# 6

# Financial Markets

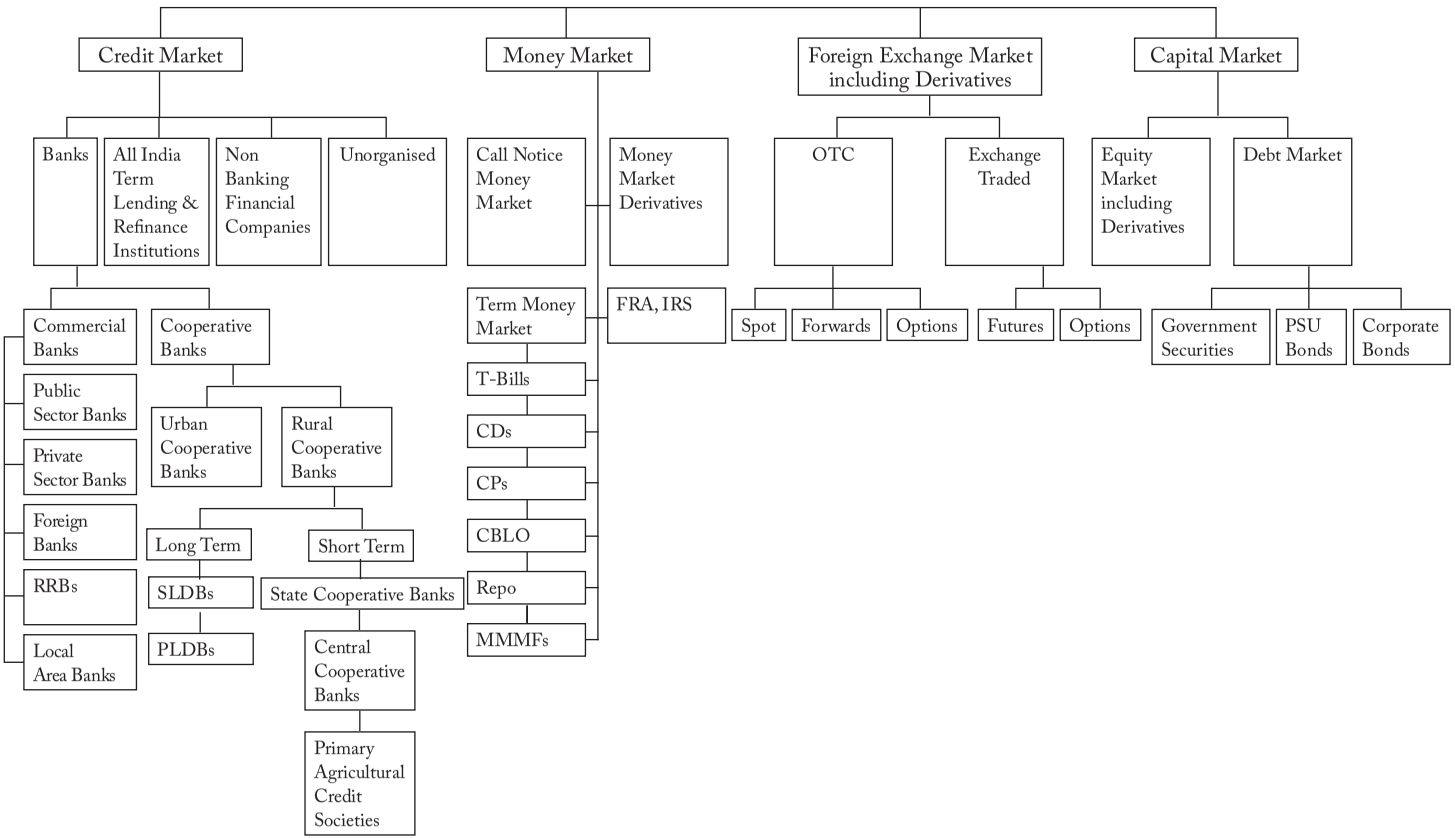
## Introduction

As a result of the ongoing financial market reforms of the previous decades, there was growing integration among the three main segments of the financial market – the money market, the government securities market and the foreign exchange market – with the money market acting as the fulcrum. But through a series of institutional and technological changes, the process was taken much further during the period of study. And as it continued, the role of financial markets in the economy was significantly enhanced. The chapter describes this process (Figures 6.1 and 6.2).

One of the broader objectives of the reform was to facilitate market integration. Market integration has obvious advantages. It allows economies of scale, more competition, and reduces prices and costs. It allows market participants more choice of investment instruments and allows them to spread risks. Integration also increases the effectiveness of regulation and policy. On the other hand, there is a risk. An integrated market may spread impulses arising in one market to the others, which can be beneficial if the impulse is a growth-inducing one, and hurtful if it is in the nature of a crisis. These expected gains and risks are of special interest to this chapter.

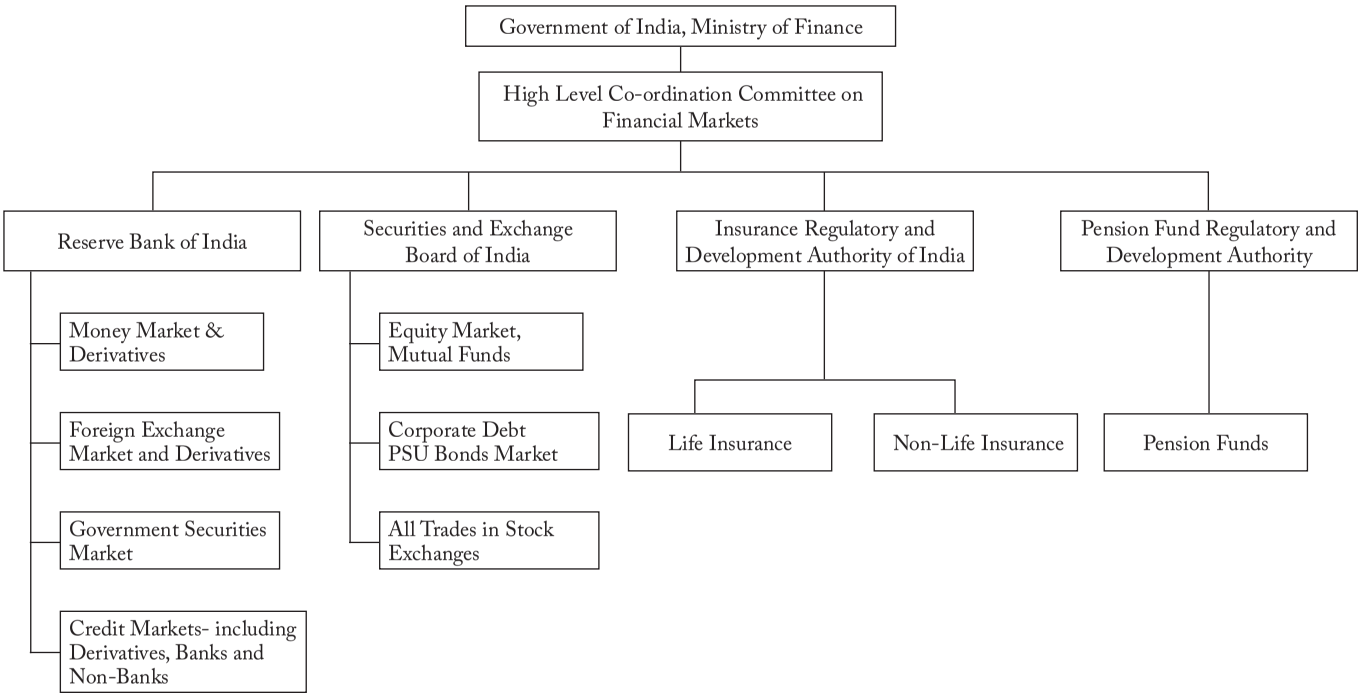
Within the money market, the call money market occupies a strategic position by serving as the equilibrating mechanism between day-to-day surpluses and deficits in the financial markets, and by transmitting the monetary policy impulses to the financial system quickly and efficiently. Consequently, it is the focal point for the Reserve Bank's operations in influencing liquidity conditions. In the government securities market, major reforms were undertaken to deepen and widen the market, and thereby encourage transactions, and support these with financial accommodation under the liquidity adjustment facility, or LAF (see Chapter 3). The foreign exchange market grew in importance in the context of the large inflow of

**Figure 6.1** Components of the Financial Market




*Note*: This is a simplified version of the financial market as identified during the reference period (1997–2008) highlighting the salient features.

**Figure 6.2** Regulatory Structure in the Indian Financial Market




*Note*: This is a simplified version of the regulatory structure as identified during the reference period (1997–2008).

foreign funds and liberalisation of the foreign exchange regime. The foreign exchange market also operated in close affinity with the call money market on account of the day-to-day liquidity management operations of the Bank.

The rest of the chapter is divided into four main topics: an overview of major developments in the financial markets, the money market, the government securities market and the foreign exchange market. There are minor overlaps between Chapter 3, 'Monetary Management', and the present chapter with respect to government securities trade, although the focus of Chapter 3 is on institutional changes, while the focus of this chapter is on market process, instruments and participation. Similarly, there are minor overlaps with Chapter 4 on exchange rate management. Before embarking on the main narrative of this chapter, it would be useful to emphasise certain features of the development of the financial market during 1997–2008.

## Major Developments, 1997–2008

Deregulation of interest rates by the Bank began with the removal of restrictions on the interbank money market in 1989. This was followed by putting the government's market borrowing programme through the auction process in 1992–93. Phased deregulation of lending rates in the credit market followed this step.

To activate the market, a number of instruments, such as commercial papers (CP), short-term treasury bills (T-bills) and certificates of deposit (CDs) were introduced, supplemented by a parallel process of market development, beginning with the establishment of the Discount and Finance House of India (DFHI) in 1988. Another significant initiative was the development of the repo market outside the official window for providing a stable collateralised alternative, particularly to banks and non-banks. This had the effect of money market activity migrating from the uncollateralised call money market segment to the collateralised market repo and collateralised borrowing and lending obligation (CBLO) markets. Reforms were undertaken in developing appropriate market infrastructure, such as increasing the width and depth of the market, improving risk management practices and increasing transparency in the markets.

The growth of the repo (outside LAF) market and the CBLO market resulted in the entry of a wide spectrum of investors, such as banks, primary dealers (PDs), non-banks and mutual funds. Foreign institutional investors (FIIs) were allowed to participate in the government securities market. The enhanced presence of foreign banks in line with India's commitment to the

World Trade Organization (WTO) strengthened links between domestic and international markets and increased competition. The links between domestic money and foreign exchange markets and overseas markets were facilitated by allowing banks and authorised dealers (ADs) to borrow and invest funds abroad and to lend in foreign currency to companies in India.

The Clearing Corporation of India Ltd. (CCIL) was set up in 2001 to act as a central counterparty to all trades involving foreign exchange, government securities and other debt instruments routed through it and to guarantee their settlement. Institutions such as the DFHI, Securities Trading Corporation of India and PDs were allowed to participate in more than one market. There were significant changes in the technological, payments and settlement infrastructure (Chapter 8). The delivery-versus-payments (DvP) system, the negotiated dealing system (NDS) and its variants, and the real-time gross settlement system (RTGS) improved speed and efficiency in the settlement process. Since 1997, the Bank held frequent consultations with regulatory authorities and market experts when making policies. Interactions took place with industry associations as well, such as the Indian Banks' Association (IBA), Foreign Exchange Dealers' Association of India (FEDAI), Primary Dealers' Association of India (PDAI) and Fixed Income Money Market and Derivatives Association of India (FIMMDA).

In policymaking, the Technical Advisory Committee (TAC) on Money, Foreign Exchange and Securities Markets played an important role.[1] The objective was to benefit from the opinion of experts in banking as well as academics, government officers, stock exchanges, credit rating agencies and market participants. The TAC helped shape a wide variety of policy matters, such as guidelines on CP and documentation procedures, setting up of the CCIL, instituting the NDS, framing auction format for the sale of government securities and drawing a road map for phasing out non-bank entities from call and notice money markets.

## Money Market

The main components of the money market are listed in Table 6.1. It is useful to begin with the call money market. The call money market deals in overnight funds, also known as money at call. Funds for the tenor of two–fourteen days are termed as notice money. Although technically the chapter deals with both types – call and notice – for convenience, we will refer to them together as the call money market.

**Table 6.1** Main Components of the Money Market

| *Market Segment* | *Main Participants* |
|---|---|
| Call and notice money | Commercial banks (excluding regional rural banks, or RRBs); cooperative banks; primary dealers (PDs) |
| Collateralised borrowing and lending obligation (CBLO) | Commercial banks; RRBs; cooperative banks; PDs; financial institutions; insurance companies; mutual funds |
| Treasury bills (issued by the central government) | Commercial banks; RRBs; cooperative banks; PDs; financial institutions; insurance companies; mutual funds; state governments; provident funds |
| Repo (outside LAF) | Commercial banks; RRBs; cooperative banks; PDs; financial institutions; insurance companies; mutual funds; state governments |
| Certificates of deposit (CDs) | Commercial banks; select financial institutions; corporates; mutual funds |
| Commercial papers (CPs) | Corporates; select financial institutions; PDs |
| Bills rediscounting | Commercial banks; select financial institutions; insurance companies; mutual funds |
| Term money | Commercial banks; financial institutions; PDs |
| Interbank participation certificates | Commercial banks |

*Notes*:

1. Until 5 August 2005 select all-India financial institutions, insurance companies and mutual funds were permitted to participate in the call money market as lenders.
2. Financial institutions were the former Industrial Development Bank of India, insurance companies and mutual funds.

## *Call Money Market*

The call money market is an avenue to deploy very-short-term surpluses and it is the most important source of funds to meet individual bank's cash reserve ratio (CRR) and other short-term liquidity needs. This is an over-the-counter market and does not involve the intermediation of brokers.

The call money market was an interbank market until 1971 when the Life Insurance Corporation of India (LIC) and Unit Trust of India (UTI) were allowed to lend in the market. In 1990, with a view to widening the call

and notice money market segments, the Bank allowed General Insurance Corporation of India (GIC), Industrial Development Bank of India (IDBI) and National Bank for Agriculture and Rural Development (NABARD) to participate as lenders. In April 1991, access as lenders expanded to include entities that were able to provide evidence of bulk lendable resources. These entities were required to observe a minimum size of operation, and such transactions were permitted only through the DFHI. Since 1995, private sector mutual funds were also given permission to operate in the call money market as lenders. In April 1997, the facility of routing transactions afforded to the DFHI was extended to other PDs, and, gradually, the minimum size of operations was reduced in 1997 and 1998. These relaxations saw the number of entities routing their call transactions through PDs rising sharply.

The wisdom of opening the doors of the market had been discussed and debated for at least a decade before these moves took place.[2] Several committees suggested that the call market should be purely an interbank market.[3] Because the call money rates were market-determined while deposit rates of banks were administered, freeing entry could lead to diversion of funds from bank deposits to the call market, which would raise the cost of funds to banks. The *Report of the Committee on Banking Sector Reforms*[4] in 1998 agreed with this reasoning, subject to an exception being made for PDs, who had been present in the call money market since 1996, and who could be formally treated as banks for the purpose. Non-bank participants would be given full access to bill rediscounting, CPs, CDs, T-bills and money market mutual funds for deploying their short-term surpluses and be removed from the call market. The Reserve Bank accepted this position and held consultations with a cross-section of financial institutions on the move.[5] Generally, the participants were not against the idea. The Bank decided to implement the move towards a pure interbank market in a manner such that existing lenders would have the operational flexibility to adjust their asset–liability structure. Meanwhile, the Bank introduced a number of measures, such as widening the repo market and improving non-bank participation in a variety of other instruments, during the transitional period.

The argument for keeping PDs in the call market was that they did not have any branch network, and relied substantially on this market and the repo market and that, apart from their net owned funds and liquidity support from the Bank, they had no other source of funds that was cost effective. Since repos resulted in immobilising securities, PDs needed to have an inventory

for trading, which meant that some access to call borrowings would always be required. Moreover, any call money borrowing by a PD was backed by the stock of government securities, and there was no credit risk.

In April 1999, the Bank introduced four measures. First, non-bank participation in repo was opened up, and their participation in a variety of other instruments was sought to be improved. Second, with the amendment to the Securities Contracts (Regulation) Act (SCRA), 1956, the repo market was widened to cover non-bank entities holding both current and subsidiary general ledger (SGL) accounts with the Bank. Third, to make the transition smooth, financial institutions were permitted to operate in the call money market for some time, along with permission to participate in the repo market, while they adjusted their asset–liability structure and redeployed short-term surpluses in other money market instruments. The exact time frame for phasing out non-bank participants from the call money market was to be synchronised with the development of the repo market. Fourth, permission given to non-bank entities to transact in the call market through PDs was to be withdrawn after 1999. Several other measures were taken at the same time to impart liquidity to government securities, including the introduction of the LAF (Chapter 3).

A technical group was set up in December 2000 to suggest a smooth withdrawal of access of non-banking institutions from the call market, which agreed that complete withdrawal of non-banks from the call money market should take place together with full operationalisation of the CCIL, which was to start operations in 2001–02, and would be the agency to facilitate settlement of money, foreign exchange and government securities market transactions. The group recommended that access of non-bank institutions to call money may be reduced in stages by placing progressively lower caps upon their average daily lending.[6] The corporates who were routing their funds through PDs might be disallowed, as these entities could always place their short-term funds with PDs through inter-corporate deposits. Non-bank participants under the new system were likely to build a portfolio of securities, thus creating additional demand in the debt market. It was also anticipated that since call money rates would be higher than the repo rate, banks with surplus statutory liquidity ratio (SLR) securities may act as conduits for funds from the repo market to the call market, thereby integrating them more.

Towards the end of the reference period, banks and PDs were the main participants in the market. Financial institutions, which included insurance

companies, mutual funds and development finance institutions, could participate until 5 August 2005, and corporates were allowed to lend through PDs until 30 June 2001. The market became a fully interbank market on 6 August 2005 (see Table 6.2).

A related topic for discussion was a prudential ceiling on call market transactions. The Narasimham Committee II had recommended limits on grounds that access to this market should be restricted to meeting unforeseen mismatches and not as a regular means of financing the banks' lending operations. This was also recognised in the guidelines on asset–liability management system issued by the Bank in February 1999.[7] Further, to reduce excessive reliance on short-term funding, banks were advised to set a cap on interbank borrowings, especially call borrowings.

In March 2001, the Bank suspected that unethical behaviour of a few cooperative banks had posed risks to depositors and other banks. In order to reduce their excessive reliance on the call money market, the Monetary and Credit Policy for 2001–02 (April 2001) set a limit on the borrowings of urban cooperative banks (UCBs) in the call money market, at 2 per cent of their aggregate deposit as at end of March of the previous year, on a daily basis. On 29 April 2002, the limit was extended to state and district central cooperative banks.

**Table 6.2** Key Steps in the Transition to an Interbank Call Money Market

| *Effective Date* | *Prescribed Limit* |
|---|---|
| 5 May 2001 | Non-bank institutions (including financial institutions, mutual funds and insurance companies) were permitted to lend in a reporting fortnight, up to 85 per cent of their average daily lending in the call money market during 2000–01. |
| 14 June 2003 | From the fortnight beginning 14 June 2003, non-bank lending was scaled down to 75 per cent. (Announcement was made in April 2002.) |
| 27 December 2003 | Lending limit scaled down to 60 per cent with effect from the fortnight beginning 27 December 2003. |
| 26 June 2004 | The lending limit was further reduced to 45 per cent. |
| 8 January 2005 | The lending limit was reduced to 30 per cent. |
| 11 June 2005 | Lending limit further reduced to 10 per cent. |
| 6 August 2005 | Finally, call money market transformed into a pure interbank market as non-banks (excluding primary dealers) were phased out completely effective fortnight beginning 6 August 2005. |

An internal review in 2001 revealed that commercial banks continued to depend heavily on the call money market. In particular, a few foreign banks and new private sector banks were overexposed to the call market. The TAC on Money and Government Securities Markets also suggested linking of transactions in the call market to the balance sheet. These considerations led the Monetary and Credit Policy Statement for 2002–03 to specify prudential limits for scheduled commercial banks (Table 6.3).[8]

While the principle of prudential limit was acceptable, the multiplicity of rules was confusing. A point for discussion was whether caps should apply to owned funds or to capital. The Technical Group on Money Market (2005) examined the issue and found that migration from owned funds to capital funds would not materially impact the operations of banks. For certain cooperative banks, which were not yet subject to capital adequacy norms as applicable to commercial banks, data on capital funds were not available. Therefore, for cooperative banks, the current rules continued. For PDs, since the difference between capital funds and net owned funds was only marginal, the group proposed that the existing norm should continue. For non-bank entities, which were to be phased out of the market, no change in norm was suggested.[9]

An internal review carried out by the Monetary Policy Department (MPD) observed that the transition in the call and notice money markets took place without serious strains. Market participants had anticipated the application of prudential limits and had no problem in adjusting to them.[10] The PDs emerged as the largest borrower group. The fortnightly averaging for compliance with limits, together with almost unrestrained access to the Bank's LAF window, contributed to the stability in the call money market operations.

**Table 6.3** Comparative Prudential Benchmarks for Call Money Market Operations

| *Entity* | *Lending* | *Borrowing* |
|---|---|---|
| Scheduled commercial banks | Pre-April 2005: Owned funds<br>Post-April 2005: Capital funds | Owned funds or aggregate deposits, whichever is higher |
| Cooperative banks | (No prescription) | Aggregate deposits |
| Primary dealers | Net owned funds | Net owned funds |
| Non-banks | Average daily lending during 2000–01 in the call/notice money market | Not applicable |

**Table 6.4** Activity in the Money Market Segments

(₹ billion)

| | *Average Daily Turnover* | | | | *Outstanding (End-March)* | |
|---|---|---|---|---|---|---|
| | *Call money* | *Market repo* | *CBLO* | *Term money* | *CP* | *CD* |
| 1997–98 | 227 | - | - | - | 15 | 143 |
| 1998–99 | 265 | - | - | - | 48 | 37 |
| 1999–2000 | 232 | 69 | - | - | 57 | 12 |
| 2000–01 | 322 | 105 | - | - | 58 | 8 |
| 2001–02 | 351 | 302 | - | 2 | 72 | 16 |
| 2002–03 | 294 | 470 | - | 3 | 57 | 9 |
| 2003–04 | 172 | 104 | 5 | 5 | 91 | 45 |
| 2004–05 | 142 | 171 | 67 | 5 | 142 | 121 |
| 2005–06 | 180 | 212 | 200 | 8 | 127 | 436 |
| 2006–07 | 217 | 337 | 324 | 10 | 178 | 933 |
| 2007–08 | 214 | 547 | 556 | 7 | 326 | 1478 |

*Sources*: RBI, *Annual Report* (for various years), and RBI, *Handbook of Statistics on Indian Economy, 2009–10*.

*Note*: Turnover is two times the single-leg volumes in the case of call money and CBLO to capture borrowing and lending both, and four times in the case of market repo (outside LAF) to capture the borrowing and lending in the two legs for a repo.

After the limits came into place, lenders placed their surplus funds in the Bank's repo window and other schemes. Some public sector banks, especially State Bank of India (SBI), bid aggressively in the primary auctions of government securities to deploy their excess funds.[11] Some banks had invested large amounts in mutual funds. The term money market also saw more activity (Table 6.4). The spread between call money rates and term money rates reduced. The Reserve Bank, however, was concerned that the majority of lenders found an easy way out by placing funds in the Bank reverse repo window, hindering the growth of the term money market and the repo market.

### *Term Money Market*

Funds with a maturity from fifteen days to one year are borrowed and lent without collateral in the term money market. Like the other segments of the money market, term money was also strictly regulated until the late 1980s, with ceiling rates prescribed for various maturities. The market was sluggish.[12]

And yet, a well-functioning term money market was needed to bridge the funding gap of financial institutions, to provide a reference rate for a variety of products, and to facilitate transmission of monetary policy signals.[13]

Interest rates in the term money market were deregulated in 1989. The participant base was widened by allowing select financial institutions, first as only lenders and subsequently as borrowers.[14] But more action was needed. In April 1997, the Reserve Bank exempted banks from the maintenance of the CRR and the SLR on interbank liabilities to facilitate the development of the term money market. Term money of original maturity between fifteen days and one year was exempted from the prescription of minimum CRR from 11 August 2001. Dissemination of benchmark rates by the National Stock Exchange (1998), issuance of asset–liability management guidelines for banks (1999), introduction of the LAF in June 2000 that imparted stability to the overnight rates, and placement of caps on call lending (in addition to prudential caps on borrowing) but not on term money contributed to the process. Limits on the lending side were expected to drive surplus liquidity of banks to alternatives like term money. Enabling term money transactions on the NDS-CALL platform, which was launched in September 2006, also helped.

Despite these moves, the term money market failed to become a vibrant one.[15] Growth in the volume of transactions was small compared to those in call money or repo. The distribution of liquidity amongst banks was highly skewed, in that a few banks accounted for all borrowing from or lending to the Reserve Bank. Further, banks tended to deal with uncertainty by keeping excess cash. Part of the problem was that interbank claims accounted for a small proportion of banks' assets in India. Prescription of limits on transactions in the uncollateralised segment of the market had not led to the development of the longer-term market but only resulted in the migration of funds from the overnight uncollateralised call segment to the overnight collateralised (CBLO and market repo) one. Thus, prudential norms reduced the dependence on instruments like term money.[16] Compared to term money, alternatives such as CDs and mutual funds were seen to be more flexible because, among other reasons, CD was a tradable instrument.

Towards the end of the reference period, there was a mood of acceptance that the Bank could do little to activate the market. A few initiatives were taken, however. The impact of the initiatives takes us beyond the reference period.

*Treasury Bills*

T-bills are risk-free investments that carry a relatively low rate of interest. A long-standing system of automatic monetisation of the budget deficit by issuing ad hoc T-bills was replaced by ways and means advances for the central government in 1997 (see Chapter 3). When the ad hoc T-bills and the 'on tap' 91-day bills were discontinued (1 April 1997), the government needed an alternative arrangement for the transition period to take care of its cash management. A 14-day T-bill was introduced from 6 June 1997. The interest of market participants in 14-day T-bills was good in the beginning but started waning soon. By 2000, except for PDs and a few state governments, investors did not take much interest in them. With the small amount mobilised at each auction, these bills did not help the government in its cash management either. From 14 May 2001, the 14-day T-bills (and 182-day T-bills) were withdrawn, and a decision was taken to focus on few maturities and, at the same time, enhance the volume in primary issues of these bills.

The 182-day T-bills had a chequered history. It was introduced in November 1986. Since then, it had seen several episodes of introduction, withdrawal and reintroduction. They were reintroduced on 26 May 1999 and continued in existence for two years. During this phase, the bills were issued through competitive auctions, for a fixed notified amount. On many occasions, the Reserve Bank had to participate as a non-competitive bidder. The 14-day, 91-day and 364-day T-bills were also in existence by that time. The objectives of having a number of T-bills with diverse maturities were to facilitate the availability of short-term funds to the government and give more choice to market participants.

The T-bill market programme followed a certain schedule of issuance.[17] The schedule offered short-term funds to the government at any point in time. But the programme lacked synchronisation in respect of issue/maturity date of T-bills, which did not allow 'fungibility' – easy interchangeability with other similar assets – of T-bills. Furthermore, the notified amounts for the issue of all the T-bills except for the 364-day T-bills were too low, which affected secondary market liquidity of T-bills. With a strong preference of market participants in favour of the call money market, the secondary market liquidity in the T-bill market was very low. The existence of a large number of T-bills of different tenor further fragmented total quantity into even smaller lots. There were few participants other than PDs in primary auctions. Even the participation of PDs in T-bill auctions was more out of their obligation to

meet their annual bidding commitment targets rather than by choice. As PDs were generally dependent on the call money market to fund their holdings of T-bills, their auction bids largely reflected the call money rate.

Several measures were taken to address these problems. First, the issue or maturity day of all T-bills was synchronised from April 2001. The auction and payment days for all T-bills were fixed on Wednesdays and Fridays. Second, issuance of 14-day and 182-day T-bills was discontinued from 11 May 2001. Third, the notified amount for the auction of 91-day T-bills was enhanced to increase the outstanding amount of the bills in the market. Subsequently, financial market developments, as well as regulations in other areas, helped the process. The main areas of change were the decision to phase out non-bank institutions from the call money market, foreign exchange inflows and revision in the notified amounts for auctions of 91-day and 364-day T-bills in response, and introduction of the Market Stabilisation Scheme (MSS) from 25 March 2004 (see Chapter 3), under which the notified amount for auctions was increased substantially.

In the primary market, these measures contributed to widening the subscription base and strengthened the demand for T-bills. The menu of options for primary investors was reduced, but the existing T-bills did not quite fill in the maturity spectrum.

A Working Group on Reintroduction of 182-day T-bills (2004) recommended reintroduction of the 182-day T-bills. The auctions were to be conducted on a fortnightly basis. To create fungibility among all the T-bills, the auctions for 182-day T-bills were to be on Wednesdays with payment on Fridays, as in the case of other T-bills. It was also suggested that, to begin with, the notified amount for the auction of 182-day T-bills could be fixed at ₹5 billion and in order to smoothen the weekly outflows of funds, the notified amount for the auction of 364-day T-bills under the normal market borrowing was to be reduced from ₹10 billion to ₹5 billion. The first auction of 182-day T-bills was conducted on 6 April 2005.

To broaden market participation, and to eliminate the problem of 'winner's curse' – the winning bid in an auction exceeding the intrinsic value of the item subsequent to the auction – the Bank (in October 1997) introduced a system of uniform price auction with 91-day T-bill auctions. Under the prevailing auction system of 14-day, 91-day and 364-day T-bills and dated securities of the central government, the respective cut-off yields determined the coupon rate/price and, as a result, all bidders at or below the cut-off yield were allocated

up to the notified amount. It had been the practice to notify the amounts of the issue in respect of auctions of 91-day T-bills and dated securities, while the amounts were not notified in the case of 14-day and 364-day T-bill auctions. The practice of notifying the amount of issue was extended to all auctions, including those of 14-day and 364-day T-bills.

In the 1990s, a few institutions, such as state governments, provident funds and Nepal Rastra Bank, were permitted to participate in the 14-day and 91-day T-bill auctions as 'non-competitive' bidders.

### *Collateralised Borrowing and Lending Obligation*

The move to promote CBLO needs to be seen in relation to the efforts to develop a repo market outside the LAF to provide participants with a stable funding alternative. The use of such collateralised products was expected to minimise the credit risk of lenders and help in evolving a short-term rupee yield curve.

The CBLO was operationalised as a money market instrument through the CCIL on 20 January 2003. It is a discounted instrument available in an electronic book-entry form for the maturity period ranging from one day to ninety days (subsequently extended to one year). Membership was extended to banks, financial institutions, insurance companies, mutual funds, PDs, non-banking financial companies (NBFCs), non-government provident funds, corporates and others. The CCIL assumes the role of the central counterparty through the process of novation and settlement of transactions.[18] Borrowing limits for members are fixed by the CCIL at the beginning of the day taking into account the securities deposited by borrowers in their SGL account with the CCIL. The securities are subjected to a 'haircut' after marking them to the market.[19] Automated value-free transfer of securities between market participants and the CCIL was introduced in 2004–05.

The regulatory provisions and accounting treatment for the CBLO were the same as those applicable to other money market instruments. However, to develop the CBLO, the operations were exempt from the CRR until 24 November 2009, subject to a bank maintaining the minimum CRR of 3 per cent. Eligible securities were central government securities and T-bills. The securities lodged in the gilt account of the bank maintained with the CCIL under the SGL facility, and remaining unencumbered at the end of any day, were reckoned for SLR purposes by the concerned bank.

For a variety of reasons, the CBLO was a success. The migration of money market activity from the uncollateralised call money market segments to the collateralised segments (market repo and CBLO) was driven by the standardisation of accounting practices, broad-basing of eligibility criteria in collateralised markets, gradual phasing out of non-banks from the call money market, exemption of CBLO from CRR requirements and anonymity provided by the order matching systems. Availability of alternative avenues for mobilising short-term funds, such as the market repo and the CBLO, also led to market rates aligning with the informal interest rate corridor of repo and reverse repo rates under the LAF.

In the initial period, one insurance company and a few cooperative banks supplied funds in the CBLO market but, subsequently, mutual funds emerged as one of the largest suppliers of funds. On the demand side, apart from banks, PDs participated regularly on account of the lower borrowing costs in the CBLO vis-à-vis the call market. The collateralised market accounted for 80 per cent of the total turnover in 2007–08. The composition of borrowers underwent a change, with corporates becoming significant borrowers besides commercial banks and PDs.

### *Repo outside the LAF of the Bank*

Repo or repurchase agreement is a money market instrument that enables collateralised short-term borrowing and lending through sale or purchase of debt instruments. To activate the repo market, in April 1997, repo and reverse repo transactions among institutions were extended, and non-bank holders of SGL accounts with the Reserve Bank were allowed entry into repo market transactions (but not into reverse repos). On 29 November 1997, the Bank commenced a scheme of 3–4-day fixed-rate reverse repos in government securities in order to impart greater maneuverability in short-term liquidity management. Following on the Narasimham Committee II recommendations, further steps were taken to develop the market. In April 1999, DvP, uniform accounting, valuation and disclosure norms, and restriction of reverse repos to instruments held in dematerialised form with a depository were adopted. Along with these prudential safeguards, the market was opened to UTI, LIC, IDBI and other non-bank participants in the money market. Following the recommendations made by an internal sub-group of the TAC, the Bank decided (April 1999) that non-bank entities could borrow money through repos like banks and PDs.

The repo market widened (April 2000) to cover all non-bank entities.[20] These entities could borrow as well as lend in the market. To broaden and expand the participant base, from March 2003, certain specified categories of non-bank entities like mutual funds, insurance companies, housing finance companies and NBFCs, which were earlier not eligible to participate in the repo market, were made eligible. These entities were allowed in the repo market through their 'gilt accounts' maintained with the custodians, subject to safeguards and transparency guidelines. The rollover of repo transactions in government securities was facilitated with the enabling of the DvP mode of settlement in government securities (2 April 2004). This provided significant flexibility in managing collateral.

During the years 2005–06, 2006–07 and 2007–08, the repo market (outside LAF) continued to grow in the same manner as the CBLO. Both the CBLO and repo markets became important segments of the collateralised market. Mutual funds were the major lenders while commercial banks and PDs were the major borrowers.

### *Certificates of Deposit*

CDs were introduced in 1989 to widen the range of instruments and give investors greater flexibility in deploying their short-term surplus funds. The CD is a negotiable instrument and issued in the dematerialised form or as a usance promissory note for funds deposited at a bank or other eligible financial institutions for a specified time period. CDs can be issued by commercial banks (with some exclusions) and some all-India financial institutions to individuals, corporations, companies, trusts, funds, associations and non-resident Indians on a non-repatriable basis. CDs are generally accepted by banks during periods of tight liquidity at relatively high rates of interest (in comparison with term deposits). But the transaction cost of CDs is often lower compared to retail deposits. When credit picks up, banks try to meet their liquidity gap by issuing CDs at a premium. The required amounts are mobilised through CDs, often for short periods, in order to avoid interest liability in the subsequent months when credit demand slackens. The subscribers find it profitable to hold CDs until maturity as banks offer higher interest rates on them. Given these dynamics, the secondary market for CDs had been rather slow to develop.

The Reserve Bank initially limited the issuance of CDs to a certain percentage of a bank's fortnightly average of the outstanding aggregate

deposits in 1989–90. Over time, bank-wise limits were raised and subsequently abolished (from 16 October 1993). These moves enabled CDs to emerge as a market-determined instrument. However, the reduction in the minimum maturity of time deposits with banks and permission to allow them to pay different interest rates based on deposit size reduced the attractiveness of CDs.

To broaden the market for CDs, in October 1997, the minimum size of issuance to a single investor was scaled down to ₹0.5 million from ₹1 million and the minimum maturity period reduced from three months to fifteen days (April 2000) and further to seven days (April 2005). The restriction of a minimum period of transferability of CDs was withdrawn from 10 October 2000. In the interest of transparency, in June 2002, banks and financial institutions were asked to issue CDs only in dematerialised form. The minimum size of the issues was reduced again. At the instance of the Bank, the FIMMDA prepared and issued guidelines for issuing CDs, which contained standard procedures and documentation to be followed.

Overall, higher credit growth, competitive resource mobilisation, differential perception on credit risk and bank-specific factors propelled the CD market's growth during the period under review. Issuances of CDs came to depend not only on overall market liquidity conditions but also on bank-specific factors. Some foreign banks and banks in the private sector raised resources through CDs because they had a smaller retail network. Mutual funds increasingly invested in CDs to boost their returns from the money market.

### *Commercial Papers*

CPs are an unsecured money market instrument. These were introduced in India in 1990 to encourage corporate borrowers to diversify their sources of short-term borrowings and to provide an additional instrument to investors. CPs are issued in the form of a promissory note. They are privately placed with investors through the agency of banks. Banks act as both principals (counterparties in purchase and sale) and as agents in dealership and placement. However, banks are not allowed to either underwrite or to co-accept issuance of CPs.

The market for CPs in India is driven by demand from commercial banks. They prefer CPs due to the higher transaction costs of bank loans and the attractiveness of CPs as a short-term instrument during times of high liquidity. The secondary market for CPs was subdued on account of

investors' preference to hold on to the instrument due to higher risk-adjusted return relative to other instruments. The Bank encouraged the CP market by relaxing the guidelines for issuing CPs.[21] The issuer base was widened by allowing PDs, satellite dealers and all-India financial institutions (apart from corporates) to access short-term funds through CPs. New guidelines in October 2000 further broadened eligibility, made credit rating of issuers mandatory, and specified the roles and responsibilities of the participants. In particular, the guidelines were to enable the companies in the service sector to more easily meet their short-term working capital needs. At the same time, banks and financial institutions were provided the flexibility to fix working capital limits, taking into account the resource position of companies' finances, including CPs.

In April 2003, banks and financial institutions were given the flexibility to provide credit enhancement for a CP issue by way of standby assistance and credit back-stop facility, subject to prudential norms. To grant further flexibility in the CP market, non-bank entities, including corporates, were allowed to provide an unconditional and irrevocable guarantee for credit enhancement of issue, subject to certain conditions. In October 2004, the minimum maturity period of CPs was reduced from fifteen days to seven days.

The demand for CPs was generally inversely related to money market rates. Activity in the CP market picked up when good liquidity conditions enabled the entities to raise funds through CPs at an effective rate of discount lower than the lending rate of banks. Besides easy or tight liquidity conditions, a few other factors influenced transactions. For example, from mid-November 2003, the issuances of CPs picked up on account of increased interest shown by mutual funds and banks when the Reserve Bank issued new guidelines. Further, a reduction in stamp duty on CPs buoyed the market.

As for issuers, manufacturing companies were prominent, but recorded a decline in the amount of CPs issued mainly due to larger internal accruals. Introduction of sub-PLR lending enabled corporates to raise funds at comparable rates from banks. Easier access to external commercial borrowings helped some large companies. On the other hand, large issuances of CPs by finance and leasing companies happened because of the phasing out of their access to public deposits. Investment interest by mutual funds followed the Bank's guidelines on non-SLR securities by banks and a reduction in stamp duty.[22] The spurt in 2007–08 may have been due to

the amendment of the norms of an asset–liability management system for commercial banks.

At the meeting of the Committee of the Central Board of Directors of the Bank on 18 September 2002, a Director observed that many banks borrowed money in the form of CDs at a higher rate than the rate at which they were lending through CPs of comparable maturity, which might affect their profitability. The remark led to a review of the use of these instruments by banks. It appeared that both decisions were driven by short-term liquidity conditions, which forced the banks to raise liquidity at high rates, and park surplus at a low rate in the absence of better alternatives.

The Reserve Bank reviewed the CP market again in a status paper in July 2004. S. S. Tarapore, a former Deputy Governor of the Bank and himself a prominent policymaker in money market development, expressed reservations about certain aspects.[23] Tarapore did not like reduction in the minimum rating for CPs, reduction in the maturity period to one day and the introduction of asset-backed CPs. He called these 'avoidable' measures, and warned: 'The RBI must know that it will take just one CP failure to collapse the CP market, which it has so assiduously developed over the last 14 years.' The criticisms had an immediate effect, and the Bank did not pursue many of these proposals.

A study carried out by the MPD (January 2008) revealed that both the CD and CP markets had remained concentrated. Smaller banks with limited branch networks generally mobilised funds through CDs, while public sector banks with surplus liquidity were the major investors in CPs. Divergence in the yields of these two instruments might have reflected differences in the strength of the balance sheets of these two sets of banks. Further, it was found that banks which issued CDs at a higher rate than the rate prevailing in the market had minimum exposure to CPs issued by companies. Thus, the two sets of operations might be viewed as a standard asset–liability management operation by banks without having much impact on profitability.

### *Commercial Bills, Interbank Participation Certificates and Money Market Mutual Funds*

The Reserve Bank controlled entry into the discount market. Several committees had in the past advocated measures to encourage bill rediscounting.[24]

Notwithstanding these efforts, activity in the commercial bill market did not pick up substantially.

As an additional instrument to even out short-term liquidity within the banking system, two types of interbank participation certificates – one on a risk-sharing basis and the other without risk sharing – had been introduced in October 1988. These instruments were also used by banks to meet priority sector norms. However, these had not been widely in use.

The Bank guidelines governed the money market mutual funds (MMMFs), which invest in money market instruments. In 1999, the Bank withdrew its guidelines and the funds came to be governed by the Securities and Exchange Board of India (SEBI). However, banks and financial institutions that desired to set up mutual funds were required to seek necessary clearance from the Reserve Bank for undertaking this additional activity before approaching SEBI for registration. The resources mobilised were invested in the call money market, CDs, CPs, commercial bills, T-bills and dated government securities having an unexpired maturity up to one year. In October 1997, these mutual funds were allowed to invest in rated corporate bonds and debentures with a residual maturity up to one year. However, some prudential requirements continued.

### *Default Risk and Policy Norms*

Normally, the functioning of the money market was default free. However, instances of defaults in some segments of the money market were noticed. Between 2001 and 2004, a few cases, including that of a cooperative bank, were observed. Defaults were also reported in the CP market in 2003. The situation led to a discussion in the MPD. There was clearly a link between default risk and the moral hazard that might occur if risks were generally protected. International experience showed that in many countries, capital adequacy norms, contract law and bankruptcy law usually addressed default risks. The jurisdiction of the central bank was limited to the primary market for government securities and T-bills. Of course, if the default had the potential to destabilise the system, the central bank was likely to intervene. The MPD held the view that the default risk in the money market should be kept to the minimum as, otherwise, it could have a contagion effect in the economy, and that a self-regulatory organisation might be empowered to do

the task. The FIMMDA, which had done substantive work on standardising market practices, was such a body. This course was preferable because moving the courts or the Company Law Board was time consuming. These issues were placed before the TAC at its meeting on 31 May 2004. A member expressed the view that international regulatory authorities did this job, and that the task could be assigned to the IBA rather than the FIMMDA. Another member pointed out that the RBI Act did not recognise any self-regulatory organisation.

### *Derivatives*

Deregulation of interest rates (Chapter 3) created risks stemming from unforeseen changes in interest rates. The Reserve Bank decided in October 1998 to encourage interest rate swaps, and allowed commercial banks, PDs and all-India financial institutions (excluding RRBs and mutual funds) to undertake forward rate agreements (FRAs) and interest rate swaps (Box 6.1), subject to the condition that risk management systems were put in place.

Participants were also required to set up a sound internal control system, whereby a functional separation of trading, settlement, monitoring, control and accounting activities was provided. Corporates were also allowed to use these methods to hedge their exposures. In June 2003, banks, PDs and financial institutions were permitted to use interest rate futures. No specific permission from the Bank was needed to undertake these transactions, except to keep it informed.

The FRA is a financial contract between two parties to exchange interest payments for a 'notional principal' amount – the nominal, or pre-determined, value used to calculate payments made on the derivative – on the settlement date, for a specified period from start date to maturity date. On the settlement date, cash payments based on contract and the settlement rate are made by the parties to one another. The settlement rate is the agreed benchmark or reference rate prevailing on the settlement date. An interest rate swap (IRS) is a financial contract between two parties exchanging or swapping a stream of interest payments for a notional principal amount on multiple occasions during a specified period.[25]

**Box 6.1** Derivatives

A derivative is a contract that derives its value from the performance of the underlying entity. This entity could be an asset, index or interest rates. Derivatives are used for a number of purposes, such as insuring against price movements (hedging) and for speculation.

Over-the-counter derivatives are contracts that are traded (and privately negotiated) between two parties without going through an exchange or other intermediaries. Products such as forward rate agreements and swaps are traded in this manner. Contracts are available for maturities up to one year.

Derivatives serve to achieve a more complete financial system because previously fixed combinations of the risk properties of loans and financial assets can be bundled and unbundled into new synthetic assets. In other words, derivatives allow individual risk elements of an asset to be priced and traded individually, thus ensuring an efficient price system in the asset markets.

Repackaging risk properties in this way provides a more perfect match between an investor's risk preferences and the effective risk to the portfolio or cash flow.

Deregulation of interest rates, which helped in making financial market operations efficient and cost-effective, brought to the fore a wide array of risks faced by market participants. In India, derivative instruments were available in the money market, foreign exchange market and equity market. Though some of the derivatives had recorded growth, the derivative markets as such faced rigidities on account of lack of (*a*) credible term money benchmark, (*b*) significant participation by large players such as public sector banks, mutual funds and insurance companies, (*c*) cash market for floating rate bonds and (*d*) transparency in price and volume information.

FRAs or IRS can be undertaken both for hedging underlying genuine exposure to risk and as a market-making activity, which would involve at times dealing in the market without underlying exposure. However, to ensure that market makers did not overextend themselves, they were required to place prudential limits on swap positions that may arise on account of market-making activity.

Yet another instrument for managing risk was the exchange traded interest rate futures. Among other conditions, these entities had to become members of the futures and options segment of the stock exchanges for the limited purpose of undertaking proprietary transactions for hedging interest rate risk. The National Stock Exchange (NSE) introduced interest rate futures on cash-settled contracts on 24 June 2003.[26]

In 2003, a working group on rupee derivatives recommended that the market regulator should lay down only broad eligibility criteria and the exchanges should be free to decide on the underlying stocks and indices on which futures were permitted.[27] The broad eligibility criteria should focus on risk containment and manipulability. In the case of bond futures, contract settlement should be done on a delivery basis in order to ensure better integration between the spot market and futures market. It recommended a phased introduction of rupee option products, such as vanilla caps, floors and collars.[28]

Later that year (December 2003), the Committee on Rupee Interest Rate Derivatives[29] noted that the exchanges had introduced yield-to-maturity-based contracts (yield to maturity, or YTM, is the estimated rate of return if the bond is held until maturity). The committee favoured a two-way position taking by banks in order to revive interest rate futures market and suggested that banks having adequate internal risk management and control systems, and robust operational framework could be allowed to run trading positions across various interest rate derivatives, including interest rate futures. The committee also recommended 'marking-to-market' to conduct a realistic appraisal of the financial situation for all interest rate products undertaken for trading purposes, including bonds, and the recording of unrealised gains and losses on derivative contracts on the balance sheet as an asset or liability. Further, to ensure that the futures reflected true expectations about the evolution of the cash market, the committee recommended the introduction of physical settlement (over cash settlement). The SEBI Advisory Committee on Derivatives and Market Risk Management in late 2003 also reviewed the product design. The exchanges, however, were not inclined to reintroduce interest rate futures based on the revised product design. The market response was weak.[30]

Initiatives like these failed to generate market interest in the products.[31] The view of the exchanges was that banks, which formed the largest participant category in fixed income markets, did not play a major part. Since the Reserve Bank limited the participation of banks in futures to only hedge their government security portfolios, their interest was one-sided (net sellers of futures). With this limited one-way participation by banks, the futures market did not take off.

## Government Securities Market

The government securities market is the backbone of fixed income securities markets as it provides the benchmark yield and imparts liquidity to the

financial system. From the perspective of the government, a deep and liquid government securities market facilitates its borrowings. For a central bank, a developed government securities market allows greater use of market-based instruments of monetary policy, such as open market operations and the repo.

The debt markets in India are conventionally classified into three segments – the government securities market, the market for bonds of public sector units and the corporate debt market. Among the three, the government securities market is overwhelmingly large both in scale and importance as a policy instrument. Until the 1990s, the development of a liquid and active government securities market was impeded due to administered interest rates, automatic monetisation of fiscal deficits and a high SLR. With a captive investor base and low coupon rates on government securities, the secondary market for government bonds remained dormant. Artificial yields on government securities distorted the yield structure of financial assets in the system and led to a high-interest-rate environment in the rest of the market. As we have seen (Chapter 3), changes occurred in all these fronts from the 1990s and were taken forward in the period under review.

In the early 1990s, the interest rates on government papers were made market related and the maturity periods reduced substantially. Since 1992, the borrowing programme of the central government had been conducted on an auction basis. Other reforms included the introduction of PDs, the DvP system for settlement of dealings and new instruments such as zero coupon bonds, partly paid stock and capital-indexed bonds (CIBs). Repos in government dated securities and T-bills of all maturities have been discussed in Chapter 3. These measures brought about a new treasury culture amongst banks and other financial institutions, one more sensitive to efficient management of liquidity.

There were three phases in the reform process.

### *Phases of Reform in the Government Securities Market*

The first phase (1997–2000) saw a continuation of the earlier efforts towards building the infrastructure. The second phase (2000–05) focused on enhancing liquidity and safety, creating efficient and robust clearing and settlement systems, and building up of payment infrastructure. An especially relevant piece of legislation during this period was the Fiscal Responsibility and Budget Management (FRBM) Act, 2003, which enabled the Bank to reorient the government debt management operations (discussed in Chapter 7), besides

strengthening monetary operations. The third phase (2005–08) saw amendment of the laws relating to the issue and management of government securities – the Government Securities Act, 2006, and the Reserve Bank of India (Amendment) Act, 2006. These Acts have been discussed in Chapters 3 and 7.

In the first phase, the system of PDs was strengthened to support the issuance programme and the secondary market. The market was expanded through the introduction of repos, by allowing FIIs to invest in government securities within limits and the introduction of CIBs. The mechanism of conducting auctions in government securities was refined by combining both price-based and yield-based auctions. The maturity for debt was made longer, and the emergence of a benchmark rate facilitated. Amendments to the Securities Contracts (Regulation) Act, 1956, gave the Bank more power to regulate dealings in securities and forward contracts from 1 March 2000. The scope of participation in the repo market was widened to all entities having SGL and current accounts with the Bank.

In the second phase (2000–05), efficient clearing and settlement systems took shape. Consolidation of securities received attention, new participants were permitted in the market and processes like 'short-sales' and 'when-issued' were experimented with. The CCIL started in April 2001 and the NDS in February 2002. The NDS facilitated electronic bidding in auctions, secondary market transactions in government securities and dissemination of information on trades on a real-time basis. The CCIL introduced the CBLO (see earlier), which facilitated the move towards an interbank call market. Trading in government securities was introduced in stock exchanges. Non-banks were allowed to participate in the repo market. The government securities market became more diversified with the entry of high-net-worth individuals, cooperative banks, large corporates, mutual funds and insurance companies.

The Reserve Bank had introduced the NDS to create an automated electronic reporting and settlement process and provide a platform for trading in government securities. The NDS helped in achieving paperless and straight-through settlement of secondary market transactions and improved efficiency and transparency. However, the trading facilities in the NDS were hardly used, largely because they were not very user-friendly. To provide NDS members with a more advanced and efficient platform, the NDS-Order Matching (NDS-OM) module was introduced from 1 August 2005. The system was purely order-driven with all orders being matched based on price and time

priority. The executed trades followed straight to the CCIL, in a ready-for-settlement stage.

Further measures during these years dealt with maturity profile of securities, fungibility, liquidity, accounting norms and the introduction of derivatives. The uniform valuation basis, announced by the FIMMDA, provided transparency to the market and facilitated active management of portfolios. The regulatory and supervisory framework for PDs were strengthened. The Bank played a pivotal role in improving technology in financial market transactions. The Indian Financial Network (INFINET) facilitated an integrated payment and settlement systems and, in turn, encouraged retail electronic payment. In addition, the funds transfer module of the centralised fund management system was implemented and the RTGS system became operational.

In the third phase (2005–08), the legislative framework was reformed. The Government Securities Act, 2006, repealed and replaced both the Public Debt Act, 1944, and the Indian Securities Act, 1920. With this enactment, the Bank had an instrument of transfer suitable to the present technological environment. It gave the flexibility to allow government securities to be held in depositories, while at the same time excluding government securities from the purview of the Depositories Act, 1996. The RBI (Amendment) Act and the FRBM Act have been discussed in Chapter 3. Both pieces of legislation deepened and widened the government securities market, and led to the withdrawal of the Bank from participating in the primary issues of government securities.

A particular effect of the legislation was the facilitation of ready forward contracts. A Government of India notification dated 27 June 1969 under Section 16 of the Securities Contracts (Regulation) Act, 1956, had in effect prohibited forward contracts in securities. Nevertheless, banks did enter into buyback arrangements in government and other approved securities and public sector undertaking bonds. In 1987 and 1988, these practices were prohibited and, upon discovery of certain irregularities, a further ban on forward contracts was announced in 1992. The ban was partially relaxed in August 1994. In keeping with international practice and to make debt markets efficient, ready forward contracts were permitted in T-bills and government securities, subject to notifications issued by the Government of India on the recommendation of the Reserve Bank.

It was necessary to avoid having to approach the government frequently and to devolve certain powers to the Bank. The High-Level Committee

on Capital Markets, at its meeting on 31 January 2000, recommended demarcation of regulatory responsibilities between the Bank and SEBI. The Bank was to regulate any contract in government securities, money market securities, gold-related securities and securities derived from any of these, and in relation to ready forward contracts in bonds, debentures, debenture stock, securitised debt and other securities. However, in respect of these contracts, wherever entered into on the stock exchanges, the rules, regulations and by-laws under the Securities Contracts (Regulation) Act or directions issued by SEBI should apply. These changes were implemented in March 2000.

### *Retailing of Government Securities*

In order to promote the retail market in government securities, the Bank set up the system of PDs, satellite dealers and gilt funds, and permitted banks to buy and sell government securities. Retailing, however, did not take off. There were two main reasons for this. One was the favourable tax concessions available to investments in competing instruments, and the second was the higher returns and better services available in other avenues of investment.[32] Moreover, small saving schemes were regarded not only as 100 per cent safe but also gave better returns and service to investors. The network of agents for mobilising small savings was well established. Several retail participants, notably the provident funds and small cooperative banks, felt comfortable buying government securities, provided they were sourced from the Bank rather than from a market intermediary. Further, provident funds lacked the expertise to operate in the secondary market or had misgivings about trades in the secondary market. As a result, there was limited participation by retail investors.

To encourage small and medium investors to participate in primary auctions of government securities, non-competitive bidding was introduced in January 2002. This was open to any entity approved by the Bank. Some PDs introduced schemes for retail participation in government securities using the network of bank branches and post offices. The Bank had been encouraging PDs to offer two-way quotes to retail investors and to become members of stock exchanges. These measures did result in a more diversified holding of government securities. But retail investors remained marginal players.

An anonymous order-driven screen-based trading for retail entities on stock exchanges was enabled in January 2003, again without much effect.

**Table 6.5** Role of Primary Dealers in the Government Securities Market

| *Year* | *Share in Primary Subscription (per cent)* | *Share in Market Turnover (outright, per cent)* | *Share of Government Securities in Total Assets (per cent) – End of March* |
|---|---|---|---|
| 2002–03 | 58.5 | 27.8 | 83.9 |
| 2003–04 | 51.5 | 25.2 | 82.2 |
| 2004–05 | 52.9 | 25.3 | 61.0 |
| 2005–06 | 40.4 | 31.1 | 62.0 |
| 2006–07 | 43.7 | 29.1 | 55.0 |
| 2007–08 | 57.1 | 18.1 | 70.0 |

*Sources*: Based on data from Rakesh Mohan, *Growth with Financial Stability: Central Banking in an Emerging Market* (New Delhi: Oxford University Press, 2011), p. 119, and Clearing Corporation of India Ltd., 'Fact Book'. Data exclude devolvement but include the MSS and non-competitive bids.

There was a lack of 'market makers'. Banks and PDs were not able to effectively market government securities, citing lack of investor interest and settlement issues.[33]

The Bank tried to enhance the secondary market in government securities. This discussion should begin with the PDs (also see Table 6.5).

## Primary Dealers

PDs are registered entities with the Bank, who are licensed to purchase and sell government securities. An applicant for PD authorisation should have registered as an NBFC at least a year prior to the submission of application. PDs are required to comply with the minimum turnover ratio, bidding ratio, underwriting ratio and rules regarding secondary market participation. PDs can be subsidiaries of commercial banks, subsidiaries of all-India financial institutions, companies under the Companies Act, 1956, engaged mainly in the government securities market, or subsidiaries of foreign banks and securities firms.

PDs have five main obligations. First, they are required to participate in auctions for floatation of government dated securities and T-bills. Second, in their role as market makers, PDs should offer two-way quotes through the NDS-OM, over-the-counter market and recognised stock exchanges in India, and take principal positions in the secondary market for government securities. Third, a PD must have an effective internal control system for

the fair conduct of business, settlement of trade and account maintenance. Fourth, PDs should achieve the prescribed annual minimum turnover ratio for government securities and T-bills, respectively, as laid down by the Bank. Fifth, they must comply with the prudential and regulatory norms.

PDs bid at market auctions of government securities either on their own or on behalf of their clients and create a secondary securities market. Their performance is regularly reviewed by the Bank on the basis of their bidding commitments and the 'success ratio' achieved at primary auctions. They normally hold the most liquid securities in their portfolio. Their main sources of funds, besides their own capital and reserves, are market borrowings, liquidity support from the Bank, repo market borrowings and other instruments like CPs and inter-corporate deposits.

The issue of liquidity support has been discussed in Chapter 3. The Bank supported the PDs with repos or refinance against central government securities. However, with the new system of underwriting commitment from April 2006, the Bank revised the method. Of the total liquidity support, half would be divided equally among standalone PDs and the remaining half extended on the basis of their performance in the primary auctions and turnover in the secondary market. Besides this, the Bank extended current account facility, SGL account facility (for government securities) with the Bank and the LAF, and favoured access to open market operations. The last facility was, however, subject to review, depending upon market conditions and requirement of funds. PDs could also become members of electronic trading, trading and settlement systems.[34]

The monitoring mechanism is a combination of on-site and off-site supervision. On-site inspections are conducted to assess the systems followed by PDs at intervals of one or two years. Off-site monitoring is mainly through three returns – a daily statement showing their sources and uses of funds, a monthly statement of their performance in respect of commitment obligations and a quarterly statement of capital adequacy. PDs were brought under the supervisory jurisdiction of the Board for Financial Supervision in 2002–03. They are also required to publish their annual audited results along with certain minimum disclosure norms in leading financial dailies and also on their websites.

The system has worked well in their participatory functions in the government securities market, especially after April 2006. The Mid-Term Review of Monetary and Credit Policy for 2002–03 observed that the PDs had become systemically important and their participation in the money market

was on par with banks and was quite significant. The Bank's *Annual Report* for 2007–08 commended the key role played by PDs in the primary market activity such that reliance on the Bank in primary issuances had been greatly reduced, and government borrowings were completed successfully even after the Bank left primary market operations in April 2006.[35]

## Instrument Development

Prior to the 1990s, most government bond issuances were in the form of 'plain vanilla' fixed coupon securities. However, for a market to meet the diverse funding and hedging needs of the participants, a wider array of debt instruments was needed. Therefore, in the 1990s, various types of instruments had been introduced like the floating rate bonds (FRBs), CIBs and bonds with call and put options. But the plain vanilla bonds remained the mainstay.

### *Floating Rate Bonds and Capital-Indexed Bonds*

FRBs are medium- to long-term debt instruments offering variable coupons linked to some pre-fixed benchmark rate, say, yields on T-bills or money market rates. CIBs minimise inflation risk to the investors and issuers by adjusting both the principal and coupon payments to changes in inflation. CIBs are a preferred vehicle for investors sensitive to inflation risk. From the perspective of the issuers, CIBs help in reducing the cost of borrowing as they eliminate inflation-risk premium. The two most important issues relating to the design of CIBs are a selection of inflation risk and the indexation process to deal with inflation lag.

In India, FRBs were issued by the government for the first time on 29 September 1995. As the first issuance failed to generate an enthusiastic response, no further issuance took place in the next six years. On 21 November 2001, FRBs were reintroduced with some modifications on the request of market participants. The overwhelming market response showed the way for subsequent issuances. Until 9 October 2004, ten issuances of FRBs were undertaken, the last two of which generated poor response. The main reasons for this were the strong credit pick-up, the low secondary market liquidity for FRBs and the complex pricing methodology followed by market participants.

A 6 per cent CIB, 2002, was introduced in December 1997. The issue failed because, while these bonds offered inflation-hedging for the principal, the coupons of the bonds were left unprotected against inflation. The Bank worked out a modified structure in 2006. Around 2007, the Bank also simplified the method of pricing of FRBs in the secondary market.[36] Among other bonds, in July 2002 the Bank issued a bond with an embedded put and call option (6.72 per cent Government Security 2012) exercisable on or after five years from the date of issue.[37]

### *Separate Trading of Registered Interest and Principal Securities (STRIPS)*

A road map for STRIPS (see Box 6.2) was prepared and placed on the Reserve Bank's website in 2003. In response to the suggestions received, including those from a working group, the Bank planned to issue new securities to the extent feasible in the form of STRIPS. The Bank was to be the registry for stripped bonds.

STRIPS were allowed to be undertaken in government securities from 1 April 2010. The Bank envisaged that in government securities STRIPS would ensure availability of sovereign zero coupon bonds, which would lead to the development of a market-determined zero coupon yield curve, provide institutional investors with an additional instrument and attract retail and non-institutional investors as they have zero reinvestment risk.

**Box 6.2** Features of STRIPS

STRIPS is an acronym for Separate Trading of Registered Interest and Principal Securities. Stripping is the process of separating a standard coupon-bearing bond into its individual coupon and principal components. The mechanics of stripping neither impacts the direct cost of borrowing nor changes the timing or quantum of the underlying cash flows. Stripping only facilitates transferring the right to ownership of individual cash flows.

STRIPS has the advantage of more accurate matching of liabilities without reinvestment risk and precise management of cash flows. Therefore, these instruments are preferred by pension funds, insurance companies, banks and hedge funds.

(*Contd.*)

(*Contd.*)

The objective of a scheme for gilt stripping facility was to develop an active government securities market for zero coupon bonds with a view to access long-term savings of different investor segments. Development of a STRIPS market was also part of strengthening the much-needed market infrastructure for the government securities market.

Under the scheme, the central government dated securities were eligible for stripping. All investors who were eligible to invest in government stock were eligible for holding STRIPS, provided the investments were in dematerialised form. PDs and other entities permitted to undertake stripping of government dated securities could bifurcate the eligible stocks into two segments – stripped and non-stripped. The former had both principal and coupon STRIPS. Since coupon STRIPS with identifiable payment dates were fungible, they were traded freely without any distinction. No limits were fixed on the amounts or proportion of any gilt issue which could be stripped. Likewise, the limit on reconstitution facility would be the amount of the underlying asset. Stripping and reconstitution were undertaken by the Bank and PDs.

### *Short-Selling*

In the absence of instruments that allowed players to take a two-way view on interest rates, markets tended to be active and liquid when the rates fell but turned slow and illiquid when the rates rose. Low volumes rendered markets shallow and prone to price manipulations. An Internal Group on Central Government Securities Market considered this issue, and recommended short sales in government securities. This, it was expected, would enable market participants to express their views on interest rate expectations. In February 2006, banks and PDs were allowed to undertake outright sale of government dated securities that they did not own, subject to their being covered by outright purchase from the secondary market within the same trading day. The intra-day short-selling was permitted, subject to certain stipulations.[38]

### *'When-Issued' Trading*

The development of a 'when-issued' market (see Box 6.3) should be viewed as a useful step towards a more efficient price discovery process at primary auctions. This issue had been receiving the attention of the Bank since the early 2000s.

**Box 6.3** 'When, As and If Issued' Trading (WI Trading)

'When, as and if issued' (also known as 'when-issued') markets have been in place in many countries. The term refers to conditional security: one authorised for issuance but not yet actually issued. All 'when-issued' transactions are on an 'if' basis, to be settled if and when the actual security is issued. In other words, it indicates a conditional transaction in a security authorised for issuance, but not as yet actually issued. 'When-issued' market facilitates the distribution period for government securities by stretching the actual distribution period for each issue and allowing the market more time to absorb large issues without disruption. As 'when-issued' transactions required a specific exemption under the Securities Contracts (Regulation) Act, 1956, or the SCRA, the functioning of the market became possible only after the relevant clause under the SCRA was amended in March 2000 (as mentioned earlier).

The main advantages were the following: 'When-issued' minimised price and quantity uncertainties, resulted in increased confidence in such markets and encouraged participation from small investors; and because 'when-issued' trading facilitated price discovery and distribution, the risk of underwriting became smaller and potential subscription from new issue increased. Finally, 'when-issued' issue promoted liquidity, efficiency and integrity through higher turnover and narrower bid–ask spreads.

Until 2003, no sale transaction in government security was permitted without the seller actually holding the security in its portfolio. The Bank received frequent representations that these restrictions be relaxed. As settlement risk came down and most government securities transactions were settled through the CCIL, the Bank decided that the sale of government security, already contracted for purchase, would be permitted, provided such purchase contract was either guaranteed by an approved counterparty like CCIL or the Bank. To operationalise the proposal, settlement of government securities transactions was switched over to the DvP mode (November 2003).

The internal Technical Group on Central Government Securities Market recommended the introduction of 'when-issued' trading in government securities. The guidelines on 'when-issued' trading in reissued central government securities were prescribed in May 2006, and trading started in August. After a review, the Bank decided to permit 'when-issued' trading in newly issued securities, and guidelines were issued in November 2006.

### *Mumbai Interbank Offered Rate (MIBOR)*

Mumbai Interbank Offered Rate, or MIBOR, is the interest rate at which banks can borrow funds in marketable size from other banks in the Indian interbank market. MIBOR is calculated every day by the NSE as a weighted average of lending rates of a group of banks on funds lent to first-class borrowers. The Committee for the Development of the Debt Market (RBI) first launched MIBOR in June 1998 as an overnight rate. The intention was to develop a benchmark rate for the call money market. The NSE introduced the fourteen-day MIBOR in November 1998 and the one-month and three-month ones in December 1998. Since its launch, MIBOR rates have been used as benchmark rates for the majority of money market deals made in India.

## Foreign Exchange Market

The trends in the foreign exchange market have been discussed in earlier chapters, and do not bear repetition here (Chapter 4). Nevertheless, since the foreign exchange market is an integral component of the financial markets in India and the interlinkages among the three markets have been growing, a brief review of the growth of the foreign exchange market is in order.

On 3 September 1999, Deputy Governor Y. V. Reddy, in his Keynote Address at the Third South Asian Assembly at Kathmandu, identified a number of major issues relating to foreign exchange market development that required rethinking. These included freedom to banks in the matter of limits on their borrowing and investment overseas and ceilings on interest rates and maturities of non-resident foreign currency deposits; extension of forward cover facility to FIIs; trading in derivatives; setting up a foreign exchange clearing house; and speeding up legislative changes critical to the development of a foreign exchange market. Deputy Governor Reddy said that an efficient and vibrant foreign exchange market was a priority among steps to develop financial markets.

The developments in the foreign exchange market may be broadly classified under three heads: strengthening the institutional framework, instrument development and liberalisation. In the area of the institutional framework, the enactment of the new Foreign Exchange Management Act, 1999, resulted in the delegation of considerable powers to banks and ADs to release foreign exchange for a variety of purposes. The scope of outward remittances for corporates and individuals was expanded. The method of

foreign exchange clearing settlement was streamlined from 2001. The CCIL offered efficient and speedy clearance and settlement of interbank dollar–rupee transactions. The foreign exchange market in India, besides the spot segment, trades in derivatives, such as forwards, swaps and options. Foreign exchange swaps, since 2001, accounted for the largest share of total derivatives turnover in India, followed by forwards and options. However, the options remained insignificant. Currency futures were introduced in September 2008 for trading in dollar–rupee contracts.

The Bank set up a technical group (2005) to review these initiatives. Some measures that followed the recommendations of the group were to allow cancellation and rebooking of all eligible forward contracts booked by residents, permit banks to approve proposals for commodity hedging in international exchanges from their corporate customers, extend the closing time by one hour for interbank foreign exchange market in India and disseminate the Bank's part of information on trading volumes for derivatives.

Private companies and investors looked for avenues to hedge their exposures to the rupee. As a result, non-deliverable forwards, or NDFs, became a popular derivative instrument for meeting the offshore investors' demand for hedging. NDFs are derivatives used for trading in non-convertible or restricted currencies without delivery of the underlying currency. The NDF market for Asian currencies is largely concentrated in Singapore, where the rupee is one of the major traded currencies. The NDF market for the rupee had been in existence from the late 1990s to counter exchange control regulations in India. The INR NDF market also derived its liquidity from non-residents wishing to speculate on the rupee without any exposure to the currency, and arbitragers who exploited the differentials in the prices in the two markets. The spread, as well as the volatility, of the INR NDF was higher than that of onshore spot and forward markets. Though an accurate assessment of the volumes is difficult, the estimated daily turnover was reported to be around $100 million in 2003–04.

## Conclusion

A reassessment of the development of the financial market outlined in the chapter should acknowledge the sustained and effective attempt at structural reform, which touched institutions, instruments, procedures and participants with a particular emphasis on money market microstructure. All of these measures added depth and liquidity to the money market and government

securities transactions and contributed to a reduction in transaction cost. It is worth keeping in mind that the period under review witnessed relatively stable macroeconomic conditions, and robust economic growth in the second half, which made the transition to a new market regime relatively easy.

## Notes

1. The TAC was constituted on 12 July 1999 by merging two committees – the Standing Committee on Money Market and the Technical Committee on Government Securities Market – for a tenure of two years. Thereafter, the committee was reconstituted thrice during the reference period.
2. See Reserve Bank of India, *The Reserve Bank of India, Vol. 4: 1981–1997* (New Delhi: Academic Foundation, 2013).
3. Especially the *Report of the Working Group on the Money Market* (Chairman: N. Vaghul) in 1987.
4. Chairman: M. Narasimham, also known as the Narasimham Committee II.
5. Mid-Term Review of Monetary and Credit Policy for 1998–99 (October 1998).
6. The implementation path was more liberal as can be seen from Table 6.2.
7. Which required that mismatches during the first two 'time buckets' – one–fourteen days and fifteen–twenty-eight days – should not exceed 20 per cent of the cash outflows in each time bucket.
8. A twofold strategy was adopted in order to ensure that these banks did not face any disruption in their asset–liability management. Borrowers and lenders were allowed to unwind their positions by 4 October 2002. The application of caps on banks was undertaken in two stages, one stage from the fortnight beginning 5 October 2002 and another from the fortnight beginning 14 December 2002. However, banks facing mismatches were allowed to approach the Reserve Bank for temporary access to the call money market in excess of the limit. Any increased access over stipulated norms was also permitted for a longer period for banks with fully functional and satisfactory asset–liability management systems. Under these rules, from 14 December 2002, banks were allowed to lend up to 25 per cent of their owned funds on a fortnightly average basis, and up to 50 per cent of such funds on any day during a fortnight (also see Table 6.3). Similarly, they were allowed to borrow up to 100 per cent of their owned funds or 2 per cent of aggregate deposits, whichever was higher, fortnightly and up to 125 per cent of their owned funds on any day during a fortnight. PDs were allowed to lend up to 25 per cent of their net owned funds on average basis during a reporting fortnight from 5 October 2002. A two-stage call money market borrowing restriction on PDs of up to 200 per cent and up to 100 per cent, respectively, of their net owned funds as at the end

of March of the preceding financial year was to become effective, contingent upon greater deepening of the repo market.

9. The TAC at its meeting on 18 January 2005 favoured migration to capital funds as the benchmark for fixing prudential limits for the call money market only in the case of commercial banks. The Annual Policy Statement for 2005–06 announced that the benchmark for fixing prudential limits on exposures to call or notice money market for commercial banks would be linked to their capital funds.
10. Net lending through repo and collateralised transactions by non-banking financial institutions and mutual funds also increased. Banks on their own scaled down their lending and borrowings in anticipation of introduction of limits while foreign banks' borrowing went down.
11. The amount accepted under the Bank window showed an increasing trend, with SBI and other public sector banks being the major suppliers of funds in this window.
12. Which could be attributed to the regulated interest rate structure, statutory preemptions on interbank liabilities, cash credit system of financing and high volatility in call rates, among other factors.
13. Products such as floating rate loans, debt instruments, interest rate swaps and foreign exchange products like forwards.
14. For example, IDBI, NABARD, and Industrial Credit and Investment Corporation of India (ICICI). The DFHI was permitted in the term money market for three to six months' maturity.
15. *Annual Report* for 2003–04 and, later, the *Report of the Working Group on Term Money Market* (2009).
16. The credit–deposit ratio was well below 1, thereby minimising the need for borrowed funds for funding the balance sheet. The lending rates were almost entirely linked to internal benchmarks like the prime lending rate (PLR) or mandated for certain sectors such as agriculture, housing and exports. As a result, the need for a floating rate benchmark for pricing loans was not felt as much. The smaller role of foreign banks together with prudential limits on foreign currency borrowings by all banks restricted the use of foreign currency swaps to fund domestic assets. Unsecured interbank funding was on the decline globally as it attracted regulatory capital charges.
17. The 14-day and 91-day T-bills were issued on a weekly basis for ₹1 billion each, and 182-day and 364-day T-bills on a fortnightly basis, by rotation, for ₹1 billion and ₹7.50 billion, respectively.
18. Novation: replacing borrower and lender in a contract with itself or of replacing one debt or obligation with another.
19. Haircut: a reduction applied to the value of an asset.
20. Following the amendments to the Securities Contracts (Regulation) Act, 1956.

21. The minimum maturity period was brought down from three months to thirty days (April 1997). The minimum size of issue was reduced from ₹1 million to ₹0.5 million, and CPs above ₹0.5 million could be in multiples of ₹0.1 million (October 1997).
22. The CP market was dominated by first-class prime rated issuers (that is, P1+ above of CRISIL or equivalent). Issuances of CPs slowed down during the second half of 2005–06, but the generally rising trend was maintained in 2006–07 and 2007–08.
23. 'RBI Revisits Commercial Paper Guidelines', *Financial Express*, 28 July 2004.
24. The Working Group on Bills Rediscounting by Banks (Chairman: K. R. Ramamoorthy, 2000) examined, among other matters, the possibility of strengthening the existing bill discounting mechanism and extending its scope to the service sector.
25. Such contracts generally involve exchange of a 'fixed-to-floating' or 'floating-to-floating' rates of interest. On each payment date that occurs during the swap period, cash payments are made by the parties to one another.
26. Three types of contracts for maturities up to one year were made available: futures on 10-year Government of India security, futures on 10-year zero-coupon Government of India security and futures on 91-day T-bills. However, these instruments did not attract good response and trading died.
27. Chairman: Jaspal Bindra, January 2003.
28. A cap is an interest rate limit on a variable rate credit product. It is the highest possible rate a borrower may have to pay and also the highest rate a creditor can expect to earn. The cap is advantageous to borrowers since it limits the level of interest they have to pay in a rising environment and sets a maximum level of return for the lender or investor. A floor sets a base level of interest that a borrower must pay and also sets a base level of interest that a lender or investor can expect to earn. An interest rate collar ensures that the borrower will not pay any more than a predetermined level of interest on his borrowings. Variable rate borrowers are typical users of interest rate collars. They use collars to obtain certainty for their borrowings by setting the minimum and maximum interest rates they will have to pay on their borrowings.
29. Chairman: G. Padmanabhan.
30. A subcommittee of the TAC was set up as a working group on reintroduction of interest rate futures (Chairman: V. K. Sharma, June 2007), which included representatives from the FIMMDA, the Association of Mutual Funds in India, SEBI, the NSE and other bodies. The report was finalised by the Bank in August 2008. There were a number of recommendations to activate interest rate futures.
31. For one thing, the market did not seem to be comfortable with the product design. The bond futures were priced off a zero coupon yield curve derived by

the exchange. As bond markets traded on YTM basis, and as large sectors of the YTM curve were illiquid, the derived zero curve did not effectively mimic the price movements in the underlying bond market.

32. Tax exemptions for investment in mutual funds were subject to 10 per cent dividend tax, giving equity funds an edge over 100 per cent gilt funds. The National Savings Scheme (of the Government of India) had attractive tax concessions and offered higher returns compared to government securities.
33. Incidentally, certain provisions in the new Government Securities Act, 2006, aimed to facilitate wider participation in the government securities market. These provisions included protection to the beneficial owners of government securities through the constituent general ledger accounts, enabling lien marking and pledge of securities for raising of loans against government securities, and liberalisation of norms relating to nomination and legal representation, thus facilitating easier transfer of securities.
34. They had to meet three main regulatory requirements relating to minimum capital to be deployed in government securities, leverage and capital adequacy.
35. Also see Rakesh Mohan (2011), 'Development Banking and Financial Markets in India', in Rakesh Mohan, *Growth with Financial Stability* (New Delhi: Oxford University Press, 2011), p. 118. There was a brief experiment with the idea of satellite dealers in order to provide PDs with supporting infrastructure. The entry requirements were similar to those in the case of PDs, except that the limits to their turnover size was lower. However, the discussions that took place at the meeting of the TAC in March 2000 showed that their expected role was not clearly defined. Members expressed divergent views on this point, and some even argued that satellite dealers, instead of playing a complementary role with PDs, were in fact competing with them. The Bank discontinued the system from April 2002.
36. The Bank proposed to use the average cut-off yield on 182-day T-bills instead of the yield on 364-day T-bills as a benchmark rate for the FRBs to be issued in future.
37. A put option is a type of derivative contract that gives the buyer the right to sell the underlying asset at a specified price during a set period of time. A call option is a type of derivative contract that gives the buyer the right to buy the underlying asset at a specified price during a set period of time.
38. In January 2007, participants were permitted to keep their short positions open up to five trading days, including the day of trading. With a view to enable participants to short positions across settlement cycles, banks and PDs were allowed to use the securities acquired under a reverse repo (other than the LAF) to meet the delivery obligation of the short sale transaction. The total reported short sale volume was about ₹79 billion (0.4 per cent of total volume of government securities) during 2006–07.