(-3))	0.000442	0.011338	0.039000	0.9689
D(RESIDF(-4))	0.000221	0.008018	0.027550	0.9780
C	-8.02E-08	4.73E-06	-0.016980	0.9865
R-squared	0.499874	Mean dependent var		-3.62E-09
Adjusted R-squared	0.499713	S.D. dependent var		0.000834
S.E. of regression	0.000590	Akaike info criterion		-12.03406
Sum squared resid	0.005407	Schwarz criterion		-12.03111
Log likelihood	93655.02	F-statistic		3110.033
Durbin-Watson stat	1.999968	Prob(F-statistic)		0.000000



**Table 8**  
**Pairwise Granger Causality Tests On Nifty Spot And Futures Index**

Null Hypothesis:	Sample size:15576	Lags: 2	Observations	F-Statistic	Probability
LNFUT does not Granger Cause LNNIFTY			15565	456.229	0.00000
LNNIFTY does not Granger Cause LNFUT			10.6295	2.4E-05	

## Section IV

### Conclusion

In an efficient market, information processing should be expeditious and the most information-efficient market should lead the other. Our empirical findings show that price discovery occurs in both the futures as also the spot markets fairly efficiently and most of the information gets processed within the first five minutes of it being publicly available. However, Nifty futures index is more efficient relative to its corresponding underlying index, as it processes information faster than the spot market. The spot market has a memory of 30 minutes whereas futures market processes all the information in 5 minutes. Therefore, S&P CNX Nifty futures index leads the S&P CNX Nifty index by 10 to 25 minutes.

Market frictions such as differences in capital market requirements, short selling restrictions and transaction costs differential make trading in futures market more attractive than in the spot market. Futures market is the preferred trading platform, as reflected in the higher trading volumes and the presence of large operators in the futures market, leading to a faster price discovery.

The finding that the futures market leads the spot market has important implications for arbitrageurs, who take offsetting positions in the two markets to earn assured risk free returns. Futures index leading the spot index by 10 to 25 minutes suggests that for a short period of time the prices in the two markets could be out of line, resulting in profitable arbitrage opportunities. Traders can profit from the discrepancy in the prices of Nifty futures and Nifty spot, provided they can react quickly. An arbitrageur is required to complete both legs of an index arbitrage transaction within a short time span. The prior knowledge of index futures leading the spot index could likely influence his decision as to which market should he react in first, which leads to the initial trade in the futures market.

These findings lend support to Thenmozhi's (2002) study on the Indian stock markets, which showed that futures returns lead the spot market returns. However, Thenmozhi's study could not establish the lead time as it was based on daily closing

prices. The study also corroborates the findings of similar studies by Stoll and Whaley (1990), Chan (1992), Ghosh (1993) and Abhyankar (1998) in U.S and U.K markets.

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## Appendix

### Reverse Representation of Engle and Granger's Co-integration Regression

**Step 1:** The first step is to pretest the variables for their order of integration. This has been done in the main section and the results are given in table 1(a) and 1(b).

**Step 2:** To test the long run equilibrium relation, a cointegration equation was run, with Nifty futures index as the dependent variable.

$$F_t = \beta'_0 + \beta'_1 S_t + e'_t \quad (5)$$

Where  $F_t$  is the log of futures index prices at time  $t$ ,  $S_t$  is the log of spot index price and  $e'_t$  is the residual term.

**Table 9**  
**Co-integration Equation For Nifty Spot and Nifty Futures Index**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.036985	0.000551	-67.10312	0.0000
LNNIFTY	1.010249	0.000162	6223.594	0.0000
R-squared	0.999598	Mean dependent variable		3.392546
Adjusted R-squared	0.999598	S.D. dependent variable		0.068533
S.E. of regression	0.001374	Akaike info criterion		-10.34205
Sum squared residual	0.029402	Schwarz criterion		-10.34106
Log likelihood	80545.86	F-statistic		38733119
Durbin-Watson stat	0.066040	Probability(F-statistic)		0.000000

**Table 10**  
**Engle-Granger Test on Cointegration Equation Residuals**

ADF Test Statistic                      -7.901474                      1% Critical Value\*                      -3.921

\*Critical values for Engle-Granger Co-integration test.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESIDUAL2 )

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESIDUAL2(-1)	-0.014921	0.001888	-7.901474	0.0000
D(RESIDUAL2(-1))	-0.463863	0.008103	-57.24315	0.0000
D(RESIDUAL2(-2))	-0.215992	0.008856	-24.38813	0.0000
D(RESIDUAL2(-3))	-0.113186	0.008833	-12.81402	0.0000
D(RESIDUAL2(-4))	-0.048668	0.008007	-6.077879	0.0000
C	-5.62E-08	2.55E-06	-0.022014	0.9824
R-squared	0.187687	Mean dependent variable		-8.87E-09
Adjusted R-squared	0.187426	S.D. dependent variable		0.000353
S.E. of regression	0.000318	Akaike info criterion		-13.26659
Sum squared residual	0.001577	Schwarz criterion		-13.26364
Log likelihood	103293.0	F-statistic		719.2654
Durbin-Watson stat	2.002760	Probability (F-statistic)		0.000000

The above table gives the Engle-Granger test results on the residuals of Co-integration equation. This test is done to determine if the residuals of the Co-integration equation are stationary.

**Step 3:** Estimating the Error Correction Model by regressing changes in spot index on last periods futures index equilibrium error and lagged futures and spot index (equation 6). Regressing changes in futures index on last periods futures index equilibrium error and lagged futures and spot index (equation 7).

$$\Delta S_t = \alpha'_1 + \alpha'_s \hat{\epsilon}'_{t-1} + \text{lagged } (\Delta S_t, \Delta F_t) + \epsilon'_{st} \quad (6)$$

$$\Delta F_t = \alpha'_2 + \alpha'_f \hat{\epsilon}'_{t-1} + \text{lagged } (\Delta S_t, \Delta F_t) + \epsilon'_{ft} \quad (7)$$

In equation 6 and 7,  $\Delta S_t$  and  $\Delta F_t$  denote, respectively, the first differences in the log of spot and futures prices for one time period.  $\hat{\epsilon}'_{t-1}$  is the lagged error correction term from the co-integrating equation and  $\epsilon'_{st}$  and  $\epsilon'_{ft}$  are the white noise disturbance terms.



**Table 11**  
**Error Correction Model For Change in Nifty Spot Index**

ECM with change in spot index as the dependent variable.

$$\Delta S_t = \alpha'_1 + \alpha'_s \hat{\epsilon}'_{t-1} + \text{lagged } (\Delta S_t, \Delta F_t) + \epsilon'_{st}$$

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.41E-05	4.51E-06	3.116766	0.0018
RESID2(-1)	-0.007897	0.003345	2.360822	0.0182
DSPOT(-1)	-0.502913	0.015423	-32.60834	0.0000
DSPOT(-2)	-0.228328	0.016841	-13.55775	0.0000
DSPOT(-3)	-0.118784	0.017104	-6.944620	0.0000
DSPOT(-4)	-0.063881	0.017077	-3.740852	0.0002
DSPOT(-5)	-0.058401	0.016751	-3.486510	0.0005
DSPOT(-6)	-0.039866	0.014888	-2.677827	0.0074
DFUT(-1)	0.469783	0.014716	31.92298	0.0000
DFUT(-2)	0.215151	0.016403	13.11663	0.0000
DFUT(-3)	0.145013	0.016643	8.713111	0.0000
DFUT(-4)	0.089124	0.016634	5.357930	0.0000
DFUT(-5)	0.053234	0.016386	3.248717	0.0012
DFUT(-6)	0.051381	0.014996	3.426258	0.0006
R-squared	0.074648	Mean dependent variable		1.43E-05
Adjusted R-squared	0.073875	S.D. dependent variable		0.000583
S.E. of regression	0.000561	Akaike info criterion		-12.13119
Sum squared residual	0.004903	Schwarz criterion		-12.12431
Log likelihood	94449.27	F-statistic		96.52526
Durbin-Watson stat	1.999564	Probability (F-statistic)		0.000000



**Table 12**  
**Error Correction Model For Change in Nifty Futures Index**

ECM with change in futures index as the dependent variable.

$$\Delta F_t = \alpha'_2 + \alpha'_f \hat{\epsilon}'_{t-1} + \text{lagged}(\Delta St, \Delta Ft) + \epsilon'_{ft}$$

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.43E-05	4.74E-06	3.027666	0.0025
RESID2(-1)	0.005810	0.003513	-1.653788	0.0982
DSPOT(-1)	-0.068829	0.016199	-4.248976	0.0000
DSPOT(-2)	-0.016156	0.017689	-0.913338	0.3611
DSPOT(-3)	0.009574	0.017965	0.532935	0.5941
DSPOT(-4)	0.016064	0.017936	0.895619	0.3705
DSPOT(-5)	-0.001197	0.017593	-0.068011	0.9458
DSPOT(-6)	-7.08E-05	0.015637	-0.004525	0.9964
DFUT(-1)	-0.010876	0.015457	-0.703657	0.4817
DFUT(-2)	0.016325	0.017228	0.947597	0.3433
DFUT(-3)	0.031183	0.017480	1.783893	0.0745
DFUT(-4)	0.023037	0.017471	1.318561	0.1873
DFUT(-5)	0.003995	0.017211	0.232116	0.8165
DFUT(-6)	0.009367	0.015751	0.594710	0.5520
R-squared	0.008568	Mean dependent variable		-6.01E-08
Adjusted R-squared	0.007740	S.D. dependent variable		0.000793
S.E. of regression	0.000590	Akaike info criterion		-12.13249
Sum squared residual	0.005409	Schwarz criterion		-12.12954
Log likelihood	93684.95	F-statistic		3109.278
Durbin-Watson stat	1.999535	Probability (F-statistic)		0.000000

**Step 4:** Finally testing the adequacy of the Error Correction Model by performing diagnostic checks to determine whether the residuals of the ECM equations approximate white noise.



**Table 13**  
**Augmented Dickey-Fuller Test On Residuals Of Error Correction Model For Nifty Spot Index**

ADF Test Statistic                      -55.91893                      1% Critical Value\*                      -3.4340

\*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESIDS)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESIDS(-1)	-1.002573	0.017929	-55.91893	0.0000
D(RESIDS(-1))	0.002881	0.016032	0.179714	0.8574
D(RESIDS(-2))	0.002626	0.013885	0.189152	0.8500
D(RESIDS(-3))	0.002675	0.011338	0.235941	0.8135
D(RESIDS(-4))	0.001487	0.008018	0.185416	0.8529
C	-4.55E-08	4.50E-06	-0.010114	0.9919
R-squared	0.499813	Mean dependent variable		-6.01E-08
Adjusted R-squared	0.499653	S.D. dependent variable		0.000793
S.E. of regression	0.000561	Akaike info criterion		-12.13249
Sum squared residual	0.004900	Schwarz criterion		-12.12954
Log likelihood	94421.05	F-statistic		3109.278
Durbin-Watson stat	1.999844	Probability (F-statistic)		0.000000

**Table 14**  
**Augmented Dickey-Fuller Test On Residuals Of Error Correction Model For Nifty Futures Index**

ADF Test Statistic                      -55.80566                      1% Critical Value\*                      -3.4340

\*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESIDF)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESIDF(-1)	-1.000389	0.017926	-55.80566	0.0000
D(RESIDF(-1))	0.000640	0.016033	0.039937	0.9681
D(RESIDF(-2))	0.000393	0.013886	0.028301	0.9774
D(RESIDF(-3))	0.000442	0.011338	0.039019	0.9689
D(RESIDF(-4))	0.000221	0.008018	0.027565	0.9780
C	-8.02E-08	4.73E-06	-0.016963	0.9865
R-squared	0.499874	Mean dependent variable		-3.58E-09
Adjusted R-squared	0.499713	S.D. dependent variable		0.000834
S.E. of regression	0.000590	Akaike info criterion		-12.03405
Sum squared residual	0.005407	Schwarz criterion		-12.03110
Log likelihood	93655.00	F-statistic		3110.033
Durbin-Watson stat	1.999968	Probability (F-statistic)		0.000000

## Under-pricing And Long-run Performance Of Initial Public Offerings In Indian Stock Market

Dr. S. Janakiramanan

### Introduction

The transition from being a private company to a public one is one of the most important events in the life of a firm. It is also one of particular interest to institutional investors, and the transition is facilitated through the initial public offering (IPO) process. The IPO provides a fresh source of capital that is critical to the growth of the firm and provides the founder and other shareholders such as venture capitalists a liquid market for their shares. From an institutional investor's perspective, the IPO provides an opportunity to share in the rewards of the growth of the firm.

When a firm issues equity to the public for the first time, it makes an initial public offering consisting of two kinds of issues - the primary issue and the follow-on issue. In a primary, the firm raises capital for itself by selling stock to the public, whereas in the follow-on issue, existing large shareholders sell to the public a substantial number of shares they currently own.

It is a well documented fact that IPOs tend to be generally under-priced, though some issues tend to be overpriced. From the viewpoint of financial research, IPO under-pricing in the sense of abnormal short-term returns on IPOs has been found in nearly every country in the world. This suggests that IPO under-pricing may be the outcome of basic problems of information and uncertainty in the IPO process, and is unlikely to be a figment of institutional peculiarities of any one market.

There have also been various studies made to suggest the reasons for such under-pricing. From the investors' point of view, this under-pricing appear to provide the sure and quick profit that most dream about. Though first day return could vary, few of the issues tend to provide a very high return over the first day. One of the examples is VA Linux which had a first day return of 700%. It is also seen that for some of the issues, the first day return could also be negative. It then becomes inevitable for most investors to measure the performance of IPOs by the short term (usually within one week of issue), as the general scheme is to buy the shares at a low initial offering price and sell it the next day when the price increases.

Pricing of the IPOs are done by the issuers with guidance from underwriters from investment banks. There are various ways to price the stocks but what is commonly used now is a process called book building. It is basically a capital issuance process used in an Initial Public Offer which aids price and demand discovery. It is also a process used for marketing a



public offer of equity shares of a company. During the period for which the book for the IPO is open, bids are collected from investors at various prices, which are above or equal to the floor price. The offer/issue price is then determined by the issuing company after the bid closing date based on the various bids that have been collected. For a more detailed discussion of book building, one can visit any of the many stock exchanges. An example of the book building process can be seen from the National Stock Exchange. This Initial Public Offering can also be made through the fixed price method or a combination of both book building and the fixed price method.

There have been various studies conducted on the price changes of the shares after prolonged periods (six months to five years). These studies show that while the short-run performance of IPOs is often quite impressive, the long-run performance over the subsequent three to five years is not as impressive. Excluding the initial-day return, IPOs tend to underperform various benchmarks. However, these studies focus mainly on developed economies and tend to neglect the developing counterparts. A study by Madhusoodanan and Thiripalraju studies the performance of Indian IPOs prior to 1996.

It is in the hope that the long term performance of IPOs in developing economies can also be a useful indicator to the potential investor that this study is to be undertaken. The purpose of this paper is to examine the long-run performance of IPOs in Indian stock market which were issued during 2000-2001. The IPO literature has shown that the IPO issues and performance is based on a cycle. In some years there are a large number of IPOs while in some years, there are only a few IPOs. When it is a vintage year with a large number of IPOs, most IPOs tend to do well on the first day but tend to do poorly over a long term whereas in years when there are only a few IPOs, the results tend to be mixed. The long run performance is likely to be affected while we include IPOs from different time periods because the market movements in different market conditions are likely to be different. In order to see that results are not confounded by the time period when IPO was issued, it was decided to include IPOs that were issued within a one-year period. This has resulted in a sample of 116 companies which had IPOs in this period from various industries. This study is important mainly because the Indian stock market has been performing very well from the year 2001 and our research wants to show whether this performance is due to the established firms or the performance also gets to the newly issued shares through IPOs.

The study uses various methods to ascertain the significance of the over or under-performance of IPOs. Among the many reasons for the performance which we see, one of them could be the sensitivity of the results to the choice of benchmarks. Dimson and Marsh, Ritter, Gregory et al, Fama and French and Fama have successively demonstrated the sensitivity of the long-run performance of the IPOs the benchmark used in the study. For this reason, the effect of various benchmarks on the return measurements will be studied so as to elucidate the possibility that the magnitude of the performance is benchmark dependent.

## Literature Survey

There have been numerous evidences which show that short-run under-pricing and the long-run underperformance are the two main patterns associated with IPOs. In 1975, Ibbotson wrote the article which was to spur the future development of research on IPO returns. In the article, a negative relation between initial returns at the IPO and long-run share price performance was found. In 1991, Ritter analysed the performance of US IPOs issued between the years



1975 to 1984. He found that IPOs underperformed a control sample of matching seasoned firms for a three-year holding period. The natural conclusion was that IPOs are significantly undesirable as medium or long-run investments. In 1993, Levis conducted a study on UK IPOs and identified underperformance of a similar magnitude in the long run. In 1994, Loughran, Ritter and Rydqvist reported that market-adjusted three-year abnormal performance following an IPO is always small and mostly negative in all 25 countries investigated with higher IPO underpricing in developing markets, with the exception of Japan. Also in 1994, Kinz and Aggarwal examine the returns on IPOs for a number of countries during a three year period after a company goes public. The IPOs are equally weighted and report underperformance. However in 1997, Brav and Gompers using US data find that underperformance is sensitive to the method used during evaluation of IPO performance. In their sample, underperformance is shared by small, non-IPO firms with similar low book-to-market values. Jones et al. in 1999 show that there is relatively more underpricing in privatisation IPOs (PIPOs) than their private sector counterparts and according to them, this may perhaps reflect political motives. For the long-run performance of privatisation IPOs Researchers find a very different picture for the long-run performance of PIPOs. In 1997, in a study on Indian market, T P Madhusoodanan and M Thiripalraju analyse the Indian IPO market for the short-term as well as long-term underpricing prior to 1997. This study indicates that, in general, the underpricing in the Indian IPOs in the short-run was higher than the experiences of other countries. In the long-run too, Indian offerings have given high returns compared to negative returns reported from other countries.

In 2000, Megginson et al. examine 158 share issue privatisations from 33 countries during the period 1981-1997. They find statistically significant positive long-run returns for the sample firms for all holding periods as compared to a variety of benchmarks.<sup>1</sup>

## Methodology

The methodology used by Aggarwal, Leal and Hernandez (1993) to measure the short-run performance for each IPO and for groups of IPOs. The total return for stock "i" at the end of the first trading day is calculated as:

$$R_{i1} = (P_{i1} / P_{i0}) - 1 \quad (1)$$

where  $P_{i1}$  is the closing price of the stock  $i$  at the first trading day, and  $P_{i0}$  is its offering price and  $P_{i1}$  is the total first-day return on the stock. The return on the market index during the same time period is:

$$R_{m1} = (P_{m1} / P_{m0}) - 1 \quad (2)$$

where  $P_{m1}$  is the closing market index value at the first trading day and  $P_{m0}$  is the closing market index value on the offering day of the appropriate stock, while  $P_{m1}$  is the first day's comparable market return.

<sup>1</sup> Though the risk-return space for IPOs in the short-run is different from the risk-return space for the benchmarks, the risk-return space would be the same when the IPO performance is considered over a long-term, say 5 years. Thus, using benchmarks to measure long-term performance is appropriate.





Using these two returns, the market-adjusted abnormal return for each IPO on the first day of trading is computed as:

$$MAAR_{r1} = 100 \left( \frac{1 + R_{r1}}{1 + R_{m1}} - 1 \right) \quad (3)$$

$MAAR$  is the sample mean abnormal return for the first trading day and may be viewed as a performance index which reflects the return, in excess of the market return, on an investment divided equally among  $N$  new issues in a sample:

$$\overline{MAAR}_1 = \frac{1}{N} \sum_{i=1}^N MAAR_{r1} \quad (4)$$

To test the hypothesis that  $MAAR$  equals zero, we compute the associated t statistic:

$$t = \frac{\overline{MAAR}_1}{S / \sqrt{N}} \quad (5)$$

where  $S$  is the standard deviation of  $MAAR_{r1}$  across the companies.

The market-adjusted long-run returns are calculated for a period of 36 months following the first trading month. The monthly return is measured by comparing the closing price on the last trading day of the month on which the stock is traded to the closing price of the previous month. Following Ritter, we make use of the size and book-to-market value as parameters. The reason for this is that it is a more sophisticated methodology since the size and book-to-market characteristics have been documented as important determinants of stock returns. The long-run returns in our study incorporate dividend payments and are adjusted for dividend and stock splits.

To formalize, this study employs the basic capital asset pricing model (CAPM), the Fama and French (1996) three-factor model and the average return model. In addition to the firm betas, Fama and French in their 1992 paper suggested that firm size and book-to-market effects also play a role in explaining returns, which resulted in their 1996 paper where they came up with a three-factor model to offer explanations for the many anomalies in 'efficient markets'. In this model, the factors are the excess returns on the market, the difference in returns between companies with high book-to-market value (BMV) and low BMV ratios, and the difference in returns between large and small companies.

For the long-run performance analysis, the standard event-study methodology is used. For each benchmark, monthly abnormal returns are computed for up to sixty months after the IPO (excluding the month of new issue), companies with a minimum of twelve monthly observations post-IPO.

For the first two models, abnormal returns with respect to each benchmark are computed, and are cumulated over time up to period  $T$  after the IPO, using the Cumulative Average Abnormal Return ( $CAART$ ) measure

$$CAAR_r = \sum_{t=1}^T \frac{1}{N} \sum_i \epsilon_{it} \quad (6)$$

where the abnormal return in month  $t$  after the IPO for firm  $I$  is given by  $\varepsilon_{it}$  and  $N$  is the number of firms in the sample. The test for significance is based on the t-test of Brown and Warner which is given by:

$$t \sim \frac{\sum_{t=1}^T \varepsilon_{it}}{\sqrt{\left( \sum_{t=1}^T \left( \varepsilon_{it} - \frac{1}{T} \sum_{t=1}^T \varepsilon_{it} \right)^2 \right)} / (T-1)} \quad (7)$$

where

$$\bar{\varepsilon}_i = \frac{1}{N} \sum_i \varepsilon_{it} \quad (8)$$

These t-test statistics are based on the Crude Dependence Adjustment test for the CAARs in order to correct for cross-sectional dependence.

The first benchmark is based on the Capital Asset Pricing Model (CAPM) which is given by:

$$\varepsilon_{it} = R_{it} - \left[ R_{ft} + \hat{\beta}_i (R_{mt} - R_{ft}) \right] \quad (9)$$

and the second benchmark makes use of the Fama-French three-factor model given by:

$$\varepsilon_{it} = R_{it} - \left[ R_{ft} + \hat{\beta}_{1i} (R_{mt} - R_{ft}) + \hat{\beta}_{2i} (SMB_t) + \hat{\beta}_{3i} (HML_t) \right] \quad (10)$$

For both models,  $R_{it}$  is the return on company  $i$  in event month  $t$ ,  $R_{mt}$  is the return on the market in event month  $t$  measured by the NYSE ARCA index,  $\beta_i$  is the model beta which measures systematic risk due to the respective independent variables,  $SMB_t$  is the value weighted return on small firms minus the value-weighted return on large firms, formed by sorting all companies in each year by book-to-market value (BMV) and market capitalisations. Value weighted returns are calculated for the bottom and top 30% of companies by market capitalization.  $HML_t$  is the value-weighted return on high firms minus the value-weighted return on low BMV firms. Value weighted returns are calculated for the top 50% of companies by BMV and the bottom 50% of companies by BMV.

Lyon et al. document that the CAR approach should be employed to answer if sample firms persistently earn abnormal monthly returns. Though CARs implicitly assume frequent portfolio rebalancing, Fama justifies its use since it would produce fewer spurious rejections of market efficiency than would the use of other benchmarks. There also exists a good knowledge of the distribution properties and the statistical tests for CARs. Since in India, the majority of investors are individual investors, the frequency with which they trade will be much higher than



those in other markets. Hence, CARs may be able to give a good estimate of the long-run performance of IPOs in the Indian market.

#### Background of the Indian IPO Market

There has been relatively little study done on IPO under-pricing and long-run performance in India except for the paper by Madhusoodanan and Thiripalraju. The primary market in India has been shaped uniquely by an unusual history of regulation coupled with the institutional details of how IPOs take place. The total funds raised on the primary market from 1994 to 1995 which includes IPOs and seasoned earnings were 20% of domestic savings. As a channel for resource allocation, it is an interesting study to undertake so as to ascertain any positive long-run economic benefits the IPO market may have.

Up till November 1998, all capital issues were regulated and controlled by a government agency named the Controller of Capital Issues (CCI) and any public issues were subject to the clearing of the offering price by the CCI. The fair-price of issues was calculated by making use of accounting information, thereby often leading to severe under-pricing and over-subscription. With such an extent of under-pricing, many companies were deterred from going public. The result was relatively few issues taking place with debt playing a major role in financing projects.

Of interest is the Bombay Stock Exchange (BSE) episode which happened from October 1991 to May 1992. During this time, the BSE was then embroiled in a speculative bubble engineered by an illegal diversion of funds from the banking system. This resulted in issues being priced just before the incident to produce enormous returns from issue date to listing date, with the converse being true.

Soon after the incident, the CCI was abolished on 29 May 1992 and firms were free to price equity at whatever price they chose. A new regulator agency called the Securities and Exchanges Board of India (SEBI) was set up to govern financial markets. Under this new governing body, the number of public issues rose sharply, but this new period still saw high level of under-pricing by world standards.

The pricing of IPOs in India now follows a systematic process. Initially, the firm and the merchant banker will choose an offering price and prepare a prospectus about five months before the issue date. The prospectus is then submitted to the SEBI for approval. After SEBI approves of the information disclosures in the prospectus, a mass media advertising campaign targeted at the lay investor will commence about a month before the issue date. The issue then closes four to ten days after it opens, after which investors apply for shares and pay an amount which is often less than the full offering price. After the issue closes, the allotment itself takes place. The actual listing and the date of first trading takes place long after the issue itself opens.

The difference between the face value and offering price of the issues is called the share premium. It is prohibited by law to price equity with a positive premium unless the issuing company has been making profits for at least three recent years. The amount of equity sold also cannot exceed 75% of the total.

Before 1 April 1995, SEBI required the offering price to be precisely chosen at the time the prospectus is submitted for vetting. In comparison, the offering price can be adjusted to be between the submitted price or 1.2 times that. While underwriting arrangements were mandatory before January 1995, they are now optional. An underwriter guarantees to bring forth application forms, either from lay investors or from their own funds, and upon successful delivery will be paid a fee typically 2.5% of the initially submitted offering price. In the case of over-subscription,

the money paid at the time of application may be returned some months later. For issues where the issuer chose to not put together an underwriting consortium, the issuing company is required to refund all applications within 90 days if the subscriptions received fall below 90% of the shares offered. Highly over-subscribed issues may yield no allotment and in the case where there are, the allotment process is often delayed due to the volume of paperwork.

In 1997, in a study on Indian market, T P Madhusoodanan and M Thiripalraju analyse the Indian IPO market for the short-term as well as long-term underpricing prior to 1997. This study indicates that, in general, the underpricing in the Indian IPOs in the short-run was higher than the experiences of other countries. In the long-run too, Indian offerings have given high returns compared to negative returns reported from other countries.

## Data

The sample consists of 116 IPOs issued by companies in the Indian market during the period from 2000 to 2001. Since our dataset ends in 30th April 2006, only issues with a first trading day earlier than 30th April 2001 were considered so that the aftermarket performance within the first five years can be analysed. The sample only considers the Indian domestic companies listed on the Bombay Stock Exchange and National Stock Exchange. Monthly share prices, BMV figures and market capitalisation data are collected from Bloomberg. The market indices used are the Bombay Sensitive 30 for India and the Shanghai Composite for China. Both Indices are gathered from Yahoo Finance World Indices. Discrete (not log) returns are computed from the share prices. This is to avoid any downward bias in returns caused by Jensen's inequality when averaging returns across portfolios. The returns are computed from the last price of the shares for each month and used in the cross-sectional regressions.

## Results and Analysis

Table 1 gives the average first day returns for the entire sample of Indian Stocks. Figure 1 shows the frequency of the market-adjusted initial returns of IPOs for the entire sample of Indian stocks. For the Indian market, the  $\overline{MAAR}_1$  is found to be 17.2% with an associated  $t$ -statistic of 3.46, which is significantly different from zero at the 5% level. The  $\overline{MAAR}_1$  has a median of 10.7% and a standard deviation of 24.7%.

Table 2 shows the cumulative average abnormal return for up till 60 months using the CAPM. Among the sixty (60) monthly cumulative average abnormal returns, none of them are negative with only one of them having  $t$ -statistics lower than 2.0 and the other fifty-nine (59) of them having  $t$ -statistics higher than 2.0. Figure 2 shows the abnormal returns over 60 months for India using the CAPM. The cumulative abnormal returns steadily increases from 8 percent in the second month to 264 percent in the 60th month. Average monthly returns up to the 60th trading month are all positive.

Table 3 and Table 4 show the cumulative average abnormal return for the top and bottom 30% of companies in terms of returns up till 60 months for the CAPM. Among the 60 monthly cumulative average abnormal returns for the top 30%, none of them are negative with 34 of them having  $t$ -statistics lower than 2.0 and 26 of them having  $t$ -statistics higher than 2.0. As for the bottom 30%, 4 of them are negative with 13 of them having  $t$ -statistics lower than 2.0 and 47 of them having  $t$ -statistics higher than 2.0. Figure 3 shows the plot for the cumulative



average abnormal returns for the top and bottom 30% companies for India using the CAPM model. From the results, it can be seen that smaller companies tend to outperform the bigger companies in the long run while CAPM is used as the benchmark. The average abnormal return per year is found to be 21 percent for the whole sample, 32 percent for the portfolio of smaller companies and 17.5 percent for the portfolio of bigger companies, while using CAPM as the benchmark.

Table 5 shows the cumulative average abnormal return for up till 60 months using the Fama-French three-factor model as the benchmark. Among the 60 monthly cumulative average abnormal returns, none of them are negative with none of them having t-statistics lower than 2.0. Figure 4 shows the abnormal returns over 60 months for India using the Fama-French three-factor model. The cumulative abnormal returns steadily increases from 11 percent in the second month to reach 548 percent by the month 60.

Table 6 and Table 7 show the cumulative average abnormal return for the top and bottom 30% of companies in terms of returns up till 60 months for the Fama-French three-factor model used as the benchmark. Among the 60 monthly cumulative average abnormal returns for the top 30%, none of them are negative with 2 of them having t-statistics lower than 2.0 and 58 of them having t-statistics higher than 2.0. As for the bottom 30%, 1 of them is negative with 3 of them having t-statistics lower than 2.0 and 57 of them having t-statistics higher than 2.0. Figure 5 shows the plot for the cumulative average abnormal returns for the top and bottom 30% companies for India using the Fama-French three-factor model. It can be seen that until month 48, the smaller companies portfolio provides a higher abnormal return but by the end of year 5, both portfolios provide similar positive cumulative abnormal returns of about 48 percent per year.

## Under-pricing or First day return

It is clear from the results that under-pricing exists in Indian Market. Under-pricing is not a violation of no-arbitrage condition nor is it a market inefficiency which will vanish when some agents become aware of it. Instead, under-pricing is structural in the sense that it derives from sound microeconomics underlying the behaviour of firms and investors. There are a number of explanations offered below which can help shed some light on the nature and extent of under-pricing.

For India, the delay between choosing an offering price and the issue date has somewhat diminished after the setting up of a new SEBI policy which allows firms to choose a price band at the time of vetting the prospectus instead of a precise price. However, the Registrar of Companies still requires a precise offering price 21 days before the issue opens, and the price band which SEBI tolerates is rather narrow. Hence the IPO market is still characterised by an early choice of offer price. If we follow the Brownian motion model of stock prices, uncertainty about the future stock price blows up as the delay between offer price date and listing date increases. This can imply that the degree of under-pricing will worsen as the delay increases. The delay between date of setting the offer price and the listing date clearly seems to be an important factor here.

We can also look at the interest rate float to account for the under-pricing. The issuing company controls the application money for a few months. The interest rate on stock investment accounts of around 12% is quite low. At equilibrium, markets would compensate investors for

this low rate of return through under-pricing. This interest rate float argument may account for under-pricing of around five to ten percent.

Taking a look at liquidity, investors who apply for public issues lose liquidity on the amount paid at issue date. At equilibrium, markets would compensate them for this by paying a liquidity premium and this premium shows up in IPO under-pricing. The existence of such a premium follows inexorably from finance theory. It is difficult to empirically test whether it is indeed at work in IPO under-pricing in India, and to quantify its role. This is especially true in the light of the ex-ante unpredictability of the delays from issue date to listing date.

#### Long-run performance

In the regression analysis, we find a significant positive long-run performance of IPOs in India. The Indian IPOs tend to provide positive abnormal return against both benchmarks, with better performance when the three factor model is used as a benchmark. Further, the smaller firms tend to provide a superior return as compared to bigger firms. The IPOs have been issued by companies in various industries and hence it can not be termed as industry effect. The possible explanation could be that the well known big companies in the Indian market may be overpriced leading to lower return and hence the investors are looking for better return in the IPOs.

## Conclusion

Using the CAPM and the three-factor models as benchmarks, we have examined the evidence on the long-run underperformance of IPOs in the Indian market using a data set of firms over the period 2000-2002. In line with Fama's conclusion, the results on long-run under-performance of the IPOs depend very much on the choice of technique. For both benchmarks, there are significant positive abnormal returns. However, the three-factor model implies a greater positive return when compared to the CAPM. the long-run.

When we compare the relevance of the two benchmarks, the CAPM seems mis-specified when we take into consideration the empirical significance of size effects and the observation that IPOs are typically small stock. As such, the three-factor model may be better suited for explaining long-run underperformance.

There are various features in India which contribute to the under-pricing and are unique by world standards. For one, the delay from issue date to listing date is enormous in India when compared with other countries. Among the other features are the ways the offer price is fixed and the availability of information to lay investors. The offer price is chosen by the firm months before the issue opens and a lack of feedback mechanism means that there is no channel through which the market demand can alter the price. Coupled with the fact that IPOs are sold directly to uninformed investors rather than institutional investors, there is likely to be under-pricing.

The long-term performance of these companies show that investment in Indian IPOs provides positive abnormal return by the end of 60 days. The abnormal return is greater for investment in smaller companies compared to investment in larger companies. This finding is contradictory to the results found in major developed markets where the companies provide negative abnormal returns by the end of 60 months.



This study shows that investment in IPOs generally provides positive benefit to Indian investors.

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**Table 1 First Day returns for India and China**

	India
Mean (%)	17.2
Standard Deviation (%)	24.7
t-statistics (%)	3.46
Median (%)	10.7
Minimum (%)	-40.4
Maximum (%)	104.8
Total Number of Issues	116

**Figure 1 Distribution of First Day Returns India**

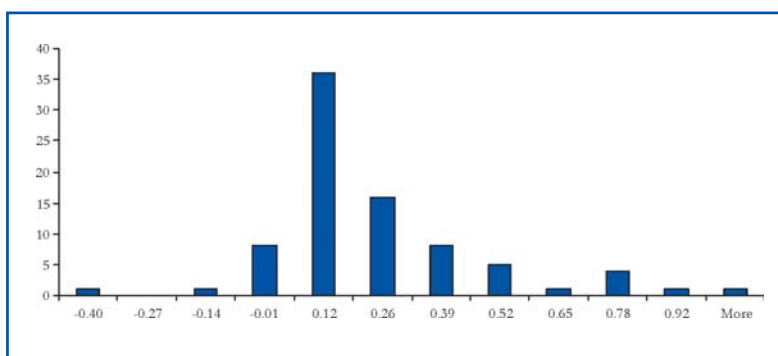




Table 2 Cumulative Abnormal returns - India using CAPM (Whole sample)

Period	CAART	t-Stat	Period	CAART	t-Stat
1	0.09	3.12	31	1.31	8.09
2	0.08	1.86	32	1.32	8.02
3	0.12	2.29	33	1.32	7.92
4	0.17	2.95	34	1.35	7.98
5	0.21	3.19	35	1.30	7.57
6	0.23	3.28	36	1.30	7.46
7	0.26	3.43	37	1.33	7.54
8	0.33	3.98	38	1.36	7.61
9	0.35	4.07	39	1.39	7.66
10	0.40	4.32	40	1.42	7.76
11	0.43	4.43	41	1.45	7.83
12	0.50	5.00	42	1.50	7.97
13	0.51	4.88	43	1.51	7.94
14	0.60	5.56	44	1.57	8.14
15	0.66	5.89	45	1.65	8.50
16	0.74	6.39	46	1.74	8.87
17	0.80	6.65	47	1.81	9.12
18	0.81	6.59	48	1.87	9.29
19	0.89	7.01	49	1.93	9.53
20	0.95	7.33	50	1.99	9.72
21	1.01	7.58	51	2.12	10.25
22	1.07	7.85	52	2.17	10.36
23	1.06	7.65	53	2.32	11.01
24	1.08	7.58	54	2.36	11.05
25	1.11	7.69	55	2.47	11.51
26	1.14	7.73	56	2.50	11.50
27	1.21	8.03	57	2.60	11.88
28	1.22	7.97	58	2.64	11.95
29	1.25	8.01	59	2.67	11.96
30	1.26	7.92	60	2.64	11.75

Figure 2 Cumulative Abnormal returns - India using CAPM (Whole sample)

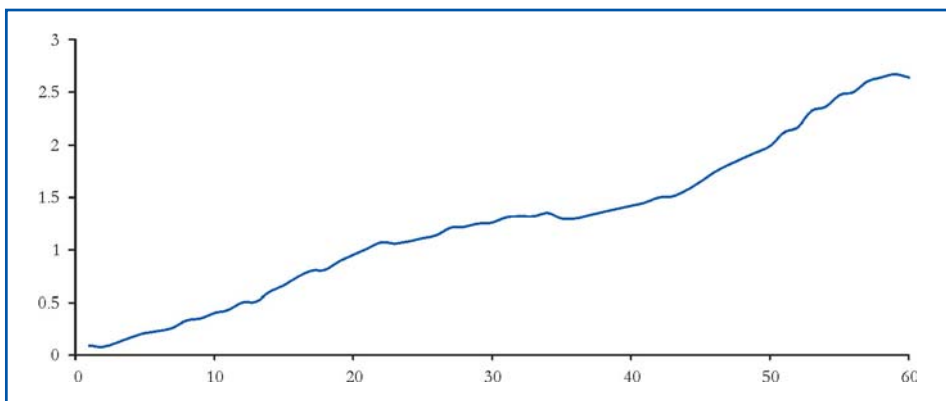


Table 4 Cumulative Abnormal Returns - India using CAPM (Top 30% of the companies)

## Top 30%

Period	CAART	t-Stat	Period	CAART	t-Stat
1	0.49	4.55	31	0.92	1.52
2	0.52	3.42	32	0.92	1.50
3	0.54	2.85	33	0.98	1.58
4	0.67	3.10	34	0.99	1.57
5	0.63	2.62	35	0.88	1.38
6	0.62	2.34	36	0.87	1.33
7	0.69	2.42	37	0.98	1.49
8	0.74	2.43	38	0.97	1.45
9	0.80	2.47	39	1.03	1.53
10	0.81	2.38	40	1.07	1.56
11	0.82	2.28	41	1.13	1.63
12	0.76	2.03	42	1.16	1.65
13	0.80	2.04	43	1.23	1.73
14	0.81	1.98	44	1.24	1.73
15	0.75	1.78	45	1.26	1.74
16	0.78	1.81	46	1.46	1.98
17	0.79	1.77	47	1.47	1.98
18	0.85	1.85	48	1.51	2.01
19	0.86	1.82	49	1.54	2.03
20	0.88	1.81	50	1.60	2.08
21	0.90	1.81	51	1.73	2.23
22	0.86	1.70	52	1.86	2.37
23	0.81	1.55	53	1.90	2.40
24	0.77	1.44	54	1.91	2.40
25	0.76	1.40	55	2.01	2.50
26	0.77	1.40	56	1.93	2.38
27	0.80	1.42	57	2.19	2.67
28	0.81	1.41	58	2.30	2.78
29	0.91	1.57	59	2.30	2.76
30	0.83	1.39	60	2.24	2.67 <sub>s</sub>



Table 5 Cumulative Abnormal Returns - India using CAPM (Bottom 30% of the companies)

Bottom 30%					
Period	CAART	t-Stat	Period	CAART	t-Stat
1	-0.16	-1.71	31	2.21	4.29
2	-0.19	-1.45	32	2.19	4.19
3	-0.13	-0.81	33	2.11	3.98
4	-0.06	-0.34	34	2.26	4.20
5	0.03	0.14	35	2.21	4.04
6	0.10	0.43	36	2.21	3.98
7	0.10	0.39	37	2.21	3.92
8	0.21	0.81	38	2.28	4.00
9	0.17	0.60	39	2.26	3.91
10	0.30	1.04	40	2.36	4.04
11	0.41	1.35	41	2.46	4.16
12	0.62	1.95	42	2.57	4.30
13	0.58	1.73	43	2.54	4.18
14	0.79	2.28	44	2.60	4.24
15	1.00	2.78	45	2.74	4.41
16	1.14	3.07	46	2.76	4.41
17	1.24	3.26	47	2.89	4.56
18	1.28	3.26	48	2.97	4.64
19	1.36	3.38	49	3.19	4.93
20	1.49	3.59	50	3.28	5.02
21	1.58	3.72	51	3.55	5.38
22	1.79	4.12	52	3.59	5.38
23	1.79	4.04	53	3.66	5.43
24	1.84	4.06	54	3.77	5.55
25	1.97	4.27	55	3.93	5.73
26	2.02	4.28	56	3.95	5.71
27	2.15	4.47	57	4.04	5.78
28	2.17	4.43	58	4.05	5.76
29	2.14	4.31	59	4.08	5.75
30	2.20	4.35	60	4.02	5.62

Figure 3 Cumulative Abnormal Return (CAPM) for Top 30% and Bottom 30% of the companies

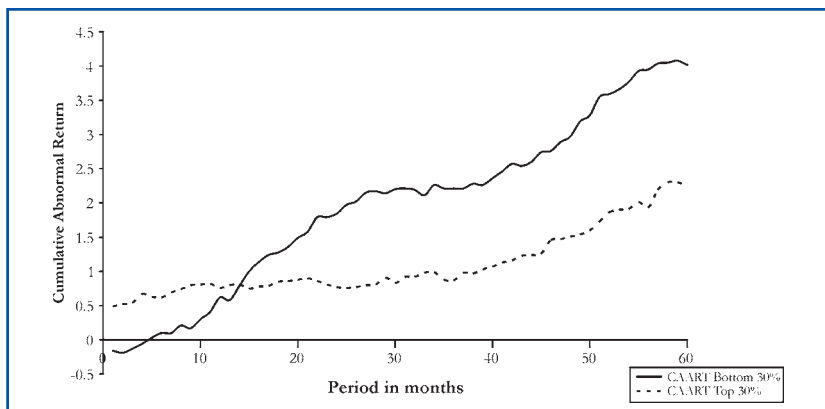


Table 6 Cumulative Abnormal returns - India using Fama-French Model (Whole sample)

Period	CAART	t-Stat	Period	CAART	t-Stat
1	0.11	3.40	31	3.25	18.63
2	0.13	2.87	32	3.38	19.10
3	0.21	3.90	33	3.44	19.15
4	0.31	4.97	34	3.53	19.36
5	0.39	5.57	35	3.44	18.55
6	0.47	6.19	36	3.41	18.13
7	0.56	6.78	37	3.40	17.86
8	0.67	7.60	38	3.39	17.59
9	0.75	7.99	39	3.39	17.34
10	0.85	8.54	40	3.39	17.14
11	0.92	8.90	41	3.41	17.00
12	1.05	9.71	42	3.45	17.01
13	1.12	9.92	43	3.45	16.79
14	1.28	10.94	44	3.48	16.77
15	1.39	11.49	45	3.62	17.24
16	1.53	12.23	46	3.76	17.69
17	1.65	12.77	47	3.91	18.21
18	1.72	12.95	48	4.02	18.55
19	1.86	13.61	49	4.18	19.07
20	1.98	14.16	50	4.30	19.44
21	2.09	14.58	51	4.51	20.16
22	2.21	15.08	52	4.59	20.34
23	2.26	15.05	53	4.80	21.08
24	2.35	15.33	54	4.89	21.27
25	2.46	15.71	55	5.09	21.90
26	2.60	16.30	56	5.17	22.07
27	2.78	17.07	57	5.35	22.64
28	2.87	17.32	58	5.44	22.82
29	2.98	17.68	59	5.50	22.88
30	3.08	17.98	60	5.48	22.58



Table 7 Cumulative Abnormal Returns - India using Fama-French Model (Top 30% of the companies)

Top 30%

Period	CAART	t-Stat	Period	CAART	t-Stat
1	0.28	4.25	31	2.51	6.84
2	0.25	2.68	32	2.63	7.05
3	0.23	1.99	33	2.78	7.33
4	0.33	2.53	34	2.90	7.52
5	0.30	2.04	35	2.81	7.19
6	0.31	1.89	36	2.84	7.16
7	0.41	2.33	37	2.99	7.45
8	0.46	2.49	38	3.08	7.56
9	0.55	2.77	39	3.28	7.95
10	0.56	2.66	40	3.49	8.36
11	0.59	2.68	41	3.75	8.88
12	0.60	2.62	42	4.00	9.34
13	0.70	2.95	43	4.28	9.88
14	0.76	3.09	44	4.49	10.26
15	0.77	3.01	45	4.74	10.71
16	0.87	3.30	46	5.15	11.50
17	0.95	3.50	47	5.42	11.97
18	1.08	3.86	48	5.64	12.33
19	1.16	4.05	49	5.86	12.68
20	1.25	4.24	50	6.03	12.90
21	1.34	4.42	51	6.27	13.29
22	1.38	4.46	52	6.51	13.67
23	1.42	4.47	53	6.64	13.81
24	1.48	4.57	54	6.73	13.86
25	1.58	4.77	55	6.91	14.12
26	1.79	5.32	56	6.92	14.01
27	1.98	5.78	57	7.28	14.61
28	2.11	6.05	58	7.48	14.88
29	2.31	6.50	59	7.52	14.82
30	2.33	6.45	60	7.49	14.63

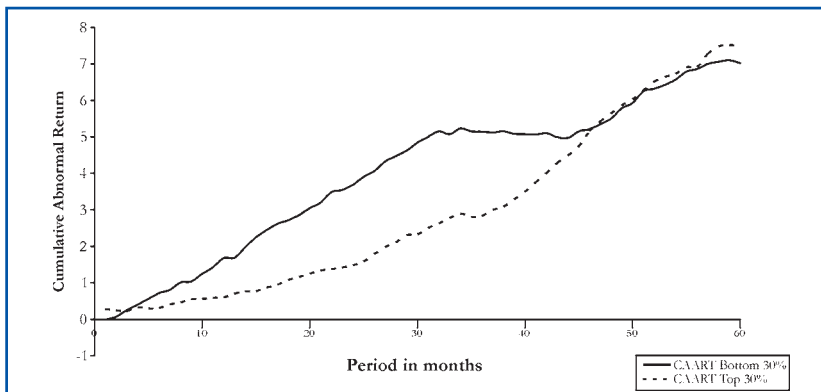


Table 8 Cumulative Abnormal Returns - India using Fama-French Model (Bottom 30% of the companies)

**Bottom 30%**

Period	CAART	t-Stat	Period	CAART	t-Stat
1	-0.01	-0.15	31	5.00	11.06
2	0.07	0.63	32	5.15	11.21
3	0.25	1.77	33	5.07	10.86
4	0.40	2.46	34	5.23	11.03
5	0.56	3.07	35	5.15	10.71
6	0.72	3.61	36	5.14	10.55
7	0.81	3.75	37	5.12	10.36
8	1.01	4.39	38	5.15	10.29
9	1.04	4.27	39	5.08	10.00
10	1.25	4.88	40	5.07	9.87
11	1.43	5.30	41	5.06	9.73
12	1.68	5.96	42	5.10	9.69
13	1.69	5.78	43	4.99	9.36
14	1.98	6.52	44	4.97	9.23
15	2.25	7.15	45	5.15	9.45
16	2.45	7.54	46	5.21	9.45
17	2.62	7.83	47	5.35	9.61
18	2.72	7.90	48	5.50	9.77
19	2.86	8.08	49	5.78	10.16
20	3.04	8.38	50	5.93	10.31
21	3.19	8.57	51	6.25	10.77
22	3.48	9.12	52	6.32	10.78
23	3.54	9.07	53	6.42	10.86
24	3.68	9.25	54	6.57	10.99
25	3.90	9.61	55	6.79	11.26
26	4.06	9.80	56	6.86	11.29
27	4.32	10.22	57	7.00	11.41
28	4.47	10.40	58	7.06	11.40
29	4.62	10.55	59	7.10	11.37
30	4.84	10.88	60	7.02	11.16

Figure 4 Cumulative Abnormal Return (Fama-French Model) for Top 30% and Bottom 30% of the companies





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