

V

GOVERNMENT SECURITIES MARKET

5.1 The government securities market is at the core of financial markets in most countries. It deals with tradeable debt instruments issued by the Government for meeting its financing requirements.¹ The development of the primary segment of this market enables the managers of public debt to raise resources from the market in a cost effective manner with due recognition to associated risks. A vibrant secondary segment of the government securities market helps in the effective operation of monetary policy through application of indirect instruments such as open market operations, for which government securities act as collateral. The government securities market is also regarded as the backbone of fixed income securities markets as it provides the benchmark yield and imparts liquidity to other financial markets. The existence of an efficient government securities market is seen as an essential precursor, in particular, for development of the corporate debt market. Furthermore, the government securities market acts as a channel for integration of various segments of the domestic financial market and helps in establishing inter-linkages between the domestic and external financial markets.

5.2 The government securities market has witnessed significant transformation across countries over the years in terms of system of issuance, instruments, investors, and trading and settlement infrastructure. It has grown internationally in tune with the financing requirements of Governments. The fiscal discipline exercised by many countries in recent years has restricted the size of the market. Accordingly, countries have focussed on improving trading liquidity of the market through various measures. Many countries in the recent past have pursued a strategy of managing the cost of Government borrowing in the medium to long-term so as to reduce the rollover risk and other market risks in the debt stock, although this may entail higher debt service costs in the short run. Historically, in most countries, the central banks as managers of public debt have played a key role in developing the government securities markets.

Although debt management authorities are increasingly being established outside the central banks in various countries, central banks continue to play a major role in developing the trading and settlement infrastructure of the government securities market.

5.3 The evolution of the government securities market in India has been in line with the developments in other countries. Slow development of the market in the 1970s and the 1980s was shaped by the need to meet the growing financing requirements of the Government. This essentially resulted in financial repression as progressively higher statutory requirements were stipulated, mandating banks to invest in government securities at administered interest rates. Although this captive financing provided low cost resources to the Government, it impeded the development of the market and distorted the interest rate structure. Furthermore, such arrangements, along with automatic monetisation of Government deficits, hampered the conduct of monetary policy.

5.4 Recognising the need for a well developed government securities market, the Reserve Bank, in coordination with the Government, initiated a series of measures from the early 1990s to deregulate the market of administered price and quantity controls. Consequently, the government securities market has witnessed significant transformation in various dimensions, viz., market-based price discovery, widening of investor base, introduction of new instruments, establishment of primary dealers, and electronic trading and settlement infrastructure. This, in turn, has enabled the Reserve Bank to perform its functions in tandem with the evolving economic and financial conditions.

5.5 Wide ranging reforms in the government securities market were largely undertaken in response to the changing economic environment. Increased borrowing requirements of the Government, stemming from high fiscal deficits, had to be met in a cost effective manner without distorting the financial

¹ Governments issue securities with maturities ranging from less than a year to a very long-term stretching up to 50 years. Typically, short-term maturities up to one year, viz., Treasury Bills, form a part of the money market and facilitate the Government's cash management operations, while bonds with maturities more than a year facilitate its medium to long-term financing requirements. This chapter discusses developments with respect to bonds with maturities more than a year. Treasury Bills being short-term instruments are covered in Chapter III.

system. The underlying perspective of the reform process was, therefore, to raise government debt at market related rates through an appropriate management of market borrowing. There was also a need to develop a benchmark for other fixed income instruments for the purposes of their pricing and valuation. An active secondary market for government securities was also needed for operating monetary policy through indirect instruments such as open market operations and repos. Reforms, therefore, focussed on the development of appropriate market infrastructure, elongation of maturity profile, increasing the width and depth of the market, improving risk management practices and increasing transparency.

5.6 As stipulated under the Fiscal Responsibility and Budget Management Act, 2003, the Reserve Bank has withdrawn from participating in the primary market for government securities from April 1, 2006. The increasing move towards fuller capital account convertibility as recommended by the Committee on Fuller Capital Account Convertibility (FCAC) (Chairman: Shri S.S. Tarapore) would necessitate measures that promote greater integration of the domestic financial markets with global markets. The deepening of the government securities market is, therefore, essential not only for transmission of policy signals but also for developing the derivatives market which would meet future challenges thrown up by further liberalisation of the capital account. Moreover, an environment of freer capital flows will also necessitate widening of the government securities market with further diversification of the investor base.

5.7 Against this backdrop, this chapter traces the development of the government securities market in India since the early 1990s, in order to identify the key issues that need to be addressed to meet the emerging challenges. The chapter is organised in six sections. Section I sets out the theoretical underpinnings, and principles and policy strategy for developing a deep and liquid government securities market. Section II presents international experiences in terms of key features of the government securities market in developed and developing countries. Section III outlines the developments in the government securities market in India since the early 1990s and the role played by the Reserve Bank in shaping it. An assessment of the government securities market in terms of various indicators is presented in Section IV. Drawing from the lessons from international experiences, Section V raises the key issues that need to be addressed for enabling

the government securities market to play a more effective role in the emerging scenario. The final section presents concluding observations.

I. ROLE OF THE GOVERNMENT SECURITIES MARKET

Theoretical underpinnings

5.8 The supply of government securities is generally exogenous to the market, determined mainly by the fiscal policy of the Government. The demand for government securities may be fragmented into several components implying that the demand curve is not uniformly downward sloping, but is rather kinked (Commonwealth of Australia, 2002). For instance, the demand by investors such as insurance companies and superannuation funds is in the nature of 'buy and hold' as the revenue streams from government securities generally match with their liability payment stream. These investors may have very few substitutes and, hence, their demand is less price sensitive. Mandated investments in government securities by banks and other institutions would also fall into the category of 'buy and hold'. The demand from other investors in government securities is more for active trading and portfolio management. These investors may have many substitutes for government securities and, hence, their demand is generally more price elastic. The overall demand elasticity is, therefore, determined by the balance between these two groups of investors. Greater the share of active investors, higher is the demand elasticity or price sensitivity of government securities. Increased volume of government securities may increase concerns of a default by the Government which may affect the risk characteristics of the instrument. This may result in a fall in prices as yields steepen. At the other end of the spectrum, very limited supply of government securities may generate concerns over liquidity. Illiquidity premium can then drive down the prices, although there could be some resistance to the downward bias, if 'buy and hold' investors dominate the market. Thus, very high volumes as well as very low volumes of government securities may result in a fall in prices of government securities.

5.9 Activity in the government securities market can affect overall investment in the economy in two ways. First, it may adversely affect private investment by directly competing for the limited resources. As the interest rate on private bonds is determined by the usual downward sloping demand and upward sloping supply curves, the interest rate in the economy would be determined by the combined demand for and

supply of government securities and private bonds. An increase in the supply of government securities in the face of high budget deficits would drive down their prices, leading to a substitution of private bonds with government securities, particularly, by investors whose demand is driven by trading and portfolio management requirements. This phenomenon is often described as 'crowding out'.

5.10 Second, the government securities market can also have a positive influence on private investment by enabling the development of private bond market in two ways: (i) by putting in place a basic financial infrastructure, including laws, institutions, products, services, repo and derivatives markets; and (ii) by playing a role as an informational benchmark. A single private issuer of securities would never be of sufficient size to generate a complete yield curve and his securities would not be riskless because only

the Government has the power to print domestic currency (Herring and Chatusripitak, 2000). Thus, the yield curve of government securities serves as a public good in financial markets (Box V.1).

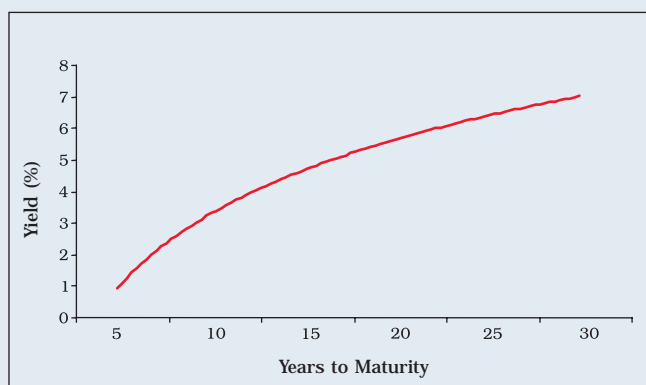
5.11 One of the key features of development of the government securities market is the evolution of yield curve over a reasonably long period. The upward sloping yield curve, which is considered to be the usual term structure, may reflect either the presence of interest rate risk premium or the so called Hicksian liquidity premiums, or it may simply reflect the market's anticipation about the upward trend in the general level of interest rates over the period. Theoretical analysis confirms that in an efficient market, yield curve will solely depend upon the market's response to collective beliefs about future interest rate movements, *i.e.*, interest rates derived from the prevailing term structure of interest rates are correct

Box V.1

Role of Government Securities Yield Curve as a Public Good

Yield curve, also known as term structure of interest rates, is the representation of zero coupon yields of a series of maturities at a point of time. It is constructed by plotting the yields against the respective maturity periods of benchmark fixed-income securities. The yield curve is a measure of market's expectations of future interest rates, given the current market conditions. Securities issued by the Government are considered risk-free, and as such, their yields are often used as the benchmarks for fixed-income securities with the same maturities.

Graphic Representation of a Normal Yield Curve



The difference between short and long ends of the yield curve (spread) determines the shape of the curve which is an important indicator of the expected performance of the economy and inflation. Since the government securities yield curve represents the risk-free interest rates, it is used for pricing other instruments of various maturities. The yield

curve has informational value to bond issuers for pricing as well as timing of their issue depending on the expected performance of the economy. Investors can also use the curve in choosing the right tenor of investment. For overseas investors, expected performance of different countries could be compared by looking at the respective yield curves to make investment decisions.

Most other interest rates are measured on the basis of the government securities yield curve, *viz.*, credit curve and swap curve. Similarly pricing of other financial instrument uses the government securities yield curve in some form or the other. Thus, the yield curve acts as a kind of public good that is used constantly by participants in the financial system.

The efficiency of the yield curve as a public good is enhanced under the following two conditions. First, macroeconomic volatility, especially inflation volatility, must be low so that a nominal yield curve is informative about the real cost of borrowing. Second, the government must issue a sufficient volume of debt. Yield is described as an apparatus which allows abstraction of irrelevant factors and focuses on factors relevant for interest rate risk on portfolios (Krstic and Marinkovic, 1997).

The fact that the yield curve acts as a public good enjoins upon all participants, in particular the regulators, the responsibility of ensuring that it is free from any undesirable and manipulative influence, as this would lead to a loss in its informational value and result in market inefficiency brought about by incorrect pricing of other financial instruments.

forecast of future interest rates. Thus, development of the government securities market is essential for establishing the risk-free benchmarks in financial markets and ensuring their functioning in an efficient manner.

Significance of the Government Securities Market

5.12 The need to develop the government securities market emerges from the three roles it seeks to play, *i.e.*, for the financial markets, for the Government and for the central bank (Reddy, 2002). As alluded to earlier, the government securities market serves as the backbone of fixed income markets through the creation of risk-free benchmarks of a sovereign borrower. *Ipsa facto*, it acts as a channel of integration of various segments of the financial market. The government securities market constitutes a key segment of the financial market, offering virtually credit risk-free highly liquid financial instruments, which market participants are more willing to transact and take positions. The willingness of market participants to transact in government securities, in turn, imparts liquidity to these instruments, which benefits all segments of the financial market. Consequently, government securities are used by dealers as a major hedging tool for interest rate risk and as underlying assets and collateral for related markets, such as repo, futures and options (BIS, 1999). Furthermore, large borrowings by the Government also provide an impetus to the development of the bond market.

5.13 From the perspective of an issuer, *i.e.*, the Government, a deep and liquid government securities market facilitates its borrowings from the market at reasonable cost. A greater ability of the Government to raise resources from the market at market determined rates of interest allows it to refrain from monetisation of the deficit through central bank funding. It also obviates the need for a captive market for its borrowings. Instead, investor participation is voluntary and based on risk and return perception. A developed government securities market provides flexibility to the manager of public debt to optimise maturity and cost of even a lumpy government borrowing.

5.14 For the central bank, a developed government securities market allows greater application of indirect or market-based instruments of monetary policy such as open market (including repo) operations. A greater recourse to the market by the Government for meeting its funding requirements expands the eligible set of collaterals, thereby enabling the central bank to

conduct monetary policy through indirect instruments. The expanding quantum of eligible collaterals has imparted flexibility to central banks of many developing economies in their conduct of monetary policy, especially in sterilising the capital flows. As a part of reforms, even if the central bank's participation in the primary market of government securities is phased out, the stock of government securities in the financial system would continue to enable the central bank to re-balance its portfolio through participation in the secondary market.

5.15 The government securities market, which is often the predominant segment of the overall debt market in many economies, plays a crucial role in the monetary policy transmission mechanism. Thus, irrespective of whether the central bank acts as manager of public debt or not, there are three main channels through which government debt structure might influence monetary conditions, *viz.*, quantity of debt, composition of debt and ownership of debt (Box V.2).

Principles and Policy Strategy for a Liquid Market

5.16 In the aftermath of financial crises in the late 1990s in many economies, a consensus emerged on the need to develop deep and liquid financial markets, especially government securities markets. Studies suggested that the size is a key determinant of liquidity of the government securities market (McCauley and Remolona, 2000). A critical issue in this regard is trading liquidity, *i.e.*, the ability of the market to execute transactions at short notice, low cost and with little impact on price (Lagana *et al.*, 2006). The extent of liquidity in a market is usually captured by any or all of the four indicators, *viz.*, width (width of the bid-ask spread), depth (the ability to carry out large trading without significant changes in price levels), immediacy (the ability to carry out large trading promptly without significant changes in price levels) and resilience (the ability of prices to quickly return to normal) (Harris, 1990). The Bank for International Settlements (BIS) identified four interrelated general principles for designing deep and liquid markets (Box V.3).

5.17 A five-pronged policy strategy can be pursued to promote liquidity in the government securities market (BIS, *op.cit.*). First, there is a need to pursue a coherent public debt management strategy whereby distribution of government securities across various maturities and frequency of their issuances are modulated appropriately so as to facilitate sufficient supply of instruments for enhancing market liquidity.

Box V.2**Government Debt Structure and Monetary Conditions**

The absolute size of Government borrowings, especially when the financial markets are underdeveloped, often raises concerns about public debt management as there could be recourse to short-term financing from the central bank leading to monetary expansion. However, as the public debt/GDP ratio declines and government securities market develops with introduction of new instruments (like index-linked gilts), new issuing techniques (such as auctions) and improved market infrastructure, practical concerns about debt management impinging on monetary control get reduced. For instance, in the United Kingdom, a steady decline in the debt/GDP ratio and the emergence of a new structure in capital markets, after reforms of the London securities market in 1986, alleviated many of these concerns.

The composition of debt in terms of maturity pattern may also influence the conduct of monetary policy. One view is that monetary authorities may keep interest rates low when there is large short-term debt so as to reduce the rollover cost. A contrary view is that they may react more aggressively to inflationary shocks when maturity structure of debt is short so as to minimise the future rollover cost resulting from higher expected inflation and higher future

nominal interest rates. The Government's decision to issue short *versus* long maturity debt, or conventional *versus* index-linked debt may affect real yields, depending upon the substitutability of the instruments, thereby affecting the interest sensitive sectors of the economy.

The central policy concern about the ownership of public debt is related to the composition in terms of holding by banks and non-banks. Several empirical studies, using data mainly from the United States, found that increased debt issuances could lead to increase in bank holdings of debt. New issues of debt taken up by banks act as a substitute for lending to the private sector and, therefore, reduce the supply of bank credit to it. During monetary tightening, however, banks would extend loans to the private sector by running down their holdings of government debt. Thus, banks' holding of public debt acts as a buffer. The experience in the United Kingdom was, however, contrary as the available evidence found that debt sales to banks had only a small impact on either money supply growth or bank lending.

Source:

Bank of England. 1999. "Government Debt Structure and Monetary Conditions." *Quarterly Bulletin*, November.

This can be ensured through large size of issuances, which, by creating of a homogeneous stock with a common maturity date, enhances liquidity. Alternatively, even where the government's borrowing requirement is fixed, a debt manager can still enlarge the size of issuances of specific securities as demanded by investors at 'key maturities' across the yield curve by reducing the number of original maturities and/or reducing the frequency of issuances. A standard practice to enlarge the issue size, however, is to conduct regular reissuances of identical securities in several consecutive auctions instead of a single auction. Buyback of illiquid or older securities may also enable large sized issuances.

5.18 Second, as taxes increase the transaction costs and hinder market liquidity, there is a need to weigh the potential increase in tax revenue against the potential decline in market liquidity. The liquidity impairing effect of transaction tax, however, could be mitigated by exempting the active market participants.

5.19 Third, there is a need to enhance transparency of issuers, issue schedule and market information. Greater transparency by Governments in furnishing of information plays an important role in improving liquidity of government securities. Adherence to a

regular issuance cycle and pre-announcement of issue schedule provide an opportunity to investors to plan their portfolio management. In this regard, the existence of 'when issued' trading in government securities enables better market acceptability of issuances with availability of time between announcement and actual auction dates. A greater degree of transparency observed by market participants also improves market liquidity. Dissemination of market information on a real time basis, without disclosing identity of market participants, narrows bid-ask spreads and improves market liquidity.

5.20 Fourth, standardisation, robust trading rules and safe infrastructure reduce transaction costs. Safety in trading and settlement is a pre-requisite for better liquidity. It is desirable to shorten settlement lags to T+3 or still shorter and adopt delivery-*versus*-payment (DvP) practices in the government securities market. Standardisation of trading and settlement practices effectively enlarges supply of securities by removing fragmentation. It also encourages foreign participation. The permission to dealers to carry short sales also improves market liquidity as they can respond to customers' buy orders quickly.

Box V.3 Principles of a Deep and Liquid Government Securities Market

A few general inter-related principles emerge from the experience of the mature markets that can guide the creation of deep and liquid government securities markets in countries after due adjustment to suit particular market situations (BIS, 1999). First, there is a need to maintain a competitive market structure in the government securities market to facilitate efficient price discovery. A government security, like any financial instrument, can be traded through a wide variety of mechanisms like over-the-counter (OTC) markets, organised exchanges and other platforms which cannot be placed in either of these categories. A fundamental strategy is to infuse competition among dealers which would narrow bid-ask spreads and increase liquidity of the market. In the case of exchanges, even when their number is limited, dynamic competition between the leading exchange and other exchanges, and between the OTC market and organised exchanges contribute to market liquidity. Thus, it is necessary to maintain a 'contestable market' where the dominant market participants can be challenged by new entrants if monopolistic or oligopolistic practices develop.

Second, the government securities market needs to have a low level of fragmentation offering instruments which have high degree of substitutability. Market liquidity tends to be enhanced when instruments can be substituted one for another since the market for each of them becomes less fragmented. A high degree of substitutability enhances trading supply of securities which facilitates in meeting the transaction demand. However, there is also a need to have some degree of heterogeneity in instruments for catering to specific investor needs. The trade-off between homogeneous product of large volume and some heterogeneity can be resolved by having a system of issuing government bonds at several 'key maturities' from the short end to the long end of the yield curve.

Third, liquidity of the government securities market can be improved by lowering transaction costs, which include taxes, cost of sustaining necessary infrastructure and compensation for liquidity provision services. Higher transaction costs widen the gap between the effective price received by sellers of the instrument and that paid by buyers, thereby making it difficult to match sell and buy orders. This leads to low market liquidity. Some transaction costs, however, are inevitable such as those associated with ensuring sound payment and settlement infrastructure and improving overall robustness of the market. Thus, transaction costs need to be minimised as long as this does not reduce the security of the market in question.

Fourth, there is a need to ensure a sound, robust and safe market infrastructure comprising (i) payment and settlement systems; (ii) the regulatory and supervisory framework; and (iii) market monitoring and surveillance. This increases the resilience of the government securities market against external shocks and contributes to continuous price discovery, thereby enhancing market liquidity.

Finally, there is a need to promote heterogeneity of market participation in terms of transaction needs, risk assessments and investment horizons to promote liquidity in the government securities market. Furthermore, apart from varied domestic investor base, there is also a need to permit foreign participants. Non-residents may have risk appetite different from that of residents, which would prompt them to react differently to new information. However, liberalisation to encourage foreign participation has to be calibrated appropriately after paying due attention to sequential development of domestic markets.

Source:

BIS. 1999. "How Should We Design Deep and Liquid Markets? The Case for Government Securities." Basel, October.

5.21 Finally, the development of related markets such as repo, futures and options also improves market liquidity of the government securities market by enabling participants to undertake hedging, arbitrage operations and speculative transactions. Repo transactions enable market participants to finance long positions and cover short positions. A well structured futures market reduces hedging costs and, thus, makes it easier to undertake cash transactions. An options market provides flexibility for hedging and arbitrage.

5.22 Central banks also impact liquidity of the government securities market through the various roles they perform. First, information on the policy decisions, release of data on various economic indicators and notification of open market operations

(OMO) by central banks get incorporated into market prices. Second, as major market participants, central banks' conduct of OMO using government securities affects supply of securities in the financial system. Third, central banks influence market liquidity by providing clearing and settlement services of government securities.

II. INTERNATIONAL EXPERIENCE

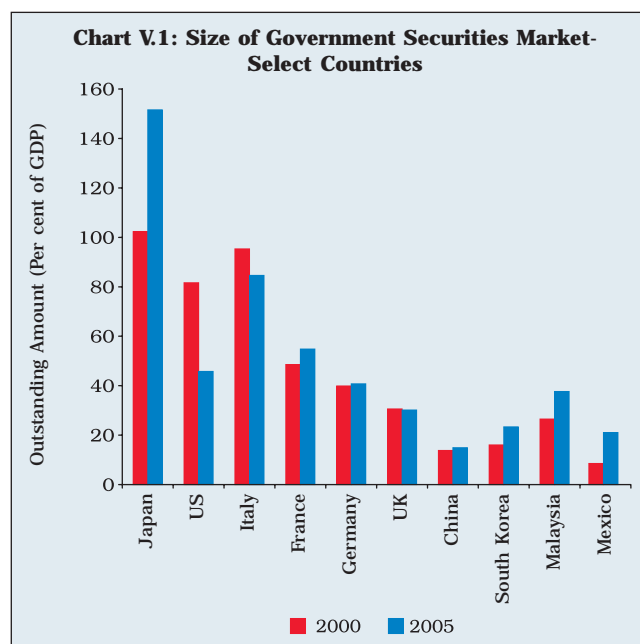
5.23 The government securities market has generally increased in size across countries in tandem with the growing financing requirements of Governments over the years. Notwithstanding the onset of fiscal consolidation processes and the consequent shrinking supply of issuances in the

primary market in some countries in recent years, public debt managers have honed the development of the government securities market through various measures. Several Governments now raise funds through market-based mechanisms in a transparent and predictable fashion. They have also strived to broaden the investor base for the issuances of government securities. The Governments and central banks have adopted a strategy of jointly working with market participants to promote the development of the secondary market for government securities as also to establish sound clearing and settlement systems to handle transactions in government securities. While an abiding objective of public debt management in various countries has continued to be minimising the cost of government borrowings, a striking feature in the last two decades has been to pursue this objective with a focus particularly on managing risks inherent in the debt portfolio (IMF-World Bank, 2002).

Size and Liquidity of Government Securities Market

5.24 Historically, government securities markets grew with the need to finance government budget deficits. Since the 1970s, government securities markets in the United States (US) and in many other industrial countries underwent significant expansion in terms of size. Large fiscal deficits resulted in increased issuances of treasury bills and bonds. The US government securities market was, historically, the largest. However, as a result of fiscal consolidation in the 1990s, the government bond market shrank sharply in the US. On the other hand, the size of the Japanese Government Bonds (JGBs) market expanded substantially to about 150 per cent of GDP by 2005. In many other countries, including India, the size of the government securities market increased between 2000 and 2005 (Chart V.1).

5.25 Although the size continues to be a key determinant of liquidity of the government securities market, managers of public debt have pursued a strategy of keeping 'trading liquidity' sufficient even in countries where the size of issuances has shrunk in the primary market. Most studies analysing liquidity in the government securities market consider two measures of liquidity, viz., bid-offer or bid-ask spread and trading volume. Lower the bid-ask spread, lower is the transaction cost and hence, higher is the liquidity



in the market. The bid-ask spread in the government securities market was one of the lowest in Japan, South Korea and Malaysia. In terms of the turnover ratio, the US treasuries market was the most liquid market in 2005, despite a fall in its size. The government securities market in the Peoples' Republic of China (PRC) turned out to be one of the least liquid markets in terms of both the turnover ratio and the bid-ask spread (Table 5.1).

Management of Public Debt and Role of the Central Bank

5.26 The degree of involvement of central banks in the government bond market varies significantly across countries. At one end are countries such as Japan, the US, Australia, the UK (since 1998) and Republic of Korea, where the finance ministry solely decides the fiscal policy, government debt related issues and the course of operation of the government bond market. The Governments in these countries, however, co-ordinate with central banks, which may be independently pursuing monetary policy and selling/buying securities in the secondary market.² At the other end are countries in which central banks, being statutory bodies under the jurisdiction of Ministry of Finance, operate in the government bond market at the behest of their Governments. For instance, in Malaysia, the central bank is one of the

² There are central banks which issue their own bonds, adding to the conflict between the monetary and fiscal policy operations and underlining the need for further coordination between the Ministry of Finance and the central bank. These instruments can also fragment the government bond market (Mohanty, 2001).

**Table 5.1: Indicators of Liquidity in Domestic Currency Government Bond Markets –
Select Countries - 2006**

Country	Generic term for government securities	Turnover ratio	Rank based on turnover ratio	Bid-ask spread	Rank based on bid-ask spread
1	2	3	4	5	6
Canada	–	4.0 ***	7	5.00 *	7
Japan	Japanese Government Bonds	6.0	6	0.58	1
US	US treasuries (Notes and Bonds)	40.0 ***	1	3.10 *	5
Italy	BTP	10.8 **	3	6.00 *	8
France	OAT	38.5 **	2	10.00 *	10
Germany	Bunds	10.1 **	4	4.00 *	6
Australia	Commonwealth Government securities (CGS)	9.0 ***	5	–	–
UK	Gilts	9.0 ***	5	4.00 *	6
PRC	Treasury bonds	1.4	12	7.60	9
Korea	Korea Treasury Bonds (KTB)	2.6	8	1.30	2
Malaysia	Malaysian Government securities (MGS)	1.9	10	2.25	3
Thailand	–	1.7	11	3.00	4
Mexico	CETES	2.5	9	–	–

** , * and *** indicate data for 1997, 2002 and 2005, respectively.

– : Not available.

Source: Ric Battelino (2004), Tomita (2002), Hattori *et al* (2001), <www.adb.org>; <www.asianbondsonline.adb.org>; and McCauley and Remolona (2000).

five statutory bodies under the Ministry of Finance. As a banker to the Government, it advises on the details of government securities issuances and facilitates such issuances through various market infrastructures that it owns and operates. Central banks in some countries assume twin responsibilities of conducting independent monetary policy and managing public debt. For instance, in Thailand, the central bank is responsible for monetary policy and developing the bond market for private and public saving and debt management. Hence, the monetary policy stance of the Bank of Thailand is set keeping in view certain objectives relating to fiscal deficit and future financing needs of the Government. The experiences of these countries indicate that the degree of independence of the central bank may be a necessary but not a sufficient condition for the development of the government bond market.

5.27 The underlying objective of public debt management in various countries, regardless of whether the manager is the central bank or a government agency, continues to be minimisation of the cost of government borrowings. There has, however, been an increasing focus on management of risks in recent years. In particular, the debt management framework focuses on the need to undertake government borrowings at the lowest possible cost over a medium to long-term timeframe rather than taking recourse to risky debt structures, which may have lower costs in the short run but could

be risky and trigger high debt servicing costs in the long run. At the same time, the Governments in some countries, which find the cost of issuing long-term securities at fixed rate very high, are opting for short-term securities while pursuing a strategy of developing the domestic debt market so as to reduce rollover risk and other market risks in the debt stock over time (IMF-World Bank, 2002).

Primary Market

Issuance Procedures

5.28 The issuance of government securities in countries, which are in the early stages of market development, is normally undertaken by way of discretionary non-market placement such as underwriting by a syndicate of financial institutions. This route becomes preferable as free competition is impeded when there are fewer participants. In Korea, prior to the Asian crisis, a part of the bond issue was underwritten by some financial institutions and the Bank of Korea. The Bank of Korea, however, stopped underwriting government bonds from June 1998. The People's Republic of China had adopted an underwriting syndicate system in 1991, which was abandoned in 1995 to make way for auctions. In Malaysia, government bonds are issued through auctions but they are also occasionally privately placed with specific financial institutions.

5.29 In cases where the government is uncertain about the full subscription to the issue and the price it would fetch, it may also ask the central bank of the country to underwrite a part of the fresh issue. In Malaysia, the central bank can participate in government bond auctions and can take up to 10 per cent of the total issue amount in order to obtain securities for market operations such as the repurchase agreements.

5.30 In order to improve the government securities market and to widen the investor base, it becomes essential for a country to move over time towards the market mechanism by way of competitive public auctions. Auctions are also used by some countries in combination with tap sales of securities. The Governments in most countries use pre-announced auctions to issue debt. The conventional auctions of government securities follow multiple-price auction system for issuances of conventional securities and uniform price auction system for securities with special features such as inflation-indexed bonds where there is market uncertainty (Box V.4). The US, however, has switched over to uniform price auction format so as to broaden its investor base as bidders tended to be more aggressive in this format due to a reduction in the 'winner's curse'. In 2000, the Korean Government moved to a uniform price auction format from multiple price auction system. Chinese treasury bonds are auctioned using the uniform price auction method. On the other hand, Thailand and Malaysia use multiple price auction for issuing government bonds.

5.31 Most Governments rely on underwriting syndicates for borrowings in foreign markets in order to help them price and place securities with foreign investors. This is because borrowings are usually not undertaken in sufficient volume or on a regular enough basis to warrant the use of an auction technique. For instance, smaller countries of the European Monetary Union (EMU) such as Portugal use syndications to launch first *tranche* of each new bond so as to have more control over the issue price and diversify investor base to facilitate future issuances of government securities by the auction system.

5.32 There are also some countries such as Sweden and the UK, which raise foreign currency funds by issuing first domestic currency debt and then swapping it with foreign currency obligations. This technique has the added benefit of maintaining large issuances in the domestic markets even when domestic borrowing requirements are moderate. Large industrial countries such as the US and Japan issue only local currency denominated securities in

their domestic markets and avoid raising funds offshore.

Transparency and Efficiency

5.33 Governments in most countries have become more transparent in their auction processes in the domestic market to reduce market uncertainty in the primary market and lower borrowing costs. Pre-announced borrowing plans and auction schedules enable the prospective investors to plan in advance their subscriptions to new issuances of government securities by adjusting their portfolios. The rules and regulations governing the primary auctions and the roles and responsibilities of primary dealers are disclosed well in advance to market participants. In Brazil and Poland, the Ministry of Finance disseminates the basic rules for issuances of government securities to market participants while the details of specific issuances are described in Letters of Issue placed on the website. While the Government in Poland announces the auction dates at the beginning of the year, in Brazil the dates are announced a month in advance.

5.34 The auction processes are also becoming more efficient through automation. The Governments in Ireland, Portugal and Jamaica are already using electronic auction system for issuance of securities, which has considerably reduced the time lag between the close of bidding and announcement of results.

Investor Base

5.35 Many countries such as Morocco and South Africa have moved progressively away from regulations that mandated investors to hold a prescribed portion of their assets in government securities. While the removal of such captive investor base may have increased interest rates to market-clearing levels in the short run, the ensuing deep and liquid government securities market in the medium to long-term is expected to reduce the debt service costs for the governments in future (IMF-World Bank, 2002).

5.36 Most countries have adopted a system of primary dealers (PDs) for ensuring that auctions are well-bid. PDs also act as a regular source of liquidity in the secondary market and provide useful information for managers of public debt on market developments and debt management issues. Some governments have felt the need to offer special privileges to PDs for promoting market development, especially at an early stage of development. As PDs continuously give two-way price quotes, they provide

Box V.4 Auction Pricing – Uniform versus Multiple

Pricing in an auction can be on a multiple price basis (also called American auction or discriminatory price auction) or a uniform price basis (also called Dutch auction). In any auction, buyers typically submit bids that specify a quantity and a price (or a yield) at which they wish to purchase the quantity demanded. Once submitted, these bids are ranked from the highest to the lowest price (or from the lowest to the highest yield) and the quantity for sale is awarded to the best bids (*i.e.*, highest prices or lowest yields).

Under the uniform price auction, each successful bidder pays the lowest price accepted by the debt manager, *i.e.*, all the successful bidders will pay the same price, irrespective of their actual bid price. Under the multiple price auction, however, each successful bidder will pay the actual price at which he has bid (even if the cut-off price arrived at the auction may be lower). This results in 'winner's curse', whereby successful bidders pay more than the common market value of the security after auctions.

Uniform price auctions lead to a better distribution of auction awards. Under this system, the participants tend to bid more aggressively without fear of 'winner's curse'. This is because they will get the securities issued at the price quoted by the lowest accepted bid and not the actual that they have bid, unlike in the case of multiple price auctions. Hence, uniform price auctions are expected to enhance market efficiency. An important disadvantage of the uniform price system, however, is that of indiscriminate or irresponsible bidding which may be out of alignment with the market, as bidders are sure to succeed at the most favourable rate.

Under multiple or discriminatory price auctions, bidders get differential rates in accordance with their need and assessment of price. This is likely to ensure greater commitment to bidding than in the uniform system. The intensity of demand in the market is also clearly reflected in the bidding pattern.

An alternative to these two mechanisms that has been used in Spain since January 1987 is the so-called 'Spanish auction'. It is a hybrid system combining the features of both the uniform-pricing and the discriminatory-pricing mechanisms. Under the Spanish auction system, winning

bids that are *above* the weighted average winning bid will have to pay the same price, *viz.*, the weighted average winning bid, as in a uniform-price auction. Winning bids that are *below* the weighted average winning bid will have to pay fully, as in a discriminatory-price auction.

By modelling auction behaviour, some researchers found that uniform price auctions are unfavourable to the issuer in terms of revenues, whether bidders are risk neutral or risk averse (Wilson, 1979). Some other researchers, however, found that discriminatory auctions yield unique equilibrium with greater expected revenues than the uniform auctions if bidders are risk neutral (Back and Zender, 1993 and Wang and Zender, 2002). Wang and Zender also found that uniform price auctions have a more favourable impact on revenue if the bidders are risk averse and the number of bidders are large in relation to the supply. Uniform price auctions are, however, found to permit self-enforcing collusive bidding strategies (Back and Zender, 1993), particularly under perfect information if buyers are allowed to communicate with one another before the auctions take place (Goswami, Noe and Rebello, 1996). Besides average revenue to the issuer, the choice of auction procedure may also affect the volatility of prices over time. Auction-to-auction volatility was found to increase significantly after the introduction of uniform pricing for select securities by the U.S. Treasury (Malvey, Archibald and Flynn, 1997). In the case of multiple price auctions, experiences indicate that volatility increases with the duration of assets (Sweden) and market uncertainty (Portugal) (Nyorborg, Rydqvist and Sundaresan, 2002 and Gordy, 1999). Experiments conducted on Spanish auctions show that both uniform and Spanish auctions raise significantly higher revenue than multiple price based auctions as the latter leads to less aggressive bidding than the other two. However, auction-to-auction volatility was higher both in uniform price and Spanish auctions compared to multiple price auctions (Abbink, Brandts and Pezaris-Christou, 2002). Thus, empirical evidence about the superiority of one type of auction over the other seems inconclusive. Cross-country experience shows that although both the methods are used, securities are mostly auctioned using discriminatory auction method.

confidence to those who wish to buy or sell securities. Apart from the provision of liquidity to the market, the competition among PDs has facilitated efficient price discovery in the government bond market.

5.37 In the US, PDs (though not designated as market makers), in existence from 1966, serve as a source of market intelligence to the Federal Reserve.

They work with the Federal Reserve to develop a healthier treasury market. In the UK, a system of PDs or Gilt-Edged Market Makers (GEMM) has been in existence since 1986. These act as market makers, participate in gilt auctions held by the Debt Management Office (DMO), give two-way quotes facilitating the secondary market activity in gilts and provide market information to the DMO. Similarly, in

Malaysia and the Republic of Korea, the system of PDs as market makers was introduced in 1988 and 1999, respectively. In the Peoples' Republic of China, there are two segments of the secondary market for government bonds, *viz.*, the inter-bank market and the stock exchange market. A market making system in the inter-bank market has been established since 2004. Certain commercial banks and securities firms have been assigned the task of providing two-way quotes for government bonds.

5.38 Some industrial countries such as Denmark, Japan and New Zealand do not have a system of PDs. The IMF-World Bank survey reported that the abolition of the PD system had significantly reduced the Government's borrowing costs in one particular country. In the case of some developing countries with small government securities market and a few participants, the preference is to let the market participants decide their own market makers. Even in large industrial countries, such as the US, the auction system is not restricted to PDs alone. Other market participants are allowed access as well, provided they have a payment system in place to facilitate settlement of auction obligations. Thus, each country needs to weigh the benefits of the PD system against the costs. The trade-off between the two is likely to depend on the state of market development.

5.39 In addition to banks, institutional investors such as employees' provident funds and pension funds have also become important participants in the government bond market in several countries. Government bonds in Malaysia were, in fact, developed to cater to the investment needs of such institutions. In Australia, contractual institutions and even banks were given heavy tax incentives for investing in government bonds in the early phase of development. Institutional investors have normally a long-term horizon and hence, they can be a major source of investment in government (particularly infrastructure related) bonds. However, as a result of their long-term investment horizon, most of these institutions are 'buy and hold' investors, which can impede liquidity in the market.

5.40 Captive market arrangements that are adopted in some countries include mandating certain institutional investors, such as banks or contractual saving institutions, to hold a certain percentage of their assets in government bonds. Such arrangements also prevent investors from trading in government securities. Most developed countries, in the course of their market development, have discontinued any form of mandated investment in government bonds.

In OECD countries investments in government bonds are no longer mandated. However, in some developing countries, captive market arrangements continue to exist. For instance, in the People's Republic of China, investment funds are subject to a mandatory 20 per cent investment in government bonds.

5.41 Retail investors do not make a significant contribution to trading activity in the market but as long-term investors, they impart stability to the market. Thus, many countries have drawn retail investors to broaden the market. For instance, the Japanese Government launched special Japanese Government Bond (JGB) issues in 2003 and 2006 exclusively for retail investors (floating and fixed rate) with tenor, rate and other features suiting their requirements. This instrument is available with banks and post offices. Brazil also began issuing securities to small investors over the Internet in January 2002.

5.42 Countries have also increasingly relaxed foreign participation in auctions of government securities. Among the developing countries, foreign ownership of government bonds is permitted in Malaysia, the Republic of Korea and Thailand. In the People's Republic of China, foreign investors (institutional or individual), barring foreign institutional investors holding the Qualified Foreign Institutional Investors license, are not allowed to invest in government bonds.

Instrument Development

5.43 The profile of government securities differs across countries in terms of (i) maturity; (ii) ways of fixing coupon and principal payment; (iii) methods of coupon and principal settlement; and (iv) investor orientation. An analysis of evolution of various instruments in the government bond markets shows that normally countries in the nascent stage of development of government bond markets preferred to concentrate exclusively on simple and standardised instruments. Over the years, they moved towards a mix of conventional and, more advanced and complex instruments. The instrument development has become increasingly more sensitive to various risks associated with trading in government bonds.

5.44 Most of the government securities markets in developed countries are characterised by instruments with tenors ranging from short to long-term. For instance, the US treasuries market primarily offers two types of conventional government bonds, *viz.*, treasury notes (maturing between two and 10 years) and bonds (with maturity of 10 years or above) with a semi-annual coupon or interest payment. The 10-year

treasury note, the most traded US treasury security, is taken as an indicator of the government debt market in the US. The 30-year bond was reintroduced by the US government in 2006. In the UK, conventional government securities or *gilts*, with tenors of 5, 10 and 30 years, constitute the largest share of liabilities of the UK Government. It reintroduced the issue of its 'ultra-long' 50-year gilt in 2005. The Japanese Central Government issues JGBs with maturity ranging from 2 to 5-year (medium-term), 10-year (long-term), 15-year (floating), 20-year and 30-year fixed bonds (super long-term).

5.45 Generally, medium and long-term bonds issued by various Governments carry a fixed coupon rate. The rate of interest paid on such bonds is fixed at the time of issue. For instance, all medium, long and super-long JGBs, except the 15-year JGBs, are fixed interest rate instruments. The 15-year JGB is a floating rate instrument, the coupon rate of which is aligned to a reference rate *plus* a constant spread and varies in line with the changes in the reference rate. Value of fixed interest securities falls when the market rate of interest rises. The value of a floating interest bond, however, remains constant even in the face of a rise in the market rate of interest because its coupon payments also rise. This helps in mitigating interest or market risk. Given its less risky nature, the Governments initially issue securities with floating interest rates. As the market develops, however, the Governments move towards fixed interest rate long-term securities. Floating rate instruments have, historically, been used by some of the developed countries to lengthen the maturity of government debt (IMF-World Bank, 2001).

5.46 Inflation-indexed bonds have gained prominence over floating rate instruments as a better hedge against inflation. The UK introduced index linked gilts in 1981, followed by the issue of capital indexed bonds by Australia in 1985.³ The UK also issued a 50-year 'ultra-long' inflation indexed gilt in 2005. Canada, the US, France, and most recently, Japan have been some of the other countries from the developed world, which have started the issue of inflation-indexed bonds. Japan issues an inflation-indexed JGB only with one term, *i.e.*, 10 years. The US issues treasury inflation protected securities (TIPS) and Canada issues real return bonds. In index-linked bonds, either both coupon and principal payment (as in the UK) or just the principal (as in Japan) are adjusted for changes in inflation. An

adjustment for inflation is particularly beneficial in the case of long-term government bonds, as the risk of variation in price levels of such bonds is high. Most countries have been slowly moving towards the international best practice of a three-month indexation lag between the publication of the consumer price index information and the actual indexation of the bond as against an eight-month lag earlier.

5.47 The rationale behind issuing inflation-indexed government bonds by the developed countries is to enable the Governments to reduce borrowing costs by avoiding the need to compensate investors for the inflation uncertainty premium that exists in nominal bonds. Also, if the market for inflation-indexed securities is liquid and reasonably stable, then the spread between nominal and inflation-indexed yields of government debt can serve as a useful indicator of expected inflation for central banks in the conduct of monetary policy. Most countries, however, have found it difficult to develop a liquid secondary market for inflation-indexed government securities, implying that the yields paid by the Governments may include a premium to compensate investors for liquidity. The Governments in some developing countries have also introduced inflation-indexed bonds. Unlike the developed countries, however, the objective of introducing such bonds in the developing countries is to extend the yield curve.

5.48 Under the system of separate trading of registered interest and principal of securities (STRIPS), the interest and principal can be traded separately as zero coupon bonds, which help in improving liquidity and widening the investor base of the government securities market. Furthermore, STRIPS can also be reconstituted into a bond. As market participants constantly check the price of stripped bonds with the conventional bonds, strip bonds enable better pricing of traditional coupon bonds. The US began stripping of designated treasury securities in 1985. The UK introduced stripping of conventional fixed coupon in 1997, followed by Japan in 2003 for designated book entry securities. In the US, STRIPS are not issued by the Government directly. They are registered as book entry securities by the Government but are created by financial sector entities such as banks. In the UK, anyone can trade or hold STRIPS but only a market maker (Gilt Edged Market Maker), Debt Management Office (DMO) or Bank of England can strip a strippable gilt or reconstitute it.

³ The Australian capital indexed bonds, however, have been discontinued since 2003.

5.49 Most Asian countries such as South Korea did not rely significantly on government bonds prior to the Asian financial crisis. With deterioration of the fiscal position in the post-crisis period, the South Korean Government had to resort to heavy issue of bonds in order to bring the economy back on the path of recovery. This necessitated strengthening of the government bond market infrastructure. Initially, the Korean Government simplified a number of instruments that were earlier traded by converting them all into treasury bonds.⁴ In the Korean treasury bonds market, bonds with medium-term maturity, viz., three and five years have emerged as the benchmark bonds. Furthermore, Korea has allowed stripping of Korean Treasury Bonds (KTBs). In Thailand, the issuance of domestic government bonds dates back to 1933, though the market remained largely underdeveloped. After the Asian crisis, which highlighted the importance of the bond market, the Government started issuing bonds in large quantum to recapitalise the ailing banking sector in the economy.⁵ Thai government securities are issued as fixed rate coupon bonds or interest accumulated bonds and have a maturity profile of one to 10 years. However, there is little diversity in the range of instruments available in the government bond market. Consequently, the Bank of Thailand is now in the process of developing inflation indexed bonds and STRIPS (zero coupon bonds). The Malaysian Government Securities (MGS) were, historically, issued to meet the investment needs of employees' provident fund. By the 1990s, the Government began to use them as tools for financing part of its budget deficit. MGSs are coupon bearing instruments with a maturity period varying between three and 20 years. Coupon payments are made once in six months. In the People's Republic of China, the need to develop the government bond market was seriously recognised when the overdrawing facility from the People's Bank of China was discontinued in 1994. Treasury bonds in the People's Republic of China, apart from treasury bills (with less than one year maturity), include fiscal bonds, special purchase bonds, construction bonds and inflation proof bonds (where principal is linked to the price index). These bonds are issued by the Chinese Government. Construction bonds are issued to raise funds for certain projects, while special purchase bonds are issued to pension fund and unemployment insurance

funds for employees in the domestic enterprises. The Government of the Republic of China (Taiwan) also introduced STRIPS with a maturity of five years in 2005.

Benchmarking and Consolidation

5.50 Several governments have progressively strived to minimise the fragmentation of the government debt stock by creating a limited number of benchmark securities at key points of the yield curve. They generally use conventional government paper devoid of embedded options for this purpose. Typically, benchmark securities are constructed by issuing the same security in several auctions ('reopenings') and by repurchasing, prior to maturity, older issues that are no longer actively traded in the market. In Brazil, Denmark, Ireland, New Zealand, South Africa, Sweden and the UK, where domestic borrowing requirements are modest or have generally declined over time as a result of fiscal surpluses, debt managers have repurchased securities which are no longer actively traded in order to maximize the size of new debt issues. This has enabled them to minimise the fragmentation of debt and concentrate market liquidity in a small number of securities, thereby ensuring active trading even though the total debt stock may be declining. Denmark, Sweden and the UK also offer market participants a facility to borrow temporarily or obtain by repo, specific securities that are in short supply in the market though at penal rates so that the government securities market is not affected by the pricing distortions in the market. South Korea also has a system of fungible or reopened issues of KTBs, wherein on-the-run bonds issued over a certain period of time are given the same maturity and coupon rate. In the UK, the Debt Management Office (DMO) has recently introduced the conventional gilts with aligned coupon dates in order to facilitate fungibility between coupon STRIPS of various types of gilts. The US also permits such fungibility of coupon STRIPS, irrespective of the underlying US treasury bond but not of principal STRIPS.

Consultation with Market Participants

5.51 Many countries have adopted a consultative approach for developing the government securities market by maintaining an active investor relations programme. Under this programme, managers of

⁴ The Government converted various types of instruments, viz., Public Funds, Foreign Exchange Stabilisation Fund Bonds (FESFBs) and borrowings from funds like Post Office Deposits to Treasury Bonds.

⁵ These bonds were issued through the Financial Institutions Development Fund (FIDF).

public debt meet the major market participants regularly to discuss the funding requirements of the Government, market developments and devise ways to develop the primary market. Such programmes have proved useful, especially for countries managing their public debt under stress. For instance, public debt managers in South Africa operate an investor relations programme and conduct road shows to meet investors, PDs and other market participants for explaining developments in the South African government securities market and explain to them developments in government finances.

Secondary Market

5.52 The secondary market for government securities provides a platform for original investors to trade their holdings before maturity. Traditionally, the trading platform was over-the-counter (OTC) before introduction of trading in stock exchanges in various countries. For instance, in China, trading in treasury bonds was banned till 1980. Subsequently, an OTC trading was initiated. Trading at the Shanghai Stock Exchange commenced in 1992. Banks trade in the inter-bank market, which is largely a repo and 'buy and hold' market. Since 1997, banks in China have been prohibited from trading in stock exchanges to avoid speculation. In Thailand, the Thai Bond Market Association began trading in government bonds in 1998. The central bank of Malaysia operates the centralised data base on Malaysian debt securities, *i.e.*, Bond Information and Dissemination System (BIDS), which facilitates OTC trading of government bonds in Malaysia.

5.53 The public debt managers actively work with market participants and others to improve the secondary market for government securities through a system of intermediaries, a broad investor base and an efficient clearing system. For instance, Italy, Poland, Portugal, Sweden and the U.K. have worked closely with the market to introduce electronic trading in government securities. In Thailand, the Bond Electronic Exchange (BEX), a subsidiary of a stock exchange, began trading in government bonds in 2005. Furthermore, Italy has sought to work with the concerned participants to alleviate distortions caused by the tax treatment of returns on government securities. The debt managers in Japan, New Zealand,

South Africa and the U.K. have also jointly worked with market participants to develop ancillary markets such as futures, repo and STRIPS. These have helped in deepening the government securities market.

5.54 The managers of public debt also work with the relevant stakeholders to devise sound clearing and settlement systems for government securities markets. For instance, Brazil, Japan and Poland introduced real time gross settlement system (RTGS) for government securities transactions. The authorities in Jamaica are also working with market participants to dematerialise government securities within the central depository in order to increase efficiency of secondary market trading.

Market practices

5.55 Market practices have also been liberalised in many countries to improve liquidity in the secondary market of government securities.

Short Selling

5.56 Short selling is now permitted in many countries. For instance in Australia, a seller is allowed to sell securities to a purchaser without having the right of transfer of the ownership.⁶ In the US, as part of the legal requirement, the seller needs to confirm a broker the delivery of the shorted securities. In the People's Republic of China, short selling of treasury bonds takes place in the Shanghai and Shenzhen stock exchanges through a repurchase agreement. Short selling is restricted to less than one year and is not allowed at the traditional OTC exchange of treasury bonds. In Malaysia, the right of short selling MGS, but in a covered way, has been given to all inter-bank participants, which include commercial banks, finance companies, merchant banks and discount houses registered under the Banking and Financial Institutions Act. However, there are restrictions on the type of securities that can be sold short and the extent to which the seller can take a short position.

'When issued' Trading of Government Securities

5.57 Trading of government securities between the time a new issue is announced and the time it is actually issued is generally called 'when issued' (WI)

⁶ Short selling involves benefiting from the fall in price of a security. If the price of a security is declining, one can borrow a security in order to sell it, expecting that it would decline further, and then buy it at a lower price and make delivery. The difference between the sale and purchase price of the security is the profit. It involves four steps, *viz.*, an investor borrowing a stock, selling that stock, then 'closing' his position by buying the stock and then returning it back to the lender. If the price falls, he makes a profit, otherwise a loss.

(or 'when as and if issued' in the US) trading. It works like future trading of securities where long and short positions are allowed prior to the issue date of the securities. The trading of WI is on a yield basis as coupon is determined only after the auction. WI trading facilitates price discovery and helps in improving liquidity in the government bond market. Furthermore, it substantially brings down the risk of underwriting. The restrictions on WI trading were removed by the US Treasury on treasury notes and bonds in the 1970s. Japan, however, considered WI trading as illegal until recently. Following the guidelines laid down by the Japanese Securities Dealers Association (JSDA) regarding the exact definition and legal perspectives of the WI trading of JGBs, WI trading of JGBs took shape in Japan in 2004. In Malaysia, the date of announcement of a primary issue is done on Fully Automated System for Issuing/Tendering (FAST) and the issue is opened for WI. The WI issues are automatically processed through FAST. The date of settlement of WI trades is within two business days after the issue date.

Risk Management

5.58 Although government bonds are free from credit risk, they are subject to market or interest rate risk. In the case of foreign currency bonds, they also carry exchange rate risk. Market participants have traditionally hedged market risks by trading in government bond futures. In futures trading, participants can hedge their positions, because they can fix prices at which the trade would settle in future. Development of futures has been instrumental in raising the trading turnover of physical securities in several countries.

5.59 In Australia, development of government bond futures was a part of the reform measures relating to the bond markets adopted in the 1980s. The Australian futures market has become the most active futures market for trading in fixed interest government bonds, particularly of three-year and 10-year maturities. Trading in Japanese Government Bonds (JGBs) futures began with a 10-year security in 1985, which has become one of the largest traded futures in the world. The Tokyo Stock Exchange introduced trading in options of JGB futures in 1990. The Republic of Korea introduced government bond futures in 1999. The two types of bond futures currently available in Korea are of 3-year and 5-year maturity. Similarly, Malaysia too has futures contracts on three-year, five-year and 10-year MGSs. The derivatives on treasury bonds in the People's Republic of China, were earlier

introduced in 1993. However, their trading was discontinued in 1995 due to excessive speculation and lack of knowledge about controlling the risks involved in such trading. In September 2005, the Chinese Securities Regulatory Commission (CSRC) declared that it would work towards the introduction of futures and other derivative products in the Chinese securities market.

5.60 The Governments are becoming increasingly aware of the need to manage financial and operational risks of their debt portfolio. The framework used to trade-off expected costs and risks in the debt portfolio differs across countries. Many countries use simple models based on deterministic scenarios, while only a few (Brazil, Denmark, Columbia, New Zealand and Sweden) use stochastic simulations. Several countries also use stress testing as a means to assess the market risk in the debt portfolio and robustness of different issuance strategies. Many of them adopt cash flow modelling for analysing costs and risks for associated debt issuance structures, whereby debt-service costs and their volatility in the medium to long-term are assessed. The rationale for this technique is that the cost of debt is best considered in terms of its impact on the Government's budget, and that cash flow measures are a natural way of quantifying this impact. Risk is typically measured as the potential increase in costs resulting from financial and other shocks.

5.61 Some countries have adopted the asset-liability management (ALM) approach in a limited way by analysing the risk characteristics of government financial assets and debt jointly to determine the appropriate structure of debt and assets. The public debt management offices in many countries are addressing management of operational risk by putting in place a formal institutional framework. Middle offices are involved in analysing risk and designing as well as implementing risk control procedures. These debt offices are also trading their debt or taking tactical risk positions.

Development of Payment and Settlement System for Government Securities

5.62 Countries are striving for an efficient payment and settlement system of government securities transactions so as to reduce the market risk, default risk and systemic risk. The settlement system has migrated from the physical mode to the dematerialised mode, wherein securities are recorded in electronic book entry form. Several countries are now moving towards electronic trading of government securities.

Countries have also introduced the DvP mechanism which ensures that delivery occurs if and only if payment occurs and *vice versa*. This settlement system has replaced designated-time net settlement system whereby only the net payment/receipt amounts were settled at a certain designated time by a RTGS system. These steps have virtually eliminated the settlement risk.

5.63 In many countries, which have adopted electronic transfers of government securities, central banks have been instrumental in providing a clearing and settlement platform for government securities. This is true even in those countries in which the central bank does not operate as the debt manager to the Government. For instance, the Reserve Bank of Australia has adopted the Reserve Bank Information and Transfer System (RITS) from the 1980s. DvP was introduced in the RITS in 1991. All operators in the market are members of the RITS and they use this system for settling transactions in government bonds. RITS has also been linked to the RTGS. Japan introduced DvP for JGBs in 1994 in its payment and settlement system, Bank of Japan NET (BOJ NET). It linked the BOJ NET JGB service and BOJ NET fund transfer system. Japan moved to RTGS in 2001. The securities in the UK are held in demat form and are transferred electronically on the basis of DvP through the settlement system operated by CREST, which is the central securities depository for UK gilts and Irish securities. The Bank of Thailand, which acts as a registrar and depository of Thai government bonds, restructured the Bank of Thailand Automated High Value Transfer Network (BAHTNET), the electronic settlement platform, to facilitate RTGS and DvP in government bonds in 2001. In the Peoples' Republic of China, the Government Securities Trading System and People's Bank of China's large-value payment system were interconnected in 2004, making way for DvP settlements in the inter-bank bond market.

5.64 The Joint Task Force of the Committee of Payment and Settlement System (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) in its report released in 2001 recommended that countries adopt a rolling settlement, wherein the final settlement was not to exceed T+3 days.⁷ The report urged the countries to ultimately strive towards the same day settlement. Among the developed countries, the settlement cycle for outright sales is T+1 in the US and the UK and T+3 in Japan.

5.65 To sum up, international experience of various aspects of government securities markets shows some differences across the countries in terms of structure, instruments, trading and settlement practices, and risk management system. Nevertheless, some common lessons could be drawn. One, the development of the government securities market across the yield curve may entail some short-term costs as the governments move away from a purely captive market to a diversified investor base in the medium to long-term. Two, debt issuance needs to be done in a predictable manner using standardised instruments so that the issuer's behaviour doesn't disrupt market activity. Three, a demonstrated commitment to develop the government securities market enhances the liquidity and reduces the costs of government borrowings.

5.66 A select cross-country review showed a mixed picture. In several countries, the function of issue and management of public debt no longer rests with central banks. This is more so in countries that have developed debt markets and where government debt issuance is not dominant. In many other countries, central banks continue to be debt managers for the government. However, in almost all countries central banks do play a vital role in developing the infrastructure for trading and settlement of government securities in the secondary market. They are regulators of PDs, who act as market makers for government securities. Furthermore, central banks have been instrumental in developing payment and settlement systems for government securities, which have contributed significantly towards an efficient and secure trading in government securities.

III. GOVERNMENT SECURITIES MARKET IN INDIA – POLICY DEVELOPMENTS

5.67 The development of the government securities market in India in the pre-reform period was mainly constrained, like in most developing countries, by almost unlimited automatic monetisation of the Central Government budget deficits, captive investors (predominantly banks and insurance companies) and administered coupon rates on government securities at artificially low levels. As a result, the secondary market for government securities was almost non-existent. This impinged on the price discovery process, which is crucial for the development of any market. Since interest rates were kept low in order to ensure low cost of Government borrowing, real rates of return remained negative for several years.

⁷ T represents the trade date and 3 indicates three business days following the trade date.

Artificially low yields on government securities affected the interest rate structure in the system. In order to compensate for low yield on government securities, banks charged higher interest rates to the commercial sector.

5.68 Higher interest rates for the private commercial sector not only adversely impacted investment activity and economic growth, but also affected the financial health of the banking system as bad debts mounted over time. Low economic growth resulted in lower revenues for the Government, both tax and non-tax, necessitating higher borrowing. This was largely met through the mechanism of *ad hoc* Treasury Bills issued by the Government to the Reserve Bank and the progressive increase in SLR, as a result of which the government securities market remained dormant. Driven by the compulsions of automatic monetisation, which resulted in expansion of monetary base, the Reserve Bank had to progressively raise the cash reserve ratio (CRR) of banks for monetary management. In the face of large government borrowings and the need to restore the

health of the financial system, the Reserve Bank, in consultation with the Government, initiated reforms in the government securities market as a part of financial sector reforms in the early 1990s. These reforms were broadly aimed at removing the imperfections in the market and creating enabling conditions for its development.

5.69 The Reserve Bank, as a monetary authority, has a special interest in developing the government securities market given its criticality in acting as the transmission channel of monetary policy. Moreover, it is important for the Reserve Bank, as a manager of public debt, to have a well-developed government securities market as it provides flexibility to exercise various options for optimising maturity as well as interest cost to the Government. It also helps in minimising the market impact of large or lumpy government debt operations and ensuring better coordination between monetary policy and debt management policy. A comprehensive legal framework exists, which defines the role of the Reserve Bank in the government securities market (Box V.5).

Box V.5

Reserve Bank and the Government Securities Market – Legal Framework

Reserve Bank's operations in the government securities market are governed by Sections 20, 21 and 21A of the Reserve Bank of India Act, 1934. Under these provisions, the Reserve Bank is entrusted with the function of management of public debt and issue of new loans of the Union Government and the State Governments. The legal framework for Reserve Bank's conduct of open market operations is provided under Section 17(8) of the Reserve Bank of India Act, 1934, under which the Reserve Bank is authorised to purchase and sell securities of the Union Government or a State Government of any maturity and the security of a local authority specified by the Central Government on the recommendations of the Central Board of the Reserve Bank. Central Government securities are used by the Reserve Bank for its open market operations and liquidity adjustment facility (LAF). Effective April 3, 2007, the State Development Loans were also permitted as eligible securities for LAF operations. The new Chapter III-D of the Reserve Bank of India (Amendment) Act, 2006 has empowered the Reserve Bank to determine policy relating to interest rate products and regulate the agencies dealing, *inter alia*, in securities.

The Reserve Bank derives its regulatory power over the government securities market from Section 16 of the Securities Contract (Regulation) Act (SCRA), 1956, amended in March 2000, under which the Government has delegated the powers exercisable by it to the Reserve Bank. The Reserve Bank is, thus, authorised to regulate dealings in government securities, money market securities, gold

related securities and securities derived from these securities as also ready forward contracts in debt securities.

The Government Securities Act, which seeks to replace the Public Debt Act, 1944, was passed in August, 2006. This Act envisages the consolidation and amendment of the law relating to issue and management of government securities by the Reserve Bank. The Act includes the provisions of the erstwhile Public Debt Act relating to issuance of new loans, payment of half-yearly interest, retirement of rupee loans and all matters pertaining to debt certificates and registration of debt holdings. Besides, the new Act gives flexibility for holding government securities in depositories, while at the same time specifically excluding government securities from the purview of the Depositories Act, 1996. The Act enables lien marking and pledging of securities for raising loans against government securities, recognises electronic form of record maintenance, enlarges dematerialisation facility through Bond Ledger Account and liberalises norms relating to nomination and legal representation. The Act also provides the Reserve Bank with substantive powers to design and introduce an instrument of transfer suited to the computer environment. It also allows the Reserve Bank to issue duplicate securities, new securities on conversion, consolidate with other like government securities, subdivide the securities and renew, strip (separately for interest and principal) or reconstitute the securities. The Act, however, is yet to come into force, pending notification of Rules under it.

5.70 Recognising the importance of the government securities market, the Reserve Bank, in consultation with the Government, undertook wide ranging reforms to develop this market. The major objectives of reforms were to (i) grant operational autonomy to the Reserve Bank; (ii) improve institutional infrastructure; (iii) impart liquidity and increase the depth of the market; (iv) improve market microstructure; (v) create an enabling sound legal and regulatory framework; and (vi) increase transparency (Reddy, 2000). Keeping these objectives in view, reforms were undertaken to strengthen the primary and the secondary segments of the government securities market. In the primary segment, measures were taken to raise resources from the market in a cost effective manner, particularly in the light of the transition to market related interest rate structure from the administered interest rate regime. In the secondary segment, measures were initiated to improve liquidity in the market. Measures were also undertaken to improve the trading systems, clearing and settlement infrastructure and the risk management framework.

Primary Market

5.71 In the primary market, a price discovery mechanism was activated by introducing an auction system. Efforts were also made to broaden the investor base and promote voluntary subscriptions in government securities. To provide a wider menu, new instruments were introduced from time to time to suit the investor requirements.

Issuance Procedures

5.72 In the initial phase of reforms, the focus was on migration from the administered interest rate regime to a market oriented price discovery mechanism. Accordingly, a system of auctions was introduced in 1992 for Central Government securities whereby the amount is notified but the coupon rate is auction determined. Tap issuances, for which the coupon rate was pre-determined but the amount was not notified, were also conducted from time to time up to 2000.

5.73 Since the inception of the auction system, multiple price auction system has been used for dated securities. The uniform price auction format, followed for the issuance of 91-day Treasury Bills from November 1998, was extended to auctions of Central Government dated securities on a selective basis from 2001. While both methods of pricing are used, multiple price auction is the most frequently used selling

technique for issuance of dated securities. The uniform pricing technique is used when there is market uncertainty. It is also used for issuing new instruments, such as floating rate bonds and bonds with embedded options, as well as bonds with long tenor as in such cases the market does not have a reference rate.

5.74 Auctions of government securities between 1992-93 and 1998-99 were conducted solely on the basis of yield (coupon). In order to consolidate outstanding loans for ensuring sufficient volumes and liquidity in any one issue, price-based auctions were introduced in May 1999, whereby new loans are raised through re-issuances of existing securities with pre-determined coupons. This helps the price discovery of a security already in existence in the market. Yield-based auctions are, thus, employed in respect of new issuances, and price-based auctions in respect of reissue of existing securities.

5.75 Apart from allotment through auction, a system of non-competitive bidding was introduced in January 2002 to encourage retail investors who do not have sufficient expertise in such bidding. The Reserve Bank also participated on a non-competitive basis in the government securities auctions up to April 1, 2006 to primarily take up some part of the issues in the case they were not fully subscribed.

5.76 Unlike Central Government's market borrowings, a predominant share of State Governments' market borrowings was conducted by way of tap issues up to 2005-06. The traditional tranche method (under which government securities were issued with a pre-determined coupon and notified amounts for each State) was employed between 1991-92 and 1997-98. Beginning 1998-99, a combination of the auction method and tap method has been employed. The State Governments could opt for auction route between 5 to 35 per cent of the allocated market borrowings (subsequently raised to 50 per cent). The umbrella tap tranche method was introduced during 2001-02 to avoid the risk of under-subscription of any issue of the State Governments. Under this method, after receiving the concurrence of the State Governments, the Reserve Bank announces the name of the States participating in the tap, the aggregate targeted amount to be raised and the coupon rate which is fixed uniformly for all the States. The targeted amount in respect of individual States is not separately announced. Up to December 2002, the tap was normally kept open till the targeted amount was received for each State. This resulted in keeping the tap open for more than two days in respect of a few

States. As this procedure subjected the States to reputational risk, which varied with the number of days taken to close the tap, it was decided in January 2003 to close the tap at the end of the second day even if the targeted amount is not mobilised. The names of the States whose issues are not fully subscribed as well as the amount of under-subscription are not disclosed.

Investor Base

5.77 The presence of a large and diverse investor base with different perceptions and liquidity requirements reduces the borrowing cost for the Government, dampens market volatility by avoiding unidirectional movements and encourages competition in the market. Prior to introduction of reforms, the investor base for government securities consisted of institutions such as banks, financial institutions, provident funds, insurance companies and pension funds, which are statutorily mandated to

invest in these securities. To meet the growing financing needs of the Government, the SLR for banks was raised over a period of time to reach the peak rate of 38.5 per cent of NDTL in February 1992. With the onset of reforms in the early 1990s and distinct move away from direct instruments of monetary policy to market-based indirect instruments, the SLR for banks was progressively brought down to 25 per cent by October 1997. Banks, on their own volition, however, continued to hold investments in government securities and other approved securities in excess of the stipulated requirement. With the entry of co-operative banks, regional rural banks, mutual funds, especially gilt funds, and non-banking financial companies, the investor base has widened over time (Box V.6).

5.78 Apart from mandatory investments, banks and other financial institutions may also hold government securities as part of their trading portfolio.

Box V.6

Mandated Investments in Government Securities

Banks are the largest investors in government securities. In terms of the SLR provisions of the Banking Regulation Act, 1949, banks are required to maintain a minimum of 25 per cent of their net demand and time liabilities (NDTL) in liquid assets such as cash, gold and unencumbered government securities or other approved securities as Statutory Liquidity Ratio (SLR). The minimum SLR stipulation for scheduled urban co-operative banks (UCBs) is the same as for scheduled commercial banks (SCBs) from April 1, 2003. However, for non-scheduled UCBs, the minimum SLR requirement is 15 per cent for banks with NDTL of over Rs.25 crore and 10 per cent for the remaining non-scheduled UCBs. The minimum SLR stipulation for regional rural banks (RRBs) is the same as for SCBs. From April 1, 2003, the coverage under the SLR has also been made akin to SCBs. All deposits with sponsor banks, which were earlier considered as part of the SLR, were to be converted into approved securities on maturity in order to be reckoned for the SLR purpose. Recently, the Banking Regulation Amendment Act, 2007 has removed the floor limit of 25 per cent for SLR for scheduled banks.

The second largest category of investors in the government securities market is the insurance companies. According to the stipulations of the Insurance Regulation and Development Authority of India (IRDA), all companies carrying out the business of life insurance should invest a minimum of 25 per cent of their controlled funds in government securities. Similarly, companies carrying on general insurance business are required to invest 30 per cent of their total assets in government securities and other guaranteed securities, of which not less than 20 per cent should be in Central Government securities. For pension

and general annuity business, the IRDA stipulates that 20 per cent of their assets should be invested in government securities.

The non-Government provident funds, superannuation funds and gratuity funds are required by the Central Government from January 24, 2005 to invest 40 per cent of their incremental accretions in Central and State government securities and/or units of gilt funds regulated by the Securities and Exchange Board of India (SEBI) and any other negotiable securities fully and unconditionally guaranteed by the Central/State Governments. The exposure of a trust to any individual gilt fund, however, should not exceed five per cent of its total portfolio at any point of time.

Non-banking financial companies (NBFCs) accepting public deposits are required to maintain 15 per cent of such outstanding deposits in liquid assets, of which not less than 10 per cent should be maintained in approved securities, including government securities and government guaranteed bonds. Investment in government securities should be in dematerialised form, which can be maintained in Constituents' Subsidiary General Ledger (CSGL) Account of a SCB/Stock Holding Corporation of India Limited (SHCIL). In order to increase the security and liquidity of their deposits, residuary non-banking companies (RNBCs), are required to invest not less than 95 per cent of their aggregate liability to depositors (ALD) as outstanding on December 31, 2005 and entire incremental deposits over this level in directed investments, which include government securities, rated and listed securities and debt oriented mutual funds. From April 1, 2007, the entire ALD is required to be invested in directed investments only.

Measures were taken to promote voluntary holding of government securities among other investor categories. For this purpose, specialised institutions were developed. The Discount and Finance House of India (DFHI), set up in April 1988, primarily for developing the money market, was also allowed to participate in the government securities market. In order to develop an efficient institutional infrastructure for an active secondary market in government securities and public sector bonds, the Securities Trading Corporation of India (STCI) commenced its operations in June 1994. With the introduction of the PD system, both DFHI and STCI later transformed themselves into PDs.

Primary Dealer System

5.79 A system of market intermediaries in the form of PDs was made functional in 1996 with the objectives of supporting the market borrowing programme of the Government, strengthening the securities market infrastructure and improving the secondary market liquidity in government securities. PDs were also expected to encourage voluntary holding of government securities among investors. The PD system was essentially conceived for institutions whose basic interest is not to hold securities but to participate in primary auctions with the intent to access the securities in the secondary market. PDs are responsible for ensuring the success of primary auctions. To discharge their obligations effectively, PDs have been given privileges in terms of provision of current account and SGL facilities with the Reserve Bank. They also have access to the liquidity adjustment facility (LAF) of the Reserve Bank.

5.80 Prior to April 2006, the success of PDs in the primary auctions was ensured through a scheme of underwriting, and a system of bidding commitments and success ratios in the auctions. Underwriting commitments were separately decided prior to the actual auction for primary issuance, with the PDs bidding to underwrite various amounts at various commission rates. The Reserve Bank decided the actual allotment of the underwriting commitment, taking into account various factors such as the likelihood of devolvement and the commission sought. The full notified amount was rarely allotted in underwriting auctions. Since underwriting was a purely voluntary responsibility, the success of primary auctions was sought to be achieved through bidding requirements, which were set at the beginning of the fiscal year for each PD, depending mainly on its capital size. In order to ensure against defensive bidding, the

stipulation of a success ratio of 40 per cent of bidding commitments was mandated. The performance of PDs in respect of bidding commitments and success ratios were monitored cumulatively over the year.

5.81 The PD system was revamped to ensure a more dynamic and active participation of PDs in view of the provisions of the Fiscal Responsibility and Budget Management (FRBM) Act, 2003 whereby the Reserve Bank was prohibited from participating in the primary market effective April 1, 2006. In pursuance of the recommendation of the Technical Group on Central Government Securities Market, the Reserve Bank permitted banks to undertake PD business and also allowed banks having PD subsidiaries to merge them departmentally, subject to certain conditions. The Reserve Bank also issued revised guidelines for PDs to ensure that there is no under-subscription in the auctions. A new incentive structure in the underwriting auctions has been put in place to ensure 100 per cent underwriting and to elicit competitive bidding from PDs. The Reserve Bank has also revised the liquidity support facility to stand alone PDs based on their performance in the primary auctions and the turnover in the secondary market (Box V.7). Stand alone PDs have been permitted to diversify their activities in addition to their core business of government securities, subject to limits, so as to enable them to manage risk efficiently. There are 17 PDs at present, of which 11 are stand alone PDs and six are bank-PDs.

5.82 The presence of PDs in the government securities market has brought about an element of dynamism, both in the primary and the secondary segments. PDs have been actively participating in the auctions of government securities. By providing continuous two-way quotes, PDs act as market makers in the secondary market. The liquidity in the secondary market, in turn, lends support to the success of primary market operations. The PD system also facilitates open market operations of the Reserve Bank, besides taking over the responsibility of market making from the Reserve Bank.

5.83 A system of satellite dealers (SDs), as a second tier of dealer system in trading and distribution, was put in place in December 1996 to broaden the market and to impart momentum to the secondary market activity. SDs, with their good distribution channels, were expected to add depth to secondary market trading and widen the investor base through their retail outlets. The SD system was, however, discontinued from May 31, 2002 as it did not yield the desired results.

Box V.7**Revised Guidelines for Primary Dealers**

The Reserve Bank no longer participates in primary issues of government securities from April 1, 2006, in accordance with the provisions of FRBM Act, 2003. An Internal Technical Group on Central Government Securities Market, which was constituted in December 2004 to examine the implications of the Reserve Bank's withdrawal from the primary market on its debt management function and to address the emerging needs, submitted its report in July 2005. In line with the recommendations of the Group and after discussions with the market participants, a revised scheme of underwriting commitment for PDs was formulated in April 2006, which replaced the earlier requirements of bidding commitment and voluntary underwriting by PDs.

As per the revised scheme, the underwriting commitment is divided into two parts, viz; (i) minimum underwriting commitment (MUC), and (ii) additional competitive underwriting (ACU). The MUC of each PD is computed to ensure that at least 50 per cent of each issue is mandatorily covered by the aggregate amount of MUC of PDs. The MUC is uniform for all PDs, irrespective of their capital or balance sheet size. Given that there are 17 PDs at present, each PD is required to underwrite about 3 per cent of the notified amount of each auction as MUC. The remaining portion of the notified amount is open to competitive underwriting through underwriting auctions. Each PD is required to bid in the ACU for a minimum of 3.0 per cent and not more than 30 per cent of the notified amount. All successful bidders in the ACU get commission as per the auction rules.

Besides the changes in underwriting for PDs, the permitted structure of PD business has been expanded to include banks, subject to certain minimum eligibility criteria. Banks which do not have a partly or wholly owned subsidiary, are eligible to apply for the PD license if they fulfil the following criteria: (a) minimum net owned funds (NOF) of Rs.1,000 crore; (b) minimum CRAR of nine per cent; and (c) net NPAs of less than three per cent and a profit making record for the last three years. Indian banks and foreign

banks in India which are undertaking PD business through partly/wholly owned subsidiaries and through group companies, respectively, are also allowed to undertake PD business departmentally by merging/taking over PD business from their subsidiaries/group companies, subject to fulfilling the above mentioned criteria. The bank-PDs are subject to all obligations applicable to stand alone PDs and as may be prescribed from time to time. Bank-PDs are required to maintain separate books of accounts for transactions relating to PD business (distinct from the normal banking business) with necessary audit trails. They are required to ensure that, at any point of time, there is a minimum balance of Rs.100 crore of government securities earmarked for PD business. Bank-PDs are also required to adhere to the following prudential norms:

- No separate capital adequacy is prescribed for PD business, and the capital adequacy requirement for a bank will also apply to its PD business.
- The government dated securities and Treasury Bills under PD business are reckoned for the SLR purpose.
- The investment valuation guidelines as applicable to banks with regard to 'held for trading' portfolio are also applicable to the portfolio of Government dated securities and Treasury Bills earmarked for PD business.
- The Reserve Bank's instructions to PDs are also applicable to bank-PDs, to the extent applicable.

Following the revised scheme of underwriting commitment and the discontinuance of bidding commitment, the methodology for calculating limits for PDs under the Reserve Bank's Liquidity Support Scheme has also been revised. Of the total liquidity support, 50 per cent of the amount is divided equally among all the stand alone PDs. The remaining half is divided amongst the PDs, based on their performance in the primary and the secondary markets, giving due weightage to their turnover in Treasury Bills and dated government securities. The PD-wise quantum of liquidity support is revised every half-year (April-September and October-March) based on the market performance of PDs in the preceding six months.

Gilt Funds

5.84 In order to promote retail holding in government securities and broaden the investor base, mutual funds, which invest exclusively in government securities, were envisaged. These mutual funds, which are regulated by the Securities Exchange Board of India (SEBI), have been provided liquidity facility by the Reserve Bank since April 1996 for meeting their temporary cash mismatches. Under the scheme, liquidity support to eligible gilt funds is provided by way of repo at the Bank Rate up to a limit of 20 per

cent of the outstanding value in government securities for a maximum period of 14 days. At present, there are 15 dedicated gilt funds eligible to draw liquidity support from the Reserve Bank.

Foreign Institutional Investors

5.85 In order to encourage foreign participation, foreign institutional investors (FIIs) were allowed in January 1997 to set up 100 per cent debt funds to invest in Central and State Government securities, both in the primary and the secondary markets, within the overall

debt ceilings that are announced from time to time. Equity funds set up by FIIs are allowed to invest in debt up to a maximum of 30 per cent of their total investments. The present ceiling on investment by FIIs (both debt and equity funds) in government securities is US\$ 2.6 billion of which US\$ 2.0 billion is earmarked for 100 per cent debt funds, while the balance US\$ 0.6 billion is for other FIIs. According to the Reserve Bank's Mid-term Review of the Annual Policy for the Year 2006-07, FIIs would be permitted to invest in Central and State Government securities by an incremental amount of 5 per cent of total net issuances (issuance *minus* repayments) in the previous financial year and the existing limit will be enhanced to US \$ 3.2 billion by March 31, 2007.

Retail Investors

5.86 Since the process of bidding in the auctions requires technical expertise, generally it is the large and informed investors such as banks, PDs, financial institutions, mutual funds and insurance companies that participate in the auctions. As a large section of medium and small investors remained out of the primary market for government securities, a scheme of non-competitive bidding was introduced in January 2002 to enable small and medium investors to participate in the primary auction of government securities without having to quote the yield or price in the bid. Apart from encouraging wider participation and retail holding of government securities, this scheme enables individuals, firms and other mid-segment investors, who do not have the expertise to bid competitively in the auctions, to get a fair chance of assured allotments at the rate which emerges in the auction. The scheme provides for allocation up to 5 per cent of the notified amount in the specified auctions of dated securities at weighted average rate of accepted bids. The investor is permitted to make only a single bid per auction and the size of the bid can vary from a minimum of Rs.10,000 to Rs.2 crore. Eligible investors have to come through a bank or PD for auction. In view of their statutory obligations, RRBs, UCBs and NBFCs can also apply under this Scheme within the ceiling of Rs.2 crore.

5.87 To ensure higher retail participation, it is important to improve liquidity in the secondary market. Towards this end, the Reserve Bank has been encouraging PDs to offer two-way quotes to retail investors and become members of the stock exchanges. Screen-based order driven trading in stock exchanges was also introduced in January 2003 to encourage retail participation in the government securities market.

Instruments

5.88 Diversification of available instruments encourages participation of varied investors, as different categories of investors require different kinds of instruments to meet their specific needs. While banks require government securities for their asset liability management in addition to maintaining the prescribed SLR, insurance companies and provident funds require long-term investments to match their liabilities. Prior to the reforms initiated in the early 1990s, most of the government bonds were in the form of plain vanilla fixed coupon securities. Since 1994, the Reserve Bank has been developing a range of instruments to cater to the diversified requirements and hedging needs of investors. These include zero coupon bonds, capital indexed bonds, floating rate bonds and bonds with call and put options.

5.89 Zero Coupon Bonds (ZCBs) were introduced on January 17, 1994. ZCBs, which do not have regular interest (coupon) payments like traditional bonds, are sold at a discount and redeemed at par on final maturity. The ZCBs were beneficial, both to the Government because of the deferred payment of interest and to the investors because of the lucrative yield and absence of reinvestment risk. There were four issuances of ZCBs between 1994 and 1996.

5.90 Partly paid stock was introduced on November 14, 1994 whereby payment for the Government stock was made in four equal monthly instalments. Designed for institutions with regular flow of investible resources requiring regular investment avenues, this instrument attracted good market response and was actively traded. There was, however, only one more issue of partly paid stock on June 24, 1996.

5.91 Floating Rate Bonds (FRBs) were first issued on September 29, 1995 but were discontinued after the first issuance due to lack of market enthusiasm. They were reintroduced on November 21, 2001 on demand from market participants, with some modification in the structure. There were 10 issuances of the FRBs till October 9, 2004. Although there was initially an overwhelming market response to these issuances, FRBs were discontinued due to the waning market interest reflected in the partial devolvement in the last two auctions on the Reserve Bank and PDs. Erosion in the market interest for FRBs at that time was, *inter alia*, due to strong credit pick-up and low secondary market liquidity in FRBs.

In the secondary market, liquidity in FRBs, is low due to (i) low trading interest of market participants in FRBs as such instruments, by design, are hedging instruments and offer limited scope for trading gains; (ii) no reissuance of FRBs on account of complexities associated with pricing; (iii) preference of commercial banks to place these bonds under 'held to maturity' (HTM) category, reducing the availability of bonds for trading; and (iv) complex pricing method which deterred market participants from undertaking outright transactions in FRBs.

5.92 A capital indexed bond (CIB) was issued on December 29, 1997 with a maturity of 5 years. The bond provided for inflation hedging for the principal, while the coupons of the bond were not protected against inflation. The issue of this bond met with lacklustre response, both in the primary and the secondary markets due to the limited hedging against inflation. Therefore, there were no subsequent issuances. An attempt is being made to reintroduce these bonds and towards this end, a discussion paper was also widely circulated in May 2004. The proposed modified structure of the CIB would be in line with the internationally popular structure, which offers inflation linked returns on both the coupons and principal repayments at maturity. The coupon rate for the bonds would be specified in real terms. This rate would be applied to the inflation-adjusted principal to calculate the periodic semi-annual coupon payments. The principal repayment at maturity would be the inflation-adjusted principal amount or its original par value, whichever is greater. Thus, there is an in-built insurance that at the time of redemption the principal value would not fall below the par value. The inflation protection for the coupons and the principal repayment on the bond would be provided with respect to the Wholesale Price Index (WPI) for all commodities (1993-94=100).

5.93 Government securities with embedded call and put options were introduced in July 2002 for a 10-year maturity using uniform price based auction method. On these securities, the Government has the discretion to exercise the 'call option', after giving a notice of two months, whereby the securities may be prematurely redeemed at par on or after completion of five years tenure from the date of issuance of securities on any coupon payment date falling thereafter. The holders of the Government stock also have the discretion to exercise 'put option' whereby premature redemption may be made under the same conditions as the call option. There was only one issuance of this instrument.

When Issued Market

5.94 A 'when issued' (WI) market facilitates efficient distribution of auctioned stock by stretching the actual distribution period for each issue and allowing the market more time to absorb large issues without disruption. It also facilitates an efficient price discovery process for both the issuer and the investor as it reduces uncertainties surrounding auctions by enabling bidders to gauge the market demand and accordingly price the securities being offered. PDs are also able to manage their auction risk by selling in 'WI' markets even before the auction. As part of the restructuring of the debt issuance framework, guidelines for trading in 'WI' market were issued by the Reserve Bank in May 2006. A limit of 5 per cent (only buy side) of notified amount was prescribed for banks and 10 per cent (both buy and sell) for PDs. 'WI' trading, which commenced in August 2006, was initially permitted in reissued securities. It takes place from the date of announcement of auction till one day prior to allotment of auctioned securities. The revised guidelines extending 'WI' trading to new issuances of Central Government securities on a selective basis were issued in November 2006. 'WI' trading in new issuances will come into effect after the necessary software modifications are carried out in the NDS-OM trading platform.

Conversion of Recapitalisation Bonds into Tradeable Securities

5.95 The Union Budget, 2006-07 announced the unwinding of the entire outstanding recapitalisation bonds/special securities amounting to Rs.20,809 crore issued to nationalised banks through conversion into tradeable, SLR eligible, Central Government dated securities. Accordingly, recapitalisation bonds/special securities worth Rs.8,709 crore issued to 19 nationalised banks were converted into marketable securities on February 15, 2007. Apart from being reckoned as an eligible investment for the purpose of SLR, these securities are also eligible for ready forward transactions (repo). This will increase the liquidity in the system.

Transparency

5.96 Measures have been taken to increase the transparency in the auction process. Issuance procedures for government securities are detailed in a general notification issued by the Government from time to time. In addition, the features of each issue are also advised to the public in the form of a specific notification issued three to seven days prior to the

auction of government securities. Results are announced soon after the auction and details of all transactions settled through subsidiary general ledger (SGL) accounts are given on the same day by way of press releases on the Reserve Bank's website. Furthermore, in order to provide clear and timely information about the borrowing programme, the Reserve Bank introduced an issuance calendar for auctions in Central Government securities from the financial year beginning April 2002. The State Governments are also encouraged, as announced in the Reserve Bank's Annual Policy Statement 2006, to develop an advance indicative open market borrowings calendar. In operational terms, issuance of a calendar has to tackle the trade-off between certainty to the market and flexibility to the issuer in terms of market timing.

Secondary Market

5.97 The development of primary market for government securities with diversified investor base also hinges upon the existence of a well-developed secondary market. This, in turn, requires participants with varied liquidity requirements and differing perceptions regarding the future movement of interest rates. A deep and liquid market is efficient and less volatile. Hence, the Reserve Bank has been taking parallel measures to develop the secondary segment of government securities as well.

Consolidation of Government Securities

5.98 The Reserve Bank has been pursuing a policy of passive consolidation through reissuance/reopenings of existing securities since April 1999 in order to benchmark securities across the yield curve and improve fungibility and liquidity of securities. The reissues are, however, limited by the maximum outstanding amount that is perceived as 'manageable' in terms of redemption in the year of maturity. While reissuance has achieved some degree of consolidation, there are still a large number of small sized securities, most of which are not actively traded in the market. The lack of liquidity underscores the need for adequate number of securities with sufficient stock.

5.99 Despite the efforts taken in passive consolidation of securities, a large proportion of the banks' holding of Central Government domestic debt, contracted under the high interest rate regime of the

past, is thinly traded. While such securities should have ordinarily commanded a premium over their face value in a scenario of softening of interest rates, banks were often unable to encash them due to limited liquidity. In view of this, a debt buyback scheme was introduced on July 19, 2003 on a purely voluntary basis for banks that were in need of liquidity. Banks were allowed additional deduction for income tax purposes if they declared the premium received as business income and used it for provisioning of their NPAs. To enable them to take benefit of the structure of tax incentives for the premium received under the buyback scheme, banks were exempted from the requirement of appropriating the profit on sale of securities from the 'held to maturity' (HTM) category to 'capital reserve account', as a one time measure.⁸

5.100 The Technical Group on Central Government Securities Market recognised the need for a faster way to consolidate stock through the process of active consolidation which would involve, in one form or the other, buying back a large number of small sized illiquid government securities from existing holders and issuing fewer liquid securities in exchange. In this context, the Reserve Bank in its Annual Policy Statement for 2006-07 has proposed to identify and buy illiquid securities from the secondary market. Once a critical amount of these securities is acquired, these would be bought back by the Government to extinguish the stock. The modalities for consolidation are being worked out in consultation with the Government. The Union Budget for 2007-08 has made a provision of Rs.2,500 crore as premium on buyback of securities under the proposed active debt consolidation scheme.

5.101 In February 2007, the Reserve Bank introduced a debt buyback scheme for specified State Development Loans (SDLs) of two State Governments, viz., Orissa and Rajasthan. Accordingly, securities of Orissa Government with a face value of Rs.308 crore and those of Rajasthan Government with a face value of around Rs.84 crore were bought back. In the second round of debt buyback, the Orissa Government securities amounting to Rs.86 crore were bought back in March 2007.

Sale of Auctioned Stock

5.102 In order to deepen the government securities market and enable the mitigation of price risk, the

⁸ In October 2000 banks were advised that profit on sale of investments in HTM category should be first taken to the profit and loss account and thereafter be appropriated to the capital reserve account.

Reserve Bank permitted from October 2000, the sale of government securities allotted to successful bidders in primary issues on the day of allotment to entities having SGL account. These are settled under the Reserve Bank's DvP system, thereby removing restriction on the period between sale and purchase. This facility was extended in respect of sale to constituent subsidiary general ledger (CSGL) account holders and sale between CSGL account holders, effective May 11, 2005.

Valuation of Government Securities

5.103 Marking to market of government securities is important for the development of the secondary segment of government securities market. Valuation of securities at market prices requires the existence of a yield curve. The Reserve Bank was providing the information on yields on government securities across various maturities for the purpose of valuation of unquoted government securities. With effect from September 2000, the Reserve Bank has moved away from this practice and such valuation at present is done on the basis of the prices/yield to maturity (YTM) rates put out by the Fixed Income Money Market Derivatives Association of India (FIMMDA)/Primary Dealers' Association of India (PDAI) at periodic intervals.

Short Selling in Government Securities

5.104 In the absence of a facility of short selling in government securities, participants generally refrained from taking positions in a falling market, which resulted in drying up of volumes. Trading activity, which normally peaked during the bullish times, petered out when the yields started moving up. To keep the markets liquid and active even during the bearish times, and more importantly, to give the participants a tool to better manage their interest rate risk, intra-day short selling in government securities was permitted among eligible participants, viz., scheduled commercial banks (SCBs) and PDs in February 2006 on the basis of the recommendations of the Technical Group on the Central Government Securities Market. The introduction of short selling also paved the way for 'when issued' trading in August 2006. As part of the phased introduction of short sale, the short positions have been permitted to be carried beyond intra-day for a period of five trading days, effective January 31, 2007. As this arrangement results in carrying short positions across settlement cycles, participants are allowed to deliver a shorted security by borrowing it from the repo market.

Information Dissemination

5.105 Information asymmetry impedes the development of secondary market since participants make pricing decisions based on the available data. Transparency and information dissemination with the minimum time lag are, therefore, very crucial for development of the market. Making use of technological resources, efforts have been made to disseminate trade information on a real time basis to a wider market. The price information on the trades is made accessible through the Reserve Bank's website.

Market Infrastructure

5.106 As part of financial sector reforms, the Reserve Bank has taken several initiatives for developing the technological infrastructure for the efficient functioning of the government securities market. These measures were accompanied by an assessment of the risk management systems under the new institutional arrangements.

Trading Infrastructure

5.107 A well-developed government securities market requires a system of transparent pricing and allotment mechanism which reduces transaction cost and improves market efficiency. In June 1994, the National Stock Exchange (NSE) introduced a transparent fully automated screen-based trading system known as National Exchange for Automated Trading (NEAT) in the wholesale debt market (WDM) segment for facilitating trading in various debt instruments, including government securities.

5.108 Although the WDM segment of the National Stock Exchange has the facility to match trades, it has been used mostly for reporting of negotiated deals intermediated by the brokers registered with the exchange. The settlement of these deals is, however, done between the counter parties and without the involvement of the stock exchange. Participants in the secondary market are limited to banks, financial institutions, mutual funds, FIs and Trusts.

5.109 In order to facilitate easier access, wider reach and active participation in the government securities market, a facility of retail trading in stock exchanges, viz., National Stock Exchange (NSE), Bombay Stock Exchange (BSE) and Over the Counter Exchange of India (OTCEI) was provided from January 16, 2003. Primary (urban) co-operative banks and FIs were permitted to transact in dated Central Government securities in dematerialised form on automated order driven systems of stock exchanges

from March 13, 2003 and from June 1, 2003, respectively. For this purpose, banks and financial institutions have been permitted to open demat accounts with depository participants in addition to their SGL accounts. The minimum order size has been kept low at Rs.1,000 (face value) to take care of the interests of the small investors. Trades in government securities are cleared by the respective clearing corporations of the exchanges. The settlement procedure through settlement banks and demat accounts with depository participants (institutions permitted by the SEBI to open demat accounts) is akin to any other transaction on the exchange. However, despite the presence of technological infrastructure, trading through stock exchanges has not shown marked improvement.

5.110 The Reserve Bank introduced the Negotiated Dealing System (NDS) in February 2002 with the objectives of (a) ushering in an automated electronic reporting and settlement process; (b) facilitating online electronic bidding in primary auctions; and (c) providing an electronic dealing platform for trading in government securities in the secondary market. The NDS, which is available on a secure network, *i.e.*, Indian Financial Network (INFINET) to a closed user group, facilitates straight-through settlement of secondary market transactions, thereby enhancing transparency and transactional efficiency. The NDS has greatly enhanced operational efficiency of the market by automating the flow of traded data into the settlement system. It has also facilitated dissemination of price information almost on a real time basis to market participants, enabling them to execute trading decision more effectively. The NDS has, however, gained popularity more as a reporting platform for the trade concluded bilaterally in OTC markets than as a trading platform as originally envisaged.

5.111 In order to provide the NDS members with a more efficient trading platform, the NDS-OM (NDS-Order Matching) trading module was operationalised in August 2005 on the basis of the recommendations of the Working Group on Screen Based Trading in Government Securities (Chairman: Shri.R.H.Patil). The NDS-OM is an anonymous order matching system which allows straight-through processing (STP). It is purely order-driven with all the orders matched on a strict price/time priority basis. The executed trades flow straight to the Clearing Corporation of India Ltd. (CCIL) in a ready-for-settlement stage. The CCIL is the central counterparty to each trade undertaken on the system. Participants have the option of using the NDS or the NDS-OM for

their trading operations. The settlement of both types of transactions is, however, integrated. In the first phase of operationalisation of NDS-OM, only Reserve Bank regulated entities, *i.e.*, banks, PDs and FIs were permitted to access the system. Subsequently, insurance companies were also allowed access. Those insurance companies, which did not have a current account with the Reserve Bank, were allowed to open a special current account with it. Consequent to the announcement made in the Union Budget for 2006-07, access to NDS-OM was further extended to all qualified mutual funds, provident funds and pension funds. While large participants in these categories can have a direct access to NDS-OM system by obtaining the direct membership, small participants are envisaged to access the system through their principal member (CSGL route). The NDS-OM system has been well received by market participants as it enhances operational and transactional efficiencies. This system, which accounted for over 60 per cent of the total traded volume in government securities, has provided an efficient price discovery mechanism, reducing the bid-ask spreads and intra-day price volatility.

Settlement Practice and Infrastructure

5.112 A fast, transparent and efficient clearing system constitutes the basic foundation of a well-developed secondary market in government securities. Dematerialised holding of government securities in the form of Subsidiary General Ledger (SGL) was introduced to enable holding of securities in an electronic book entry form by participants. The book entry form enhances the transactional efficiency and mitigates risks associated with the physical movement of securities by obviating the movement of physical securities during transfers. A dematerialisation drive has also been undertaken to convert all physical holdings of government securities into dematerialised form. Consequently, at present, about 99 per cent of government securities holdings (in value terms) are held in dematerialised form.

5.113 The Delivery *versus* Payments (DvP) system in India was operationalised in 1995 to synchronise transfer of securities with cash payments, thereby eliminating settlement risk in securities transactions. The Reserve Bank operates a government securities settlement system for financial entities with SGL accounts in its Public Debt Offices through DvP System. Under the current system, banks, financial institutions, insurance companies and PDs are allowed to hold SGL accounts for securities and

current accounts for cash. For these participants, the settlement is done through the DvP system. Other participants such as corporates, mutual funds, provident funds, co-operative banks and societies, and individuals, who are not allowed to hold direct SGL accounts with the Reserve Bank, can operate *via* the constituents' SGL account maintained by SGL account holders. Detailed guidelines have been issued to ensure that entities providing custodial services for their constituents employ appropriate accounting practices and safeguards.

5.114 The DvP system, which was initially on the basis of gross settlement for both securities and funds (DvP-I method), shifted to DvP-II method where settlement for securities was on a gross basis but settlement of funds was on a net basis. Both funds and securities are settled on a net basis (DvP-III method) since 2004. Each security is deliverable/receivable on a net basis for a particular settlement cycle and securities are netted separately for SGL and CSGL transactions. Netting of funds is done on a multilateral basis. These changes facilitated the rollover of repurchase transactions and also sale of securities purchased during the same settlement cycle without waiting for delivery. The DvP III has helped participants to manage their interest rate risk more efficiently by enabling them to cover their positions on the day of allotment in the auction. Net settlement of funds has also enhanced trading activity by reducing the fund requirement (gross to net) during the settlement cycle.

5.115 The CCIL was established on February 15, 2002 to act as the clearing house and as a central counterparty through novation for transactions in government securities. The CCIL has 154 members participating in the securities settlement segment. The establishment of CCIL has ensured guaranteed settlement of trades in government securities, thereby imparting considerable stability to the markets. Through the multilateral netting arrangement, this mechanism has reduced funding requirements from gross to net basis, thereby reducing liquidity risk and greatly mitigating counterparty credit risk. The CCIL has been equipped with the risk management system to limit the settlement risk (Box V.8). Operational guidelines were issued to the CCIL in April 2003 for a limited purpose government securities lending scheme. Accordingly, the CCIL has been permitted to enter into an arrangement with any of its members for borrowing government securities for the purpose of handling securities shortage in settlement. All transactions in government securities concluded or

reported on NDS as well as transactions on the NDS-OM have to be necessarily settled through the CCIL. The net obligations of members are arrived at by the CCIL for both funds and securities and then sent to the Reserve Bank for settlement under the DvP mechanism.

5.116 As a step towards introducing the national settlement system (NSS) with the aim of settling centrally the clearing positions of various clearing houses, the integration of the integrated accounting system (IAS) with the real time gross settlement system (RTGS) was initiated in August, 2006. This facilitates settlement of various CCIL-operated clearings (inter-bank government securities, inter-bank foreign exchange, CBLO and National Financial Switch) through multilateral net settlement batch (MNSB) mode in the RTGS in Mumbai. On stabilisation of MNSB in Mumbai, settlements at other centres under the NSS would be taken up in a phased manner.

Settlement cycle

5.117 The government securities market earlier followed both T+0 and T+1 settlement systems. In order to provide participants with more processing time and facilitate better funds and risk management, the settlement cycle for secondary market government securities transactions has been standardised to T+1, effective May 11, 2005.

Risk Management

5.118 Marking to market of securities is essential to establish the current value and recognise profits or losses in the books of account. In terms of the Reserve Bank's guidelines, the investment portfolio of banks is required to be classified into three categories, *viz.*, 'held for trading' (HFT), 'available for sale' (AFS) and 'held to maturity' (HTM). Securities classified under HFT are to be marked to market on a monthly basis, if not more frequently. Securities in the AFS category are to be marked to market at year-end, if not more frequently. Securities in the HTM category can be carried at book value, subject to certain conditions. Banks are not allowed to book the mark to market gains.

5.119 As government securities are exposed to market risks, the Reserve Bank has been prescribing norms to ensure that banks and other entities regulated by it maintain adequate cover against such risks. As an initial step towards prescribing capital charge for market risk, the Reserve Bank had

Box V.8 Risk Management Practices adopted by the CCIL

The CCIL is responsible for the settlement of trades in the government securities market. It also acts as the central counterparty to the trades done by its members, thereby absorbing the risk of its members from failed trades arising out of defaults by their counterparties. As settlement in the government securities market is based on DvP, the risk from a default is the market risk, *i.e.*, the change in price of the concerned security. The CCIL seeks to cover these risks through its margining process. It collects initial margin and mark to market margin from the members in respect of their outstanding trades. Both these margins are computed trade-wise and then aggregated member-wise.

Initial margin is collected to cover the likely risk from future adverse movements in prices of the concerned securities. It is computed based on security specific (Initial) margin factor. The margin factor for a security is approximately equal to the 3-day Value at Risk for the security. For offsetting trades in a security for a settlement date, netting is allowed for arriving at the initial margin.

Mark to Market (MTM) margin is collected to cover the notional loss (*i.e.*, the difference between the current market price and the contract price of the security covered by the trade) already incurred by a member. MTM margin imposed on a day is payable on the next business day, barring certain exceptions.

Additional Initial Margin: Sometimes trades are conducted at prices which are different from the prevailing prices in the market. This increases risk to the system as the liability in the case of a default is guaranteed. A provision is being created to subject such trades to additional initial margin (AIM) for an amount equal to the difference between the trade consideration and the value of the trade at such MTM price. The margin would be an intra-day margin and released at the end of the day, after such trades are subjected to the MTM margining.

In addition to these margins, the CCIL may also collect volatility margin and concentration margin.

Volatility Margin: To take care of sudden volatility in the market, CCIL may also impose a volatility margin. Volatility margins would be imposed after advising the members of such imposition through notifications to be sent through CCIL report server and CCIL website. Volatility margin rates would either be a percentage of existing margin factors or at rates specified for the individual securities and would be calculated in the same way as initial margin. Once imposed, all outstanding trades will be subjected to volatility margin. Volatility margin can also be withdrawn anytime during the day.

Concentration Margin: This constitutes the margin obligation required to be fulfilled by a member in relation to its outstanding exposure to a security or to a group of

securities, for a settlement date or for a number of settlement dates, beyond pre-determined limit(s). The CCIL has not yet set any such limits.

Members are required to keep balances in the Settlement Guarantee Fund (SGF) in such a manner that the same is enough to cover the requirements for both initial margin and MTM margin for the trades done by such members. In case of any shortfall, CCIL makes margin call and the concerned member is required to meet the shortfall before the specified period of the next working day. Members' contribution to the SGF is in the form of eligible Central Government securities/Treasury Bills and cash, with the cash component being not less than 10 per cent of the total margin requirement at any point of time. Based on the liquidity and tenor, the CCIL specifies the securities which can be deposited towards SGF by any member. SGF contribution in the form of securities is subject to haircut, which is the margin kept aside to take care of any loss arising out of any adverse movement in the market price during the period between two re-valuations. The SGF in the form of securities is revalued daily to ensure that the market value of such securities does not fall below the margin requirements.

Liquidity Risk: To mitigate liquidity risk and ensure uninterrupted settlement, the CCIL is required to arrange for liquidity, both in terms of funds and securities. The CCIL has arranged for lines of credit from banks to enable it to meet any reasonable shortfall of funds arising out of a default by a member either in its securities segment or foreign exchange segment. Members' contributions to the security segment of the SGF are mainly in the form of securities. By specifying the list of securities acceptable for contribution to the SGF, the CCIL ensures that the most liquid securities in which a significant portion of the trades are settled are likely to be available in the SGF. For requirements of other securities, the CCIL has put in place a limited purpose security borrowing arrangement with two major market participants.

Default Handling: In case a member defaults in his securities pay-in obligation, the CCIL meets the shortfall by borrowing securities under the Securities Line of Credit or by using securities available either in its SGF or as proprietary holding. In case it is not possible to meet the shortfall due to non-availability of the security, the CCIL allocates the amount of shortage not handled using its predefined algorithm. In case a member defaults in funds pay-in obligation, the CCIL meets the shortage through its lines of credit. The margin contributed by the defaulter member is also available as recourse. The CCIL also withholds payouts due to the defaulter member as a part of this process and disposes this if the defaulter member does not replenish the shortage within the pre-specified time of the next day.

Source:

Clearing Corporation of India Limited. 2006. *Fact Book*.

stipulated that banks assign a risk-weight of 2.5 per cent to cover market risk in respect of government securities from the year ended March 2001. However, subsequently banks were required to charge capital for market risk in terms of Basel norms. Accordingly, banks were required to maintain capital charge for market risk for the HFT category from March 2005 and for AFS category from March 2006. They are required to measure the general market risk charge for interest rate risk by calculating the price sensitivity (modified duration) of each position separately. The capital requirements are to be maintained on a continuous basis and banks are required to maintain risk management systems to monitor and control intra-day exposures to market risks.

5.120 The Reserve Bank imposed certain restrictions on the operation of co-operative banks with effect from June 7, 2003, in the light of fraudulent transactions in government securities in physical form by a few co-operative banks with the help of some broker entities. Accordingly, participants were required to necessarily hold their investments in government securities portfolio in either SGL (with the Reserve Bank) or a gilt account (with State co-operative bank/PD/FIs/sponsor banks in case of RRBs) or SHCIL or in a dematerialised account with depository participants (DPs) of National Security Depository Limited (NSDL)/Central Depository Services (India) Limited (CDSL), depending on the concerned institution. Each entity was restricted to opening only one gilt account or dematerialised account. In case the gilt accounts are opened with a SCB or state co-operative bank, the account holder is required to open a designated fund account (for all gilt account related transactions) with the same bank. Furthermore, all Reserve Bank regulated entities have been prohibited from conducting transactions in securities in physical form.

Government Securities Market and Debt Management Policy

5.121 An abiding responsibility of the Reserve Bank as a debt manager has been to minimise the cost of public debt keeping in view the rollover risk within the overall objectives of monetary policy, particularly in the light of the transition to a system of market-determined cost of Government borrowings from the 1990s.

5.122 The manoeuvrability of the Reserve Bank as the debt manager for ensuring interest rates conducive to promoting economic growth on the one hand, and financial stability on the other, was constrained by the high volume of Government domestic debt. As the large stock of Government debt created uncertainties in financial markets, fuelling investor expectations of higher interest rates, the Reserve Bank had to place bond issuances at the shorter end of the market during the first eight years of the 1990s. Thus, taking into consideration the market perception and the transition from pre-announced coupon to market related rates as well as the need to widen the investor base, the maximum maturity was reduced from 20 years to 10 years and the minimum maturity from five years to two years. As a result, the share of short dated securities (*i.e.*, under five years) as a proportion of total outstanding dated securities rose sharply between March 1991 and March 1998, while that of securities with a tenor above 10 years declined.

5.123 The Reserve Bank also pursued a strategy of funding operations of 91-day and 364-day auction Treasury Bills between 1993-94 and 1997-98, which involved the conversion of these Treasury Bills into dated securities at the option of holders.⁹ The lengthening of maturity of Treasury Bills through such conversion smoothed the cash flow of the Government. The market's holding of a short-term security was thus funded into a longer maturity. This obviated the problems inherent in sharp liquidity increases in the system, thereby reducing volatility in the short-term rates.

5.124 The pursuit of the objective of minimising cost by shortening the maturity of government securities during the first half of the 1990s inevitably led to a sharp bunching of securities for redemption and frequent rollover of short-term issues. This posed problems for the Reserve Bank in the management of liquidity. In order to avoid such bunching of future repayments, the Reserve Bank adopted a conscious strategy from 1998 to elongate the maturity profile of Government debt through issuances of long-term papers to reduce refinancing risk. In doing so, the Reserve Bank also had to carefully weigh considerations of minimising the cost of borrowings against considerations of elongating the maturity profile which could invariably involve increasing

⁹ This was a departure from the funding operations in earlier years wherein Reserve Bank's holding of *ad hoc* Treasury Bills was funded into special securities without maturity.

interest costs. However, soft interest rate conditions from the late 1990s to 2004-05 due to benign inflation environment helped the Reserve Bank in lowering the yield on government securities, while simultaneously increasing the tenor progressively up to 30 years, which had ranged up to 10 years in most of the 1990s. This reduced the potential redemption pressure and the refinancing risk and also helped in developing the yield curve for longer tenors.

Government Securities Market and Monetary Policy

5.125 The measures undertaken by the Reserve Bank to develop the primary and secondary segment of government securities market has facilitated the changes in the monetary policy framework to reflect the increased market orientation (Annex V.1). The emphasis progressively shifted from the use of direct instruments of monetary control such as reserve requirements and credit controls to indirect instruments such as open market operations (OMOs).

5.126 A pre-requisite for the development of OMO as an active tool of monetary policy was a well-developed market for government securities which, in turn, hinged upon the existence of a price discovery mechanism. The first step in this direction was the introduction of an auction system in 1992, which signalled the transition to a market-related interest rate system. The abolition of automatic monetisation through *ad hoc* Treasury Bills and the introduction of Ways and Means Advances (WMA) system from April 1997 provided operational autonomy and greater market orientation for government securities. Although the Reserve Bank continued to absorb government securities through devolvement/private placements, these were essentially market driven, and were conducted with a view to offloading them in the market when the liquidity conditions stabilise. Thus, the strategy of combining private placement/devolvement with outright OMO was employed to neutralise the impact of temporary tightness in liquidity conditions on the interest cost of government debt. This was in contrast to the *de facto* 'privately fixed private placement' in the era of the *ad hoc* Treasury Bills, which virtually left little manoeuvrability for the conduct of monetary policy.

5.127 The stock of government securities in the Reserve Bank's portfolio built over the years and the activation of the secondary market for government securities enabled the Reserve Bank to use OMO effectively for sterilising the impact of large capital

inflows. The Reserve Bank also converted its stock of non-marketable securities created out of funding of *ad hoc* and tap Treasury Bills into marketable securities and effected OMO sales for absorbing strong capital flows witnessed in 1997-98 and during 2002-04. Continued recourse to open market operations for sterilisation, however, depleted the Reserve Bank's stock of government securities. The market stabilisation scheme (MSS) was, therefore, introduced in April 2004 for mopping up liquidity of a more enduring nature. Under this scheme, Central Government securities and Treasury Bills are issued in addition to the normal market borrowing programme and the resources raised are held by the Government in a separate identifiable cash account maintained and operated by the Reserve Bank, which is to be appropriated only for the purpose of redemption and/or buyback of issuances under the MSS.

5.128 To sum up, in the initial phase of reforms, the price discovery mechanism in the government securities market was accorded importance with transition from the administered interest rate system to the auction system. During the mid-1990s, the focus was on scaling down of mandatory investment and promoting voluntary investment by the traditional investors. This period also witnessed establishment of dedicated market intermediaries in the form of PDs. Several innovative products were introduced to provide a wide menu of instruments to the investors. The investor base has widened since the late 1990s to include corporate/mid segment and retail investors. The measures taken to develop the secondary market include the development of new benchmark government securities by consolidating securities in key maturities; enhancing fungibility and liquidity through re-issuances of existing loans; and improving market efficiency through introduction of short selling. The Reserve Bank has taken measures in recent years to enhance transparency through announcement of a calendar for conducting auctions. Appropriate trading and settlement infrastructure has been put in place to ensure risk free settlement and market liquidity. To meet the debt management objectives of minimising cost of debt and roll-over risks, the Reserve Bank has followed the strategy of elongating maturity during benign interest rate conditions.

IV. GOVERNMENT SECURITIES MARKET IN INDIA: ANALYSIS AND ASSESSMENT

5.129 An assessment of the impact of the measures taken to develop the government securities market since the early 1990s reveals significant growth of

Table 5.2: Government Securities Market in India*

Indicator	1991-92	1995-96	2000-01	2003-04	2004-05	2005-06
1	2	3	4	5	6	7
Outstanding stock (end-March) (Rs. crore)	76,908	1,69,526	4,53,668	8,24,612	9,29,612	10,32,296
Outstanding stock as ratio of GDP (end-March) (Per cent)	11.8	14.3	21.6	29.8	29.7	28.9
Turnover / GDP (Per cent)	–	–	49.7	115.2	56.7	37.9
Average maturity of the securities issued during the year (Years)	–	5.70	10.6	14.94	14.13	16.89
Weighted average cost of the securities issued during the year (Per cent)	11.78	13.75	10.95	5.71	6.11	7.34
PD share in government securities market # (Per cent)						
a) Primary market	–	–	–	51.47	52.88	40.36
b) Secondary market turnover	–	–	–	23.91	28.24	31.13

* : Central Government securities. # : Pertain to Central and State Governments.

the market in terms of both size and liquidity. The outstanding stock of government securities has increased significantly, both in absolute terms and in relation to GDP, in tandem with the growing financing requirement of the Government. Significant changes in the primary market have also been observed in terms of wider participation and better price discovery. The system of PDs has emerged as an important element, both in the primary and secondary segments of the government securities market (Table 5.2).

Magnitude of Government Securities

5.130 With the phasing out of *ad hoc* Treasury Bills and earmarking of small saving collections for the States, the Central Government has been financing its deficit largely through market borrowings. Accordingly, the share of market borrowings in financing Central Government's gross fiscal deficit increased to around 70 per cent in 2005-06 from around 18 per cent in 1990-91. The share of market borrowings in financing the gross fiscal deficit of the State Governments, however, showed a modest increase on account of availability of other sources of financing such as small savings. As a result, market borrowings financed around 46 per cent of combined gross fiscal deficit of the Centre and States in 2005-06 as compared with around 20 per cent in 1990-91. Accordingly, the outstanding stock of both the Central and State Governments' securities has increased significantly over the years. Implementation of the MSS from 2004-05 has also contributed to the growth of outstanding government securities in recent years (Table 5.3).

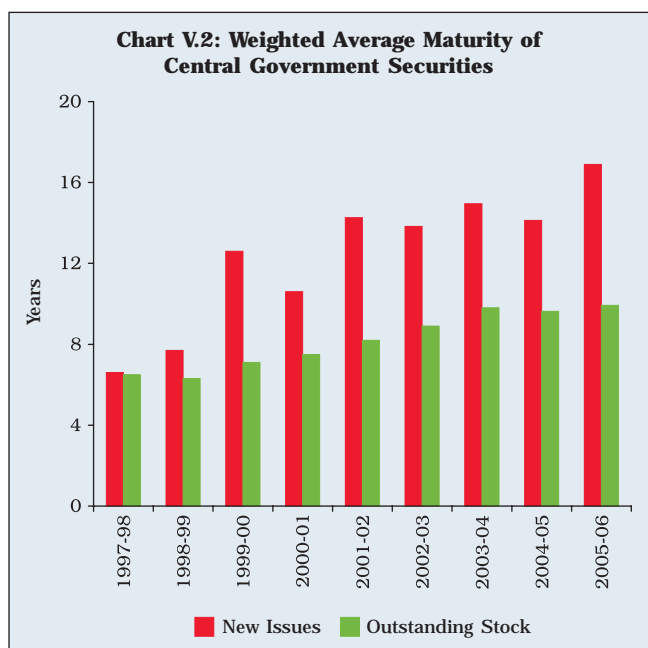
Elongation of Maturity Profile

5.131 As part of prudent debt management strategy, the Reserve Bank has elongated the maturity profile of the outstanding stock of government securities by issuing securities of longer maturity. The weighted average maturity of primary issuances of the Central Government securities increased to 14-15 years during the first half of the current decade as compared with 6.6 years in 1997-98. Mirroring this pattern, the weighted average maturity of outstanding stock of government securities increased to 9.9 years at end-March 2006 from 6.5 years at end-March 1998 (Chart V.2).

Table 5.3: Outstanding Stock of Central and State Government Securities

(Rs. crore)			
End-March	Centre	States	Combined
1	2	3	4
1991	70,377	15,644	86,021
1992	76,909	18,971	95,879
1993	81,693	23,646	1,05,339
1994	1,10,581	26,087	1,36,668
1995	1,37,515	31,208	1,68,723
1996	1,69,526	37,931	2,07,457
1997	1,92,893	43,582	2,36,475
1998	2,49,024	50,828	2,99,852
1999	3,11,605	61,531	3,73,136
2000	3,81,881	73,885	4,55,766
2001	4,53,668	86,765	5,40,433
2002	5,36,324	1,04,026	6,40,350
2003	6,74,203	1,33,090	8,07,293
2004	8,24,612	1,79,465	10,04,077
2005	9,29,612	2,35,172	11,64,784

Chart V.2: Weighted Average Maturity of Central Government Securities



5.132 In pursuance of the policy of elongating the maturity of government securities, the maximum maturity of securities issued was extended to 25 years in 2001-02 and further to 30 years in 2002-03. Long-dated securities with residual maturity of 20 years and above increased from a mere two securities out of 32 issuances in 1998-99 to 12 securities in 2005-06, indicating the growing appetite for these securities among insurance companies and pension funds. The weighted average maturity of securities issued during 2002-03 declined marginally mainly because of the issuance of securities for prepayment of foreign debt on a maturity matched basis for an average tenor of 9.3 years. Apart from the objective of smooth debt management, the maturity profile was also elongated keeping in view the investor response, particularly the non-bank investors such as insurance companies. The share of securities with maturities of more than 10 years constituted 74 per cent of total issuances during 2005-06, while securities issued below 5-year maturity were insignificant (Table 5.4).

5.133 Reflecting the elongation of maturity of the primary issuances, the composition of outstanding government securities has undergone a transformation with the sharp increase in the share of securities with more than 10-year maturity in total outstanding stock since 1998-99 (Table 5.5). Elongation of maturity profile has enabled the formation of yield curve for a longer horizon.

Table 5.4: Maturity Profile of Central Government Securities Issued during the Year

(Per cent of total)

Year	Under 5 years	5-10 years	over 10 years
1	2	3	4
1997-98	18	82	0
1998-99	18	68	14
1999-00	0	35	65
2000-01	6	41	53
2001-02	2	24	74
2002-03	0	36	64
2003-04	5	18	77
2004-05	4	19	77
2005-06	0	26	74

Yields on Government Securities in the Primary Market

5.134 The process of maturity elongation was facilitated by the benign interest rate regime which prevailed during the first half of the current decade. This brought down the cost of resources raised for financing the Government deficit. The weighted average yields, which started moderating from 1996-97, declined to 5.7 per cent and 6.1 per cent for the Central and State Government securities, respectively, by 2003-04 (Table 5.6).

5.135 The weighted average yield on government securities, however, took an upturn in 2004-05 and continued to rise in 2005-06. This was on account of the hardening of interest rates due to uncertainty surrounding international oil prices, upturn in global interest rate cycle, buoyant domestic growth and rise

Table 5.5: Maturity Profile of Outstanding Stock of Central Government Securities

(per cent of total)

Year	Under 5 years	Between 5 and 10 years	Over 10 years
1	2	3	4
1990-91	8.6	5.6	85.8
1991-92	7.4	16.8	75.8
1992-93	8.1	14.2	77.8
1993-94	21.4	22.3	56.3
1994-95	25.3	27.4	47.3
1995-96	38.3	30.3	31.3
1996-97	45.2	29.0	25.8
1997-98	41.0	40.8	18.2
1998-99	41.4	42.4	16.1
1999-00	37.5	38.7	23.9
2000-01	35.0	39.3	25.7
2001-02	30.6	35.6	33.8
2002-03	26.4	34.7	39.0
2003-04	22.4	30.9	46.6
2004-05	23.8	30.5	45.7
2005-06	23.8	29.8	46.5

Table 5.6: Weighted Average Interest Rate on Government Securities

(Per cent)

Year	Centre	States
1	2	3
1990-91	11.4	11.5
1991-92	11.8	11.8
1992-93	12.5	13.0
1993-94	12.6	13.5
1994-95	11.9	12.5
1995-96	13.8	14.0
1996-97	13.7	13.8
1997-98	12.0	12.8
1998-99	11.9	12.4
1999-00	11.8	11.9
2000-01	11.0	11.0
2001-02	9.4	9.2
2002-03	7.3	7.5
2003-04	5.7	6.1
2004-05	6.1	6.4
2005-06	7.3	7.6

in domestic inflation. As discussed above, the average maturity of the primary issuances increased mainly due to encouraging investor response (Chart V. 3).

Market Development

5.136 Evolution of an efficient and active market for government securities has been a key objective of debt management operations of economic reforms since beginning. Measures taken to achieve this objective were aimed broadly at widening the participation base, diversification of instruments and

development of market infrastructure in terms of trading, clearing and settlement systems.

Primary Dealers

5.137 The PD system has furthered the development of the government securities market by facilitating better distribution of primary auctioned stock as well as providing the liquidity in the secondary market (Table 5.7). The share of PDs in the primary issuances, however, declined in the recent period on account of increased bidding interest by insurance companies, particularly in the long dated securities, and by banks.

Diversification of Instruments

5.138 As alluded to earlier, measures taken to diversify instruments to meet diverse funding and hedging needs of participants include the issuances of zero coupon bonds, capital indexed bonds, floating rate bonds, and bonds with call and put options. The initial market response to the auctions of zero coupon bonds in the mid-1990s was overwhelming, with value of bids received being more than twice the notified amount. The last auction conducted on October 7, 1996 was, however, undersubscribed, resulting in partial devolvement on PDs and the Reserve Bank. The market response to other new products was lukewarm, as a result of which such instruments were issued intermittently. More recently, FRBs were reintroduced with ten issuances between November 6, 2001 and October 9, 2004. The market response, however, tapered off with the last two FRBs devolving partially on the Reserve Bank and PDs.

Chart V.3: Yield and Maturity of Central Government Dated Securities



Table 5.7: Role of Primary Dealers in the Government Securities Market

(Per cent)

Year	Share in Primary Subscription	Share in Turnover (Outright)	Share of Government Securities in Total Assets of PDs
1	2	3	4
2001-02	65.01	27.70	79.8
2002-03	58.49	26.99	83.9
2003-04	51.47	23.91	82.2
2004-05	52.88	28.24	71.5
2005-06	40.36	31.13	60.9

Note: Data exclude devolvement but include MSS and non-competitive bids.

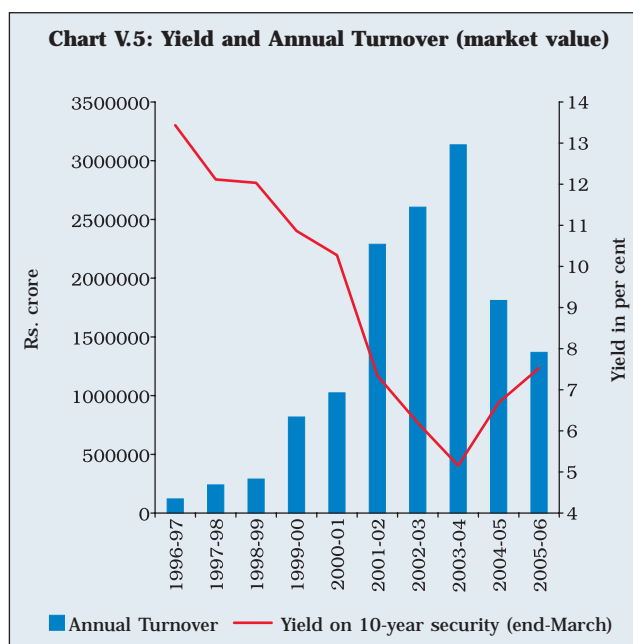
Consolidation of Debt

5.139 One of the key issues in the development of the market for a better price discovery is liquidity of securities. It was observed that of the universe of large number of outstanding securities, only a few securities are actively traded in the secondary market. The Reserve Bank has been persisting with the policy of passive consolidation through re-issuance of existing securities with a view to enhancing liquidity in the secondary segment of the government securities market. The share of re-issuances in the total securities issued was 97.7 per cent during 2005-06 (Chart V.4).

5.140 Active consolidation of government securities has also been attempted under the debt buyback scheme introduced in July 2003. Under the scheme, government securities with a face value of Rs.14,434 crore were bought back by offering a premium fixed on a transparent basis and four existing securities of equal face value were reissued in a pre-announced manner. The market value of the securities bought back amounted to Rs.19,394 crore.

Turnover in the Government Securities Market

5.141 As a result of the developmental measures undertaken, the volume of transactions in the secondary segment of the government securities market increased manifold over the past decade. However, markets are active and liquid when interest rates decline but turn lacklustre and illiquid when rates rise. This has resulted in the slowdown in the turnover in recent years (Chart V.5).



5.142 The trading pattern of government securities indicates that most of the trading activity takes place in Central Government securities. The share of State Governments' securities in annual turnover of the government securities market was less than 1 per cent before 2003-04, while their share in outstanding government securities was around 16-17 per cent. The share of State Government securities in the total turnover, however, improved to around 3 per cent in 2004-05 (Table 5.8).

5.143 Another feature of the trading pattern has been the concentration of trading mostly in securities with maturity of more than 10 years (Chart V.6). There has, however, been a decline in outright transactions in government securities market in 2004-05 and 2005-06, mainly in respect of securities with more than 10 years

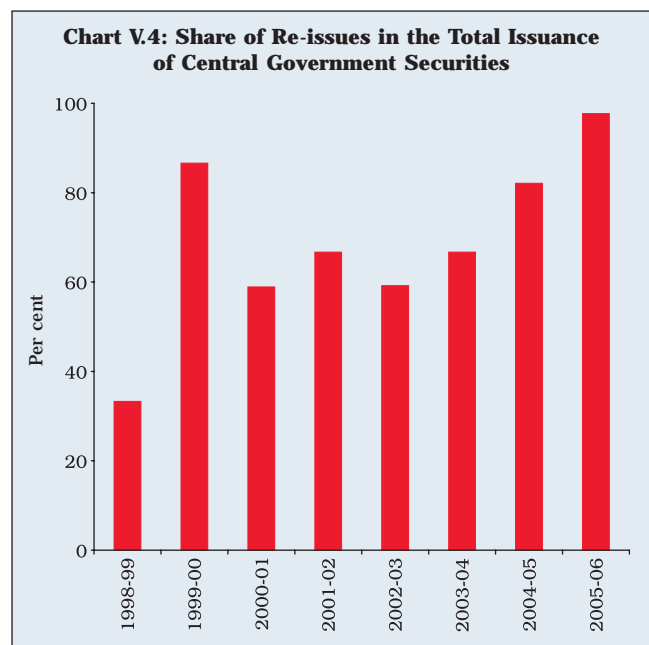
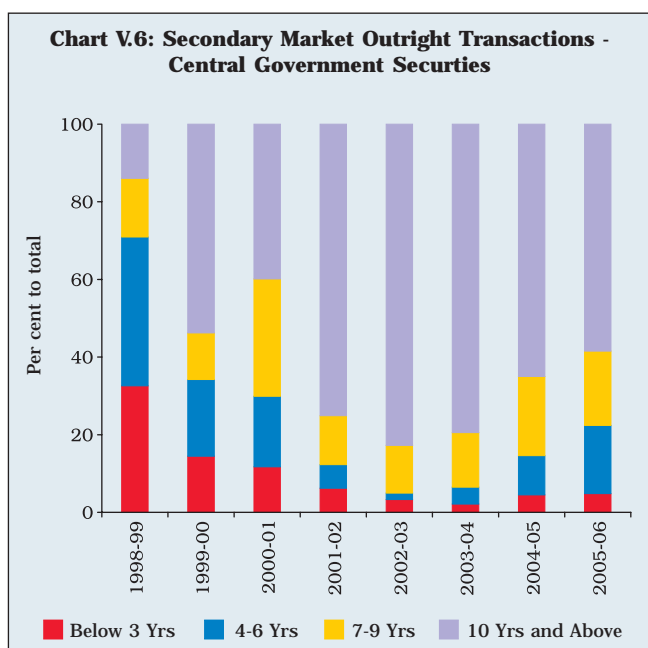


Table 5.8: Annual Turnover in the Government Securities Market

Year	(Rs. crore)			[Share in total (Per cent)]	
	Centre	States	Centre and States	Centre	States
1	2	3	4	5	6
1998-99	2,83,334	3,032	2,86,366	98.9	1.1
1999-00	8,15,075	7,357	8,22,432	99.1	0.9
2000-01	10,13,470	5,900	10,19,370	99.4	0.6
2001-02	22,63,781	12,135	22,75,916	99.5	0.5
2002-03	25,77,170	18,016	25,95,186	99.3	0.7
2003-04	31,43,646	32,563	31,76,209	99.0	1.0
2004-05	17,70,446	52,929	18,23,375	97.1	2.9
2005-06	13,47,009	40,139	13,87,148	97.1	2.9

Chart V.6: Secondary Market Outright Transactions - Central Government Securities



of maturity. The outright transactions in respect of securities with 4-6 years of maturity increased during this period.

5.144 The decline in the share of longer maturity securities in the total trading volume could be attributed to the general upward movement in interest rates and the consequent shift in the participants' preference for short-term securities. In the rising interest rate scenario, participants prefer reducing the duration by investing in shorter duration bonds, which skews trading activity more towards shorter segment of the yield curve. This also reflected the change in policy whereby, from September 2, 2004, banks were allowed to exceed the limit of 25 per cent of total investments under 'held to maturity' (HTM) category provided that the excess comprised only SLR securities and the total SLR securities held in the HTM category are not more than 25 per cent of their demand and time liabilities (DTL). To facilitate this, banks were allowed to shift SLR securities to the HTM category during 2004-05 as a one-time measure. Decline in activity at the longer end of the yield curve could also be attributed to the increase in the share of 'buy & hold' investors such as insurance companies and PFs in total government securities.

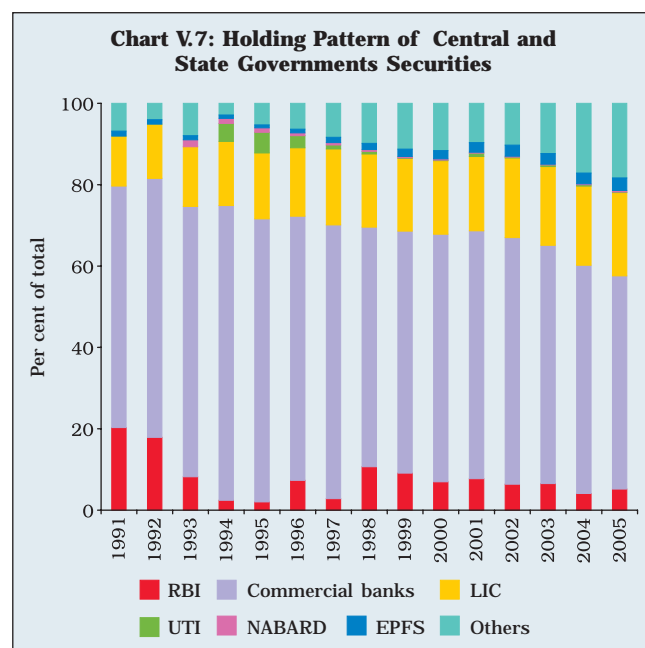
5.145 Security-wise analysis indicates that the number of actively traded securities is very low as compared with the total number of outstanding securities. As at end-December 2006, there were 102 Central Government securities with an outstanding amount of Rs.10,55,703 crore. Of these, 46

securities with outstanding issues of Rs.10,000 crore or more accounted for 77 per cent of the total outstanding amount. The turnover to total outstanding ratio dipped sharply to 1.1 in 2005-06 from more than 3 in 2003-04. On a daily basis, hardly 10-12 securities are traded, of which the actively traded securities are 4-5. Without active trades in the markets, the yield curve is kinked, thereby making it difficult to price securities. This also leads to a situation where securities of similar maturity profiles trade at different yields, with sizeable illiquidity premiums on some occasions.

Holding Pattern of Government Securities

5.146 The ownership pattern of the government securities suggests that the investor base has been diversified by the entry of cooperative banks, regional rural banks, mutual funds and non-banking financial companies in the recent period. The entry of 100 per cent gilt mutual funds has broadened the retail investor base. As a result, the share of 'others' category in the outstanding government securities has increased, particularly in recent years (Chart V.7). Nevertheless, commercial banks and Life Insurance Corporation of India (LIC) continued to hold the largest share of government stocks. The share of LIC's holding in the Central and State governments securities consistently increased to 20.5 per cent at end-March 2005 from 17.9 per cent at end-March 1999. The share of commercial banks' holding, on the other hand, declined steadily from 2001-02.

Chart V.7: Holding Pattern of Central and State Governments Securities



5.147 The holding of government securities by commercial banks has been driven by interest rate changes, apart from the SLR requirement. As part of the financial reforms, the SLR requirement for banks was gradually reduced to 25 per cent by October 1997 from the peak of 38.5 per cent in February 1992. Banks, however, maintained an average SLR of 37.3 per cent of net demand and time liabilities during the period 1998-99 to 2002-03. Owing to decline in interest rates and low demand for credit, banks found it attractive to invest in SLR securities. In the recent years, however, banks restricted incremental investment and liquidated excess investment in government securities in recent years on account of rise in interest rates and increased credit demand. Thus, SLR securities held by commercial banks are now very close to the prescribed limit of 25 per cent (Chart V.8).

Yield Curve

5.148 The need for elongation of maturity pattern was realised in the mid-1990s but the investor preference was for short-term maturity due to market uncertainty. As inflation conditions stabilised, the strategy of elongating the yield curve by issuing a fine blend of long-term and short-term securities, suiting the preference of both the issuer and the investor, has been followed since the late 1990s. The yield curve in India, however, has generally remained flat. The response of short-term rates to changes in the policy rates has been quicker and more pronounced than long-term rates, reflecting the ripple impact of

policy changes. During 2002-03, repo rate cuts, reduction in administered interest rates and expectations of further reductions in US interest rates resulted in easing of liquidity condition and downward movements in yields. The decline in yield was, however, more at the longer end of the maturity than that at the shorter end on account of active trading at the long-end in a period of low interest rates. This resulted in flatness in the yield curve. In fact, there were occasions when the yield curve inverted in respect of some maturities (Chart V.9).

5.149 Reflecting the instability in the shape of the yield curve, the yield spread across various maturities showed volatile movements. The yield spread between the 1-year and 5-year benchmark securities declined to 9 basis points in January-February 2003, when uncertainty regarding the Iraq war dominated the market. Yield spread across all the maturities from 1-year benchmark securities remained low in the phase of declining interest rates up to May 2004 and increased thereafter along with the rise in yields (Chart V.10).

5.150 With the issuance of 30-year paper in 2002-03, the yield curve has formed for longer horizon, although it is not liquid at the longer end. The yield curve in India, however, is still at a nascent stage of development with liquidity confined only to a few maturity buckets. Nevertheless, the issuances/re-issuances of securities in key maturities are being undertaken to develop the yield curve as a liquid and reliable risk-free benchmark.

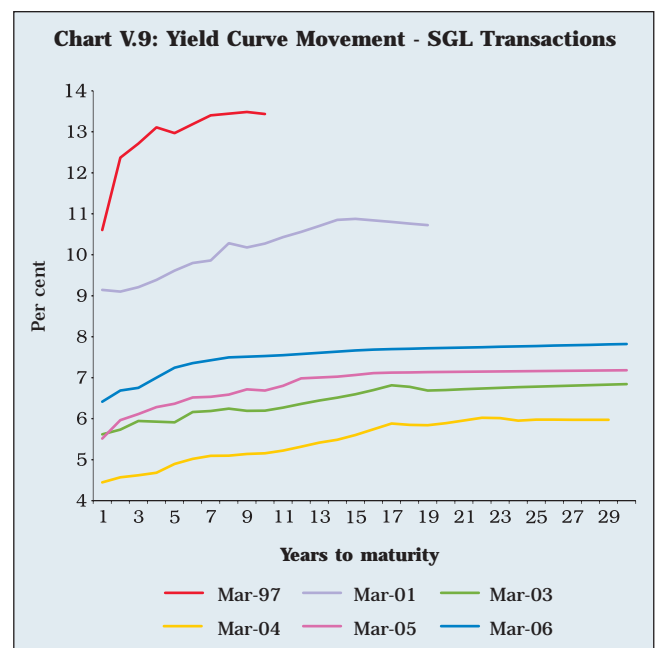
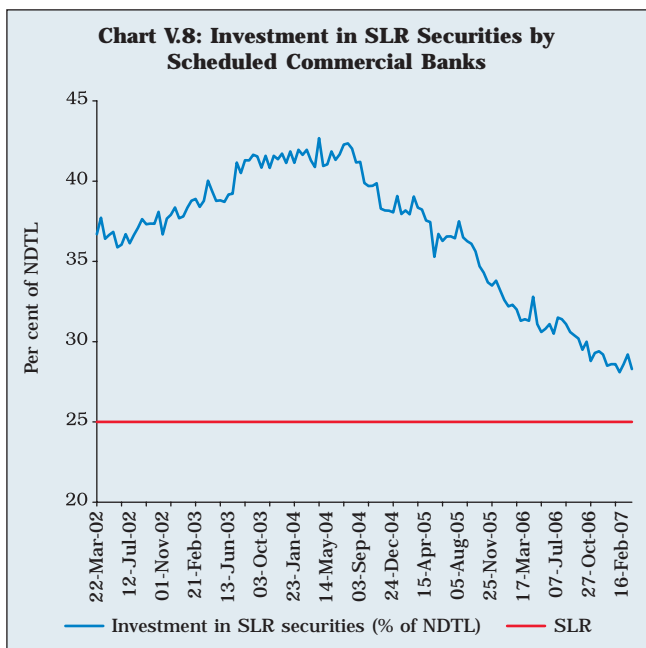
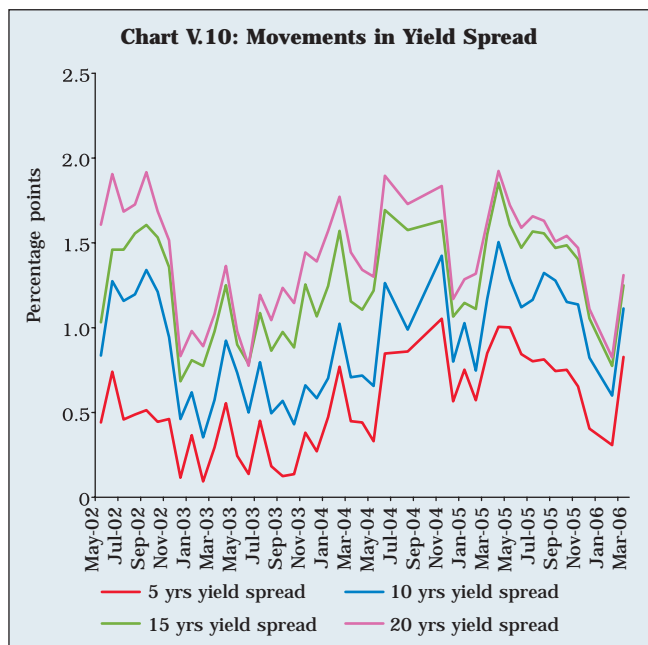


Chart V.10: Movements in Yield Spread



FRBM Stipulations and Market Operations

5.151 As stipulated in the FRBM Act, 2003, the Reserve Bank withdrew from participating in the primary market for Central Government securities from April 1, 2006. In order to ensure a smooth transition to the new system, the Reserve Bank has taken a number of measures to make the market deeper, broader and more liquid while improving trading/settlement and institutional infrastructure. In the auctions held in June and July 2006, the notified amounts were altered taking into account the liquidity conditions and investor demand. An additional issuance was also done in June 2006 to absorb excess liquidity. As a result, aggregate amount of issuances during the first half of 2006-07 was as per the indicative calendar issued by the Government of India, in consultation with the Reserve Bank. In the second half of 2006-07, the scheduled auction in the 10-year segment scheduled to be held in January 12, 2007 was, however, cancelled and the notified amount in the auction held in March 2007 was reduced after revising the Government’s borrowing requirement. During the year, 33 securities were issued. Of these, 30 securities were reissues, while three were new securities of 10-year, 15-year and 30-year maturities issued to provide benchmarks in the respective segments. The total issuance of dated securities during 2006-07 at Rs.1,46,000 crore was higher than Rs.1,27,000 crore raised in the preceding year. The weighted average maturity of dated securities of the

Central Government at 14.72 years during 2006-07 was lower than 16.90 years in the preceding year. The weighted average yield of dated securities issued during 2006-07, on the other hand, increased to 7.89 per cent from 7.34 per cent in the preceding year (Chart V.11).

5.152 The PD system migrated to the revised scheme from April 2006 smoothly. During 2006-07, the share of PDs in dated securities increased marginally to 32 per cent from 31 per cent in the previous year, mainly reflecting the subdued bidding by banks due to hardening of yields. Their share in the auction Treasury Bills (including those issued under the MSS) was placed at 34 per cent of the notified amount as compared with 35 per cent during the previous year. Thus, the share of PDs in the primary subscriptions during 2006-07 was more or less same as in the previous year.

5.153 The secondary market showed increased activity during 2006-07 (up to February 2007) as compared with the previous year, notwithstanding the firming up of yields. Month-end yields, which had peaked in July 2006, moved downward up to November 2006. Yields moved up subsequently, reflecting tighter liquidity conditions, edging up of inflation and promulgation of the Ordinance removing the stipulated SLR floor of 25 per cent of NDTL. Total turnover up to February 2007 amounted to Rs.19,27,465 crore, registering an increase of 52.9 per cent over the same period of the previous year.

Chart V.11: Yield and Maturity of Central Government Dated Securities - Primary Auctions

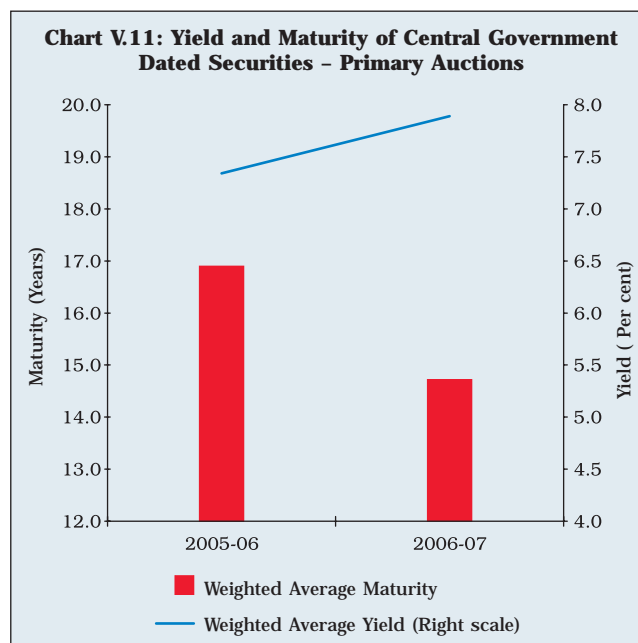


Chart V.12: Monthly Yields and Turnover in Central Government Securities

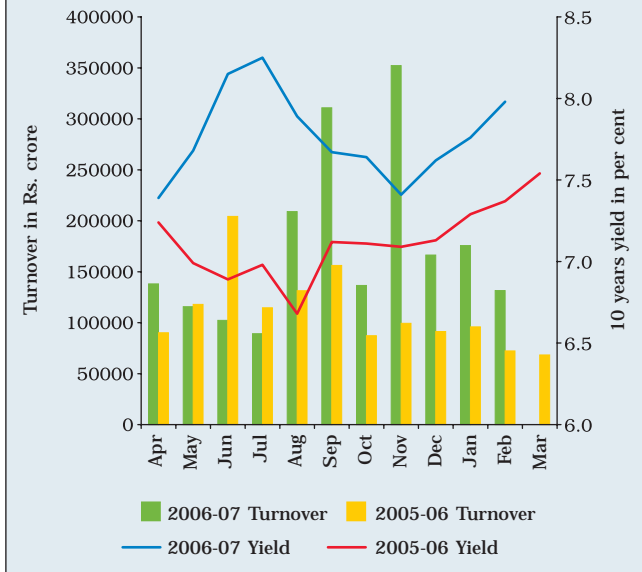
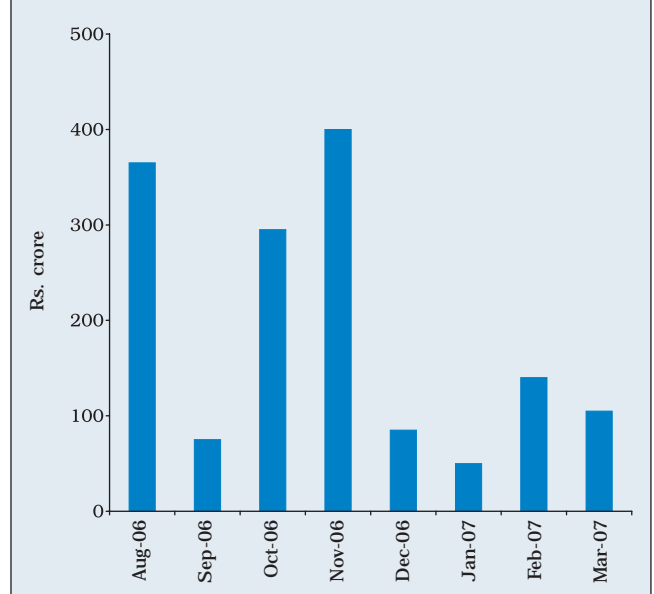


Chart V.13: Trading Volumes in When Issued Market



Yield on 10-year maturity at end-February 2007 at 7.98 per cent was higher by 61 basis points than that during the previous year (Chart V.12).

When Issued Market

5.154 The guidelines for trading in ‘when issued’ (WI) market were issued by the Reserve Bank on May 3, 2006. The actual trading in ‘WI’ market commenced with the auction of Central Government securities in the calendar week August 1 to 8, 2006. Trading volumes in the ‘WI’ market, however, have been insignificant (Chart V.13). Volumes in recent months have been adversely affected by expectations of reduction in SLR and overall liquidity constraints.

5.155 With more number of participants gradually putting in place their internal policies, it is expected that the trading volumes in the ‘WI’ market would pick up. The extension of ‘WI’ trading to select newly issued securities as announced in the Mid-term Review of Annual Policy for the Year 2006-07, which would commence after the software modifications are made in NDS-OM, is expected to spur the growth of volumes in this segment.

Market Integration

5.156 The progress of financial sector reforms in India has been marked by a growing integration of various segments within the financial market. Evidence of market inter-linkages is reflected in the

close co-movement of rates of return. Data on yields of various instruments indicate that the movements in yields of 10-year government securities are almost in perfect synchronisation with that of 364-day Treasury Bills. Yields of 14-day Treasury Bills also moved in line with 10-year maturity during the current decade (Chart V.14).

5.157 In order to examine the improvement in the market integration process across various maturity segments, the correlations of ‘first difference’ of the

Chart V.14: Yields on Various Government Securities Market Instruments

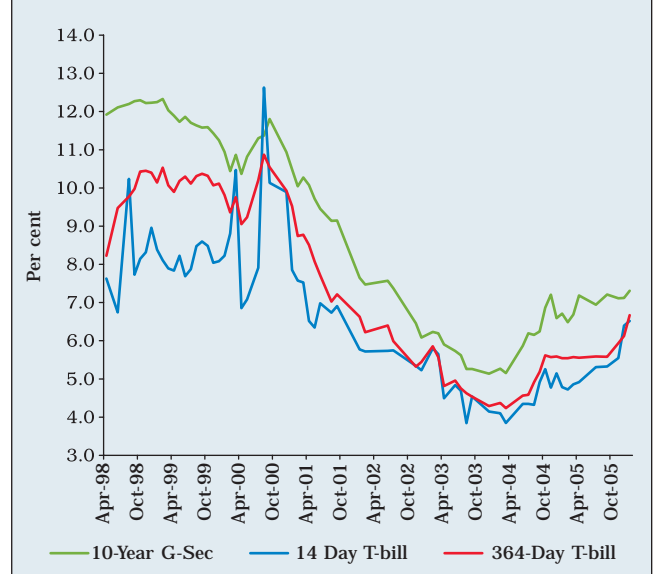


Table 5.9: Correlation of Yield on 10-year Government Securities with Other Instruments

Instrument	Correlation between Levels			Correlation between First Difference		
	April 1998- January 2006	April 1998- August 2000	September 2000- January 2006	April 1998- January 2006	April 1998- August 2000	September 2000- January 2006
1	2	3	4	5	6	7
14-Day Treasury Bills	0.88	-0.04	0.89	0.24	0.17	0.25
364-Day Treasury Bills	0.98	0.37	0.98	0.62	0.62	0.62

yields on 10-year government securities with 'first difference' of yields on 14-day Treasury Bills and 364-day Treasury Bills yields were examined.¹⁰ The correlations indicate that the yield on 10-year government securities showed greater integration with higher maturity segment. The degree of integration across all segments has, however, improved significantly in the current decade (Table 5.9).

5.158 An overall assessment indicates that various measures undertaken have led to significant improvement in the functioning of the government securities market. The primary market has attained a greater resilience, benefiting from measures taken for the development of institutions and instruments. The establishment of the settlement and trading infrastructure has led to increased activity in the secondary market. The development of the market and the prudent debt management strategy have enabled smooth transition to the FRBM phase. Thus, the government securities market in India has witnessed a transition to an increasingly broad-based market characterised by an efficient auction process, an active secondary market and a liquid yield curve up to 30 years (Mohan, 2006). Some concerns, however, include lukewarm response to the new instruments; relative flatness of the yield curve; and asymmetric response to interest rate movements in the secondary market.

V. THE WAY FORWARD

5.159 The government securities market is typically the seminal and organic component of financial markets in most countries. It is a veritable public good in the sense that all credit/debt market instruments, including derivatives are typically priced on the basis of this market. Various measures, therefore, have been initiated by the authorities to develop and foster deep, liquid and efficient government securities

markets in several countries. First, while the large size of issuances of government securities contributes to market liquidity, countries facing fixed or declining borrowing requirements have proactively enhanced market liquidity by enlarging issuances of benchmark securities at 'key maturities' and weeding out others. For instance, when government financing needs declined in the US in 1997, the issuances of 3-year Treasury notes were discontinued, instead of cutting the overall issue size throughout the yield curve. Alternatively, some countries have also reduced the frequency of new issuances to enhance the issue size to promote liquidity of the market. Second, a key strategy has also been to infuse competition among dealers for efficient price discovery. Dynamic competition among the exchanges on the one hand, and between OTC and organised exchanges on the other, contribute to market liquidity. Third, countries are also becoming more transparent in terms of issuance schedule and dissemination of market information. Fourth, several countries have enhanced safety in trading and settlement of government security transactions by shortening and standardising settlement lags and adopting the DvP system. They have also allowed short sales to promote market making. In this context, they have standardised rules and practices for failed deliveries and have opened windows for special security lending and/or repo facilities through which authorities can provide securities in short supply.

5.160 Countries are increasingly adopting suitable models for assessing the trade-off between expected costs and risks in debt portfolio. Several countries also adopt stress testing to assess the market risk of the debt portfolio. Countries typically measure risk in terms of potential increase in costs resulting from financial and other shocks. Brazil, Portugal and Sweden are also using concepts such as cost-to-budget or 'budget-at-risk' to reflect joint analysis of

¹⁰ The co-movements in yields on various instruments could reflect the 'random walk' behaviour of the variables. The 'random walk' of the series also results in high correlations between 'levels' of the yields on various instruments under discussion. The application of 'unit root tests' indicated that all the four series under discussion are non-stationary at levels but stationary at first difference.

debt and GDP or budget flows to shocks. Various countries are using different variants of 'at risk' models to consider exposure of debt portfolio to different market variables. The institutional set up in most countries now has a middle office for managing the cost and risk dimensions of debt portfolio.

5.161 Managers of public debt in many countries are actively managing their debt portfolio. While factors prompting them to take positions vary across countries, a common feature is that many countries have centralised their debt management activities outside the central bank. When central banks as debt managers take active positions in the debt market, they need to be consistent with regard to the policy signals that they convey to financial markets. Several debt management authorities also take advantage of price anomalies by undertaking a buyback of illiquid securities and substituting them with liquid securities. Cross country experience brings out that whether central banks act as managers of public debt or not, they play a vital role in (i) developing the trading infrastructure for government securities in the secondary market; (ii) evolving suitable payment and settlement systems; and (iii) promoting safety and efficiency in government security transactions. Where debt management is outside the central bank, care has to be taken to ensure that trading activities of the debt manager do not conflict with the central bank's monetary management. Consequently, even when debt management is outside the central bank, arrangements have to be made for appropriate coordination so that conflicting signals are not given.

5.162 As documented, a great deal of development has taken place in India's government securities market but it still needs to acquire more depth and liquidity across all the maturities so as to generate a meaningful yield curve over the whole range. Some of the major issues that need to be addressed for further developing the government securities market are set out below.

Consolidation and Liquidity

5.163 As noted above, liquidity is an essential feature of a vibrant government securities market. Trading in the government securities market in India is limited to a few securities. The yield curve is kinked due to the presence of a large number of securities attracting illiquidity premium, whereby two government securities having similar maturity and coupon may trade at different yields. While the process of passive consolidation has improved liquidity, there is a need to pursue the strategy of active consolidation

by way of buyback of illiquid securities and issuances of liquid securities. This strategy, however, needs to be in tune with the market requirements so as to provide adequate menu for choice. From the perspective of the issuer, it is important to note that creation of a few benchmarks may lead to the associated problem of bunching of repayments and rollover. Thus, while pursuing the strategy of active consolidation, there would be a need to closely monitor the trade-off between creation of benchmarks across a few maturities and the repayment schedule.

Price Discovery and Short Sale

5.164 Activity in the government securities market in India has been characterised by asymmetric response of participants to the interest rate cycle, i.e., market turnover spurts during an interest rate downturn but slumps during the cycle of rising interest rates. This is partly because participants are not allowed to undertake 'short sale' in government securities. Lack of ability to sell short prevents a two-way expression of interest rate views. On the one hand, investors, who expect the interest rate to decline, take only 'long position', thereby exposing themselves to possible capital losses in case expectations are not met. On the other hand, investors expecting interest rate to increase cannot express their expectations due to lack of 'short sale' facility. This situation also results in over-pricing/under-pricing across different segments due to demand and supply imbalances. In this context, intra-day short selling was permitted only from February 2006 and the period was recently extended to five trading days effective January 31, 2007. There is a need to monitor the functioning of short sales, before contemplating the removal of the five-day limit.

Promoting Retail Segment for Government Securities

5.165 There is a need to promote retail and mid-segment investors. Although retail investors constitute a small portion of the government securities market, they, as long-term investors, impart stability to the market. This will also benefit small investors by providing them access to risk free gilt edged securities. Retail investment in government securities may be promoted directly or through gilt mutual funds. Although a system has been put in place whereby commercial banks can have a constituent SGL account for holding government securities on behalf of their customers in safe custody in demat form, many of them have yet to make this facility available to their branch

customers. PDs also need to make a greater effort to promote the mid-segment investors such as provident and pension funds, co-operative banks and trusts. In this context, the Internal Technical Group on Central Government Securities Market recommended that PDs must make at least 10 per cent of their secondary market transactions (outright) with non-NDS members. Implementing this recommendation would help in widening the investor base for government securities. It may, therefore, be desirable to implement policies and processes whereby banks and PDs can operate as active market makers and encourage greater participation by retail investors, both individuals and institutions, in the government securities market.

Book Building by Primary Dealers

5.166 The Internal Technical Group on Central Government Securities Market suggested book building as one of the measures for restructuring the primary issuance framework in the post-FRBM period. The book building method may be more suitable when market conditions are highly uncertain, thereby mitigating the bidding risk at auctions. It could also be used when new instruments are issued for the first time for which market response is not known. Select PDs may be appointed as arrangers for the issue. Three or four arrangers may be appointed for an issue so as to avoid emergence of any monopolistic practices. Each PD would arrange to place the stock within a price range mutually agreed to by it with the Reserve Bank. As PDs undertake to arrange the issue, the success of the issue is guaranteed, *albeit* at a cost. This method can also be used as an incentive for PDs for better performance in the primary and secondary markets. PDs may be selected for book building by ranking them according to the stipulated criteria in terms of success in primary auctions and turnover in the secondary market.

Diversification of Instruments

5.167 Trading activity in the recently introduced 'when-issued' segment of the government securities market is still at a nascent stage and volumes are low. The activity is, however, likely to pick up after the operationalisation of 'WI' trading in new issuances on a selective basis, in addition to 'WI' trading in re-issuances, and also with increased market familiarity with this trading practice. Similarly, FRBs, which are primarily used to hedge against volatility in interest rates, have elicited limited investor response. A major factor inhibiting investor response to FRBs is

complexity in the valuation of these bonds. Capital-indexed bonds, which provided hedge against inflation, also showed lacklustre response from investors. A restructured version of the same, as has been proposed by the Reserve Bank, incorporating appropriate selection of an inflation index and reducing indexation lag, may encourage market response to this instrument. A common element responsible for the slow progress in the development of new instruments is the lack of familiarity, which implies that market needs some more time to adjust before showing appetite for the new instruments.

Roadmap for STRIPS

5.168 The Reserve Bank is actively taking steps for developing a market in separate trading of registered interest and principal of securities (STRIPS). The implementation of STRIPS would facilitate creation of a series of benchmark rates and enable evolution of a market structure for selling the securities in retail. Apart from expanding the investor base, the introduction of STRIPS would also facilitate the development of a proper yield curve (Box V.9). With the passage of the Government Securities Act, 2006, a framework is being put in place for introduction of STRIPS. There is, however, a need to have a sizeable stock of securities with identical coupon payment dates so as to enable 'bunching'. This involves a strategy for primary issuances, which would align the coupon payments of underlying securities. It may be noted that the process of aligning coupon payments commenced in August 2003. For this purpose, the System Requirement Study (SRS) has already examined the required technological and operational arrangements.

Low Liquidity of State Government Paper

5.169 The trading pattern in the secondary market reveals that State Government securities are thinly traded. This is mainly due to the absence of critical minimum mass necessary for active trading. This, in turn, reflects limited recourse by the States to market borrowings and fragmentation across issuers (28 States). Predominance of 'buy-and-hold' investors in such securities could also have contributed to illiquidity in State Government securities.

5.170 The need to improve liquidity in State Government securities is felt all the more as the States may have to increase their recourse to market borrowings for several reasons. First, in accordance with the Twelfth Finance Commission (TFC)'s

Box V.9**Separate Trading of Registered Interest and Principal of Securities (STRIPS)**

The investor in a coupon bond receives coupon payments periodically followed by the final coupon payment and the face value of the bond at the time of maturity. In contrast, a zero coupon bond (ZCB) entails payment of face value of the bond at the maturity without any coupon payments thereby doing away with re-investment risk of a coupon bond. The uncertainty regarding re-investment in coupon bond poses a problem in valuation. For valuing a coupon bond at a given point of time, it is assumed that each coupon payment is reinvested at the same rate – the yield to maturity (YTM) rate. The market value is computed as the aggregate of the present values of all future coupon flows, and the present values, in turn, are arrived at by discounting all the coupon flows at the same YTM rate.

STRIPS are like a ZCB whereby coupons and the underlying security are detached and can be traded separately as zero coupon bonds. The zero coupon yield curve is required for valuing STRIPS or ZCBs. Zero coupon curve can also be used for valuing coupon bonds; only, in such a case, each cash flow has to be discounted at the respective rates given by the zero coupon yield curve instead of discounting all cash flows at a (YTM) rate read off from a conventional yield curve. In case the zero coupon yield curve is upward sloping, the YTM will be lower than the zero coupon yield at maturity since, when discounting on the zero curve, the earlier cash flows are discounted at lower yields and the subsequent ones, at higher yields. The industry practice is to use the YTM rate read off from the conventional yield curve for discounting the cash flows in the case of coupon bonds. The trading of STRIPS in the market will lead to derivation of a true zero coupon yield curve which will result in a more accurate valuation of government securities.

Stripping of coupons increases depth and liquidity by attracting more participants and higher volumes in trading, since an investment in STRIPS would enable a trader to

increase the duration of his portfolio without putting more cash. It also provides new avenues to PDs as market makers and also attracts retail investors. Long-term investors such as pension funds and insurance companies can use STRIPS to narrow the gap between the maturities of their assets and liabilities, besides earning a guaranteed return. It would enable corporate entities to manage their cash flows without re-investment risk. Trading in STRIPS increases the duration and convexity and involves lower cash outlay, thereby enabling the participants to minimise the losses during rising interest rates and maximise gains during falling interest rates. STRIPS would make foreign institutional investors (FIIs) more inclined towards investing in sovereign debt on account of higher duration at lower cash outlay.

The Informal Working Group on ‘*Stripping of Gilts: Scope, Mechanics and Operational Aspects*,’ constituted in 1997, identified the following as the pre-requisites for the development of a gilt STRIPS market: (i) a favourable taxation environment; exclusive use of book-entry, or dematerialised system for undertaking transactions in gilts; (ii) Public Debt Offices (PDOs) disseminating information to the investing public on strippable securities and segment-wise holdings of STRIPS, and making STRIPS issues sufficiently large in volume (through various methods such as reissues in designated strippable securities, making coupons from different strippable securities fungible, etc.) so as to ensure liquidity in STRIPS; (iii) ensuring transparency and predictability in gilt market operations by ushering in an automated and risk-free clearing and settlement system and; (iv) use of modern technology for successful implementation of stripping and reconstitution.

Source:

Reserve Bank of India. 2002. “*Report of the Working Group for Suggesting Operational and Prudential Guidelines on STRIPS.*” August.

recommendations, the Central Government’s loans for State Plans have been discontinued. Second, the minimum obligation of the State Governments to borrow from the National Small Saving Fund (NSSF) has been reduced from 100 per cent to 80 per cent of net collections, effective April 1, 2007. This may encourage the States to rely more on market borrowings as interest rates on market borrowings are still below that of NSSF. Third, the small savings collection has also decelerated on account of narrowing of interest rate spreads between small savings and bank deposits and the extension of tax incentives to bank deposits of five years and above. Enhanced liquidity in State Government securities would, therefore, enable the States to reduce their

borrowings costs. In this context, the Working Group on Liquidity of State Government Securities (Chairman: Shri V.K. Sharma) considered passive consolidation of securities as a crucial strategy for improving the liquidity. This would, however, require the State Governments to improve their fiscal position, get credit rating of their paper and take recourse to auctions more frequently. The Group recommended a more active role of PDs in terms of providing two-way quotes for State Development Loans (SDLs) and developing the retail investor base. The Group also recommended a minimum size of Rs.1,000 crore per tranche of market borrowing, introduction of short sales and reserved allotment at cut-off price/yield to encourage retailing and market making. It also

suggested introduction of non-competitive bidding in the primary auctions of SDLs, use of OTC derivatives with State Government securities as the underlying instrument, introduction of LAF repos using State Government securities and use of SDLs as collateral for provision of intra-day liquidity under the RTGS. The Group recommended the alignment of tax structure on small savings with SDLs to widen the investor base and the establishment of special purpose vehicle (SPV) to issue SPV securities backed by the Central Government guarantee for consolidation of outstanding State Government securities to build up volumes. During 2006-07, the State Governments have raised resources exclusively through auctions. Furthermore, the Annual Policy Statement of the Reserve Bank for 2006-07 proposed to extend non-competitive bidding facility to primary auctions of SDLs and also to introduce purchase and resale of SDLs by the Reserve Bank under the overnight LAF repo operations. Active consolidation through debt buyback of specified SDLs of two State Governments has also been introduced. These efforts may be continued to improve liquidity in State Government securities.

Fair Value Accounting

5.171 Banks are reluctant to hold government securities in the AFS category in a rising interest rate scenario, as the depreciation of securities is required to be charged to the Profit & Loss (P&L) account, while appreciation is to be ignored. If depreciation as well as appreciation is permitted to be charged to the Reserve Account instead of P&L account, banks would have a greater incentive to hold/trade in government securities than at present. International Accounting Standard (IAS) 39 permits charging of depreciation on AFS securities to the equity account. Similarly, in line with the international practice, the fair value accounting method recognises both gains and losses on the HFT portfolio, thereby affording flexibility to market participants. In this regard, the Reserve Bank released the draft guidelines in July 2006 on classification and valuation of investments. According to the draft guidelines, a gain or loss arising from valuation changes in the AFS portfolio will be reflected under the head 'unrealised gain/loss on AFS portfolio' in the Reserve Account. Statutory reserve requirements and prudential norms will not be applicable on balances under this head. On sale, the cumulative gain or loss under this head will be recognised in the P&L account. The implementation of these guidelines should encourage trading in government securities.

FRBM and SLR Flexibility

5.172 The Reserve Bank has been successfully managing the borrowing requirements of the Government through a prudent debt management strategy. The strategy of the Reserve Bank to take devolvement/private placement, particularly in the phase of tight liquidity, was critical in managing the borrowings programme of the Government. With the stipulation in the FRBM Act that the Reserve Bank shall not subscribe to primary issuances of Central Government securities after April 1, 2006, managing Government borrowings and liquidity in the market necessitated certain changes in the operation of monetary policy and debt management. Accordingly, the Reserve Bank effected institutional changes so as to ensure that debt management objectives are met without distorting the market conditions.

5.173 At present, the demand for government securities is largely driven by the SLR requirements. As many banks are now holding SLR securities close to the prescribed minimum level, the growth in demand for government securities in future may be in tandem with the expansion of NDTL of banks. However, in the wake of the amendment of the Banking Regulation Act, 1949, which provides flexibility in fixing the SLR requirement, non-bank investor category would have to make up for any shortfall in demand for government securities by banks. Though the FRBM Act places a limit on fiscal deficit of the Central Government at 3 per cent of GDP from 2008-09, this may not result in significant reduction in the absolute level of net issuance of government securities, considering the robust growth in nominal GDP. Thus, it is crucial to diversify the investor base, match instrument profile with the market requirement and promote liquidity in the market.

Impact of Capital Account Convertibility

5.174 The government securities market is now largely driven by domestic macroeconomic conditions, and financial market development and sentiment. A fuller capital account convertibility regime implies a higher degree of integration of domestic financial markets with the rest of the world and also an increase in foreign exchange flows. In a well-developed and integrated financial system, volatility in any market segment gets transmitted to other segments as well. As alluded to earlier, integration of the government securities market with the money market has increased in recent years. FIIs could also be expected to play a greater role in the government securities market in future as the calibrated measures are taken

for fuller capital account convertibility over time. Expansion of access by foreign investors to the Indian government securities market will have to be done carefully, taking into account issues related to opportunities for arbitrage, overall macroeconomic conditions and the need for financial stability.

5.175 In the above scenario, external macroeconomic developments would play an increasingly important role in the government securities market. Therefore, to maintain the resilience of the domestic government securities market, it would be critical to increase the depth of the market and diversify the domestic investor base. The greater diversity in perception arising from foreign investors should help in promoting the overall stability of the government securities market over the long-term. However, the increased participation of foreign investors would need to be managed carefully.

5.176 To sum up, although the government securities market has witnessed significant changes in recent years, it is still in the process of maturing in terms of depth as well as liquidity. While the total outstanding stock of Central and State Government securities has grown to about Rs.12 lakh crore, most of the trading in Central Government securities is concentrated in select maturities, with the 10-year maturity, on an average, accounting for about 50 per cent of the daily trading volume. The liquidity in most other Central Government and State Government securities is low. Participants in the government securities market include mainly banks, insurance companies and provident funds. In order to improve depth and liquidity of the government securities market, there is a need to promote non-mandated investor base. Short selling represents a major policy advance as stated earlier, and going forward, it is expected to deliver the required liquidity, depth and efficiency in the cash as well as interest rate derivative markets.

VI. SUMMING UP

5.177 The government securities markets have gained importance in most countries in the overall financial system in recent years. Initiatives have been taken to make them more vibrant and active by improving liquidity and depth; enhancing transparency of primary issuances; widening investor base; fine-tuning auction procedures; benchmarking and consolidating across key maturities; developing new instruments; and putting in place appropriate safeguards and sound trading and settlement infrastructure. Furthermore, managers of public debt across countries are paying greater attention to

minimising the cost of borrowings in the medium to long-term, while striking a balance between the costs and the risks in the short run.

5.178 The government securities market in India has evolved over the years. Several measures have been initiated since the early 1990s to develop a deep and liquid government securities market for reducing the cost of government market borrowings, providing appropriate benchmarks for pricing other financial instruments and conducting monetary policy in a flexible manner. While significant progress has been made in this direction, the evolving economic conditions and the move towards fuller capital account convertibility necessitate further fine-tuning of the operating framework so as to ensure smooth debt management operations.

5.179 The switchover to auction based system of issuance of government securities in the early 1990s was a major step towards development of the government securities market. The investor base has become more voluntary and diversified with the participation by non-banking entities. Taking into account market preferences, new instruments with innovative features have been introduced from time to time. Technological developments have enabled the introduction of screen-based anonymous trading and reporting platform. This has facilitated dissemination of trading information with a minimum time lag, besides enabling electronic bidding in primary auctions and facilitating efficient order matching. Furthermore, the operationalisation of the CCIL has ensured guaranteed settlement of trades and has, therefore, imparted considerable stability to the government securities market. The strategy of consolidation of government securities mainly through re-issuances has resulted in critical mass in key maturities, facilitating the emergence of market benchmarks. The operation of a system of market intermediaries in the form of PDs has facilitated the Reserve Bank's smooth withdrawal from the primary market from April 1, 2006 as provided in the FRBM Act.

5.180 The functioning of the government securities market since the mid-1990s indicates consistent increase in the size of the market in tandem with the growth in market borrowings of both the Central and the State Governments. The weighted average cost of market borrowings declined consistently up to 2003-04, which enabled elongation of weighted average maturity of primary issuances. The Government has been raising progressively higher share of market borrowings through re-issuances

under the strategy of passive consolidation of debt. Reflecting the effectiveness of various measures initiated to develop the market, turnover in the secondary market has increased manifold over the years, before declining in 2004-05 and 2005-06. The holding pattern of government debt shows some increase in the relative share of non-banks, reflecting a progressive diversification of the investor base. The government securities market has increasingly displayed co-movements with the money market and has also responded to the changes in international interest rates from time to time.

5.181 Notwithstanding the substantial progress in the government securities market, certain issues need to be addressed for its further development. Under the FRBM regime, the Reserve Bank cannot participate in the primary market. PDs, as underwriters, are, therefore, required to absorb the

unsubscribed securities in the auctions. Any consequent escalation in the cost of government borrowing can be mitigated by greater diversification of the investor base. It also needs to be widened to counter the possible reduction in the captive investor base. Increase in trading volumes in the secondary market would largely hinge on the improvement in trading liquidity in key maturities across the yield curve. This would require active consolidation of government securities, in addition to the present system of passive consolidation. The development of a critical mass in the key securities and the matching of coupon payment dates would also pave the way for the introduction of STRIPS. Illiquidity in State Government securities affects the cost of borrowing for the State Governments. Therefore, there is a need to extend measures taken for enhancing liquidity in Central Government securities to State Government securities as well.

GOVERNMENT SECURITIES MARKET

ANNEX V.1: Reforms in the Government Securities Market

Year	Reform Initiated	Objective	Outcome
1	2	3	4
June 1992	Introduction of auction method for issue of Central Government securities.	To make yields on government securities market determined.	Price discovery has improved over a period of time.
January 1994	Zero Coupon Bond was issued for the first time. Securities Trading Corporation of India (STCI) commenced operations.	To add new instruments and intermediaries.	STCI and other PDs have become important intermediaries in the government securities market.
August 1994	Agreement between the Reserve Bank and Government of India on limiting issue of <i>ad hoc</i> Treasury Bills.	To do away with automatic monetisation.	Cash management of Government has improved.
March 1995	Primary Dealer system introduced.	To strengthen the market Intermediation and support primary issue.	PD system has evolved as an important segment of government securities market.
July 1995	Delivery <i>versus</i> Payment (DvP) system in government securities was introduced.	To reduce settlement risk.	Transition from DvP-I method (funds and securities settlement on gross basis) to DvP-III method (funds and securities settlement on net basis) has been made.
September 1995	Floating Rate Bonds (FRBs) introduced.	To add more instruments.	FRBs were discontinued after the first issuance due to lack of market enthusiasm. FRBs were reintroduced in November 2001 but were again discontinued in October 2004.
January 1997	Technical Advisory Committee (TAC) was constituted.	To advise Reserve Bank on developing government securities, money and forex markets.	Plays a pivotal role in implementing the Reserve Bank's reform agenda based on a consultative approach.
March 1997	Introduction of WMA system for Centre.	Discontinuation of automatic monetisation.	Transparency and pricing has improved. Has imparted greater autonomy in monetary policy making.
April 1997	FIMMDA was established.	Introduction of self regulation and development of market practices and ethics.	Market practices have improved.
July 1997	Foreign Institutional Investors (FIIs) were permitted to invest in government securities.	To broaden the market.	FIIs have become important players in the market, particularly in the Treasury Bill segment.
December 1997	Capital Indexed Bonds were issued.	To help investors hedge inflation risk.	Efforts are being made to revitalise this product.
April 2000	Sale of securities allotted in primary issues on the same day.	To improve secondary market.	This has also helped in managing the overnight risk.

(Contd.)

ANNEX V.1: Reforms in the Government Securities Market (Concl.d.)

Year	Reform Initiated	Objective	Outcome
1	2	3	4
February 2002	Clearing Corporation of India Limited (CCIL) was established.	To act as a clearing agency for transactions in government securities.	Stability in market has improved, greatly mitigating the settlement risk.
June 2002	PDs were brought under the jurisdiction of Board for Financial Supervision (BFS).	For integrated supervision of market.	The position is being reported periodically to BFS.
October 2002	Trade data of NDS made available on Reserve Bank website.	To improve transparency.	The measure is helping the small investors as well.
January 2003	Retail trading of government securities permitted on stock exchanges.	To facilitate easier access and wider participation.	This has not taken off very well. Efforts are being made to improve the position.
February 2003	Regulated constituents permitted participation in repo markets.	To widen the market.	Activity in the repo market has improved.
June 2003	Interest Rate Futures were introduced.	To facilitate hedging of interest rate risk.	These futures have not taken off.
July 2003	Government Debt buyback scheme was implemented.	To reduce interest burden of government and help banks offload illiquid securities.	Other measures for active consolidation being considered.
March 2004	Introduction of DvP III.	To obtain netting efficiency and to enable rollover of repos.	Running successfully.
April 2004	Introduction of RTGS.	To provide real time, online, large value inter-bank payment and settlements.	Running successfully.
August 2005	The Negotiated Dealing System-Order Matching (NDS-OM), an anonymous order matching system which allows straight-through processing (STP) was established.	To provide the NDS members with a more efficient trading platform.	Over 60 per cent of transactions in government securities are done through NDS-OM.
February 2006	Intra-day short selling permitted. This was later extended to five trading days, effective January 31, 2007.	To improve liquidity in market, particularly in the rising interest rates phase.	Is in a nascent stage of development.
August 2006	Commencement of 'When Issued' trading.	Efficient price discovery and distribution of auctioned stock.	Is in a nascent stage of development.
August 2006	Government Securities Act, 2006 passed by the Parliament.	To facilitate wider participation in government securities market and create the enabling provisions for issue of Separately Traded Registered Interest and Principal Securities (STRIPS).	Awaiting notification of the Rules.