Debt Market

Introduction

The debt market in India comprises of two main segments, *viz.*, the government securities market and the corporate securities market*, besides the emerging market for interest rate derivatives (IRDs). 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 outstanding volume in marketable government securities (of central as well as state government) is estimated at around Rs. 6,412,120 million at the end of March 2003. The short-term instruments in this segment are used by RBI as instrument of monetary policy. The main instruments in the government securities market are dated securities that include floating rate bonds, zero coupon bonds, securities with embedded derivatives, treasury bills and the state government bonds. The corporate debt segment includes private corporate debt, bonds issued by public sector units (PSUs) and bonds issued by development financial institutions (DFIs). The market for debt derivatives have not yet developed appreciably though there exists both OTC and exchange traded derivatives in interest rate products.

The year 2002-03 has been most eventful for debt markets in India with introduction of retail debt market of exchange traded interest rate derivatives and setting up the stage to move towards Real Time Gross Settlement (RTGS). The year also witnessed unprecedented volumes both in primary market and secondary market.

During 2002-03, the government and corporate sector collectively mobilised Rs. 2,350,956 million from primary debt market, 15.20% higher than the resources mobilised in the preceding year (Table 6-1). About 77.4% of these were raised by the government (Central and State Governments), while the balance amount was mobilised by the corporate sector through public and private placement issues. (The details of corporate debt issues are discussed in detail in

Table 6-1: Debt Market: Selected Indicators

(In Rs. mn.)

Issuer/Securities	Amount raised form Primary Market		Turnover in Secondary Market	
	2001-02	2002-03	2001-02	2002-03
Government	1,525,080	1,819,790	15,738,927	19,557,312
Corporate/Non Government	515,610	531,166	197,289	360,388
Total	**2,040,690**	**2,350,956**	**15,936,216**	**19,917,700**

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.

Chapter 2.) The turnover in secondary debt market during 2002-03 aggregated Rs. 19,917,700 million, 25% higher than that in the previous year. The share of NSE in total turnover in debt securities remained at about 53% during 2002-03.

Market Segments

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

- Government securities form the oldest and most dominant part of the debt market in India. The market for government securities comprises the securities issued by the central government, state governments. In the recent past, local bodies such as municipal corporations have also begun to tap the debt market for funds, though not very frequently. The Central Government mobilises funds mainly through issue of dated securities and T-bills, while State Governments rely solely on State Development Loans. The major investors in sovereign papers are banks, insurance companies, primary dealers and financial institutions.
- Bonds issued by government-sponsored institutions like DFIs, infrastructure-related institutions and the PSUs, also constitute a substantial part of the debt market. The gradual withdrawal of budgetary support to PSUs by the government since 1991 has increased their reliance on the bond market for mobilising resources. The preferred mode of raising capital by these institutions has been private placement, barring an occasional public issue. Banks, financial institutions and other corporates have been the major subscribers to these issues.
- The Indian corporate sector relies, to a great extent, on raising capital through debt issues, which comprise of bonds and CPs. Of late, most of the bond issues are being placed through the private placement route. These bonds are structured to suit the requirements of investors and the issuers, and include a variety of tailor-made features with respect to interest payments and redemption. Corporate bond market has seen a lot of innovations, including securitised products, corporate bond strips, and a variety of floating rate instruments with floors and caps. In the recent years, there has been an increase in issuance of corporate bonds with embedded put and call options. While some of these securities are traded on the stock exchanges, the secondary market for corporate debt securities is yet to fully develop.
- In addition to above, there is another segment, which comprises of short-term paper issued by banks, mostly in the form of certificates of deposit (CDs). This segment is, however, comparatively less dominant.
- The Indian debt market also has a large non-securitised, transactions-based segment, where players are able to lend and borrow amongst themselves. This segment comprises of call and notice money markets, inter-bank market for term money, market for inter-corporate loans, and market for ready forward deals (repos). Typically, short-term instruments are traded in this segment.
- The market for interest rate derivatives like FRAs, IRSs is emerging to enable banks, PDs and FIs to hedge interest rate risks.
- The exchange traded interest rate derivatives introduced in June 2003 is expected to provide hedging tools to banks, institutions as well as other market participants.

Market Participants

Traditionally, debt market has been an institutional market all over the world. Banks and Institutions contribute more in term of trading value. In India, banks, financial institutions (FIs), mutual funds (MFs), provident funds, insurance companies and corporates are the main investors. Banks have been investing in this market mainly due to statutory requirement of meeting Statutory Liquidity Ratio (SLR). Many of these participants are also issuers of debt instruments. The small number of large players has resulted in the debt markets being fairly concentrated, and evolving into a wholesale negotiated dealings market. Most debt issues are privately placed or auctioned to the participants. Secondary market dealings are mostly undertaken through telephonic negotiations among market participants. In some segments, such as the government securities market, market makers in the form of primary dealers have emerged, which enable a broader holding of treasury securities. Debt funds of the mutual fund industry, comprising of liquid funds, bond funds and gilt funds, represent a recent mode of intermediation of retail investments into the debt markets.

The market participants in the debt market are described below:

i. Central Government raises money through issuance of bonds and T-bill to fund budgetary deficits and other short and long-term funding requirements through Reserve Bank of India (RBI).

ii. RBI participates in the market through open-market operations as well as through Liquidity Adjustment facility (LAF) in the course of conduct of monetary policy. RBI also regulates the bank rates and repo rates, and uses these rates as indirect tools of its monetary policy. Changes in these benchmark rates directly impact debt markets and all participants in the market as other interest rates realign themselves with these changes.

iii. Primary Dealers (PDs), who are market intermediaries appointed by RBI, underwrite and make market in government securities by providing two-way quotes, and have access to the call and repo markets for funds. Their performance is assessed by RBI on the basis of their bidding commitments and the success ratio achieved at primary auctions. They normally hold most liquid securities in their portfolio.

iv. State governments, municipal and local bodies issue securities in the debt markets to fund their developmental projects as well as to finance their budgetary deficits.

v. Public Sector Undertakings (PSU) and their finance corporations are large issuers of debt securities. They raise funds to meet the long term and working capital needs. These corporations are also investors in bonds issued in the debt markets.

vi. Corporates issue short and long-term paper to meet their financial requirements. They are also investors in debt securities issued in the market.

vii. DFIs regularly issue bonds for funding their financing requirements and working capital needs. They also invest in bonds issued by other entities in the debt markets. Most FIs hold government securities in their investment and trading portfolios.

viii. Banks are the largest investors in the debt markets, particularly in the government securities market due to SLR requirements. They are also the main participants in the call money market. Banks arrange CP issues of corporates and are active in the inter-bank term markets and repo markets for their short term funding requirements. Banks also issue

CDs and bonds in the debt markets. They also issue bonds to raise funds for their Tier-II capital requirement.

ix. The investment norms for insurance companies make them large participants in government securities market.

x. 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.

xi. Foreign Institutional Investors (FIIs) are permitted to invest in treasury and corporate bonds, within certain limits.

xii. Provident and pension funds are large investors in the debt markets. The prudential regulations governing the deployment of the funds mobilised by them mandate investments pre-dominantly in treasury and PSU bonds. They are, however, not very active traders in their portfolio, as they are not permitted to sell their holdings, unless they have a funding requirement that cannot be met through regular accruals and contributions.

xiii. 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.

xiv. Since January 2002, retail investors have been permitted to submit non-competitive bids at primary auction through any bank or PD. They submit bids for amounts of Rs. 10,000 and multiples thereof, subject to the condition that a single bid does not exceed Rs. 1 crore. The non-competitive bids upto a maximum of 5% of the notified amount are accepted at the weighted average cut off price/yield.

xv. NDS, CCIL and WDM segment of NSEIL are other important platforms for the debt market which are discussed in greater detail in subsequent sections.

The matrix of issuers, investors, instruments in the debt market and their maturities are presented in Table 6-2.

Policy Developments

With a view to develop and deepen debt market, particularly government securities market, and optimising cost-maturity structure of government borrowings, a number of important policy measures were initiated and implemented. The same has been discussed below:

Union Budget, 2001-02

In order to further develop a transparent and active debt market in general, and the government securities market, in particular, following measures were proposed in the Union Budget for 2001-02:

- A Clearing Corporation would be set up under the active encouragement of RBI, with State Bank of India as the chief promoter.
- Trading of government securities through order driven screen-based system will be implemented.

Table 6-2: Participants and Products in Debt Market

Issuer	Instruments	Maturity	Investors
Central Government	Dated Securities	2 - 30 years	RBI, Banks, Insurance Companies, Provident Funds, Mutual Funds, PDs, Individuals, FIIs
Central Government	T-Bills	91/364 days	RBI, Banks, Insurance companies, Provident Funds, PDs, Mutual Funds, Individuals, FIIs
State Government	State Development Loans	7-20 years	Banks, Insurance Companies, Provident Funds, Individuals
PSUs	Bonds, Structured Obligations	1-20 years	Banks, Insurance Companies, Provident Funds, Mutual Funds, Individuals, Corporates, FIIs
Corporates	Debentures, Bonds	1 - 15 years	Banks, Mutual Funds, Corporates, Individuals, FIIs
Corporates, PDs	Commercial Papers	15 days to 1 year	Banks, Mutual Funds, Financial Institutions, Corporates, Individuals, FIIs
Scheduled Commercial Banks, 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 3 years	Banks, Companies, Individuals, FIIs, Corporations, Trusts, Funds, Associations
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.

- An electronic Negotiated Dealing System will be set up by the RBI to facilitate transparent electronic bidding in auctions and dealings in government securities on a real time basis.
- In order to ensure smooth and quick movement of funds, the Electronic Fund Transfer and Real Time Gross Settlement Systems are being put in place by the RBI within the next year.
- Clarifications are being issued by CBDT to promote the issuance of STRIPS, zero coupon bonds, deep discount bonds, and similar products.
- The old Public Debt Act would be replaced by the Government Securities Act.
- Comprehensive legislation will be introduced on securitisation.

A small group comprising the RBI, SEBI, Stock Exchanges and the Ministry of Finance would be set up to monitor and implement these developments so that the debt market becomes active next year.

Union Budget, 2002-03

The Union Budget for 2002-2003 proposed the following measures to strengthen government securities market further:

(i) A new Government Securities Bill would be introduced within the budget session to replace the old Public Debt Act, 1949.

(ii) To help investors plan their investments better and to add transparency and stability in the market, RBI would announce an issuance calendar for dated government securities.

(iii) Administered Interest rates would be adjusted annually on a non-discretionary automatic basis. These would be benchmarked to the average annual yields of government securities of equivalent maturities in secondary market. Accordingly most interest rates would be reduced by 50 basis points from March 1, 2002.

(iv) A pilot Asset Reconstruction Company would be set up by June 30, 2002 with participation of public and private sector banks, financial institutions and multilateral agencies. This company would take over non-performing assets in the banking sector and also develop a market for securitised loan.

Union Budget 2003-04

(i) It was proposed to increase the limit of deduction with effect from April 1, 2003 in respect of interest on certain securities, dividends, etc. from Rs. 9,000 to Rs. 12,000. An additional deduction of Rs. 3,000 would also be available with respect to interest on securities of the central government or a state government.

(ii) Buy back of high coupon bearing Central Government Securities was proposed in the budget.

(iii) States were also asked to swap all loans with interest rates more than 13 percent by 2004-05. States debt swap to cut interest costs by 810 billion.

(iv) It was proposed that the saving rate interest on public provident fund and small saving schemes be cut by 100 basis points.

Securitisation Ordinance, 2002

The Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Ordinance, 2002 was promulgated on June 21, 2002. It empowers banks and financial institutions to enforce their securities without intervention of court or tribunal. In the event of default by a borrower, a secured creditor shall have recourse to (a) take possession, sell or lease the secured assets, (b) take over the management of the secured asset of the borrower, (c) take possession of the secured asset and appoint a manager to manage the same, or (d) recover any money payable by third parties to the borrower. In cases of joint financing under consortium or multiple lending arrangement, if 75% of the secured creditors in value agree to initiate recovery action the same shall be binding on all secured creditors.

The Ordinance also provides a legal framework for securitisation of financial assets and asset reconstruction. The securitisation companies or reconstruction companies shall be regulated by RBI. The security receipts issued by these companies will be securities within the meaning of the Securities Contract (Regulation) Act, 1956. These companies would have powers to acquire assets by issuing a debenture or bond or any other security in the nature of debenture in lieu thereof. Once an asset has been acquired by the asset reconstruction company, such company would have the same powers for enforcement of securities as the original lender.

Issue of Government Securities

Government of India issued a revised general notification on May 6, 2002 specifying the general terms and conditions applicable to all issues of government securities. The revised notification incorporates the following additional features:

a. The auctions for issue of securities (on either yield basis or price basis) would be held either on 'Uniform price' method or on 'Multiple price' method or any other method as may be decided. Under 'Uniform price' method, competitive bids offered with rates up to and including the maximum rate of yield or the prices up to and including the minimum offer price, as determined by RBI, would be accepted at the maximum rate of yield or minimum offer price so determined. Bids quoted higher than the maximum rate of yield or lower than the minimum price as determined by RBI would be rejected. Under 'Multiple price' method, the competitive bids offered at the maximum rate of yield or the minimum offer price as determined by RBI would be accepted. Other bids tendered at lower than the maximum rate of yield or higher than the minimum offer price determined by RBI would be accepted at the rate of yield or price as quoted in the respected bid.

b. Individuals and institutions can participate in the auctions on 'non-competitive' basis, indirectly through a scheduled bank or a primary dealer offering such services or any other agency permitted by RBI for this purpose. Allocation of securities to non-competitive bidders would be at the discretion of RBI and at a price not higher than the weighted average price arrived at on the basis of the competitive bids accepted at the auction or any other price announced in the specific notification. The nominal amount of securities allocated on such basis would be restricted to a maximum percentage of the aggregate nominal amount of the issue, within or outside the nominal amount, as specified by GOI/RBI.

c. Government securities can also be issued by credit to investor's bond ledger account maintained with RBI or any institution authorised by RBI.

d. Offer for purchase of government securities can be submitted in electronic form. Payment for the government securities can be made by successful participants through electronic fund transfer (EFT) in a secured environment.

e. Government may issue securities with embedded derivatives. Such securities may be repaid, at the option of Government of India or at the option of the holder of the security, before the specified redemption date, where a "call option"/"put option" is specified in the specific notification relating to the issue of a government security. Where neither a call option nor a put option is specified/exercised, the government security would be repaid on the date of redemption specified in the specific notification.

f. RBI would have discretion to retain the excess subscription to the extent specified in the specific notification when securities are issued through pre-announced coupon rates.

g. RBI can participate in auction as a 'non competitor' and will be allocated securities at cut-off price/yield in the auctions or at any other price/yield decided by Government.

Deep Discount Bonds and STRIPS

Government issued a circular clarifying the tax treatment of income from deep discount bonds (DDB) and STRIPS as follows:

(i) Every person holding a DDB will make a market valuation of the bond as on the March 31 of each financial year. The difference between the market valuations as on two successive valuation dates will represent the accretion to the value of the bond during the relevant financial year and will be taxable as interest income (where the bonds are held as investments) or business income (where the bonds are held as trading assets). In case the bond is acquired during the year by an intermediate purchaser (a person who has acquired the bond by purchase during the term of the bond and not as original subscription), the difference between the market value as on the valuation date and the cost for which he acquired the bond, will be taxed as interest income or business income, as the case may be, and no capital gains will arise as there would be no transfer of the bond on the valuation date.

(ii) Where the bond is transferred at any time before the maturity date, the difference between the sale price and the cost of the bond will be taxable as capital gains in the hands of an investor or as business income in the hands of a trader. Since the income chargeable in this case is only the accretion to the value of the bond over a specific period, for the purpose of computing capital gains, the period of holding in such cases will be reckoned from the date of purchase/subscription, or the last valuation date in respect of which the transferor has offered income to tax, whichever is later. Since such period would always be less than one year, the capital gains will be chargeable to tax as short-term capital gains.

(iii) Where the bond is redeemed by the original subscriber, the difference between the redemption price and the value as on the last valuation date immediately preceding the maturity date will be taxed as interest income in the case of investors, or business income in the case of traders. Where the bond is redeemed by an intermediate purchaser, the difference between the redemption price and the cost of the bond to such purchaser will be taxable as interest or business income, as the case may be.

(iv) STRIPS (Separate Trading of Registered Interest and Principal of Securities) creates instruments which are in the nature of Deep Discount or Zero Coupon Bonds from out of the normal interest bearing bonds. Accordingly, the tax treatment of the different components of principal and interest created by such stripping will be on the same lines as in respect of DDBs.

(v) The process of stripping of a normal interest-bearing bond into its various components will not amount to a transfer within the meaning of the Income-tax Act as it merely involves the conversion of the unstripped bond into the corresponding series of STRIPS. Similarly, the reconstitution of STRIPS to form a coupon bearing bond will not amount to a transfer.

Monetary and Credit Policy, 2002-03

The Monetary and Credit Policy for 2002-03 proposed the following measures having bearing on the debt market:

- RBI would continue to take recourse to uniform price auctions on an experimental and selective basis during the calendar year.
- All entities having SGL accounts with RBI would become members of NDS by May 31, 2002.

- The Government Securities Act, which would replace the Public Debt Act, 1944 would be introduced in parliament. This would simplify the procedure for transactions in government securities, and allow lien making/pledging of securities as also electronic transfer in dematerialised form.
- The banks would promote schemes for sale/purchase of government securities over their counters to retail investors through demat accounts with depositories or with CSGL account holders. PDs and banks may also provide both sale and purchase facility to ensure that the retail investors are assured of liquidity of such investments.
- The issue of further Floating Rate Bonds in the current year would be considered.
- In order to operationalise the scheme of STRIPS, a working group would be constituted comprising of banks and market participants to suggest operational and prudential guidelines.
- Based on the views of the Primary Dealers Association of India (PDAI) and the Technical Advisory Committee on Money and Government Securities, no new Satellite Dealers (SDs) would be licensed. Existing SDs were required to make action plans for termination of their operations as SDs by December 2002.
- RBI would continue its policy of issuing long term bonds to meet requirements of investors like insurance companies, provident funds and pension funds.

A mid term review of the policy introduced the following measures :

- The bank rate was cut by 0.25% to 6.25% effective from the close of business of October 29, 2002. The CRR was reduced to 4.75% effective from the fortnight beginning November 16, 2002.
- The repo rate under the Liquidity Adjustment Facility (LAF) of RBI was also reduced by 0.25%.
- With a view to provide more flexibility for pricing of CDs and to give additional choice to both investors and issuers, Banks and FIs may issue CDs on floating rate basis.
- A working group would state the guidelines for OTC rupee derivatives in India and suggest further developments in the market.
- In order to enlarge the number of participants and to provide countrywide access to government securities, introduction of anonymous screen based order driven trading system in government securities on the stock exchanges was proposed. It was also proposed to extend repo eligibility to select category of non-SGL account holders with adequate safeguards to ensure D*v*P and transparency.
- In a step towards development of Repo Market, it was stated that rollover of repos using the same securities between the same counterparties should be permitted.
- In order to promote Collateralised Borrowing and Lending Obligation (CBLO), it was said that it would be considered as a money market instrument with original maturity between 1 day and 1 year, with no restrictions on the minimum denomination as well as lock-in period for its secondary market transactions.
- Price and trade information on government securities and related data reported on NDS would be available on the RBI website on real time basis.

Monetary and Credit Policy, 2003-04

The Monetary and Credit Policy for 2003-04 proposed the following measures having bearing on the securities market:

- As a step further in moving towards the medium-term objective of reducing CRR of banks, it was proposed that the same would be reduced from 4.75 % to 4.50 % w.e.f fortnight starting June 14, 2003. The bank rate was cut by 0.25% to 6.00% effective from the close of business of April 29, 2003.
- RBI also proposed that from the fortnight beginning May 3, 2003, it would be mandatory for all NDS members to report all their call/notice money market deals on NDS. Deals done outside NDS shall also be reported within 15 minutes on NDS, irrespective of the size of the deal or whether the counterparty is a member of the NDS or not.
- Based on the recommendations of the Working Group on Rupee Derivatives, which proposed new rupee derivative instruments on both OTC and exchange traded, it was proposed that, to begin with (a) less complex over-the-counter (OTC) interest rate rupee options shall be permitted in the first phase which include vanilla caps, floors and collars, European swaptions, call and put options on fixed income instruments/benchmark rates and unleveraged structured swaps based on overnight indexed swaps (OIS) and forward rate agreements (FRAs) where the risk profile of such structure is similar to that of the building blocks, (b) scheduled commercial banks, financial institutions and PDs shall be allowed to both buy and sell options; corporate may sell options initially without being the net receivers of premium. Detailed guidelines regarding the operationalisation of the above procedures shall be issued in consultation with the market participants.
- In order to provide further flexibility to both issuers and investors, RBI also proposed that, non bank entities including corporate may provide unconditional and irrevocable guarantee for credit enhancement for CP issue as long as (i) the issuer fulfils the eligibility criteria prescribed for issuance of CP, (ii) the guarantor has at least one notch higher credit rating than the issuer by an approved credit rating agency, (iii) the offer document for CP should properly disclose the net worth of the guarantor company, the names of the companies to which the guarantor has issued similar guarantees, the extent of guarantees offered by the guarantor company.
- Mutual funds invest in ADRs/GDRs of Indian companies and rated foreign debt instruments within an overall cap of US$ 1.0 billion with the permission of SEBI & RBI. In order to simplify the procedure and to facilitate expeditious processing of investment, it was proposed to accord general permission to mutual funds for their overseas investments within the cap, once SEBI gives its approval.
- Indian corporates and resident individuals are also permitted to invest in rated bonds/ fixed income securities of listed eligible companies aboard subject to certain conditions.
- It was proposed to replace the Public Debt Act, 1944 with a new Government Security Act.
- The interest rate on back-stop facility was reduced by 1%. At present back-stop was available at variable rate and is above repo /reverse repo/NSE MIBOR.

Other Developments

Non-Competitive Bidding: Under the scheme, the investors who do not maintain current account or SGL account with RBI are eligible to bid; the minimum amount of bid is Rs.10,000 and thereafter in multiples of Rs.10,000 and the maximum amount of each bid is Rs. 1 crore; bids are placed through a bank or PD; the total amount under the scheme does not exceed 5% of the notified amount; and allotment to non-competitive bidders are made at the weighted average rate of successful competitive bidders.

Market Infrastructure: As part of the ongoing efforts to build debt market infrastructure, two new systems, the NDS and the CCIL commenced operations on February 15, 2002 to facilitate debt market operations. The CCIL facilitates settlement of transactions in government securities (both outright and repo) on Delivery versus Payment (DVP-II) basis which provides for settlement of securities on gross basis and settlement of funds on net basis simultaneously. It acts as a central counterparty for clearing and settlement of government securities transactions done on NDS. With a view to improving transparency and strengthening efficiency in the market, it was decided by RBI that from the fortnight beginning May 3, 2003, it would be mandatory for all NDS members to report all their call/notice money market deals on NDS. Deals done outside NDS should be reported within 15 minutes of concluding the deal irrespective of the size of the deal or whether the counter party is a member of the NDS or not.

Floating Rate Bonds: In order to provide hedge against interest rate risk by offering returns linked to short term yield, Government has commenced issuance of Floating Rate Bonds on auction basis since November 2001.

Issuance Calendar: RBI has been issuing Issuance Calendar every half year since March 27, 2002 to provide an indicative calendar for issuance of marketable dated government securities. This helps institutional and retail investors to plan their investment in a better manner and will also provide transparency and stability in the government securities market. RBI would, however, have the flexibility for additional issuance of government securities as per emerging requirement of the Government and market conditions.

Transactions in Government Securities: In light of the recent fraudulent transactions in the guise of government securities transactions in physical format, RBI issued a circular on June 7, 2002 to accelerate the measures for further reducing the scope for trading in physical form. The measures were as follows:

(i) For banks which do not have SGL account with RBI, only one CSGL account can be opened.

(ii) In case the CSGL accounts are opened with a scheduled commercial bank, the account holder has to open a designated funds account (for all CSGL related transactions) with the same bank.

(iii) The entities maintaining the CSGL/designated funds accounts will be required to ensure availability of clear funds in the designated funds accounts for purchases and of sufficient securities in the CSGL account for sales before putting through the transactions.

(iv) No further transactions by the bank should be undertaken in physical form with any broker with immediate effect.

(v) Banks should ensure that brokers approved for transacting in government securities are registered with the debt market segment of NSE/BSE/OTCEI.

(vi) It should also be ensured that users of NDS deal directly on the system and use the system for transactions on behalf of their clients.

Banks were advised to ensure that the above instructions are complied with by June 30, 2002.

Consolidation of Securities: RBI has been attempting passive consolidation by reissuing the existing stocks through price based auctions which resulted in limiting the number of outstanding stock.

Trading of Government Securities on Stock Exchanges: The Government, the RBI, and the SEBI proposed to introduce trading in government securities through a nation wide, anonymous, order driven, screen based trading system of the stock exchanges, as in the case of equities, to encourage wider participation of all classes of investors, including retail investors, across the country in government securities. It was also proposed that all outstanding and newly issued central government securities would be traded, which would adopt the equity trading model. The settlement cycle would be T+2 rolling settlement, which would be shortened on along with the shortening of the settlement cycle for equity trading. The clearing corporation and the clearing house would provide the financial guarantee for the settlements wherein the exchanges would be required to set up a separate settlement guarantee fund.

The clearing and settlement would be the same as in the case of equities. Existing SGL account holders can continue to hold the securities in their SGL accounts or hold securities in their CSGL accounts maintained with NSDL or CDSL. RBI would provide 'value free transfer' mechanism to transfer of securities from the SGL accounts to CSGL accounts with the depositories. There would be marked to market margins along with exposure norms calculated conservatively on the basis of worst case volatility scenario on the ZCYC. Intra day risk containment system for positions on government securities would also be incorporated. The clearing member and trading member structure would also be incorporated in this segment as in case of derivatives market. Intra day shortening will be permitted only in compliance with all the regulations and compulsory delivery on T+2, else subject to penalty on delivery failures. All RBI regulated entities would use custodian banks to settle trades.

Management of Investment Portfolio by Banks: RBI issued a master circular incorporating instructions issued up to June 30, 2002 on matter relating to prudential norms for classification, valuation and operation of investment portfolio by banks. The salient features of the circular having a bearing on securities market are:

Investment Policy: Banks should frame and implement a suitable investment policy to ensure that operations in securities are conducted in accordance with sound and acceptable business practices. They should ensure that no sale transaction is put through without actually holding the security in its investment account. Banks desirous of making investment in equity shares/ debentures should build up adequate expertise in equity research by establishing a dedicated equity research department and formulate a transparent policy and procedure for investment in shares, etc. The decision in regard to direct investment in shares, convertible bonds and debentures should be taken by the Investment Committee.

Ready Forward Contracts: Ready forward contracts (including reverse ready forward contracts) may be entered into may be undertaken only in dated securities and treasury bills

issued by Government of India and dated securities issued by State Governments. These contracts may be entered into by a banking company/co-operative bank/any person maintaining a SGL account with RBI, Mumbai. These shall be settled through the SGL accounts of the participants with RBI or through the SGL account of the CCIL with RBI. No sale transaction would be put through without actually holding the securities in the portfolio.

Banks have been advised not to enter into buy-back arrangements with non-bank clients in respect of their holding of securities (such as in permitted Govt. and other approved securities, public sector bonds or corporate shares, debentures or units of UTI etc.). Double ready forward deals in government securities, including treasury bills are strictly prohibited. No ready forward and double ready forward deals should be put through even among banks and even on their investment accounts in other securities such as PSU bonds, units of UTI etc. Similarly, no ready forward and double ready forward deals should be put through in any securities including government securities on behalf of other constituents.

Transactions through SGL Account: For purchase/sale of securities through SGL account under the D*v*P System wherein the transfer of securities takes place simultaneously with the transfer of funds, both the selling bank and the buying bank should maintain current account with RBI. As no overdraft facility in the current account would be extended, adequate balance in current account should be maintained by banks for effecting any purchase transaction. All transactions in government securities for which SGL facility is available should be put through SGL accounts only.

Retailing of Government Securities: The banks may undertake retailing of government securities with non-bank clients subject to the condition that (i) such retailing shall be on outright basis and there is no restriction on the period between sale and purchase; (ii) the retailing should be on the basis of ongoing market rates/yield curve emerging out of secondary market transactions; (iii) No sale of government securities would be effected unless they hold securities in their portfolio.

Engagement of Brokers: Banks should observe the following guidelines for engaging brokers: (a) Transactions between one bank and another bank should not be put through the brokers' accounts. (b) If a deal is put through with the help of a broker, the role of the broker should be restricted to that of bringing the two parties to the deal together. (c) While negotiating the deal, the broker is not obliged to disclose the identity of the counterparty to the deal. (d) On the basis of the contract note disclosing the name of the counterparty, settlement of deals between banks, viz. both fund settlement and delivery of security, should be directly between the banks, and the broker shall have no role to play in the process. (e) With the approval of their top managements, banks should prepare a panel of approved brokers which should be reviewed annually, or more often if so warranted. Clear-cut criteria should be laid down for empanelment of brokers. A record of broker-wise details of deals put through and brokerage paid, should be maintained. (f) A disproportionate part of the business should not be transacted through only one or a few brokers. Banks should fix aggregate contract limits for each of the approved brokers. A limit of 5% of total transactions (both purchase and sales) entered into by a bank during a year should be treated as the aggregate upper contract limit for each of the approved brokers. This limit would cover both the business initiated by a bank and the business offered/ brought to the bank by a broker.

Banks may undertake securities transactions among themselves or with non bank clients through members of NSE, OTCEI and BSE. If such transactions are not undertaken on

NSE, OTCEI or BSE, the same should be undertaken by banks directly, without engaging brokers.

Non-SLR investments: The Boards of banks should lay down policy and prudential limits on investments in bonds and debentures including cap on unrated issues and on private placement basis, sub limits for PSU bonds, corporate bonds, guaranteed bonds, issuer ceiling, etc. Investment proposals should be subjected to the same degree of credit risk analysis as any loan proposal. Banks should make their own internal credit analysis and rating even in respect of rated issues and should not entirely rely on the ratings of external agencies. In case of unrated issues or issues of companies who are not their borrowers, banks should have an internal system of rating.

Banks are free to acquire shares, convertible debentures of corporates and units of equity-oriented mutual funds, subject to a ceiling of 5% of the total outstanding domestic credit as on March 31 of the previous year. Within the overall ceiling of 5% for total exposure to capital market, the total investment in shares, convertible bonds and debentures and units of equity-oriented mutual funds by a bank should not exceed 20% of its net worth. The ceiling for investment in shares, etc., as stated in the above is the maximum permissible ceiling 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. Underwriting commitments taken up by the banks in respect of primary issues through book building route shall be within the above overall ceiling. Investment in equity shares and convertible bonds and debentures of corporate entities should be reckoned for the purpose of arriving at the prudential norm of single-borrower and borrower-group exposure ceilings.

Transactions in Government Securities: In order to reduce the scope of trading in physical forms, the following should be followed:

a. For banks which do not have SGL account with RBI, only one CSGL account can be opened.

b. In case the CSGL accounts are opened with a scheduled commercial bank, the account holder has to open a designated funds account (for all CSGL related transactions) with the same bank.

c. The entities maintaining the CSGL/designated funds accounts will be required to ensure availability of clear funds in the designated funds accounts for purchases and of sufficient securities in the CSGL account for sales before putting through the transactions.

d. No transactions by the bank should be undertaken in physical form with any broker.

e. Banks should ensure that brokers approved for transacting in government securities are registered with the debt market segment of NSE/BSE/OTCEI.

Dematerialised Holding: Banks, FIs and PDs would be permitted to make fresh investments and hold bonds and debentures, privately placed or otherwise, only in dematerialised form. As regards equity instruments, they would be permitted to hold only in demat form from a date to be notified in consultation with SEBI.

Repo Accounting: In order to ensure uniform accounting treatment and to impart an element of transparency, RBI has laid down uniform accounting principles, in consultation with Fixed Income Money Markets and Derivatives Association of India (FIMMDA), for repo/reverse repo transactions undertaken by all the regulated entities in regard of three categories of

investment viz., held for trading, available for sale and held till maturity. However, for the present, these norms shall not apply to repo/reverse repo transactions under the Liquidity Adjustment Facility (LAF) with RBI. The other accounting principles to be followed while accounting for repos/reverse repos will be as under:

(a) Coupon: In case the interest payment date of the security falls within the repo period, the coupons received by the buyer of the security shall be passed on to the seller on the date of the receipt. In the case of discounted instruments like Treasury Bills, since there is no coupon, the seller shall continue to accrue the discount at the original discount rate during the period of the repo.

(b) Repo Interest Income/Expenditure (*After the second leg of the repo/reverse repo transaction is over*) (a) the difference in the clean price of the security between the first leg and the second leg should be reckoned as Repo Interest Income/Expenditure in the books of the buyer/seller respectively; (b) the difference between the accrued interest paid between the two legs of the transaction should be shown as Repo Interest Income/Expenditure account, as the case may be; and (c) the balance outstanding in the Repo interest Income/ Expenditure account should be transferred to the Profit and Loss account as an income or an expenditure .

(c) Marking to Market: The buyer will mark to market the securities acquired under reverse repo transactions as per the investment classification of the security. In respect of the repo transactions outstanding as on the balance sheet date (a) the buyer will mark to market the securities on the balance sheet date and will account for the same as laid down in the extant valuation guidelines issued by RBI (b) the seller will provide for the price difference in the Profit & Loss account and show this difference under "Other Assets" in the balance sheet if the sale price of the security offered under repo is lower than the book value.

Credit Derivatives : The working group set up by RBI for Credit Derivatives in India, have submitted the report pursuant to which, the draft guidelines have been framed. Banks and FIs can manage their credit risks arising from adverse movements in the credit quality of their loans and advances, and their investments effectively by hedging their risks through credit derivatives like OTC financial contracts.

Credit derivatives are broadly classified as (a) transactions where credit protection is brought and sold, and (b) total return swaps. The basis structure that are included in transactions where credit protection is bought and sold are (i) Credit Default Swaps (CDS) which is a bilateral derivative contract on one or more reference assets in which the protection buyer pays a fee through the life of the contract in return for a credit event payment by the protection seller following a credit event of the reference entities. (ii) Credit Default Option is a kind of CDS where the fee is paid fully in advance. (iii) Credit Linked Note (CLN) is a combination of a regular note and a credit option. Since it is a regular note with coupon, maturity and redemption, it is an on-balance sheet equivalent of a credit default swap and under this structure, the coupon or price of the note is linked to the performance of a reference asset. (iv) Credit Linked Deposits/Credit Linked Certificates of Deposit are structured deposits with embedded default swaps. Conceptually they can be thought of as deposits along with a default swap that the investor sells to the deposit taker. (v) Repackaged Notes: Repackaging involves placing securities and derivatives in a Special Purpose Vehicle (SPV) which then

issues customized notes that are backed by the instruments placed. (vi) Collateralised Debt Obligations (CDOs) are specialized repackaged offerings that typically involve a large portfolio of credits. It involves issuance of debt by a SPV based on collateral of underlying credit(s). Total Return Swaps (TRS), also called Total Rate of Return Swaps (TROR) are bilateral financial contracts designed to synthetically replicate the economic returns of an underlying asset or a portfolio of assets for a pre-specified time. The guidelines will apply to all commercial banks.

Guidelines for Issue of Commercial Paper: In order to provide further flexibility to both issuers and investors in the Commercial Paper (CP) market, it was decided that non-bank entities including corporates shall provide unconditional and irrevocable guarantee for credit enhancement for CP issue provided:

a) the issuer fulfils the eligibility criteria prescribed for issuance of CP;

b) the guarantor has credit rating at least one notch higher that the issuer by an approved credit rating agency;

c) the offer document for CP properly discloses the net worth of the guarantor company, the names of the companies to which the guarantor has issued guarantees, the extent of the guarantees offered by the guarantor company and the conditions under which the guarantee will be invoked.

It was also advised that the banks be allowed to invest in CPs guaranteed by non-bank entities provided their exposure remains within the regulatory ceiling as prescribed by RBI for unsecured exposures.

Guidelines on Exchange Traded Interest Rate Derivatives: RBI issued detailed guidelines for Banks and Institutions allowing them to participate in the exchange traded interest rate derivatives (IRD) market in India to enable better risk management. Scheduled Commercial Banks (SCBs) excluding RRBs & LABs, Primary Dealers and specified Financial Institutions are allowed to deal in IRDs. To start with Banks and FIs are allowed to transact for the limited purpose of hedging the risk in their underlying investment portfolio while Primary Dealers are allowed to take trading positions as well as hedging the risk in the underlying investment portfolio. The norms that will be applicable for transacting IRDs on the F&O segment of the stock exchanges are as follows:

i. *Stock Exchange Regulation*: SCBs and AIFIs can seek membership of the F&O segment of the stock exchanges for the limited purpose of undertaking proprietary transactions for hedging interest rate risk. Those not seeking membership of Stock Exchanges, can transact IRDs through approved F&O members of the exchanges.

ii. *Settlement*: As trading members of the F&O segment, SCBs and AIFIs should settle their derivative trades directly with the clearing corporation/clearing house. Regulated entities participating through approved F&O members shall settle proprietary trades as a participant clearing member or through approved professional/custodial clearing members.

iii. *Eligible underlying securities*: For the present, only the interest rate risk inherent in the government securities classified under the Available for Sale (AFS) and Held for Trading (HFT) categories will be allowed to be hedged.

iv. *Hedge criteria:* IRD transactions undertaken on the exchanges shall be deemed as hedge

transactions, if and only if, (i) the hedge is clearly identified with the underlying government securities in the *available for sale* and *held for trading* categories, (ii) the effectiveness of the hedge can be reliably measured (iii) the hedge is assessed on an ongoing basis and is "highly effective" throughout the period.

v. *Hedge Effectiveness*: The hedge will be deemed to be "highly effective" if at inception and throughout the life of the hedge, changes in the marked to market value of the hedged items with reference to the marked to market value at the time of the hedging are "almost fully offset" by the changes in the marked to market value of the hedging instrument and the actual results are within a range of 80% to 125%. If changes in the marked to market values are outside the 80%-125% range, then the hedge would not be deemed to be highly effective. The hedged portion of the AFS/ HFT portfolio should be notionally marked to market, at least at monthly intervals, for evaluating the efficacy of the hedge transaction.

vi. *Accounting*: Till Accounting Standards Board of the Institute of Chartered Accountants of India (ICAI) comes out with a comprehensive Accounting Standard, SCBs and AIFIs may follow the above guidance note *mutatis mutandis* for accounting of interest rate futures. However, since SCBs and AIFIs are being permitted to hedge their underlying portfolio which is subject to periodical mark to market, the following norms will apply (a) if the hedge is "highly effective", the gain or loss on the hedging instruments and hedged portfolio may be set off and net loss, if any, should be provided for and net gains if any, ignored for the purpose of Profit & Loss Account (b) if the hedge is not found to be "highly effective" no set off will be allowed and the underlying securities will be marked to market as per the norms applicable to their respective investment category (c) trading position in futures is not allowed.

vii. *Capital adequacy*: The net notional principal amount in respect of futures position with same underlying and settlement dates should be multiplied by the conversion factor given below to arrive at the credit equivalent:

Original Maturity	Conversion Factor
Less than one year	0.5 %
One year and less than two years	1.0 %
For each additional year	1.0 %

The credit equivalent thus obtained shall be multiplied by the applicable risk weight of 100%.

viii. *ALM classification:* Interest rate futures are treated as a combination of a long and short position in a notional government security.

ix. *Use of brokers*: The existing norm of 5% of total transactions during a year should be observed by SCBs and AIFIs who participate through approved F&O members of the exchanges.

x. *Disclosures:* The regulated entities undertaking interest rate derivatives on exchanges shall disclose as a part of the notes on accounts to balance sheets details in specified format.

xi. *Reporting:* Banks and Specified AIFIs should submit a monthly statement to DBS or DBS (FID) respectively.

***Real Time Gross Settlement*:** RTGS System of RBI is scheduled to be delivered by the end of January 2004, followed by installation, testing and commencement of parallel run. There would be a single RTGS System for the country. The RTGS System would facilitate large value inter-bank payment and settlement in real time online mode on a transaction by transaction basis. It would enhance systemic efficiency and minimise the existing settlement risks. In fact, the RTGS System the world over has come to be regarded as the *sine qua non* of every advanced economy.

Market Design

Primary Issuance Process

Government Securities

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

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

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

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

of yield or the minimum offer price, as determined by RBI, are accepted. Other bids tendered at lower than the maximum rate of yield or higher than the minimum offer price are accepted at the rate of yield or price as quoted in the respective bid. Bids quoted higher than the maximum rate of yield or lower than the minimum price are rejected.

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

Issue of securities with pre-announced coupon rates: The coupon on such securities is announced before the date of floatation and the securities are issued at par. In case the total subscription exceeds the aggregate amount offered for sale, RBI may make partial allotment to all the applicants.

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.

Government issues the following types of Government securities:

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

Floating Rate Bonds: These securities carry a coupon rate which varies according to the change in the base rate to which it is related. The description of the base rate and the manner in which the coupon rate is linked to it is announced in the specific notification. The coupon rate may be subject to a floor or cap. The rate is generally based on weighted yield of 364 day-treasury bills.

Zero Coupon Bonds: These are issued at a discount and redeemed at par. No interest payment is made on such bonds at periodic intervals before maturity. On the basis of the bids received through tenders, RBI determines the cut-off price at which tenders for purchase such bonds would be accepted at the auction.

Securities with Embedded Options: These securities are repaid at the option of government/ holder of the security, before the specified redemption date, where a "call option"/"put option"

is specified in the specific notification and repaid on the date of redemption specified in the specific notification, where neither a 'call option' nor a 'put option' is specified/ exercised.

Treasury Bills

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

Primary Dealers

Primary dealers (PDs) are important intermediaries in the government securities markets. There were 19 PDs operating in the market at the end of March 2003. They act as underwriters in the primary market for government securities, and as market makers in the secondary market. PDs underwrite a portion of the issue of government security that is floated for a pre-determined amount. Normally, PDs are collectively offered to underwrite up to 100% of the notified amount in respect of all issues where amounts are notified. The underwriting commitment of each PD is broadly decided on the basis of its size in terms of its net owned funds, its holding strength, the committed amount of bids and the volume of turnover in securities.

Several facilities have been extended to PDs given their special role in the government debt market. RBI provides liquidity support to the PDs through LAF against collateral of government securities and through repo operations/refinance. PDs are also given favoured access to the RBI's open market operations. PDs are permitted to borrow and lend in the money market. PDs can raise funds through CPs and have access to finance from commercial banks as any other corporate borrower.

State Government Securities

The states have the choice of raising 5% to 35% of their allocation through auctions. Most of the States raise resources through tap issuances.

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

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

Wholesale Debt Market of NSE

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

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

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

The trades on the WDM segment could be either outright trades or repo transactions with 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.

The Exchange facilitates trading members to report off-market deals in securities in cases where the repo period is more than the permissible days in the trading system (14 days)

or where the securities cannot be listed on the Exchange as they do not meet the listing requirements. These trades are required to be reported to the Exchange within 24 hours of the issuance of contract note.

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.

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.	---------- Eligible ----------	
	- Less than 51% holding by Govt.	---------- As applicable to corporates ----------	
c.	Financial Institutions	- Eligible	- Investment Grade Credit Rating
d.	Scheduled Commercial Banks	- Net worth of Rs. 50 crore or above	- Net worth of Rs. 50 crore or above - Investment Grade Credit Rating
e.	Infrastructure Companies	---------- 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)	- Minimum paid-up capital of Rs. 10 crore, OR - Market capitalisation of Rs. 25 crore (Net worth in case of unlisted companies) - Investment Grade Credit Rating
g.	Mutual Funds	SEBI registered Mutual Fund/Scheme having an investment objective to invest predominantly in debt instruments.	

Source: NSE.

Charges

NSE has specified the maximum rates of brokerage that can be levied by trading members for trades on WDM. The rate depends on the type of security and value of transactions. The rate for central government securities ranges from 5 paise to 25 paise for every Rs. 100 of transactions. Similarly, it ranges from 10 paise to 50 paise for state government securities. It is 1% of the order value for debentures, securitised debt and commercial paper.

A trading member is required to pay transaction charges @ Rs. 0.25 per lakh of turnover subject to maximum of Rs. 1 lakh per year.

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 and prescribes that all such trades would be executed on the basis of price and order matching mechanism of stock exchanges as in case of equities. The trades on BSE are settled through the clearing house. The trades on CM segment are settled through National Securities Clearing Corporation which provides novation for all trades. Trades on WDM segment of NSE are settled on a trade-by-trade basis on the settlement day.

Dematerialisation of Debt Instruments

Dematerialised trading was earlier restricted only to the equity shares and units of mutual funds. With the passage of Finance Act 2000, stamp duty payable on transfer of debt instruments was waived, if the transfer takes place in the depository mode. In order to promote dematerialization, RBI specified that repos in PSU bonds would be permitted only in demat form. For encouraging dematerialised holding of debt instruments, it was decided that with effect from June 30, 2001, financial institutions (FIs), PDs and SDs would be permitted to make fresh investments and hold commercial paper (CP) only in dematerialised form. The outstanding investments in scrip form would be converted into demat form by October 2001. With effect from June 30, 2002, banks and FIs are required to issue CDs only in demat form. With these developments, NSDL and CDSL commenced admitting 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. The dematerialisation of debt securities also opens up further opportunities. As securities in demat form can be held and transferred in any denomination, it is possible for the participant banks 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. In the demat form, it is possible for the participant banks to STRIP these securities and create a retail market for the same. It may be possible to create a special purpose vehicle and issue cosmetic securities (PTCs) to retail holders. This can be another avenue for the banks to augment their retailing activity.

Available data point towards growing interest by issues and investors in debt dematerialisation. By March 2003, the number of investor accounts for debt dematerialisation with NSDL stood at around 221,159. On the same date, debt securities for Rs. 1,926,700 million were available in demat form. 499 issuers have issued 9,327 debentures/bonds in demat form. 318 issuers have issued 3,575 commercial papers worth Rs. 62,850 million in demat form. Pass through certificates (PTCs) are also being issued in demat form; PTCs worth Rs. 141,330 million have been issued in demat form.

Constituent SGL Accounts

Subsidiary General Ledger (SGL) account is a facility provided by RBI to large banks and financial institutions to hold their investments in government securities and T-bills in the electronic book entry form. Such institutions can settle their trades for securities held in SGL through a D*v*P mechanism, which ensures movement of funds and securities simultaneously. As all investors in government securities do not have an access to the SGL accounting system, RBI has permitted such investors to hold their securities in physical form. They are also permitted to open a constituent SGL account with any entity authorised by RBI for this purpose, and thus avail of the D*v*P settlement. Such client accounts are referred to as constituent

SGL accounts or SGL II accounts. RBI has permitted NSCCL, NSDL, CDSL, SHCIL, banks, and PDs to offer constituent SGL account facility to an investor who is interested in participating in the government securities market. The facilities offered by the constituent SGL accounts are dematerialisation, re-materialisation, buying and selling of transactions, corporate actions, and subscription to primary market issues. All entities regulated by RBI [including FIs, PDs, cooperative banks, RRBs, local area banks, NBFCs] should necessarily hold their investments in government securities in either SGL (with RBI) or 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 D*v*P system, where funds and securities are transferred simultaneously. Central government securities and T-bills are held as dematerialised entries in the SGL of RBI. The PDO, which oversees the settlement of transactions through the SGL, enables the transfer of securities from one participant to another. Transfer of funds is effected by crediting/debiting the current account of the seller/buyer, maintained with the RBI. Securities are transferred through credits/debits in the SGL account.

Clearing Corporation of India Limited

CCIL promoted by the banks and financial institutions, was incorporated in April 2001 to support and facilitate clearing and settlement of trades in government securities (and also trades in forex and money markets). It facilitates settlement of transactions in government securities (both outright and repo) on Delivery *versus* Payment (D*v*P-II) basis which provides for settlement of securities on gross basis and settlement of funds on net basis simultaneously. It acts as a central counterparty for clearing and settlement of government securities transactions done on NDS. It provides guaranteed settlement for transactions in government securities including repos through improved risk management practices *viz.*, daily mark to market margin and maintenance of settlement guarantee fund.

Only a Bank/FI/PD/MF or a Statutory Corporation or body corporate that is a member of NDS and has opened an SGL Account and a Current Account with RBI can apply for CCIL's membership for the Securities segment. The members pay a one-time membership fee of Rs. 1 lakh. In addition, they pay the fees for different services as under:

Fees for services of CCIL

Service	Fees
Settlement of Outright Trades	Rs. 150 per crore of face value, Minimum Rs. 25 Maximum Rs. 5,000 per Trade
Settlement of Repo Trades	Rs. 20 per crore of face value, Minimum Rs. 20 Maximum Rs. 1,000 to be charged separately for each leg of Trade
Delayed deposit of margin	5 basis point per day on the amount of shortfall for the first three days
Default (except on first leg of Repo deal)	5 basis point per day on the amount of default till the default is fully met
Default (on first leg of Repo deal)	5 basis point per day on the amount of default for the repo period

Members conclude trades, on-line, on the NDS platform, via the INFINET network, a secure closed-user group (CUG) hybrid network consisting of VSATs and leased lines. After trades have been concluded on the NDS, details are forwarded to the CCIL system, via INFINET, for settlement.

CCIL has in place a comprehensive risk management system. It encompasses strict admission norms, measures for risk mitigation (in the form of exposure limit, settlement Guarantee Fund, liquidity arrangements, continuous position monitoring and loss allocation procedure) penalties in case of default etc. Each member contributes collaterals (partly in cash and partly in acceptable securities) to a Settlement Guarantee Fund (SGF), against which CCIL avails of a line of credit from a bank(s) so as to be able to complete settlement in case a situation of shortage resulting from a member's default is experienced. The price risk (on account of securities held by CCIL pending settlement of trades and transfer of ownership to the respective members) is mitigated by stipulating that members contribute additional collaterals in the form of Initial and Mark-to-Market (MTM) Margins. Securities contributed by, and standing to the credit of, members (their "SGF Contribution") are marked to market at fortnightly intervals, and calls for additional collateral made if needed. In case of funds shortages, CCIL completes settlement by utilizing the cash component of the concerned member's contribution to SGF and/or the lines of credit available to CCIL from banks and/or by entering into a reverse repo transaction with market participants. In case of securities shortages, CCIL arranges to complete settlement by transferring the security/securities to the member concerned, either from its Settlement Guarantee Fund SGL Account or from its own Proprietary SGL Account at RBI, or by paying a cash compensation in lieu thereof, to the member to whom the security was to be delivered. The rupee funds payable to the defaulting member are withheld, and the securities utilised in completing settlement replenished the next day. The defaulting member has to pay a penalty for defaulting on its obligations and bear any other costs incurred by CCIL in meeting the default situation.

The details of trades settled by CCIL during 2002-03 are given below:

Settlement of Trades in Government Securities, 2002-03

(Amount in Rs. million)

Year	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	190,469	10,691,790	11,559	4,631,740	202,028	15,323,530

Source: CCIL Market Update

Interest Rate Derivatives

Deregulation of interest rate exposed market participants to a wide variety of risks. To manage and control these risks and to deepen money market, scheduled commercial banks, primary dealers and all India financial institutions have been permitted to undertake forward rate agreements (FRAs) and interest rate swaps (IRAs).

A FRA is a financial contract between two parties to exchange interest payments for a 'notional principal' amount on settlement date, for a specified period from start date to maturity

date. Accordingly, on the settlement date, cash payments based on contract (fixed) and the settlement rate, are made by the parties to one another. The settlement rate is the agreed bench-mark/reference rate prevailing on the settlement date. An IRS is a financial contract between two parties exchanging or swapping a stream of interest payments for a 'notional principal' amount on multiple occasions during a specified period. Such contracts generally involve exchange of a 'fixed to floating' rates of interest. Accordingly, on each payment date-that occurs during the swap period- cash payments based on fixed/floating and floating rates, are made by the parties to one another. FRAs/IRSs provide means for hedging the interest rate risk arising on account of lendings or borrowings made at fixed/ variable interest rates.

Scheduled commercial banks (excluding Regional Rural Banks), primary dealers (PDs) and all-India financial institutions (FIs) undertake FRAs/IRSs as a product for their own balance sheet management or for market making. They also offer these products to corporates for hedging their (corporates) own balance sheet exposures.

Banks/PDs/FIs can undertake different types of plain vanilla FRAs/IRS. Swaps having explicit/ implicit option features such as caps/floors/collars are not permitted. The parties are free to use any domestic money or debt market rate as benchmark rate for entering into FRAs/IRS, provided methodology of computing the rate is objective, transparent and mutually acceptable to counterparties. The interest rates implied in the foreign exchange forward market can also used as a benchmark for undertaking FRAs/IRSs. There are no restrictions on the minimum or maximum size of 'notional principal' amounts of FRAs/IRSs. There are also no restrictions on the minimum or maximum tenor of the FRAs/IRSs.

From June 2003, Exchange traded Interest Rate Derivatives contracts on Notional 91-day T-Bills, Notional 10 Year Zero Coupon Bond and Notional 10 year 6% Coupon bearing bond has been introduced in NSEIL. The market will provide hedging mechanism to market participants to cover their balance sheet exposures.

CBLO

RBI, in its Mid-Term Review of Monetary and Credit Policy for the year 2002-03, announced the introduction of "Collateralised Borrowing and Lending Obligation (CBLO)", a product developed by CCIL, as a money market instrument and subsequently issued detailed operative guidelines for the product. CBLO is a discounted instrument issued in electronic book entry form for the maturity period ranging from one day to one year. CCIL provides a dealing platform through which market participants can borrow and lend funds. CBLO is an obligation by the borrower to return the money borrowed, at a specified future date and an authority to the lender to receive money lent, at a specified future date with an option/privilege to transfer the authority to another person for value received and an underlying charge on securities held in custody (with CCIL) for the amount borrowed/lent.

The CBLO has been designed in line with Held-in-custody concept where securities are held in the CSGL account with a third party. The security remains in the CSGL account of the borrower of the funds and does not go to the CSGL account of the lender of the funds.

Creation of CBLOs

The borrowing limit for the members is fixed daily at the beginning of the day taking into account the securities deposited by them in the CSGL account. The securities are subjected to Mark-to-Market valuation and necessary haircuts. The post hair-cut Mark-to-Market value is the limit, which, in effect, denotes the drawing power up to which the members can borrow

funds. Lenders in the Auction market and both borrowers and lenders in the Normal market are required to deposit initial margin in the form of Cash, computed at the rate of 0.50% on the total amount borrowed/lent by the members.

Members have the flexibility to access the auction market and normal market for borrowing of funds. Based on the borrowing limits fixed by CCIL, members indicate their borrowing requirement mentioning the amount, maturity and the cap rate before commencement of the auction session. i.e. from 10.30 A.M. to 11.00 A.M. Presently members are permitted to borrow and lend funds on overnight basis indicating the cap rate/s which is/ are as under (a cap rate is the maximum rate upto which the borrower is willing to pay).

a) MIBOR; b) MIBOR + 50 bps; c) MIBOR – 50 bps and d) No cap specified.

CCIL accepts the borrowing requests subject to availability of limit and places the borrowing amount on the specified auction windows. The lenders willing to lend submit their bids directly on the respective auction window indicating the amount and the rate during the auction session which is open from 11.15 A.M. to 12.15 P.M. The lenders have the flexibility to modify/cancel their bids during the auction session while borrowers are not permitted to revise/cancel their offers. After the Auction market session, CCIL initiates auction matching process based on uniform yield principle. The successful borrowers and lenders are notified regarding borrowing and lending of funds by them through the dealing system and the lenders who hold CBLOs are permitted to trade in CBLOs in the Normal market from the subsequent day onwards.

Members who are unable to complete their borrowings in the Auction market, may access the Normal market for borrowing funds to the extent of their available borrowing limit. Besides, the members can use the Normal market for trading in CBLOs, to sell the CBLOs in their account to meet their funds requirement instead of waiting till maturity. Such members submit selling offers indicating the amount and rate. Like-wise, members intending to buy CBLOs (lend funds) submit their bids specifying the amount and rate for a particular CBLO. The matching of bids and offers takes place on the basis of Best Yield-Time Priority. Normal market session is open from 9.00 A.M. to 3.00 P.M. on weekdays except Saturday i.e. from 9.00 A.M. to 1.30 P.M.

After the trading session, all the matched deals of both the Auction and Normal markets are taken up for processing and settlement. The settlement is on T+0 basis. The matched deals are novated and CCIL assumes the role of the central counter party and guarantees settlement of transactions. CBLO obligation is generated by netting of trades in the same CBLO for the Normal market whereas the obligation for CBLOs for the Auction market is worked out on gross basis. Accordingly, CCIL debits the members' CBLO accounts / borrowing limit to the extent of their final CBLO payable obligations. The securities to the extent used as collateral for CBLO borrowing are blocked in the CSGL account of the borrowers. There will be no transfer of securities to the lenders but lenders interest in the underlying securities is recognized through documentation. Then, the funds obligation for each member is netted across all the matched deals of the concerned member in the Auction and Normal market. The net funds obligation comprising the member-wise payable and receivable position is sent electronically to RBI for effecting debits and credits in the members' current accounts through the settlement account of CCIL with RBI. After effecting funds transfer between members' current accounts, RBI sends funds settlement confirmation to CCIL. After receiving confirmation of fund settlement from RBI, CCIL will credit CBLOs to the respective buyer member's CBLO account.

Default Handling:

(i) Shortage of Funds:

The shortfall in funds takes place when the members buy CBLOs and do not meet the obligation, and also members who fail to meet funds obligation on redemption of CBLOs (repayment of borrowed amount) on maturity. In such cases, CCIL will meet the shortage by utilising the lines of credit extended by the member banks and complete the settlement. CCIL then initiates the default handling process by withholding the CBLOs receivable by the lenders (defaulting members). In case of failure by the borrower to meet the redemption proceeds on maturity of CBLOs, the underlying securities are not released to the borrowers till the funds are replenished. In case of eventual default, CCIL liquidates the underlying securities/CBLOs and adjust the proceeds towards the shortfall and penal charges.

(ii) Shortage of CBLOs:

The shortage in CBLOs takes place when the members sell CBLOs without having the concerned CBLOs in their account. In case of CBLO shortfall, CCIL withholds the funds receivable by the defaulting members and creates CBLOs to the extent of CBLO shortfall quantity by using the withheld funds and credit the same to the concerned buyers' CBLO account. Alternatively, CCIL opts for Close-out process by reducing the CBLO shortfall quantity proportionately from the buyers (lenders) receivable position in the concerned CBLOs.

A one time membership fee of Rs. 50,000 shall be payable by the Members of CBLO Segment.

The charges for CBLO trades in the Auction Market and Normal Market are as under:

Particulars	Charges
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.
Normal 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 on the value date of each trade.

Default Charges are as follows:

Particulars	Charges
Delayed deposit of Margin	8 basis point per day on the amount of shortfall till the shortfall is met.
Default	8 basis point per day on the amount of default till the default is fully met; of which, 5 basis point per day will be payable to the non-defaulting Member on the shortfall.

Market Outcome

Primary Market

Resource Mobilisation

During 2002-03, the central government and state governments borrowed Rs. 1,511,260 million and Rs. 308,530 million respectively through primary issuance. The gross borrowings of the central and state governments taken together increased by 19.3% from Rs. 1,525,080 million in 2001-02 to Rs. 1,819,790 million during 2002-03 (Table 6-4), while their net borrowings increased by 21.6% from Rs. 1,095,630 million to Rs. 1,331,820 million in 2002-03. The gross and net market borrowings of central government are budgeted to increase further to Rs. 1,662,300 million and Rs. 1,071,940 million, respectively during 2003-04, while those of the state governments are to increase Rs. 281,450 million and Rs. 240,000 million.

Table 6-4: Market Borrowings of Governments

(Rs. million)

Security	Gross			Repayment			Net		
	2003-04*	2002-03	2001-02	2003-04*	2002-03	2001-02	2003-04*	2002-03	2001-02
1. Central Government (a+b)	1,662,300	1,511,260	1,338,010	590,360	470,080	414,990	1,071,940	1,041,180	923,020
a) Dated Securities	1,402,300	1,250,000	1,142,130	329,090	274,200	264,990	1,073,210	975,800	877,140
b) 364-day T-bills	260,000	261,260	195,880	261,270	195,880	150,000	-1,270	65,380	45,880
2 State Government	281,450	308,530	187,070	41,450	17,890	14,460	240,000	290,640	172,610
Total (1+2)	**1,943,750**	**1,819,790**	**1,525,080**	**631,810**	**487,970**	**429,450**	**1,311,940**	**1,331,820**	**1,095,630**

* Budget Estimates.
Source: RBI Annual Report, 2002-03

The Central Government mobilised Rs. 1,250,000 million through issue of dated securities and Rs. 261,260 million through issue of T-bills. After meeting repayment liabilities of Rs. 274,200 million for dated securities, and redemption of T-bills of Rs. 195,880 million, net market borrowing of Central Government amounted to Rs. 1,041,180 million for the year 2002-03. Net borrowings financed 77.6% of gross fiscal deficit of central government in 2002-03 as against 69.4% in the preceding year. The state governments collectively raised Rs. 308,530 million during 2002-03 as against Rs. 187,070 million in the preceding year. The net borrowings of State Governments in 2002-03 amounted to Rs. 290,640 million, which financed 19.9% of gross fiscal deficit of state governments as against 15.2% in the preceding year.

Yields

The year 2002-03 witnessed a persistent decline in interest rates on market borrowings across maturities, despite larger than budgeted market borrowing during the year. This was largely due to comfortable liquidity position coupled with RBI's undertaking substantial private placement. The yields on primary issues of dated government securities eased during the year with the cut-off yield varying between 6.05% to 8.62% during 2002-03 as against the range of

6.98% to 11% during the preceding year. The highest yield of 11% was reported in the month of May 2002 for a 25-year government paper. The weighted average yield on government dated securities declined from 9.44% in 2001-02 to 7.34% in 2002-03 (Table 6-5). Chart 6-1 presents primary market yield for government dated securities in recent years.

The weighted average cost of borrowing of state government securities has also been declining in line with dated securities.

Table 6-5: Profile of Central Government Dated Securities

(Amount in Rs. mn.)

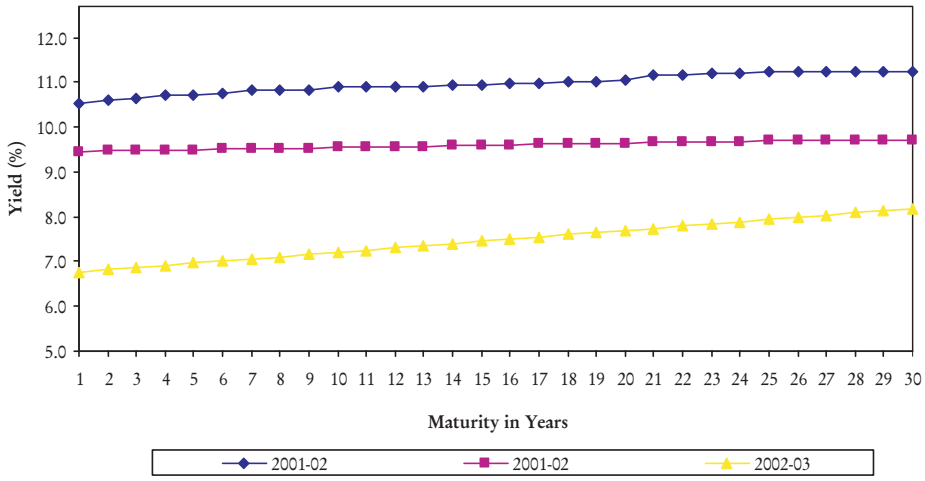
	Items	2001-02	2002-03
1	Gross Borrowing	1,142,130	1,250,000
2	Repayments	264,990	274,200
3	Net Borrowings	877,140	975,800
4	Weighted Average Maturity (In years)	14.26	13.83
5	Weighted Average Yield (Per cent)	9.44	7.34
6	(A) Maturity Distribution (Amount)		
	a Upto 5 years	20,000	--
	b Above 5 and upto 10 years	160,000	455,000
	c Above 10 years	962,130	795,000
	Total	1,142,130	1,250,000
	(B) Maturity Distribution (Per cent)		
	a Upto 5 years	1.75	--
	b Above 5 and upto 10 years	14.01	36.4
	c Above 10 years	84.24	63.6
	Total	100	100
7	Price based Auctions Amount	530,000	560,000
8	Yield - (Per cent)		
	Minimum	6.98	6.05
		(FRB, 8 years)	(12 years, 8 months)
	Maximum	11.00	8.62
		(19 years, 8 months)	(24 years, 3 months)
9	Yield - Maturity Distribution-wise		
	(A) Less than 10 years		
	Minimum	6.98	6.57
		(FRB, 8 years)	(8 years)
	Maximum	9.81	7.72
		(7 years, 5 months)	(9 years, 11 months)
	(B) 10 years		
	Minimum	9.39	6.72
	Maximum	9.39	8.14
	(C) Above 10 years		
	Minimum	7.18	6.05
		(14 years, 11 months)	(12 years, 8 months)
	Maximum	11.00	8.62
		(19 years, 8 months)	(24 years, 3 months)

Note: Figures in brackets indicate residual maturity in years.
Source: RBI.

Maturity Structure

Government has been consciously trying to lengthen maturity profile in the absence of call/put options associated with securities. The securities with call/put options are likely to be introduced soon and this would help government to retire high cost debts. During 2002-03, there was no primary issuance of dated securities with maturity of 5 years. Around 63.6% of

Chart 6-1: Primary Market Yield for Central Government Securities



central government borrowings were effected through securities with maturities above 10 years. The maximum maturity of primary issuance increased to 25 years. As a result, the weighted average maturity of dated securities issued during the year decreased marginally to 13.8 years in 2002-03 from 14.3 years in 2001-02. The maturity profile of government borrowings has been going up steadily since 1995-96, except in 2000-01. The weighted average maturity of outstanding stock of dated securities from 14.26 years in 2001-02 to 7.34 years in 2002-03.

In respect of state government securities, most of the securities were issued with a maturity of 10 years. The bulk of outstanding loans of state governments have maturity of 6-10 years.

Secondary Market

Turnover

The secondary market transactions in debt securities (including government and non-government securities) increased by 24.9% to Rs. 19,917,700 million in 2002-03, as against Rs. 15,936,216 million during 2001-02 (Table 6-6). Non-government securities accounted for a meager 1.8% of total turnover in debt market. NSE accounted for about 53% of total turnover in debt securities during 2002-03.

Table 6-6: Turnover of Debt Securities

(Rs. mn.)

Securities	2001-02	2002-03
Government Securities	**15,738,927**	**19,557,312**
WDM Segment of NSE	9,276,041	10,328,264
Rest of SGL	6,462,886	9,229,048
Non Government Securities	**197,289**	**360,388**
CM Segment of NSE	588	683
WDM Segment of NSE	195,871	358,755
'F' Category of BSE	830	949
Total	**15,936,216**	**19,917,700**

Source: RBI, BSE and NSE.

The non-government securities are traded on the WDM and CM segments of the NSE and on the BSE, although the volumes are quite insignificant. The turnover in non-government securities on WDM of NSE was Rs. 358,755 million in 2002-03, 83.2% higher than that during the preceding year. BSE reported a turnover of Rs. 949 million during 2002-03. NSE accounted for over 99.5% of total turnover in non-government securities during the year.

The aggregate turnover in (central and state government dated securities and T-bills through SGL (including outright and repo transaction) touched a level of Rs. 19,557,312 million, recording an increase of 24.3% over Rs. 15,738,927 million in the previous year. The volume of transactions in state government securities increased by 43% to Rs. 94,906 million. The growing turnover of government securities reflects increasing depth of the market. The monthly turnover in outright transactions for the year 2002-03 ranged between Rs. 629,389 million and Rs. 1,910,239 million, with a monthly average of Rs. 1,160,320 million. Such high volumes is attributed to the fact that the commercial banks are flush with funds while the recent past has witnessed several cuts in bank rates and low credit off take due to continuing recession in the industry. The collapse of the equity market has also led to increased interest in debt market. The setting up of CCIL and NDS would enable greater participation and volumes in the days to come. The improvement in trading of corporate debt market is attributed to RBI prescription of demat debt issues, SEBI mandate for trading on exchanges and removal of stamp duty on transfer of dematerialised debt securities.

The bulk of transactions during 2002-03 were on outright basis. The outright transactions amounted to Rs. 13,923,834 million, accounting for 71.2% of total turnover (Table 6-7). The share of outright transactions in government securities increased from 23.2% in 1995-96 to 71.2% in 2002-03. The share of repo transactions declined correspondingly from 76.8% in 1995-96 to 28.8% in 2002-03. The details of transactions in government securities are presented in Annexure 6-1.

Table 6-7: Secondary Market Transactions in Government Securities

Year	Total SGL Turnover (Rs. mn.)	Share in Turnover (%)		Share in Turnover (%)	
		Outright	Repo	Dated Securities (includes SDL)	T-Bills
1995-96	1,271,780	23.20	76.80	87.16	12.84
1996-97	1,229,410	76.40	23.60	69.88	30.12
1997-98	1,857,080	86.74	13.26	75.76	24.24
1998-99	2,272,280	82.53	17.47	80.41	19.59
1999-00	5,392,320	84.66	15.34	89.88	10.12
2000-01	6,981,217	81.95	18.05	88.98	11.02
2001-02	15,738,927	77.00	23.00	94.10	5.90
2002-03	19,557,312	71.20	28.80	92.32	7.68

Source: RBI.

The share of dated securities in total turnover of government securities increased from 69.8% in 1996-97 to 94.1% in 2001-02 but witnessed a decline marginally to 92.32% in 2002-03. T-bills accounted for 7.7% of total SGL turnover during 2002-03. Two-way quotes are available for active government securities from the PDs. Though many trades in government securities take place through telephone, a larger chunk of trades gets routed through NSE brokers.

The share of WDM segment of NSE in total turnover for government securities decreased from 58.9% in 2001-02 to 52.8% in 2002-03 (Table 6-8). As compared to the increase

in overall turnover of government securities by 24.3%, the same on WDM grew by 11.3% during 2002-03. Share of WDM in transactions of dated securities in 2002-03 further decreased to 55.6% from 61.1% in 2001-02. Its share in transactions of T-bills also decreased from 27.5% in 2001-02 to 21.5% in 2002-03. The Shares of WDM in outright and repo transactions were 74.0% and 0.40% respectively during 2002-03. The share of WDM in total SGL turnover is presented in Table 6-8 and Chart 6-2.

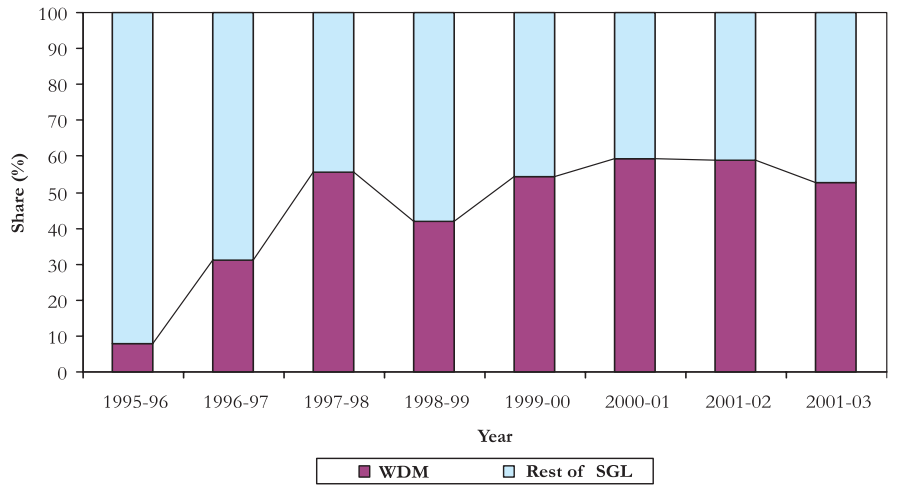
Table 6-8: Share of WDM in Transactions of Government Securities

(Amount in Rs. mn.)

Year	Turnover of Government Securities			Turnover of Dated Securities			Turnover of 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	1,271,780	99,876	7.85	1,103,870	75,523	6.84	163,270	22,598	13.84
1996-97	1,229,410	383,093	31.16	853,180	270,534	31.71	370,270	109,571	29.59
1997-98	1,857,080	1,035,861	55.78	1,393,520	837,898	60.13	450,080	188,658	41.92
1998-99	2,272,280	952,803	41.93	1,811,730	837,137	46.21	445,110	107,063	24.05
1999-00	5,392,320	2,938,873	54.50	4,810,100	2,807,983	58.38	545,910	110,070	20.16
2000-01	6,981,217	4,140,958	59.32	6,181,845	3,896,972	63.04	769,504	231,435	30.08
2001-02	15,738,927	9,276,041	58.94	14,743,643	9,006,487	61.09	929,057	255,434	27.49
2003-03	19,557,312	10,328,264	52.81	17,960,475	9,979,733	55.56	1,501,932	322,849	21.50

Source: RBI & NSE.

Chart 6-2: Share of WDM in SGL



Developments in WDM

During 2002-03, 776 more securities with a total outstanding debt of Rs.1,153,942 million were made available for trading on WDM. As at end March 2003, 1,990 securities with issued capital of Rs. 7,365,020 million were available for trading on the WDM Segment. A total of 1,123 securities were active during 2002-03 as compared to 979 in the previous year.

The turnover on WDM segment has been growing rapidly over time. It registered an increase of 12.8% from Rs. 9,471,912 million during 2001-02 to Rs. 10,687,015 million during 2002-03. The average daily turnover increased from Rs. 32,775 million to Rs 35,983 million during the

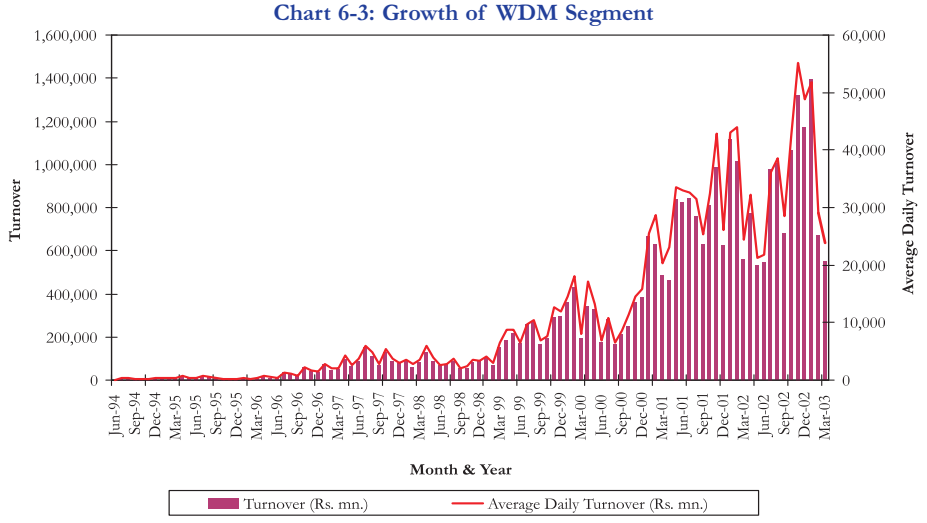
same period, while the average number of trades per day increased from 501 to 565. The business growth of WDM segment is presented in Table 6-9, Chart 6-3 and Annexure 6-2.

Table 6-9: Business Growth of WDM Segment of NSE

Parameter	Jun 94-Mar 95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
No. of Active Securities	183	304	524	719	1,071	1,057	1,038	979	1,123
No. of Trades	1,021	2,991	7,804	16,821	16,092	46,987	64,470	144,851	167,778
No. of Retail Trades	168	1,115	1,061	1,390	1,522	936	498	378	1,252
Turnover (Rs. mn.)	67,812	118,677	422,776	1,112,633	1,054,691	3,042,162	4,285,815	9,471,912	10,687,015
Average Daily Turnover (Rs. mn.)	304	408	1,453	3,850	3,650	10,348	14,830	32,775	35,983
Retail Turnover (Rs. mn.)	306	2,072	2,005	2,887	3,078	2,185	1,318	1,094	2,995
Share of Retail Trades (%)	0.45	1.75	0.47	0.26	0.29	0.07	0.03	0.01	0.03
Average Trade Size (Rs. mn.)	66.42	39.68	54.17	66.15	65.54	64.74	66.48	65.39	63.70
Average Size of Retail Trade (Rs. mn.)	0.18	0.19	0.19	0.21	0.20	0.23	0.26	0.29	0.24

Source: NSE.

Chart 6-3: Growth of WDM Segment



The market remained highly buoyant throughout the year. The highest turnover of Rs. 97,248 million was witnessed in January 2003. The average daily turnover, which was as low as Rs. 21,298 million in May 2002 and touched the high of Rs. 55,092 million in November 2002. The average size of a WDM trade marginally decreased from Rs. 65.4 million in 2001-02 to Rs. 63.7 million in 2002-03. Such large average size of trades only proves the wholesale nature of the market.

Retail Trades

The number of retail trades had been increasing till 1998-99, but started declining afterwards. The year 2002-03 witnessed a turnaround with large number of retail trades. The number of

retail trades increased by almost 231% from 378 in 2001-02 from 1,252 in 2002-03. The share of retail trades in total turnover increased further from 0.01% to 0.03% during the same period. Though the retail trade market is picking up as a result of the efforts made by policy makers to broaden the investor base by retailing government securities but it does not show much promising results.

Securities Profile

Long term securities dominated the market during 2002-03 revealing the interest of investors to hold on to long term of assets. Dated government securities accounted for the bulk of trading. The turnover in government securities increased by 10.9% during 2002-03. Its share in total turnover, however, marginally decreased to 93.6% from 95.2% in the previous year (Table 6-10). The share of T-Bills in WDM turnover which has been declining over time witnessed an upward trend registering 3.02% share in the total turnover.

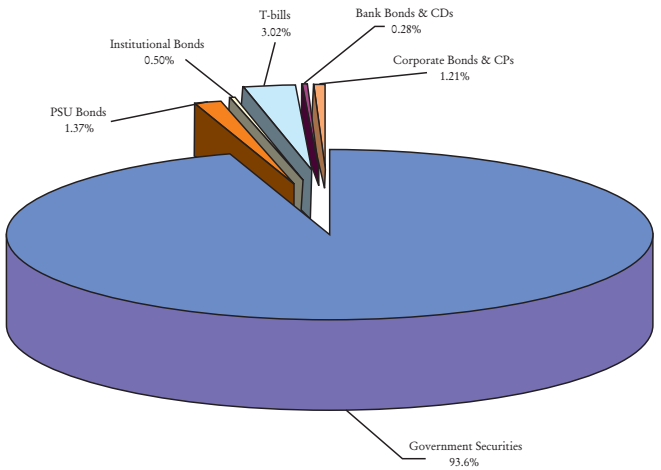
Table 6-10: Security wise Distribution of Turnover

Securities	Turnover (Rs. mn.)		% of Turnover	
	2001-02	2002-03	2001-02	2002-03
Government Securities	9,020,608	10,005,415	95.24	93.62
T-Bills	255,433	322,846	2.70	3.02
PSU Bonds	62,383	146,508	0.66	1.37
Institutional Bonds	47,153	52,964	0.50	0.50
Bank Bonds & CDs	25,211	29,471	0.27	0.28
Corporate Bonds & CPs	61,074	129,637	0.64	1.21
Others	50	175	0.00	0.00
Total	**9,471,912**	**10,687,016**	**100.00**	**100.00**

Source: NSE.

The PSU bonds witnessed a turnover of Rs. 146,508 million in 2002-03 as against Rs. 62,383 million in 2001-02. Its share in the total turnover, however, marginally increased from 0.66% in the preceding year to 1.37% in 2002-03. The share of institutional bonds remained same at 0.5% and that of corporate bonds and CPs increased from 0.64% to 1.21% in 2002-03. Security-wise distribution of turnover in WDM is presented in Annexure 6-3. Chart 6-4 presents security-wise distribution of turnover in 2002-03.

Chart 6-4: Security-wise Distribution of Turnover, 2002-03



The share of top 'N' securities in turnover of WDM segment is presented in Table 6-11. The share of top '10' securities decreased from 68.5% in 2001-02 to 65.15% in 2002-03, still indicating concentration of trading in fewer securities. Top 50 securities accounted for over 93% of turnover.

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
Securities					
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
Trading Members					
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	–
Participants					
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

Source: NSE.

Participant Profile

Indian banks, foreign banks and PDs together accounted for over 71.42% of WDM turnover during 2002-03 (Table 6-12). Indian banks still continue to be market leader. Their share in turnover increased from 36.6% in 2001-02 to 38.8% in 2002-03, while the share of foreign banks declined from 13.2% to 10.62% during the same period. PDs contributed 22.03% of turnover during 2002-03. Participant wise distribution of turnover on WDM is presented in Annexure 6-3 and Chart 6-5.

Contributions of top 'N' trading members/participants in total turnover are presented in Table 6-11. Top '50' trading members accounted for the total turnover of WDM in

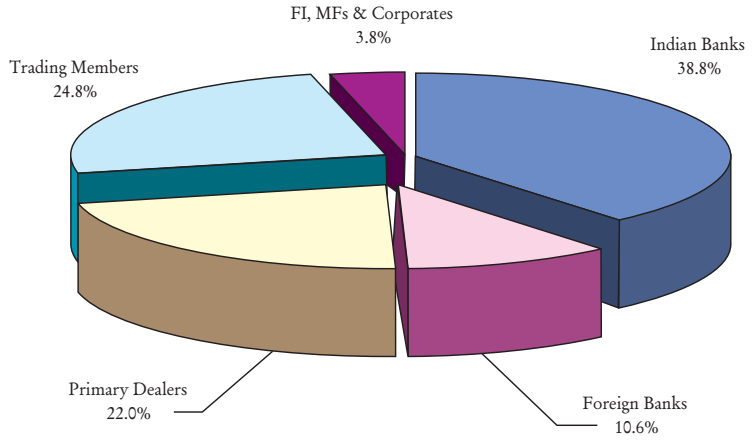
2002-03, which is indicative of the narrow membership structure of WDM segment. As at March 31, 2003, there were 78 members of WDM segment of which 55 were active. The share of top 'N' participants has reduced over time indicating diffusion of trades among participants.

Table 6-12: Participant-wise Distribution of Turnover

Participants	2001-02	2002-03
Indian Banks	36.60	38.77
Foreign Banks	13.22	10.62
Primary Dealers	22.50	22.03
Trading Members	23.52	24.81
FI, MFs & Corporates	4.16	3.77
Total	**100.00**	**100.00**

Source: NSE.

Chart 6-5: Participant-wise Distribution of Turnover, 2002-03



Market Capitalisation

Market capitalisation of the WDM segment has witnessed a constant increase indicating an increase in the number of securities available for trading on this segment. It is also partly due to increase in the market price of securities arising from fall in the interest rate observed in the recent past. Total market capitalisation of securities available for trading on WDM segment stood at Rs. 8,644,812 million as at end-March 2003, registering a growth of 14.2% over end-March 2002. The relative shares of different securities in market capitalisation changed marginally during 2002-03. Government securities accounted for 76.1% of total market capitalisation at the end of March 2003. The composition of market capitalisation of various securities on WDM in the recent past is presented in Table 6-13. The market capitalisation of securities on WDM at the end of March 2003 is presented in Chart 6.6. The growth of market capitalisation of WDM is presented in Annexure 6-4.

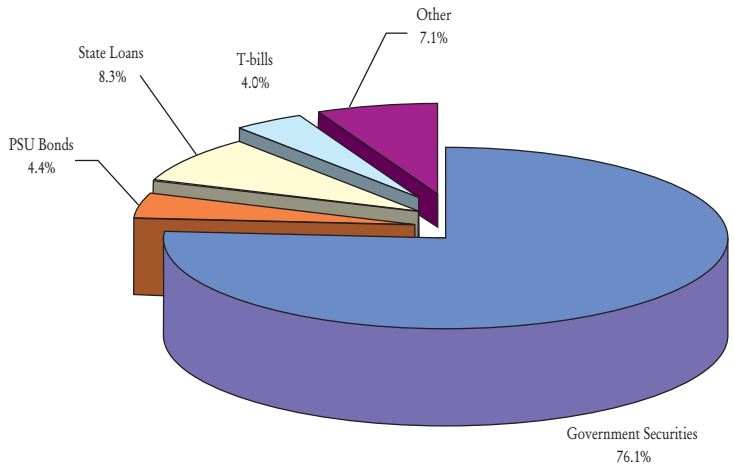
Table 6-13 : Market Capitalisation of WDM Segment

(Amount in Rs. mn.)

Securities	Market Capitalisatoin (end of period)		% to total	
	March-02	March-03	March-02	March-03
Government Securities	5,426,009	6,580,017	71.70	76.12
PSU Bonds	399,436	383,828	5.28	4.44
State Loans	613,847	720,940	8.11	8.34
T-bills	238,487	349,188	3.15	4.04
Other	890,163	610,839	11.76	7.06
Total	**7,567,942**	**8,644,812**	**100.00**	**100.00**

Source: NSE.

Chart 6-6: Market Capitalisation of WDM Segment at the end of March 2003



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. It is observed that yield on corporate debt is generally higher than on government debt for securities of similar maturity. The yields were higher for securities of higher maturities. The yields on government and corporate securities showed a downward trend through out 2002-03 except for May 2002, June 2002 and February 2003.

Interest Rate Derivatives

The year 2002-03 witnessed sharp increase in volumes in FRAs/IRSs. Despite a significant increase in the number and amount of contracts, participation in the market continues to remain restricted to select foreign and private sector banks and a primary dealer. The outstanding notional principal amount also increased from Rs. 888,130 million to Rs. 2,441,610 million during the same period. Since detailed data in this segment are not available publicly, it has not been possible to analyse the market outcome further.

Zero Coupon Yield Curve

Keeping in mind the requirements of the banking industry, financial institutions, mutual

Table 6-14: Yields on Government and Corporate Securities, 2002-03

(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-02	6.16	6.54	7.24	7.79	–	9.54	9.27	9.72
May-02	6.69	7.16	7.60	8.46	9.14	8.88	9.06	–
Jun-02	6.76	7.71	7.63	8.55	9.06	9.52	9.07	–
Jul-02	6.01	7.13	7.38	8.06	7.75	8.74	8.79	9.37
Aug-02	5.93	6.84	7.18	7.93	7.21	7.88	8.49	8.97
Sep-02	5.90	6.59	7.12	7.93	7.75	9.22	8.06	7.90
Oct-02	5.79	6.45	7.04	7.82	7.44	8.43	7.81	12.02
Nov-02	5.57	6.18	6.65	7.34	6.43	7.46	7.74	8.20
Dec-02	5.59	5.98	6.34	7.00	–	6.24	7.20	7.56
Jan-03	5.57	5.74	5.99	6.45	–	6.73	6.95	6.73
Feb-03	5.90	6.25	6.38	7.18	6.89	8.58	7.72	7.50
Mar-03	5.77	6.13	6.27	6.91	–	7.57	7.65	8.07

Source: NSE.

funds, insurance companies, etc. that have substantial investment in sovereign papers, NSE disseminates a 'Zero Coupon Yield Curve' (NSE Zero Curve) to help in valuation of securities across all maturities irrespective of its liquidity in the market. This product has been developed by using Nelson-Siegel model to estimate the term structure of interest rate at any given point of time and been successfully tested by using daily WDM trades data. This is being disseminated daily.

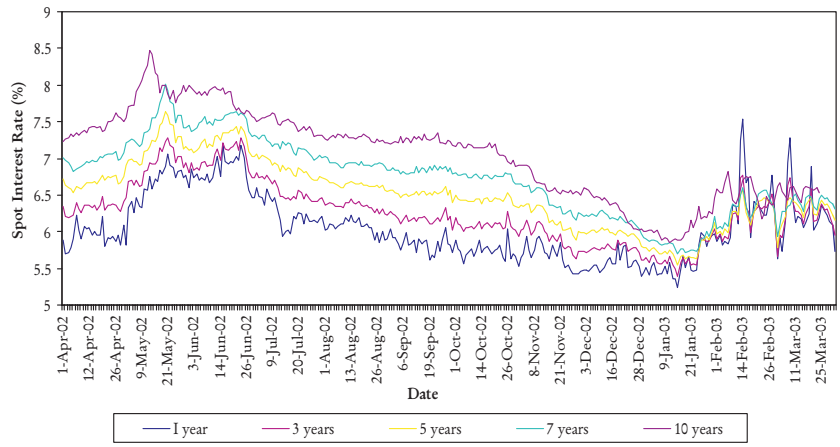
The ZCYC depicts the relationship between interest rates in the economy and the associated term to maturity. It provides daily estimates of the term structure of interest rates using information on secondary market trades in government securities from the WDM segment. The term structure forms the basis for the valuation of all fixed income instruments. Modeled as a series of cash flows due at different points of time in the future, the underlying price of such an instrument is calculated as the net present value of the stream of cash flows. Each cash flow, in such a formulation, is discounted using the interest rate for the associated term to maturity; the appropriate rates are read off the estimated ZCYC. Once estimated, the interest rate-maturity mapping is used to compute underlying valuations even for securities that do not trade on a given day. Changes in the economy cause shifts in the term structure, changing the underlying valuations of fixed income instruments. The daily ZCYC captures these changes, and is used to track the value of portfolios of government securities on a day-to-day basis.

The estimates of daily ZCYC are available from February 1998. Chart 6-7 plots the spot interest rates at different maturities for the year 2002-03.

FIMMDA-NSE MIBID/MIBOR

NSE has been computing and disseminating the NSE Mumbai Inter-bank Bid Rate (MIBID) and NSE Mumbai Inter-bank Offer Rate (MIBOR) for the overnight money market from June 15, 1998, the 14-day MIBID/MIBOR from November 10, 1998 and the 1 month and 3 month MIBID/MIBOR from December 1, 1998. In view of the robust methodology of computation of these rates and their extensive use by market participants, these have been co-branded with Fixed Income and Money Market Dealers

Chart 6-7: Zero Coupon Yield Curve, 2002-03



Association (FIMMDA) from March 4, 2002. These are now known as FIMMDA-NSE MIBID/MIBOR from March 4, 2002. These rates are used as benchmarks for majority of deals struck for interest rate swaps, forward rate agreements, floating rate debentures and term deposits.

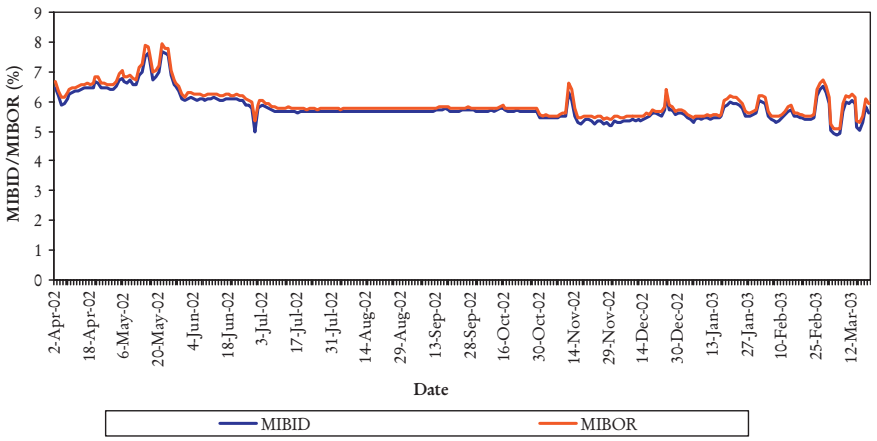
FIMMDA-NSE MIBID/MIBOR is based on rates polled by NSE from a representative panel of 29 banks/institutions/primary dealers. Currently, quotes are polled and processed daily by the Exchange at 0940 (IST) for overnight rate and at 1130 (IST) for the 14 day, 1 month and 3 month rates. The rates polled are then processed using the bootstrap method to arrive at an efficient estimate of the reference rates. The overnight rates are disseminated daily to the market at about 0955 (IST) and the 14 day, 1 month and 3 month rates at about 1145 (IST). These are broadcast through NEAT-WDM trading system immediately on release and also disseminated through websites of NSE and FIMMDA and through e-mail.

The overnight MIBID/MIBOR rates ruled fairly steady within a narrow range during the year 2002-03. These touched the peak of 7.70% and 7.95% respectively on May 21, 2002 and the low of 5.06% and 4.89% respectively on March 6, 2003. The rates have been particularly stable during the current financial year, reflective of a stable interest rate environment, and have been hovering around 6%-7%. The stability of the rates in overnight call market may be due to the guidelines issued by RBI moving non-banks from the call market in a phased manner. Chart 6-8 presents overnight FIMMDA-NSE MIBID/MIBOR from April 2002 to March 2003. 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**.

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 (normal (variance-covariance), weighted normal, historical simulation, weighted historical simulation and extreme value theory). Together, these 5 methods provide a range of options for market participants to choose from.

Chart 6-8: Overnight NSE-FIMMDA MIBID/MIBOR Rates, 2002-03



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 31, 2003 is presented in Annexure 6-6. The VaR for other GOI securities are available at www.nseindia.com.

Bond Index

While there exists an array of indices for the equity market, a well-constructed and widely accepted bond index is conspicuous by its absence. There are a few additional difficulties in construction and maintenance of debt indices. First, on account of the fixed maturity of bonds vis-à-vis the perpetuity of equity, the universe of bonds changes frequently (new issues come in while existing issues are redeemed). Secondly, while market prices for the constituents of an equity index are normally available on all trading days over a long period of time, market prices of constituent bonds in a bond index, irrespective of the selection criteria used, may not be available daily. This is on account of the fact that the liquidity of a security varies over its lifetime and, in addition, can witness significant fluctuations over a short period of time. However, market participants need an index to compare their performance with as well as the performance of different classes of assets.

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 and 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 2002-03, the PRI of i-BEX and NSE G-Sec Index increased by 6.13% and 1.59% 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 2002-03, the TRI registered gains of 14.36% and 9.67% for i-BEX and NSE G-Sec Index respectively.

The NSE-government Securities Index prices components off the NSE benchmark 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 movement of popular fixed income indices at monthly rates are presented in Table 6-15.

Table 6-15: Debt Market Indices, 2002-03

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-02	2874.84	1292.91	169.46	169.46	206.65	126.03
May-02	2798.11	1248.21	169.77	169.77	203.91	123.23
Jun-02	2866.08	1269.52	170.96	170.96	207.83	124.77
Jul-02	2920.86	1284.80	172.04	172.04	210.96	125.74
Aug-02	2972.65	1298.43	173.09	173.09	214.03	126.68
Sep-02	2990.36	1297.00	174.08	174.08	214.97	126.47
Oct-02	3051.53	1314.84	175.15	175.15	219.24	127.97
Nov-02	3164.56	1355.44	175.57	175.57	222.71	129.19
Dec-02	3286.64	1399.24	176.28	176.28	227.48	131.07
Jan-03	3265.52	1381.04	176.61	176.61	224.67	128.53
Feb-03	3212.68	1349.78	177.27	177.27	226.42	128.76
Mar-03	3287.82	1372.20	178.66	178.66	226.64	128.04

Source: ICICI Securities and NSE

Policy Debates

ADB Report

The International Securities Consultancy Limited conducted a technical assistance project (under contract with Asian Development Bank) Ministry of Finance on development of a secondary debt market and released its report in February 2002. The report analyses the domestic debt market in India and makes recommendations for its development. The major recommendations are:

- Reduce the direct role of government in the determination of interest rates by establishing independent public debt office function;
- Reduce the direct role of government as owner of financial institutions to permit the development of a greater diversity of views in investment decisions;
- Remove restrictions on investment decisions by institutional investors (such as pension funds and life insurers) and maximise outsourcing of investment decisions and treasury functions to professional fund managers;

- Initiate changes to support a system of properly funded and independently managed pension schemes;
- Simplify public issuance procedures, standardise and regularise private placement documentation to improve access to the market by retail investors;
- Remove impediments to the interaction of the institutional and retail market by ensuring that banks can access stock exchanges on behalf of their customers;
- Improve post trade transparency on secondary debt market to permit efficient price discovery and thereby encourage wider participation in the market;
- Involve the market more formally in decisions on design of financial infrastructure projects;
- Permit short selling of government securities; and
- Ensure rolling, dematerialised settlement for corporate debt instruments

Primary Issuance

The Public Debt Office of RBI conducts auction for issue of government securities. The bidders have option to submit bids electronically and make payment for the securities by electronic fund transfer. However, the entire process of auction is carried out manually without use of information technology. As a result, the market is localised; it is not transparent; the bidders have no choice to revise their bids; and hence the price discovery is inefficient. What is required is the auction should be held electronically on an all India basis and participants should be able to see the building up of bids and revise their bids if they so feel. This should be possible with full operationalisation of NDS.

The role of RBI as the manager of government debt conflicts with its role as manager of the monetary policy. In the interest of greater autonomy of monetary policy, the issuance of government securities should be managed outside RBI, that is, the decisions relating to debt management and interest rate should be taken independently to avoid perceived conflict of interest.

It is believed that securities market disintermediates by establishing direct relationship between the ultimate investors in securities and issuers of securities. However, in the government securities market, there are three layers of intermediaries (RBI, PDs and Banks) between the issuers (governments) and investors (households). With the availability of technology, it is possible to completely do away with these intermediaries and save the overheads costs which can be shared by issuers and investors. Government can conduct auction where the investors can bid directly.

Retail Participation

Government securities are the safest investment available to investors. These offer returns comparable to that on bank deposits. A number of measures have been initiated to develop retail market for G-secs. These include establishment of primary and satellite dealers, liquidity support and other facilities to gilt funds, introduction of constituent SGL account facility, allocation of 5% of the notified amount in auctions for the retail segment, launch of NDS and CCIL, etc. Investment in G-secs offers attractive benefits such as good yields, no TDS, easy liquidity, no default risk, tax benefits under section 80L, wide range of maturities to suit

every one's need etc. Despite all these, the G-sec market is exclusive preserve of banks, insurance companies, provident funds and trusts. The retail segment would get a boost if there can be retail outlets at convenient location to facilitate distribution and trading of small lots of G-secs. The reach of the stock exchanges can be advantageously used to retail G-secs. The level of awareness about G-secs needs to be improved to make the investors aware about the risk-return profile of G-secs vis-à-vis competing products such as small saving instruments, insurance schemes, equities and debentures etc.

Trading of Securities

The trading framework suffers from following deficiencies:

1. There are strong entry barriers to participate in trading of government securities. Like equity markets, any and everybody who complies with the specified criteria should be allowed to participate in the market.
2. Trades are negotiated bilaterally over phone or NDS. The enforcement of such trades, being in the nature of OTC, is difficult. It is necessary to ban OTC trades and prescribe that all trades in government securities would be subject to discipline of stock exchanges. NDS is expected to enforce market discipline as the deals are required to be reported within 15 minutes of the same being negotiated.
3. The market as such does not have any liquidity. The parties have to search for counterparties and negotiate the best price. It is necessary to mandate that all trades will be executed on the basis of price and order matching mechanism of stock exchanges as in case of equities. NSE introduced automated screen based trading in debt securities, which is an anonymous order matching system. However, banks and institutions have shown little interest to use NSE's trading platform for executing their debt securities transactions. Regulatory fiat is needed to enforce transparency in financial deals. SEBI has taken the initiative in this regard by prohibiting 'negotiated deals' in respect of listed corporate debt securities and prescribing that all such trades would be executed on the basis of price and order matching mechanism of stock exchanges as in case of equities.
4. The knowledge of parties affects the terms of trade and can facilitate formulation of cartels. It is necessary to allow parties to participate in the market anonymously. However, there should be complete audit trail to resolve the disputes, if any, by logging in the trade execution process in entirety.
5. The market is not transparent. Only the parties to trade have information about the trade. It is necessary to enable market participants to see the full market and have all trade related information on real time basis.
6. The market is highly fragmented. A buyer from Chennai can not trade in the Mumbai market since securities held in his account with RBI books cannot be easily transferred to Mumbai and vice-versa. T-bills cannot be traded outside Mumbai. Since the order book is geographically fragmented, the quality of price discovery process is very poor. It is necessary to provide a facility enabling any body from any corner of the country to trade with ease and convenience.
7. NDS is a vastly superior system for negotiation of trades in government securities. However, it does not obviate the difficulties of an OTC market; nor does it provide the liquidity of an order matching market. Since it does not consolidate all orders into an

order book, the parties have to search for counter parties. Since it does not guarantee the best price for all trades, the parties have to negotiate with counterparties to arrive at an agreeable price. Since there are strong entry barriers, the number of participants who can negotiate on NDS, is very limited.

Settlement

The settlement involves physical movement of papers. Trades are settled on trade by trade basis without any bilateral/multilateral netting. The trades do not enjoy counterparty guarantee. The settlement system is not efficient, unless the buyers and sellers have both SGL and current accounts with RBI. Since RBI provides these account facilities to only a limited number of entities, non-transferable city-wise settlement facilities are available only to these entities. What is required is a nationwide clearing and settlement arrangement where trades would be netted and net positions would be settled. A clearing corporation should provide novation and guarantee financial settlement of trades in case any counterparty defaults in discharging its obligations. A significant development in this regard is the establishment of Clearing Corporation of India Limited. But it provides settlement of securities on gross basis and provides counterparty for transactions done on NDS.

Debt Derivatives

In the fixed income markets, an investor is exposed to several kinds of risks. These risks may arise due to any factor that influences the potential streams of returns from holding a fixed income security. There are three sources of income from a fixed income security- coupon or interest payments, capital gains/losses, and re-investment income, which is income from the intermediate cash flows that are re-invested. An investor faces considerable risk from an adverse movement in interest rates. In debt markets, there exists an inverse relationship between interest rates and the price of the bond. In situations of rise in interest rates, the price of the bond declines, posing the risk of capital loss to an investor who wants to sell off his security prior to maturity. The risk arising out of variations in interest rates could be hedged by use of interest rate derivatives. The commonly used interest rate derivatives are forwards, futures, swaps and options. Of these, IRSs and FRAs are the most popular derivative instruments and account for the largest share of turnover in interest rate derivatives all over the world.

In India, IRSs/FRAs were introduced in June 1999 with a view to further deepening the money market as also to enable banks, PDs and FIs to hedge interest rate risks. The market for these derivatives, however, has not developed appreciably for lack of legal clarity. It is viewed in some circles that there is no suitable regulatory framework to govern trading of these derivatives. These are not derivatives under the Securities Contracts (Regulation) Act, 1956 as these are not derived from securities. It is desirable to have legislative provisions to provide for such contracts. Such provisions should cover the entities who can enter into such contracts, the broad parameters of such contracts, clearing corporation for settling these contracts, and a dispute resolution mechanism.

Other obstacles in development of market for debt derivatives are:

***IRS for trading*:** RBI restricts use of these derivative contracts by market participants to hedging the risk in their respective balance sheets only. To come out of the contract, reverse contracts need to be executed by the same parties or they have to wait till the expiry date. Therefore, the participants can not trade in these contracts. On the contrary, in an exchange

traded contract, counterparties can come out of the contract by entering into reverse trades with any counter party at any point of time before the life of the contract. This facility increases the liquidity of the contracts and thereby reduces impact cost of trading and hence serves the purpose of risk management better. To provide depth to this market, market participants may be allowed to trade in these contracts.

Acceptable benchmark rate: We have a well accepted Overnight MIBOR that can be used as a bench-mark for very short period. But there is no term money market as such and hence the reference rates for 14-day, 1-month and 3-month MIBOR may not really serve the purpose of an acceptable benchmark rate. If the term money market has liquidity, more acceptable benchmark rates like 3-month MIBOR and 6-month MIBOR would evolve and be widely accepted. The present structure of the money market is also another cause. Two-way quotes are a fundamental necessity for a proper reference rate to be established. Banks can't offer two-way quotes in a call money market since the borrowing in the call is primarily driven by requirements of meeting CRR. Another problem is that while foreign banks and some of the new banks are perennial borrowers in the interbank market, several nationalised banks and institutions are perennial lenders. This gives rise to uni-directional players who are averse to two-way quotes. This polarisation impedes the development of a benchmark rate around which a term-money market can evolve.

Floating rate loans: At least one leg of IRS has to be a floating rate, development of floating rate loan market is essential. A primary reason for non-evolution of floating rate loans is the common perception of the interest rate movements in India. Over the years, RBI has played a dominant role to moderate interest rate. Till recently, as the RBI had a major role in determining interest rates on the sovereign papers, there was very little volatility in the credit market. Floating rate loans would become popular when diverse views emerge among different players in the market for these rates. As lending rates for the companies are built on the bond yields of the similar tenors, the floating rates were not very different from the fixed rate loans, and not considered to be worth the risk. However, today bond yields are increasingly determined by market participants. And hence the consequent likely volatility in lending rates would help create market for floating rate loans and consequently, interest rate swaps and options.

Acceptable yield curves: The yield curve is required for effectively pricing any derivative contract and therefore, the lack of a reliable one hinders the development of derivatives. However, NSEIL has taken initiative to provide a reliable spot curve (ZCYC) to the market participants. Emergence of a proper yield curve would correctly reflect the spread between retail deposit and interbank rates or the credit spread for prime borrowers over the interbank rate. Moreover forward interest rates can be derived from such a yield curve. Developing a model to estimate the credit spread would go a long way to providing the required benchmarks.

Liquidity in bond market: Another reason for absence of an interest rate options market has been the illiquidity in the domestic bond market. Looking at the bond market we see major papers are illiquid, though situation has dramatically changed over last few years. However the average daily traded value remains at a low level of about 1% of the total outstanding value of sovereign papers in the market.

Awareness: The very concept of swaps is new to India. There is very limited knowledge about these instruments even among the active participants in Indian markets specifically the PSU banks. Moreover, the institutions which carry out the swaps on daily basis do not publish

these data through any media and hence it is extremely difficult to develop a swap curve which will be used for the options as well as by other market participants.

STRIPS

Separate Trading of Registered Interest and Principal of Securities (STRIPS) involves stripping a conventional security into a number of zero coupon securities, which can be traded separately. Such newly created securities are called STRIPS. For example, a 10-year government security, can be stripped into 21 zero coupon securities – 20 carrying half-yearly coupons with maturities of 6 months, 12 months, 18 months and so on and 1 carrying final redemption amount with maturity of 10 years. A Rs. 100 crore government security carrying a coupon of 12% with 10 year maturity has cash flows of 20 semi-annual payments of Rs. 6 crore each and the repayment of principal of Rs. 100 crore after ten years. Each of these 21 cash flows can be treated as a zero coupon instrument which can be traded at varying yields. These 21 instruments are STRIPS of the underlying government security.

As one underlying security can be converted to 21 zero coupon securities, the breadth of the debt market would expand considerably. Increased supply of securities across maturities would provide a continuous market and consequently improve liquidity. The introduction of STRIPS in government securities would be good bait for small investors, as these are comparable to other fixed income instruments, which are their favourites. Besides, it would allow the issuer to issue securities with long term maturity for any amount and allow stripping of these securities to meet the market appetite for short-term securities in convenient amounts.

The participants in the debt market normally purchase the securities and hold till maturity. This results in reduced supply of securities for secondary market activity. Further, some participants, like provident funds, bear the reinvestment risk due to the interest receipts every six months. STRIPS would provide a solution to both these problems. Banks can issue STRIPS against the securities held by them. Thus they will earn returns against their investment and also increase the supply of securities to boost the secondary market activity. The provident funds can invest in STRIPS, which will mature on the required specified date. Thereby, the provident funds will be able to invest in government securities as required by law and also achieve the desired cash flow, without bearing the reinvestment risk.

The government security market in India has the necessary size to make STRIPS a success. The secondary markets volumes in government securities were Rs. 19,557,312 million during 2002-03. Government and RBI have repeatedly expressed their intention to develop markets for STRIPS and are preparing ground for the same. RBI is consolidating outstanding government securities to ensure sufficient volumes and liquidity in any one issue, which would facilitate the emergence of benchmarks and development of STRIPS.

However, a few legal clarifications/relaxations are needed for issuance and trading of STRIPS. The Negotiable Instruments Act 1881 does not permit transfer of only a part of the amount appearing due on an instrument. Thus, a part of a security, for example, interest component of a security cannot be transferred unless the whole security along with other future interest payments are transferred simultaneously. STRIPS require the principal and the interest coupons to be uniquely identified as distinctive securities. Clarifications are required if the issuance and transfer of STRIPS, even though derived from government securities, would attract any stamp duty and at what rates. CBDT has clarified taxation issues relating to issuance of STRIPS. RBI is setting up a working group to suggest operational and prudential guidelines.

RTGS

RBI has launched a project to construct a real-time gross settlement system (RTGS), which will allow secure inter-bank payments throughout the country. The system is planned to eventually interface to all RBI sites, as well as other member banks across the country. By underwriting all payments with collateral held at RBI, the RTGS system will reduce systemic risk in the banking system, thereby providing increased integrity and security for all interbank transactions. The RTGS would provide for real-time processing and settlement of funds transfers. The first phase of the project calls for creation of an Integrated Accounting System (IAS) to handle all internal and interbank accounting transactions for RBI. This new core banking system will handle all general transactions and central accounting for RBI, including the bank's general ledger.

The RTGS will employ two sets of queues: one for testing funds availability and one for processing of debit/credit requests received from the Integrated Accounting System. All transactions will be queued and submitted for funds availability testing on a first in-first out basis, i.e., all transactions will be queued in the order in which they were received and the oldest transaction in each participant's queue will be tested first. Transactions which fail a funds availability test will be returned to the payment queue to be retested periodically. An optimizing algorithm will scan the queues periodically during the day to identify potential gridlock situations. Payment messages from a sending bank to the Reserve Bank will be processed through an intermediate processor-the Inter-Bank Funds Transfer Processor (IFTP). The project will employ point-to-point remote copy for back-up and restore operations, meaning that the backup server will be a few miles from the main site, connected over fiber optic infrastructure.

Annexure 6-1: Secondary Market Transactions in Government Securities

(Rs. mn.)

Month/ Year	SGL Transactions									WDM Transactions in Government Securities							
	Outright Transactions				Repo Transactions				Grand Total (5+9)	Outright Transactions				Repo Transactions			Grand Total (13+16)
	Dated Securities	State Govt. Securities	Treasury Bills	Total (2+3+4)	Dated Securities	State Govt. Securities	Treasury Bills	Total (6+7+8)		Dated Securities	State Govt Securities	Treasury Bills	Total (10+11+12)	Dated Securities	Treasury Bills	Total (14+15)	
1	2	3	4	5	6	7	8	9	10	10	11	12	13	14	15	16	17
1994-95	**113,830**	**2,030**	**97,210**	**213,070**	**151,900**	**0**	**140,730**	**292,630**	**505,700**	**29,471**	**793**	**26,337**	**56,601**	**0**	**0**	**0**	**56,601**
1995-96	**175,530**	**4,640**	**115,130**	**295,300**	**928,340**	**0**	**48,140**	**976,480**	**1,271,780**	**68,130**	**1,755**	**22,548**	**92,433**	**7,393**	**50**	**7,443**	**99,876**
1996-97	**599,030**	**5,960**	**334,220**	**939,210**	**254,150**	**0**	**36,050**	**290,200**	**1,229,410**	**268,914**	**2,988**	**109,121**	**381,023**	**1,620**	**450**	**2,070**	**383,093**
1997-98	**1,185,410**	**13,480**	**412,010**	**1,610,900**	**208,110**	**0**	**38,070**	**246,180**	**1,857,080**	**795,638**	**9,305**	**170,209**	**975,152**	**42,260**	**18,449**	**60,709**	**1,035,861**
1998-99	**1,430,970**	**15,440**	**428,900**	**1,875,310**	**380,760**	**0**	**16,210**	**396,970**	**2,272,280**	**789,692**	**8,603**	**105,863**	**904,158**	**47,445**	**1,200**	**48,645**	**952,803**
1999-00	**4,052,850**	**36,310**	**475,750**	**4,564,910**	**757,250**	**0**	**70,160**	**827,410**	**5,392,320**	**2,788,655**	**20,820**	**106,440**	**2,915,915**	**19,328**	**3,630**	**22,958**	**2,938,873**
2000-01	**5,091,125**	**29,711**	**600,620**	**5,721,456**	**1,090,720**	**157**	**168,884**	**1,259,761**	**6,981,217**	**3,880,972**	**12,551**	**231,435**	**4,124,958**	**16,000**	**0**	**16,000**	**4,140,958**
Apr-01	572,670	4,987	64,732	642,389	100,821	70	12,220	113,111	755,500	421,103	2,919	28,881	452,903	0	0	0	452,903
May-01	945,131	4,039	60,061	1,009,231	267,377	100	9,642	277,118	1,286,349	795,156	1,335	25,943	822,434	0	0	0	822,434
Jun-01	1,000,593	1,507	59,236	1,061,336	234,649	0	15,475	250,124	1,311,460	787,944	550	23,440	811,934	0	0	0	811,934
Jul-01	1,075,785	2,936	68,321	1,147,042	268,388	0	9,304	277,691	1,424,734	799,445	1,204	28,343	828,992	2,163	0	2,163	831,155
Aug-01	1,008,556	4,476	58,833	1,071,865	233,218	900	23,530	257,648	1,329,512	725,426	680	15,460	741,566	1,313	0	1,313	742,879
Sep-01	789,052	3,000	56,683	848,735	219,303	1,450	20,780	241,532	1,090,267	597,040	999	21,368	619,407	0	0	0	619,407
Oct-01	926,959	5,526	43,444	975,929	221,437	1,600	38,851	261,888	1,237,817	776,108	1,600	16,564	794,272	250	500	750	795,022
Nov-01	1,170,438	5,508	62,654	1,238,600	281,229	450	22,050	303,729	1,542,329	943,478	1,093	26,506	971,077	370	100	470	971,547
Dec-01	835,320	4,920	49,563	889,802	300,694	0	18,140	318,834	1,208,637	598,539	234	16,152	614,925	500	0	500	615,425
Jan-02	1,253,373	6,734	81,510	1,341,618	450,082	200	26,280	476,562	1,818,179	1,061,480	1,142	31,639	1,094,261	100	0	100	1,094,361
Feb-02	1,182,630	8,044	40,248	1,230,922	333,699	150	30,650	364,499	1,595,420	967,120	1,234	11,910	980,264	0	0	0	980,264
Mar-02	624,529	9,631	28,030	662,189	447,714	0	28,820	476,534	1,138,723	528,162	1,130	8,628	537,920	790	0	790	538,710
2001-02	**11,385,035**	**61,307**	**673,316**	**12,119,658**	**3,358,608**	**4,920**	**255,741**	**3,619,269**	**15,738,927**	**9,001,001**	**14,120**	**254,834**	**9,269,955**	**5,486**	**600**	**6,086**	**9,276,041**
Apr-02	968,211	10,328	42,249	1,020,788	440,432	250	29,772	470,455	1,491,243	723,591	3,083	15,970	742,644	1,950	280	2,230	744,874
May-02	641,634	3,405	63,889	708,928	436,158	0	8,401	444,559	1,153,487	476,942	1,771	25,530	504,243	2,550	0	2,550	506,793
Jun-02	589,797	2,766	37,275	629,839	364,514	0	13,968	378,482	1,008,320	491,233	1,335	16,991	509,559	2,150	300	2,450	512,009
Jul-02	1,185,803	4,103	62,341	1,252,246	328,337	0	13,363	341,700	1,593,947	913,169	610	24,598	938,377	430	0	430	938,807
Aug-02	1,226,311	5,845	65,138	1,297,294	291,161	0	39,380	330,540	1,627,834	935,939	1,289	29,326	966,554	1,338	1,090	2,428	968,982
Sep-02	856,335	10,806	37,021	904,162	361,944	0	55,736	417,680	1,321,842	639,788	5,941	13,501	659,230	750	1,594	2,344	661,574
Oct-02	1,247,920	6,794	63,164	1,317,878	422,682	0	43,272	465,954	1,783,833	1,000,312	2,340	25,372	1,028,024	250	1,440	1,690	1,029,714
Nov-02	1,679,093	9,856	71,117	1,760,066	300,134	0	44,592	344,727	2,104,793	1,261,576	3,281	26,600	1,291,457	1,500	169	1,669	1,293,126
Dec-02	1,482,500	10,312	61,380	1,554,192	304,178	0	72,731	376,909	1,931,101	1,115,357	1,479	24,489	1,141,325	1,340	436	1,776	1,143,101
Jan-03	1,798,496	9,405	102,338	1,910,239	480,488	0	185,504	665,991	2,576,231	1,305,575	1,014	45,701	1,352,290	1,000	1,500	2,500	1,354,790
Feb-03	706,114	5,696	72,848	784,658	503,199	0	150,926	654,125	1,438,783	616,413	893	29,865	647,171	0	0	0	647,171
Mar-03	679,318	15,140	89,084	783,542	665,715	200	76,443	742,357	1,525,899	485,930	2,646	36,047	524,623	650	2,050	2,700	527,323
2002-03	**13,061,533**	**94,456**	**767,845**	**13,923,834**	**4,898,942**	**450**	**734,086**	**5,633,479**	**19,557,312**	**9,965,825**	**25,682**	**313,990**	**10,305,497**	**13,908**	**8,859**	**22,767**	**10,328,264**

Source: RBI and NSE.

Annexure 6-2: Business Growth of WDM Segment

Month/Year	All Trades					Retail Trades		
	No. of Active Securities	Number of Trades	Average Daily Turnover (Rs. mn.)	Turnover (Rs. mn.)	Average Trade Size (Rs. mn.)	Number of Trades	Turnover (Rs. mn.)	Share in Total Turnover (%)
1994- 95 (June-March)	**183**	**1,021**	**304**	**67,812**	**66.42**	**168**	**306**	**0.45**
1995-96	**304**	**2,991**	**408**	**118,677**	**39.68**	**1,115**	**2,072**	**1.75**
1996-97	**524**	**7,804**	**1,453**	**422,776**	**54.17**	**1,061**	**2,005**	**0.47**
1997-98	**719**	**16,821**	**3,850**	**1,112,633**	**66.15**	**1,390**	**2,887**	**0.26**
1998-99	**1,071**	**16,092**	**3,650**	**1,054,691**	**65.54**	**1,522**	**3,078**	**0.29**
1999-2000	**1,057**	**46,987**	**10,348**	**3,042,162**	**64.74**	**936**	**2,185**	**0.07**
2000-2001	**1,038**	**64,470**	**14,830**	**4,285,815**	**66.48**	**498**	**1,318**	**0.03**
Apr-01	213	6,606	23,143	462,855	70.07	17	59	0.01
May-01	220	12,220	33,593	839,823	68.73	52	79	0.01
Jun-01	200	11,936	32,932	823,294	68.98	28	49	0.01
Jul-01	223	12,575	32,549	846,285	67.30	25	48	0.01
Aug-01	215	11,622	31,577	757,842	65.21	44	189	0.02
Sep-01	207	9,526	25,280	631,990	66.34	28	43	0.01
Oct-01	196	12,636	32,344	808,603	63.99	17	44	0.01
Nov-01	216	15,300	42,902	986,739	64.49	36	157	0.02
Dec-01	167	10,135	26,004	624,107	61.58	21	57	0.01
Jan-02	228	17,011	42,975	1,117,361	65.68	36	130	0.01
Feb-02	254	16,127	44,050	1,013,135	62.82	44	153	0.02
Mar-02	216	9,157	24,343	559,878	61.14	30	86	0.02
2001-02	**979**	**144,851**	**32,775**	**9,471,912**	**65.39**	**378**	**1,094**	**0.01**
Apr-02	254	12,164	32,222	773,337	63.58	32	73	0.01
May-02	206	8,662	21,298	532,461	61.47	30	99	0.02
Jun-02	237	8,875	21,791	544,774	61.38	22	68	0.01
Jul-02	230	14,996	36,195	977,254	65.17	46	158	0.02
Aug-02	232	15,483	38,548	1,002,256	64.73	56	164	0.02
Sep-02	251	10,439	28,446	682,692	65.40	81	209	0.03
Oct-02	265	16,587	42,457	1,061,424	63.99	143	406	0.04
Nov-02	260	21,052	55,092	1,322,216	62.81	172	349	0.03
Dec-02	245	18,807	48,909	1,173,826	62.41	152	359	0.03
Jan-03	253	21,335	51,747	1,397,180	65.49	131	322	0.02
Feb-03	229	10,728	29,119	669,736	62.43	115	238	0.04
Mar-03	276	8,650	23,907	549,858	63.57	272	550	0.10
2002-03	**1,123**	**167,778**	**35,983**	**10,687,014**	**63.70**	**1,252**	**2,995**	**0.03**

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**
Apr-01	91.61	6.24	1.43	0.72	18.82	3.01	25.17	36.81	16.19
May-01	94.84	3.09	1.36	0.71	19.55	3.99	25.28	38.4	12.78
Jun-01	95.77	2.85	0.88	0.50	19.92	3.58	22.88	41.31	12.31
Jul-01	94.86	3.35	1.14	0.65	20.51	4.78	20.60	41.66	12.45
Aug-01	95.99	2.04	1.19	0.78	21.71	3.53	24.49	39.05	11.22
Sep-01	94.63	3.38	1.31	0.68	25.33	4.17	24.19	31.78	14.53
Oct-01	96.21	2.11	1.03	0.65	26.98	4.19	23.74	34.58	10.51
Nov-01	95.76	2.70	0.67	0.87	25.96	3.97	24.49	34.66	10.92
Dec-01	96.02	2.59	0.83	0.56	26.51	4.65	23.11	33.89	11.84
Jan-02	95.11	2.83	0.88	1.18	25.43	4.46	19.19	36.09	14.83
Feb-02	95.58	1.18	1.59	1.65	25.16	4.53	19.78	34.26	16.27
Mar-02	94.68	1.54	2.03	1.75	24.23	4.61	19.43	35.84	15.89
2001-02	**95.24**	**2.70**	**1.16**	**0.91**	**23.52**	**4.16**	**22.50**	**36.60**	**13.22**
Apr-02	94.22	2.10	1.97	1.71	25.45	5.11	22.33	34.45	12.66
May-02	90.38	4.79	1.89	2.94	24.42	2.71	22.08	33.70	17.09
Jun-02	90.81	3.17	1.91	4.11	22.59	3.05	19.17	39.29	15.90
Jul-02	93.55	2.52	1.58	2.35	22.64	2.83	22.19	40.27	12.07
Aug-02	93.65	3.03	2.23	1.09	22.44	3.60	21.83	41.67	10.46
Sep-02	94.70	2.21	1.76	1.33	22.46	4.27	24.02	39.06	10.19
Oct-02	94.49	2.53	1.64	1.34	24.52	4.18	23.92	39.11	8.27
Nov-02	95.78	2.02	1.24	0.96	23.73	3.53	21.01	44.01	7.72
Dec-02	95.26	2.12	1.58	1.04	24.70	3.88	24.78	41.31	5.33
Jan-03	93.59	3.38	2.17	0.86	26.37	3.67	22.96	39.02	7.98
Feb-03	92.17	4.46	2.42	0.95	28.87	4.82	17.75	31.83	16.73
Mar-03	88.97	6.93	2.75	1.35	32.12	3.49	17.67	30.13	16.59
2002-03	**93.62**	**3.02**	**1.87**	**1.49**	**24.81**	**3.77**	**22.03**	**38.77**	**10.62**

Source: NSE.

Annexure 6-4: Market Capitalisation of WDM Securities

Month/ Year (end of period)	(In Rs. mn.) Govt. Securities	PSU bonds	State loans	T-bills	Others	Total	(In per cent) 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**	**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**	**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**	**68.39**	**6.26**	**7.68**	**3.05**	**14.62**
Apr-01	4,241,612	361,987	450,953	186,673	852,505	6,093,730	69.61	5.94	7.40	3.06	13.99
May-01	4,382,032	363,153	469,403	185,381	853,741	6,253,710	70.07	5.81	7.51	2.96	13.65
Jun-01	4,422,902	388,646	473,020	210,557	849,171	6,344,296	69.71	6.13	7.46	3.32	13.38
Jul-01	4,613,830	394,424	478,100	222,722	832,730	6,541,806	70.53	6.03	7.31	3.40	12.73
Aug-01	4,701,480	427,193	507,113	230,414	828,351	6,694,551	70.23	6.38	7.58	3.44	12.37
Sep-01	4,747,788	427,814	502,170	233,471	870,368	6,781,611	70.01	6.31	7.40	3.44	12.83
Oct-01	4,907,812	423,430	523,670	236,524	877,763	6,969,199	70.42	6.08	7.51	3.39	12.59
Nov-01	5,127,023	432,602	538,289	235,860	878,568	7,212,342	71.09	6.00	7.46	3.27	12.18
Dec-01	5,141,711	418,228	547,706	242,657	874,669	7,224,971	71.17	5.79	7.58	3.36	12.11
Jan-02	5,298,963	415,659	579,555	240,036	880,864	7,415,077	71.46	5.61	7.82	3.24	11.88
Feb-02	5,414,008	411,304	596,747	243,663	895,200	7,560,922	71.61	5.44	7.89	3.22	11.84
Mar-02	**5,426,009**	**399,436**	**613,847**	**238,487**	**890,163**	**7,567,942**	**71.70**	**5.28**	**8.11**	**3.15**	**11.76**
Apr-02	5,553,938	407,165	631,063	242,179	890,790	7,725,135	71.89	5.27	8.17	3.13	11.54
May-02	5,541,366	403,326	640,653	247,449	894,110	7,726,904	71.72	5.22	8.29	3.20	11.57
Jun-02	5,622,423	397,590	666,490	251,885	890,970	7,829,358	71.81	5.08	8.51	3.22	11.38
Jul-02	5,867,902	396,432	667,181	260,652	876,039	8,068,205	72.73	4.91	8.27	3.23	10.86
Aug-02	6,014,101	398,722	664,240	265,804	864,925	8,207,792	73.27	4.86	8.09	3.24	10.54
Sep-02	6,022,006	400,026	670,742	271,014	862,640	8,226,428	73.20	4.86	8.15	3.29	10.50
Oct-02	6,178,398	401,270	685,886	277,969	862,766	8,406,289	73.50	4.77	8.16	3.31	10.26
Nov-02	6,363,917	399,016	695,001	283,771	652,801	8,394,506	75.81	4.75	8.28	3.38	7.78
Dec-02	6,551,476	394,310	703,679	308,519	650,582	8,608,567	76.10	4.58	8.17	3.58	7.57
Jan-03	6,627,659	395,881	709,317	349,341	652,099	8,734,297	75.88	4.53	8.12	4.00	7.47
Feb-03	6,590,778	384,043	711,152	361,557	632,263	8,679,793	75.93	4.42	8.19	4.17	7.29
Mar-03	**6,580,017**	**383,828**	**720,940**	**349,188**	**610,839**	**8,644,812**	**76.12**	**4.44**	**8.34**	**4.04**	**7.06**

Source: NSE.

Annexure 6-5: FIMMDA NSE MIBID/MIBOR Rates

Month/Date	OVERNIGHT AT 9.40 a.m.*		14 DAY AT 11.30 a.m.**		1 MONTH RATE AT 11.30 a.m.***		3 MONTH RATE 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
29-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
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

Note:
* Overnight : Disseminated since June 15, 1998.
** 14 Day : Disseminated since November 10, 1998.
*** 1 month : Disseminated since December 1, 1998.
*** 3 month : Disseminated Since December 1, 1998.

Annexure 6-6: 1-day VaR (99%) for GoI Securities Traded on NSE-WDM as on March 31, 2003

Security Type	Security Name	Issue Name (%)	VaR (%)					Clean Price (off NSE-ZCYC) (In Rs.)
			Normal Variance-co -variance)	Weighted Normal	Historical Simul- ation	Weighted Historical Simul- ation	EVT	
GS	CG2003	11.10%	0.022	0.020	0.029	0.013	0.021	100.12
GS	CG2004	12.50%	0.493	0.678	0.690	0.434	0.528	106.26
GS	CG2005	11.19%	0.678	0.998	0.905	0.573	0.626	111.35
GS	CG2005	14%	0.654	0.972	0.894	1.478	0.619	116.27
GS	CG2006	11%	0.775	1.029	0.960	1.411	0.675	114.66
GS	CG2006	11.68%	0.739	1.023	0.925	0.581	0.668	115.41
GS	CG2007	11.90%	0.865	1.013	0.969	0.682	0.709	120.87
GS	CG2007	13.05%	0.842	1.009	0.934	0.666	0.701	124.56
GS	CG2008	11.40%	1.040	1.000	1.103	0.663	0.808	123.32
GS	CG2008	12%	0.985	0.997	1.053	0.619	0.791	124.92
GS	CG2009	6.96%	1.226	1.041	1.243	0.787	0.882	103.27
GS	CG2009	7%	1.252	1.047	1.252	0.786	0.896	103.47
GS	CG2009	11.99%	1.112	1.003	1.158	0.729	0.824	128.25
GS	CG2010	5.87%	1.401	1.097	1.281	0.799	1.018	97.35
GS	CG2010	7.50%	1.397	1.097	1.252	0.782	1.046	106.36
GS	CG2010	7.55%	1.396	1.097	1.251	0.781	1.045	106.64
GS	CG2010	12.29%	1.218	1.029	1.214	0.752	0.852	132.59
GS	CG2011	9.39%	1.498	1.157	1.296	0.754	1.079	118.69
GS	CG2011	10.95%	1.432	1.126	1.251	0.746	1.041	128.42
GS	CG2011	11.50%	1.439	1.132	1.258	0.744	1.046	132.35
GS	CG2011	12.32%	1.349	1.085	1.214	1.383	0.992	136.03
GS	CG2011A	11.50%	1.478	1.155	1.273	0.745	1.074	133.10
GS	CG2012	7.40%	1.712	1.278	1.429	0.953	1.272	106.14
GS	CG2012	9.40%	1.659	1.261	1.388	0.927	1.217	120.23
GS	CG2012	11.03%	1.575	1.216	1.347	0.851	1.150	131.38
GS	CG2013	7.27%	1.910	1.418	1.704	1.132	1.377	105.26
GS	CG2013	9.81%	1.732	1.317	1.509	1.001	1.225	124.06
GS	CG2013	12.40%	1.654	1.282	1.450	0.940	1.166	143.80
GS	CG2014	11.83%	1.808	1.391	1.646	1.052	1.271	142.13
GS	CG2015	7.38%	2.153	1.598	2.057	2.254	1.541	106.09
GS	CG2015	9.85%	1.996	1.515	1.916	1.153	1.409	127.09
GS	CG2015	10.47%	1.894	1.444	1.777	1.099	1.331	131.46
GS	CG2016	10.71%	2.000	1.527	1.940	1.146	1.418	135.10
GS	CG2017	7.46%	2.351	1.748	2.336	1.303	1.767	106.73
GS	CG2017	7.49%	2.313	1.720	2.303	1.301	1.756	107.02
GS	CG2017	8.07%	2.240	1.675	2.252	1.282	1.669	112.24
GS	CG2018	6.25%	2.514	1.843	2.571	1.339	1.912	95.37
GS	CG2019	10.03%	2.311	1.765	2.345	1.229	1.699	132.12
GS	CG2020	11.60%	2.318	1.798	2.367	1.184	1.756	149.34
GS	CG2021	10.25%	2.415	1.870	2.493	1.185	1.870	135.70
GS	CG2022	8.35%	2.602	2.024	2.791	1.340	2.085	115.99
TB	364D	20503	0.086	0.084	0.115	0.055	0.086	99.51
TB	364D	50304	0.490	0.669	0.686	0.429	0.526	94.81
TB	364D	121203	0.422	0.544	0.590	0.352	0.433	96.09
TB	364D	160503	0.118	0.119	0.160	0.078	0.121	99.30
TB	364D	190304	0.500	0.688	0.699	0.440	0.535	94.60
TB	364D	200204	0.480	0.650	0.671	0.418	0.510	95.03
TB	364D	261203	0.435	0.567	0.611	0.367	0.450	95.88
TB	364D	281103	0.409	0.521	0.573	0.337	0.424	96.30
TB	91D	60603	0.162	0.170	0.221	0.111	0.166	98.97
TB	91D	200603	0.189	0.202	0.259	0.133	0.197	98.76

Source: NSE.