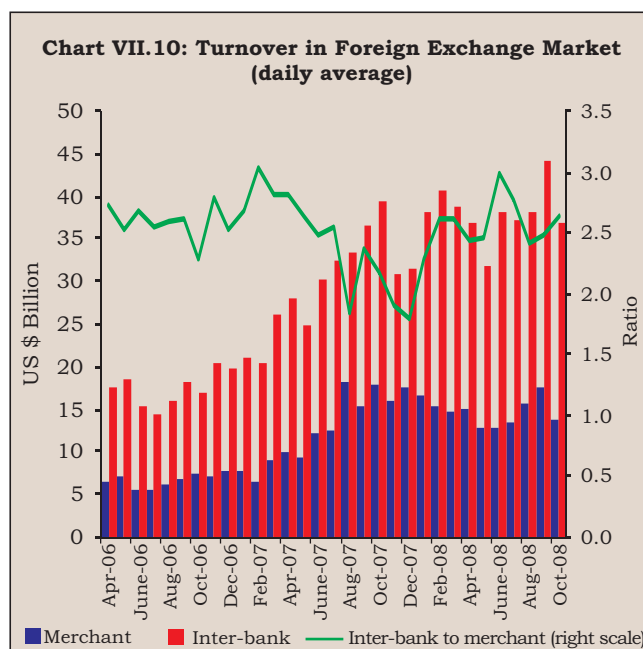


somewhat increased volatility, the standard deviation (percentage change) of rupee-dollar exchange rate increased marginally from 0.27 during 2006-07 to 0.38 during 2007-08.

7.50 During 2008-09, the rupee continued the depreciating trend till July 2008, reflecting FII outflows, bearish stock market conditions, higher demand for dollars in the backdrop of rise in crude oil prices and elevated inflation. Notwithstanding easing of international crude oil prices from the peak of about US \$ 147 per barrel in early July 2008 to around US \$ 65 per barrel by third week of October 2008 and moderation in domestic WPI inflation from a peak of 12.9 per cent on August 2, 2008 to 11.1 per cent by October 11, 2008, the rupee continued to depreciate. The exchange rate of the rupee fell from Rs.39.99 per dollar at end-March 2008 to Rs.49.95 dollar on October 24, 2008.

7.51 As per the BIS Triennial Survey on the global foreign exchange and derivatives market activity (2007), the foreign exchange market in India with a total daily turnover of US \$ 34 billion during 2006-07 was the 16th largest market in the world. The daily average turnover in the OTC derivatives segment of the foreign exchange market was US \$ 24 billion, which was 17th largest among all countries. Foreign exchange market exhibited a significant growth during the financial year 2007-08 as reflected in the turnover in both the inter-bank and merchant segments highlighting enhanced liquidity and growing importance of foreign exchange as an asset class. The high turnover was contributed by large cross-border trade and capital flows. The average daily inter-bank turnover increased to US \$ 34.0 billion during 2007-08 from US \$ 18.7 billion during 2006-07 and the average daily merchant turnover increased to US \$ 13.9 billion from US \$ 7.0 billion over the same period. The total turnover in the foreign exchange market registered a growth of 86.0

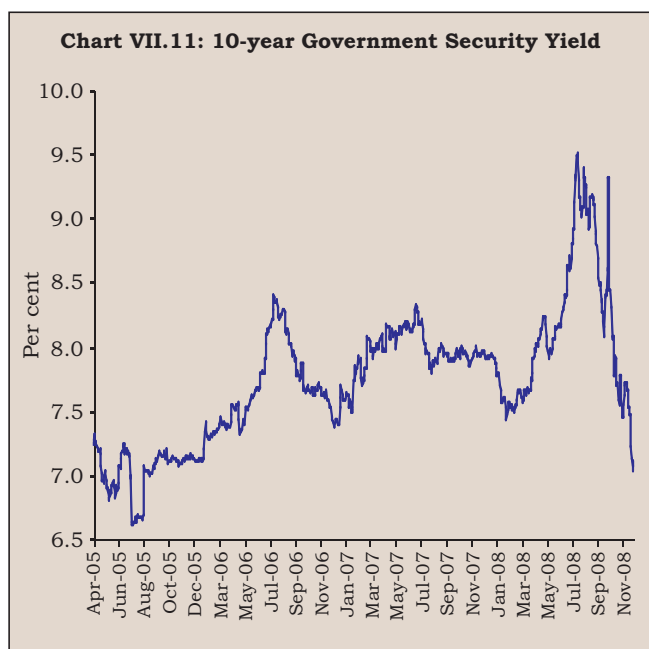


per cent during 2007-08. During 2007-08, the inter-bank to merchant turnover ratio was in the range of 1.8-2.8 (Chart VII.10).

#### Government Securities Market

7.52 In order to facilitate efficient price discovery, the Reserve Bank initiated a series of measures from the early 1990s to develop the Government securities market. Consequently, the Government securities market witnessed significant transformation in various dimensions, viz., market-based price discovery, widening of investor base, introduction of new instruments, establishment of primary dealers, and electronic trading and settlement infrastructure. This, in turn, has enabled the Reserve Bank to perform its functions in tandem with the evolving economic and financial conditions.

7.53 The Government securities markets reasonably remained stable during 2007-08 and April-October 2008 (Chart VII.11). The movements in the yields tracked the monetary policy measures. The other factors which influenced the modulations in the yield include the significant increase in issuances of

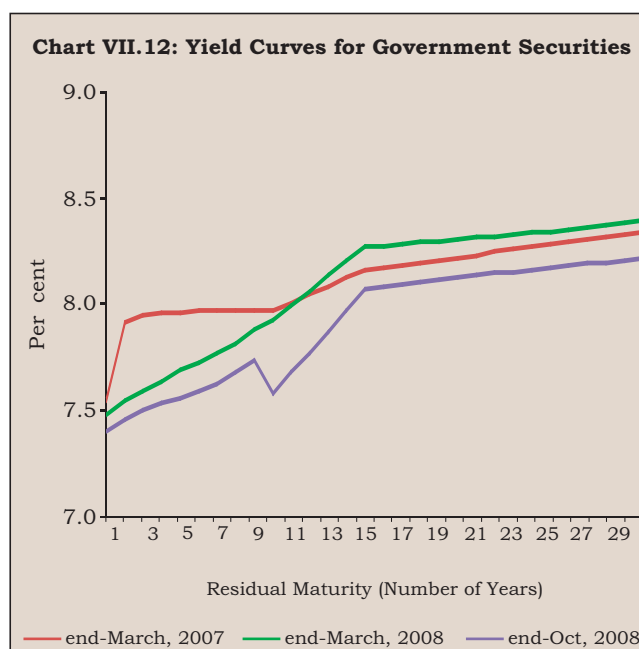


MSS securities between July 2007 and October 2007 to sterilise the liquidity on account of intervention, increased demand for SLR securities on the back of large deposit growth and demand from the insurance sector. Incidentally, the Government securities market exhibits liquidity only in a few benchmark securities. The Government securities market remains predominantly a domestic market. Although the FIIs were allowed to increase exposure to Government securities market from US \$ 2.6 billion to US \$ 3.2 billion in January 2008 and further to US \$ 5 billion in May 2008, the response has been moderate so far. To some extent, the system of allocating the limits amongst the FIIs acts as a dampener. On the other hand, unlike in case of equity market which has seen significant sell off by FIIs in recent months, FII exposure to Government securities market has remained relatively unaffected.

7.54 During 2008-09 so far (up to September 1, 2008), the 10-year yield moved in the range of 7.79-9.51 per cent. The yields in the Government securities market started the current financial year with a hardening bias in response to increase in the inflation.

The 10-year yield rose to 8.69 per cent by end-June 2008 and further to 9.32 per cent by end-July 2008. The G-Sec yields eased during August 2008 and September 2008 tracking the consistent fall in global crude prices and SLR related buying arising from increase in net demand and time liabilities. The 10-year yields declined from 8.45 per cent by end-September 2008 to 7.45 per cent by end-October 2008 reacting also to the monetary policy action of reducing the repo rate from 9.00 per cent to 7.50 per cent and the cash reserve ratio from 9.00 per cent to 5.50 per cent (Chart VII.12). The 10-year yields continued to decline during the month of November 2008 on expectations of further easing of inflation and policy rates and stood at 7.11 per cent by November 25, 2008. Over the years, the turnover in the Government securities market and yield have generally witnessed an inverse relationship.

7.55 The spread between one and 10-year yields widened marginally to 45 basis points at end-March 2008 from 42 basis points at end-March 2007. At the longer end, the spread between 10 and 30-year yields increased to 47 basis points at end-March 2008 from 37 basis



points at end-March 2007. The spread further increased to 61 basis points at end-October 2008. The yield spread of 5-year AAA-rated bonds over 5-year Government securities widened to 390 basis points at end-October 2008 from 156 basis points at end-March 2008 (Table VII.4).

### Capital Markets

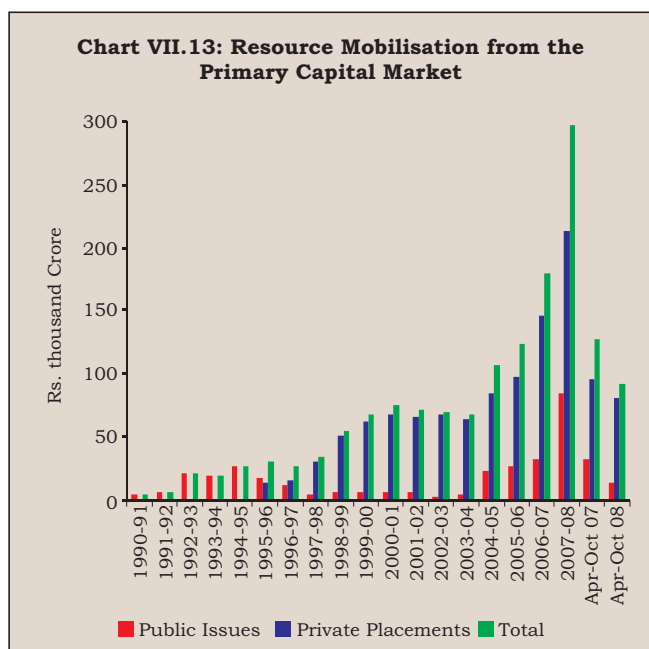
7.56 From a financial stability perspective, it is necessary to have an efficient and diversified financial system wherein both the capital market and financial institutions play an important role in facilitating raising of resources and allocation of capital, with the ultimate objective of raising the productivity and growth of the economy. Furthermore, the existence of a well-functioning capital market apart from contributing to the financial deepening of the economy also imposes discipline on firms to perform (Beck *et al.*,

2000; Bandiera *et al.*, 2000). Equity and debt markets can also diffuse stress on the banking sector by diversifying credit risk across the economy. In response to a series of reforms introduced since the early 1990s, the capital market has become safe, modern and transparent.

7.57 The resources raised by the corporates through public issues in the capital market rose sharply to touch a record high of Rs.83,707 crore, an increase of 158.5 per cent over that in 2006-07. Most of the issues were equity issues, which accounted for 98.4 per cent of total resource mobilisation through public issues during 2007-08 as compared with 97.4 per cent in the previous year (Chart VII.13). The resource mobilisation through public issues, however, declined sharply to Rs.12,502.64 crore during April-October 2008 from Rs.32,116.78 crore during the corresponding period of the previous year.

**Table VII.4: Yield Spreads**

Year/Month	(Basis points)				
	10 Year-reverse repo rate	10 Year-1 Year	20 Year-10 Year	30 Year-10 Year	5 Year AAA Bond-5 Year G-sec
1	2	3	4	5	6
<b>2006-07</b>	<b>189</b>	<b>77</b>	<b>32</b>	<b>43</b>	<b>106</b>
<b>2007-08</b>	<b>192</b>	<b>37</b>	<b>30</b>	<b>38</b>	<b>151</b>
Jan 2007	176	36	32	35	130
Feb 2007	198	37	16	21	137
Mar 2007	197	42	26	37	177
Apr 2007	217	27	19	33	166
May 2007	212	41	25	36	190
Jun 2007	220	65	23	31	190
Jul 2007	190	77	30	47	152
Aug 2007	194	51	31	39	184
Sep 2007	193	52	40	49	163
Oct 2007	189	21	37	43	128
Nov 2007	196	20	31	39	132
Dec 2007	182	19	25	31	127
Jan 2008	157	11	24	28	144
Feb 2008	160	11	32	36	163
Mar 2008	193	45	38	47	156
Apr 2008	201	27	38	42	144
May 2008	217	29	24	29	144
Jun 2008	269	-49	58	50	158
Jul 2008	332	-4	50	53	124
Aug 2008	278	-34	93	98	196
Sep 2008	263	11	67	74	224
Oct 2008	145	17	53	61	390



During April-October 2008, there were no public issues by scheduled commercial banks as against three issues (by scheduled commercial banks) of Rs.11,379 crore during the corresponding period of the previous year.

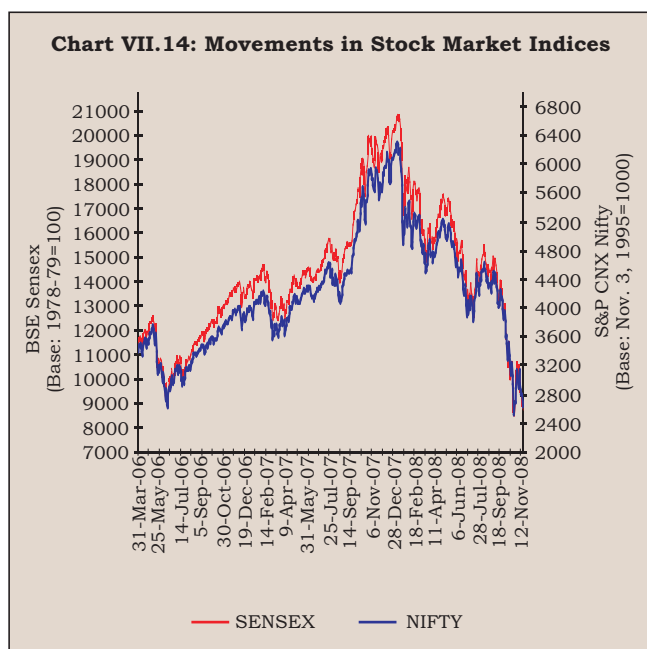
7.58 In recent years, large resources have been raised by way of debt from the private placement market. During 2007-08, resources raised from the private placement market increased sharply by 45.7 per cent to Rs.2,12,568 crore. However, during the first half of the current financial year (April-September 2008), mobilisation of resources through private placements declined by 15.7 per cent to Rs.79,594 crore.

7.59 During the financial year 2007-08, the domestic stock markets continued to surge from the beginning of the year till January 8, 2008 on the back of robust macroeconomic fundamentals, healthy corporate earnings, strong FII inflows, rise in global metal prices, cut in US Fed rate and easing of domestic annual inflation rate. The upward trend, although punctuated by mild corrections during mid-August 2007, mid-October 2007 and mid-December 2007 on account of worries over sub-prime losses and credit crunch in US and Europe, concerns over

slowdown in US economy, it recovered again to attain new highs. The BSE Sensex closed at an all-time high of 20873.33 on January 8, 2008, recording gains of 59.7 per cent over end-March 2007.

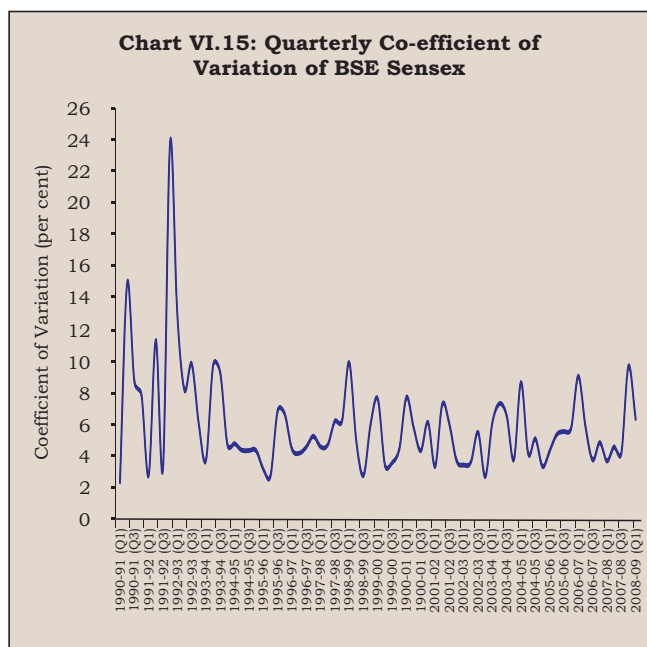
7.60 Beginning, January 9, 2008, the domestic stock markets have witnessed a generally downtrend due to heightened concerns over recession in the US economy. Downward revision of GDP growth rate by CSO, hike in short-term capital gains tax in the Union Budget 2008-09, rise in domestic annual inflation rate, rise in global crude oil prices to record high levels, heavy net sales by FIIs and liquidity squeeze from the secondary market in the wake of biggest IPO by Reliance Power were other factors which dampened the market sentiment. As a result of these developments, the BSE Sensex at 15644.44 at end-March 2008, declined by 25.1 per cent from its all-time high level of 20873.33 on January 8, 2008. S&P CNX Nifty closed at 4734.50 at end-March 2008, recording gains of 23.9 per cent over end-March 2007. The coefficient of variation, a measure of volatility, of the BSE Sensex rose to 13.7 per cent during 2007-08, from 11.1 per cent during 2006-07.

7.61 The performance of domestic stock markets in 2008-09 (up to December 8, 2008) has witnessed two distinct phases. The markets witnessed an upward trend till May 21, 2008 on account of strong Q4 2007-08 results by some IT and telecom companies, permission for short selling and securities lending and borrowing by both institutional and retail investors with effect from April 21, 2008, increase in global metal prices and other sector and stock specific news. On May 21, 2008, the BSE Sensex registered gains of 10.2 per cent over end-March 2008. A downward trend followed thereafter, mainly due to downswing in major international equity markets due to concerns over recession in the US. The BSE Sensex on December 8, 2008 at 9162.62, was 41.4 per cent lower than end-



March 2008, while S&P CNX Nifty at 2784.00 was 41.2 per cent lower than end-March 2008 (Chart VII.14).

7.62 The volatility in the stock markets, as measured by the coefficient of variation in the BSE Sensex and Nifty, increased beginning January 2008, reflecting episodes of erratic movements (Chart VII.15). To contain volatility, emphasis has been laid on risk



management practices at the stock exchange level and strengthening of the market design in recent times.

### Payment and Settlement System

7.63 The payment and settlement systems, by providing a fast, efficient and secure basis for financial transactions, form the bedrock of the financial system. Current payment systems operate based on the technological development. The efficiency and velocity of the payment systems, based on the technological developments of the last 20 years, may diffuse a crisis arising in one country to the rest of the world, given the interconnection of the systems and the fact that their regulation and legislation have not advanced as fast as technological innovations (Box VII.3). Payment systems assume special significance, given the uncertain consequences that a disequilibrium in the payment systems could have on the implementation of monetary policy and the repercussions the propagation of a systemic crisis has for financial stability. With a view to preventing systemic crises that could arise due to the failure of one or more payment system participants, the Committee for Payment and Settlement System (CPSS) at the BIS formulated the Core Principles for systemically important payment systems. Moreover, remarkable advances on the creation of the Core Principles for Securities Settlement Systems have been achieved. The principles are intended to be accurate and precise, and at the same time universal, capable of being followed and applied depending on the development, resources and necessities of each country.

7.64 A sound legal base for the payments system constitutes one of the core principles for systemically important payment systems. The notification of the Payment and Settlement Systems Act, 2007 along with its regulations, viz., Board for Regulation and Supervision of Payment and Settlement

### Box VII.3: Inter-dependencies of the Payment and Settlement Systems

The network of domestic and cross-border systems that comprise the global payment and settlement infrastructure has evolved significantly in recent years. These systems, like the financial markets and economies they support, are increasingly connected through a wide array of complex inter-relationships. Through these relationships, the smooth functioning of a single system often becomes contingent on the performance of one or more other systems. It is because of the implications that disturbances in payment systems may create for financial and economic stability that central banks have, as a priority task, the purpose of facing the challenges stated by the inter-dependence of payment systems.

This increasing inter-dependence is driven by several inter-related factors, including technological innovations, globalisation and financial sector consolidation. In addition, a number of initiatives by the financial industry and by public authorities to reduce the costs and risks of settlement have purposely promoted greater integration among the numerous components of the global payment and settlement infrastructure. For instance, the 1989 G-30 recommendations for T+3 securities settlement, central bank policies encouraging the development and reliance on systems with intra-day finality, and the CPSS focus on reducing foreign exchange settlement risk have provided incentives for more straight through processing (STP) and tighter relationships among individual systems.

While these explicit initiatives explain one aspect of tightening inter-dependencies, institutions' profit-seeking and cost management incentives also foster inter-dependencies. Inter-dependencies have important implications for the safety and efficiency of the global payment and settlement infrastructure. Some forms of inter-dependencies have facilitated significant improvements in the safety and efficiency of payment and settlement processes. On the positive side, inter-dependencies improve the safety of the global payment and settlement infrastructure by facilitating delivery *versus* payment (DvP) and payment *versus* payment (PvP) processes, thereby eliminating a key source of principal credit risk. In addition, inter-dependencies can reduce credit and liquidity risk by facilitating the use of central bank money as a settlement medium. Inter-dependencies can also help reduce operational risk through better integration of the different steps across systems.

At the same time, inter-dependencies increase the potential for a given disruption to spread quickly to many different systems. This potential was noted in the G-10 report on Financial sector consolidation (the Ferguson Report, 2000), which suggested that inter-dependencies might accentuate the role of payment and settlement systems in the transmission of disruptions across the financial system. In some circumstances, disruptions may amplify as they spread across systems. In other situations, inter-dependencies may help dampen the effect of disruptions, in particular by allowing liquidity to flow more rapidly across different elements of the global payment and settlement infrastructure. Moreover, the actual path that a disruption would follow could be influenced by many other

factors, including the reactions of systems and institutions. In addition, risks have become increasingly concentrated in a limited number of critical systems, institutions and service providers. In some cases, such as that of CLS, this trade-off has been anticipated and accepted, especially in the light of reduction of principal credit risk.

While some risk management practices and standards consider inter-dependencies to an extent, there is still a considerable room for improvement. Additional exercises to test the compatibility of different entities' business continuity plans, for instance, could improve the degree of co-ordination among inter-dependent stakeholders, helping to prevent and manage potential disruptions. Moreover, the increasing inter-dependence of the global payment and settlement infrastructure is a dynamic phenomenon, and generally poses risks to be managed rather than eliminated. To maintain their effectiveness, risk management policies need to keep pace with the changing sources of risk arising from inter-dependencies.

Strengthening systems to prevent and contain systemic risks has been a long-standing focus of the CPSS and its member central banks. As a result, many elements of the CPSS Core Principles for Systemically Important Payment Systems (Core Principles), CPSS/IOSCO recommendations for securities settlement systems (RSSS), and CPSS/IOSCO recommendations for central counterparties (RCCP) address some of the challenges posed by inter-dependencies, including the potential for disruptions to spread across systems. The RSSS and RCCP standards, for example, contain explicit recommendations on links between two central securities depositories (CSDs) and two central counterparties (CCPs), respectively. Moreover, all three sets of standards address the management of settlement risk, including settlement asset risk, and the related potential for disruptions to affect other systems.

To address the problem of the potential for a disruption to spread quickly to many systems, the system operators, financial institutions, and service providers are required to take several actions in order to adapt their existing risk management practices to the more complex, integrated environment resulting from tighter inter-dependencies. Towards that end, the importance of broad risk management perspectives, risk management controls commensurate with the role played in the global payment and settlement infrastructure, and greater coordination among inter-dependent stakeholders cannot be overlooked. Central banks and other authorities also need to review, and where necessary, adjust their policies in the light of the challenges posed by inter-dependencies.

#### References:

- BIS. 2005. Central Bank Oversight of Payment and Settlement Systems. CPSS Paper No.68. May.
- BIS. 2008. The Interdependencies of Payment and Settlement Systems. CPSS Paper No.84. June.
- BIS. 2001. Core Principles for Systemically Important Payment Systems. CPSS Paper No.43. January.

Systems Regulations, 2008 and Payment and Settlement Systems Regulations, 2008 on the same date (August 12, 2008), was a leap forward towards providing a well founded legal basis for payment systems in India. Accordingly, the Reserve Bank has been vested with the powers to regulate and oversee the payment and settlement systems in the country, including those operated by entities not regulated by the Reserve Bank. The Bank has framed the minimum standards for magnetic ink character recognition (MICR) and non-MICR clearing houses. Similarly minimum standards for operations of ECS and NEFT have also been prepared and circulated to clearing houses for adoption.

7.65 The Reserve Bank continued to exercise its oversight over payment and settlement systems with a view to ensuring its security, efficiency and soundness. Significant measures were taken by the Board for Regulation and Supervision of Payment and Settlement Systems (BPSS) towards risk mitigation, improving customer service, as well as modernising, and increasing technological intensity of the system. Some of the important measures initiated included, *inter alia*, preparation of a framework for payments through mobile phones; extension of jurisdiction of the MICR clearing houses; computerisation of non-MICR clearing houses; expanding national electronic funds transfer (NEFT) system to make all real time gross settlement RTGS branches NEFT enabled; upgrading the NEFT system into a 24x7 type remittance system; making mandatory use of electronic mode of payment for large value transactions (initially Rs.1 crore and above, later Rs.10 lakh and above) between the Reserve Bank regulated entities and markets. The Report on Oversight of Payment Systems in India released on November 28, 2007 laid down the major international initiatives towards oversight of the payment and settlement systems, and status of implementation in the Indian case.

7.66 The major highlight of the Reserve Bank's initiatives in the area of information technology (IT) during 2007-08 was setting up of new data centres, and consolidation of systems for centralised data processing, business continuity and disaster recovery. In order to delineate the broad approaches being followed by the Reserve Bank so as to enable banks to plan their IT initiatives suitably, the latest version of the Financial Sector Technology (FST) Vision document for the period 2008-10 was also released.

7.67 The Reserve Bank continued to play a major role in developing the payment and settlement systems in India. This was reflected in an increase in the use of various electronic and paper based transactions. Various indicators of the payment system point towards a sharp increase in both volumes and values put through systemically important payment system (SIPS) and retail payment system, especially through the electronic clearing instruments, *viz.*, RTGS, forex and Government securities clearing and retail electronic fund transfer and card based payments within retail payment system. The systemically important payment systems (SIPS) transactions and the settlement of financial market clearing constituted 85.1 per cent of total transactions during 2007-08.

7.68 The ratio of annual turnover through various channels of the payment and settlement systems to GDP increased to 12.7 in 2007-08 from 8.6 in 2005-06, reflecting the robust increase in the value of annual turnover by 41.8 per cent during 2007-08 over and above the increase of 37.5 per cent in the previous year. The turnover of the various retail payment systems, including cheque clearing, electronic clearing services and card payments, increased by 23.4 per cent during 2007-08 from 11.6 per cent in 2006-07 mainly on account of sharp growth in retail electronic funds transfer. Cheques continued to be the predominant mode of retail payment, though

the share of retail electronic mode of payment increased during 2007-08. MICR cheque clearing constituted 83.7 per cent and 86.1 per cent of the volume and value, respectively, of the paper based clearing during 2007-08. More than 800 clearing houses have been computerised where the settlement is done electronically, while the instruments still continue to be sorted manually.

7.69 The electronic funds transfer increased by more than five times during 2007-08 over the previous year, reflecting a significant increase across all modes of retail electronic funds transfer systems, viz., electronic clearing services (ECS), EFT and NEFT systems (Table VII.5). The sharp growth in value of retail transactions *vis-a-vis* their volume reflected, *inter alia*, the use of electronic mode, as mandated by the stock exchanges, for refunding the oversubscription amount of IPOs floated by companies. Accordingly, the share of retail electronic funds transfer, which remained fairly low in the retail payment system (2.6 per cent during 2006-07), increased sharply to 10.9 per cent during 2007-08.

7.70 To encourage the use of electronic mode of payments, the Reserve Bank waived the processing charges for all electronic payment systems operated by it for another year, *i.e.*, till March 2009. The availability of

ECS at 70 centres as against 67 centres in the previous year and the proposed National ECS (NECS) as announced in the Mid-Term review of the Annual Policy for 2007-08 would facilitate prompt services to the customers. The ECS as also NEFT are being preferred for making refunds of subscription to IPOs. The EFT, which was operationalised in 1995, is now permitted only for Government payments. All other electronic retail funds transfer are encouraged through NEFT, which is a much more secure payment system. These developments have contributed to the speed, efficiency and safety of the payment system.

7.71 The use of cards for making retail payments is also one of the preferred modes. The convenience and the acceptability of this mode of payment are reflected in the increased volume of transactions through cards - both debit as well as credit. Credit card transaction volumes increased by 34.6 per cent in 2007-08 and 8.6 per cent in 2006-07, while the increase in value was 40.2 per cent and 22.1 per cent, respectively, during the same period. Debit card transaction volumes increased by 46.7 per cent in 2007-08 and 31.7 per cent in 2006-07, while the increase in value was 53.2 per cent and 38.6 per cent, respectively, during the same period (Chart VII.16). Banks had issued a total of 26.7 million credit cards and 122.0 million debit cards, and the number

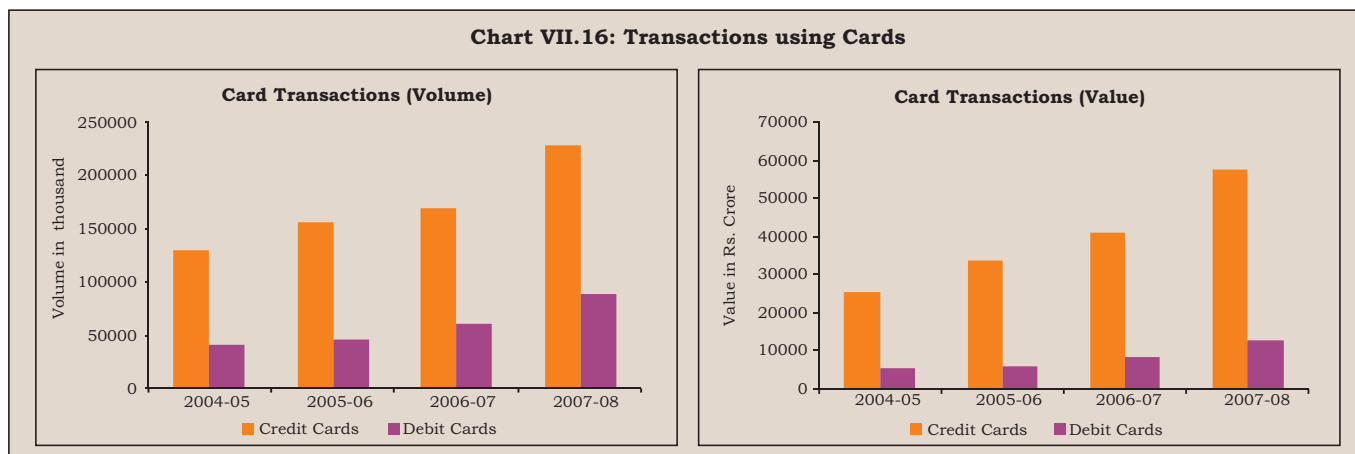
**Table VII.5: Paper-based versus Electronic Transactions**

(Volume in thousand and Value in Rs. crore)

Year	Volume				Value			
	Paper-based	Electronic	Total	Share of Electronic (%)	Paper-based	Electronic	Total	Share of Electronic (%)
1	2	3	4	5	6	7	8	9
2002-03	1,013,900	173,000	1,186,900	14.6	1,34,24,313	37,536	1,34,61,849	0.3
2003-04	1,022,800	167,551	1,190,351	14.1	1,15,95,960	49,67,813	1,65,63,773	30.0
2004-05	1,166,848	230,044	1,396,892	16.5	1,04,58,895	1,18,86,255	2,23,45,150	53.2
2005-06	1,286,758	287,489	1,574,247	18.3	1,13,29,134	2,24,39,286	3,37,68,420	66.5
2006-07	1,367,280	383,445	1,754,007	21.9	1,20,42,426	3,50,50,234	4,71,06,333	74.4
2007-08	1,460,564	541,150	2,001,714	27.0	1,33,96,066	2,83,60,321	4,17,56,387	67.9



Chart VII.16: Transactions using Cards



of merchant establishments reached 428,479 at end-October 2008. The average value of transaction at point of sale (POS) using debit card and credit card was Rs.161 and Rs.2,415, respectively. With the increased usage of cards and to mitigate risk the Reserve Bank issued guidelines for credit card operations (refer Chapter II, paras 2.179-2.180).

7.72 The use of automated teller machines (ATMs) has also increased in view of the customer convenience. The number of ATMs increased to 36,314 at end-June 2008 from 28,704 at end-June 2007. The Reserve Bank examined the various issues through the Approach Paper on 'ATMs of Banks: Fair Pricing and Enhanced Access,' and issued regulatory guidelines on customer charges for use of ATMs for cash withdrawal and balance enquiry (refer Chapter II, para 2.197).

7.73 The RTGS system, which was operationalised in March 2004 for facilitating faster settlement of high value transactions, has stabilised with increased branch network and wider geographical coverage. The RTGS connectivity was extended to 47,608 branches at end-June 2008 facilitating sharp increase in volumes settled through this system. The volume and value of transactions through the RTGS system, both in the inter-bank and customer segment, increased sharply, particularly during the last quarter of 2007-

08. The integration of the RTGS system with the Reserve Banks' internal accounting system (IAS) has enabled straight through processing (STP). Also, with the integration of the RTGS-IAS and the securities settlement system (SSS), automatic intra-day liquidity (IDL) is available. The clearing and settlement operations at NCC, Mumbai and CCIL operated systems are settled in the RTGS as multilateral net settlement batch (MNSB) mode. These measures have contributed to financial stability.

7.74 The Clearing Corporation of India Limited (CCIL) set up by banks and financial institutions at the initiative of the Reserve Bank clears and settles inter-bank trades in Government securities and foreign exchange as well as a money market product, viz., the CBLO. The settlement of all secondary market outright sales and repo transactions in Government securities is carried out through CCIL. All OTC trades in this segment, which are reported on the Reserve Bank's NDS platform, and trades which are contracted on the online anonymous, trading platform NDS-OM, are accepted by CCIL for settlement. These trades are settled on a delivery *versus* payment (DvP) III basis, i.e., the funds leg as well as the securities leg is settled on a net basis. CCIL also provides guaranteed settlement facility for all US dollar - Indian rupee, inter-bank cash, spot and forward

transactions by becoming the central counter party to every trade accepted for settlement, through the process of novation<sup>11</sup>. The rupee legs of the transactions are settled through the member's current accounts with the Reserve Bank and the US \$ leg through CCIL's account with the settlement bank at New York. CCIL also provides continuous linked settlement (CLS) services for banks in India by availing of third party services of a settlement bank. Currently, 13 banks are availing this facility to settle cross currency trades. The total volume and value transacted through the two systems - Government Securities Clearing and Forex Clearing has witnessed a significant increase (Table VII.6). These systems have significantly promoted safety and efficiency in the settlement of inter-bank payments.

7.75 The centralised funds management system (CFMS) enables banks holding current account with the Reserve Bank to view their balances at all the Reserve Bank offices [through centralised funds enquiry system (CFES)] and transfer funds between the Reserve Bank offices [through centralised funds transfer system (CFTS)]. This facility is now available at all the Reserve Bank centres. At present, 71 member banks are making use of this facility extensively.

7.76 It is thus evident that in the conduct of its oversight of the payment and settlement

system, the Reserve Bank's responses to the emerging challenges were based on credible communication, adequate and timely availability of information and a broad-based, participative and consultative approach in its developmental and regulatory policies with involvement of all stakeholders. Any shortcoming in this vital infrastructure could lead to broader financial and economic instability as large-values are transacted by the SIPS and failures in the retail payments segment could lead to the erosion of public confidence. In an event of financial stress, market participants or central banks may wish to supply emergency liquidity to certain participants in a payment and settlement system in an attempt to encourage the orderly settlement of transactions in the interests of overall financial system. Additionally, central bank's role in payment systems frequently calls for co-operation and co-ordination of activities with other authorities such as banking supervisors and securities regulators to ensure smooth discharge of legal or other responsibilities essential for the payment system. Accordingly, the role of the central bank in discharging its oversight function is to assess the risks involved and to seek cooperation with relevant stakeholders to put in place risk mitigation measures, and also ensure that the risks are not transmitted to other systems/participants.

**Table VII.6: Government Securities and Forex Clearing by CCIL**

(No. of trades in 000's; value in Rs. crore)

Period	Government Securities Settlement				Forex Settlement	
	Outright		Repo		No. of Trades	Value
	No. of Trades	Value	No. of Trades	Value		
1	2	3	4	5	6	7
2004-05	161	11,34,222	24	15,57,907	466	40,42,435
2005-06	125	8,64,751	25	16,94,509	490	52,39,674
2006-07	137	10,21,536	30	25,56,502	606	80,23,078
2007-08	189	16,53,851	27	39,48,751	757	127,26,832

<sup>11</sup> Novation is the process by which Government securities transactions are settled through CCIL. This means that CCIL will act as a buyer to the seller of security and simultaneously will act as a seller to the buyer of the security. This will in effect remove the credit risk faced by members vis-à-vis their counterparties. Besides, CCIL provides the additional comfort of improved risk management practices through daily marking to market of collateral, maintenance of daily margins by members and through a Guarantee Fund.

### 3. Key Sources of Vulnerability to the Indian Financial System

7.77 The multi-pronged approach followed for strengthening and developing financial institutions, markets, payment systems and infrastructure have had a positive impact on the Indian financial system. The assessment of developments during 2007-08 and 2008-09 so far suggests that financial institutions, especially scheduled commercial banks, are on a sound footing. Domestic financial markets have been constantly developing, and functioning normally, despite some indirect knock on effects of global developments. Financial infrastructure now is much more robust than it was a few years ago. While the financial system on the whole is quite robust, which augurs well for financial stability, there is also a need to be aware of some downside risks in certain areas that could have a bearing on the stability of the financial sector in the near future.

7.78 In the backdrop of the financial market turmoil in the developed economies, threats to financial stability remain at elevated levels with possible feedback into the prospects for macroeconomic performance. Since the collapse of the leading US investment banks in August-September 2008, there has been a breakdown of trust in inter-bank and inter-institutional lending. Given that this kind of extreme risk perception would be reversed only slowly, the full resolution of the crisis would inevitably take time. While emerging markets had initially remained fairly resilient to global financial market turmoil, they have recently come under increasing pressure. Financing conditions have deteriorated since beginning of 2008 and equity markets have declined sharply, *albeit* from elevated levels. Capital outflows have intensified leading to tighter international and, in some cases, domestic liquidity conditions. Borrowers and financial institutions in emerging markets are likely to be confronted with a more trying

macroeconomic environment. The developments in these areas need to be watched carefully with a view to putting in place corrective macroeconomic policy responses with the ultimate objective of maintaining stability in different segments of the financial system and to fortify the economy from the possible spillover effects.

#### *Adverse International Developments*

7.79 Developments in the global financial system have heightened the uncertainty in the global economy. The credit markets in the western world, especially in the US, have, in the recent past, witnessed considerable turmoil and significant loss of market liquidity leading to financial distress in a few institutions and considerable financial damage to several others, prompting some of the major central banks to inject liquidity into the markets. There was a collective failure to appreciate the extent of leverage taken on by a wide range of institutions - banks, monoline insurers, government-sponsored entities, hedge funds - and the associated risks of a disorderly unwinding. Private sector risk management, disclosure, financial sector supervision, and regulation all lagged behind the rapid innovation and shifts in business models, leaving scope for excessive risk-taking, weak underwriting, maturity mismatches, and asset price inflation. The transfer of risks off bank balance sheets was underestimated. As risks have materialised, this has placed enormous pressures back on the balance sheets of banks. Notwithstanding unprecedented intervention by major central banks, financial markets remain under considerable strain, now compounded by a more worrisome macroeconomic environment, weakly capitalised institutions, and broad-based deleveraging.

7.80 The exact extent of losses and exposures is not known as yet and perceptions of a pronounced increase in default risk

continues to prevail as was evident in high credit default swap (CDS) spreads. Money markets remain dislocated and, despite central bank liquidity injections alleviating pressures, uncertainty about future liquidity supply and counterparty risk persists. Global equity markets have fallen considerably in 2008 with an increase in volatility, decline in investors' risk tolerance, the worsening of the macroeconomic outlook and renewed credit related concerns. Bond yields, which stabilised since mid-March, 2008 have started to recover in developed economies and a flight to safety is leading up to a shortage of paper. Longer term real yields have declined sharply on recession fears. In the foreign exchange market, the US dollar and the pound sterling depreciated in effective terms whereas the euro, the yen and the Swiss franc appreciated along with several Asian currencies. Concerns about a more widespread slowdown, and perceptions of overvaluation have been weighing on emerging market asset classes in 2008 with spreads on sovereign debt widening. The outlook is highly unclear and the prospects of resolution of the multiple disequilibria embedded in global developments are fraught with uncertainty.

7.81 The financial market crisis with US at its epicentre has started to spread across markets, and across nations. The US slowdown is spreading via the trade and financial channels. The significant slowdown in the projected global growth from 5.0 per cent in 2007 to 3.7 per cent in 2008, and to just over 2.0 per cent in 2009, is likely to have implications for every economy (WEO Update, November 2008). In view of strong international linkages among economies, macroeconomic prospects for the EMEs, which till very recently remained relatively insulated, face the downside risks from lagged effects of the downturn. As the notion of

'decoupling' of emerging market countries from mature markets has turned out to be incorrect, emerging market policymakers would have to cope with a global growth slowdown, and reversal of capital flows (Box VII.4). As per the WEO update of November 2008, growth in emerging economies would decelerate from 8.0 per cent in 2007 to 6.6 per cent in 2008 and further to 5.1 per cent in 2009. There is a risk that the confluence of circumstances emerging out of the financial turmoil could accelerate a downturn in the credit cycle in some emerging market economies.

7.82 The banking sector in India does not have any direct exposure to the US sub-prime market. Some banks in India, however, have indirect exposure through their overseas branches and subsidiaries to the US sub-prime markets in the form of structured products, such as collateralised debt obligations (CDOs) and other investments. However, such exposure is not very significant, and banks have made adequate provisions to meet mark-to-market losses on such investments. Besides, banks also maintain high level of capital adequacy ratio. Thus, the risks in the banking sector appear limited and manageable.

7.83 There is, however, apprehension that current market conditions, may lead to recession in the US having significant impact on other economies. In this context, it may be noted that India is largely a domestic demand driven economy and exports constitute a relatively smaller portion of India's GDP, as compared to many other economies. In recent years, India's export basket has also become more diversified, although the US continues to be one of the major trading partners. While strong regional sources of growth within EMEs may be a mitigating factor, weakening of economic activity in the US would impact

#### Box VII.4: Economic Integration and Decoupling of the Emerging Economies

In recent years with rapid increase in trade and financial linkages across countries, emerging market economies have emerged as major players in the global economy. Decoupling holds that emerging European and Asian economies have broadened and deepened to the point that they no longer depend on the US for growth. This has generated a debate about possible changes in the generally observed patterns of international business cycle co-movement.

The major channels of coupling include: (i) integration between economies and rise in internationally integrated production; (ii) the international movement of workers leading to remittances; (iii) growth in international linkages in financial services through increased cross-listings of stocks and more cross-border ownership and control of exchanges, banks, and securities settlement systems; (iv) spillover through commodity prices and through financial variables such as short- and long-term interest rates and equity prices.

Empirical research shows convergence of business cycles among a larger group of industrial economies and among emerging market economies over time, but there has also been a simultaneous decoupling of business cycles between these two sets of countries (Kose, Ortok and Prasad, 2008). The authors cautioned that although the results suggested emerging markets as a group are becoming an independent driver of global growth, their decoupling potential would still depend on the duration and severity of a US downturn. However, their analysis includes linkages through real macroeconomic aggregates but does not account for financial ones.

So long as the US slowdown was attributed to US specific developments - primarily in housing and manufacturing, the spillover effects to other economies was considered modest. However, as the transmission began to involve asset price spillovers or confidence channels, the impact became much larger. The influence of the U.S. economy on other economies does not appear to have diminished. On the contrary, indications are that the magnitude of spillovers has increased over time, particularly in neighboring countries and regions, which is consistent with the notion that greater trade and financial integration tends to magnify the cross-border effects of disturbances (WEO, 2007). Stock prices in the emerging market economies moved downward during acute periods of US financial stress over the past year. The IMF in a recent study confirms that global factors are as important in explaining the movement in emerging markets equity prices as their domestic fundamentals. Using various

measures of correlation, it is also found that the scope for spillovers to emerging equity markets has risen, suggesting a growing transmission channel for equity price movements. This could, in turn, affect consumption and investment in emerging markets, although such macrofinancial linkages are found to be small and they tend to play out gradually (GFSR, 2008).

In the context of effect of financial crisis on developed countries, it is argued that financial innovations like growth of non-bank intermediaries such as private equity firms and hedge funds, deepening of resale markets for capital, and sophisticated products and contracts, among others, might have made these economies less vulnerable to crises by widening the access to liquidity and allowing assets to be traded more easily during periods of stress (Gai *et al.*, 2008). Though the developed economies are able to tide over mild and less severe shocks, in case of extremely severe shocks, a crisis is inevitable, regardless of the *ex ante* beliefs. In the crisis situation, such financial innovations could impact more severely by way of relaxing the financial constraints facing borrowers with the result that asset prices are driven down to such an extent that all intermediaries and firms are forced to liquidate all of their assets, intermediaries shut down, and the closure of firms means that there are no investment opportunities in the more-productive sectors of the economy. It is also argued that crises in emerging market economies are more frequent but less severe than in developed countries [Caprio and Klingebiel (1996), and Demirguc-Kunt and Detragiache (2005)].

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India's economy through the trade channel. There are indications that the current crisis has implications in terms of higher funding costs and difficulties in raising external finance, particularly, for lower rated firms.

7.84 The main impact of the global financial turmoil in India has emanated from the significant change experienced in the capital account in 2008-09 so far, relative to the previous year. Total net capital flows declined

from US \$17.3 billion in April-June 2007 to US \$13.2 billion in April-June 2008. Capital flows are expected to be lower in the current fiscal year 2008-09 as compared with the previous year. While foreign direct investment (FDI) inflows have continued to exhibit accelerated growth (US \$ 19.3 billion during April-September 2008 as compared with US \$ 9.2 billion in the corresponding period of 2007), portfolio investments by foreign institutional investors (FIIs) witnessed a net outflow of about US \$ 11.9 billion in April-October 2008 as compared with a net inflow of US \$ 22.3 billion in the corresponding period of the previous year.

7.85 The slowdown/reversal of capital flows could affect an economy through several ways such as (i) decline in equity markets and the resultant difficulty in raising capital from the market; (ii) sharp realignment of exchange rates; (iii) tightening of liquidity conditions and rise in interest rates; and (iv) hard lending of credit cycle. Capital flows have also become an important determinant of exchange rate movements on a day-to-day basis. Such exchange rate movements have implications for the financial and real sectors of the economy. With the existence of a merchandise trade deficit of 7.7 per cent of GDP in 2007-08, and a current account deficit of 1.5 per cent, and change in perceptions with respect to capital flows, there has been significant pressure on the Indian exchange rate in recent months. The exchange rate has depreciated from Rs.39.99 per dollar as at end-March 2008 to Rs.49.11 as on December 10, 2008. In real effective terms whereas the 6-currency real exchange rate appreciated from an index of 104.9 (base 1993-94=100) in September 2006 to 115.0 in September 2007, it has now depreciated to a level of 100.1 as on December 10, 2008.

7.86 The net sales by FIIs have adversely affected the equity market in India. This combined with some other factors resulted in a

decline in the BSE Sensex by 56.1 per cent (as on December 8, 2008), since January 8, 2008. According to the IMF's Global Financial Stability Report of October 2008, correlation of equity markets in EMEs with those in the advanced economies has risen, suggesting a growing transmission channel for equity price movements.

7.87 In India, inflation based on year-on-year variations in the wholesale price index (WPI) increased to 7.7 per cent in 2007-08 compared with 5.9 per cent in 2006-07. Consistent with the stance of monetary policy, the evolving liquidity situations and on the basis of incoming information on domestic and global macroeconomic and financial developments, it was decided to increase the CRR by 25 basis points each on May 10, 2008 and May 24, 2008 to 8.25 per cent. Furthermore, the repo rate under the LAF was increased from 7.75 per cent to 8.00 per cent on June 12, 2008 and further to 8.50 per cent with effect from June 25, 2008. The CRR was again increased by 50 basis points to 8.75 per cent in two stages from July 5, 2008 and July 19, 2008 by 25 basis points each.

7.88 Inflation, in terms of the WPI, softened steadily from the level of 12.9 per cent on August 9, 2008 and has declined to 8.4 per cent for the week-ended November 22, 2008, reflecting decline in prices of freely priced petroleum products (in the range of 15-22 per cent) in line with decline in international crude oil prices (by 45 per cent since July 2008) as well as easing in other commodity prices such as oilseeds/edible oils/oil cakes, raw cotton and cotton textiles following global trends. Globally, pressures from commodity prices, including crude, appear to be abating. The international crude prices which hardened from an average level of US \$ 57 per barrel at end-2005 to an average level of US \$ 73 per barrel by July 2006, and thereafter rose sharply to reach a historic high of US \$ 145.3

per barrel by early July 2008, eased significantly to around US \$ 44 per barrel by December 10, 2008 reflecting decline in demand in OECD countries and improved near-term supply prospects in non-OPEC countries. The moderation in key global commodity prices, if sustained, would further reduce inflationary pressures.

7.89 The adverse global developments have led to moderation of growth in the industrial and services sectors in the first-half of 2008-09. In recent weeks, the impact on liquidity and credit has also been felt. On the growth front, it is important to ensure that credit requirements for productive purposes are adequately met so as to support the growth momentum of the economy. The Reserve Bank has kept a close vigil on the entire financial system to prevent pressures from building up in the financial markets. This includes liquidity enhancing measures to ease liquidity pressures.

7.90 The global financial situation, described as the worst since the Great Depression, continues to be uncertain and unsettled. Currently, it is difficult to speculate about the trajectory of global downturn, and its consequent fallout for the Indian economy. This remains uncharted territory and experience suggests that there is at times the need to go beyond standard or conventional solutions. The Reserve Bank has endeavoured to be proactive, and has taken measures to manage the rapid developments and ease pressures stemming from the global crisis. The stance of monetary policy has been eased with the reduction in CRR by 350 basis points, repo rate by 250 basis points and reverse repo rate by 100 basis points between October and December 6, 2008 (refer Chapter II, Box II.2).

#### *Asset Prices*

7.91 The role of real estate exposure's (REE) in financial crises has been recognised since long. In the late 1990s, the 'Asian crisis' amply demonstrated the interlocking of credit booms

and real estate bubbles in the economic upswing, followed by the damaging impacts of prolonged real estate slumps on the solvency of banks, the availability of credit and general economic growth.

7.92 The recent global financial turmoil caused by the crisis in the mortgage market in the US has once again brought into focus the dangerous inter-dependence between real estate cycles, bank crisis and the ultimate threat to financial stability. The major portion of real estate exposure consists of mortgage related assets which are long-term in nature having dynamic cash flow characteristics which render them as risky ventures. It, therefore, becomes imperative on the part of the banks to manage the balance sheet risks associated with real estate exposure, particularly in the current scenario of slowdown in the economy with its expected ramifications on real estate prices, given the historically positive correlation between economic downturn and its adverse impact on real estate prices (Box VII.5).

7.93 Asset prices (real estate and equity prices) in India rose sharply beginning 2005. The BSE Sensex rose by 240.2 per cent between April 19, 2005 and January 8, 2008, when the market was at its peak. Real estate prices also rose sharply. Although no firm information is available on the extent of the rise in real estate prices, anecdotal evidence suggests that real estate price rose between two to four times during the last three to four years in different parts of the country. A pilot survey on *Real Estate Prices and Rent in Greater Mumbai* conducted by the Reserve Bank also showed that the rent and sale/resale prices of residential properties in Mumbai increased significantly over the last four years.

7.94 The phenomenon of sharply rising asset prices is not confined to India alone but has also occurred around the world. For instance, the US, Australia, Denmark, France, Sweden, Spain, New Zealand, and the United

### Box VII.5: Banks' Exposure to the Real Estate Sector - Various Risks

Real estate lending involves a variety of inherent and inter-related risks. There are various channels through which risks may be transmitted to a bank's balance sheet in respect of its REE:

(i) Credit Risk: A downturn in the economic cycle could result in a depletion in the households' surplus which in turn would increase the default risk and reduction in collateral values. Also the probability of adverse selection during credit boom raises the delinquencies during economic downturn. Further, rise in interest rates leads to increase in EMIs for floating rate exposure, especially in retail housing loans, which borrowers may find difficult to pay.

(ii) Interest Rate Risk: As interest rate goes up, fixed rate real estate advances could have a negative effect on banks' profitability due to increase in funding costs. Management of assets and liabilities becomes essential with enhanced efforts to garner long-term deposits as a risk mitigating measure.

(iii) Liquidity Risk: Real estate exposures are essentially illiquid and are difficult to liquidate at short notice without incurring loss. Thus, banks need to have a thorough understanding of variability of mortgage cash flows and corresponding impact on balance sheet which is inversely related to the movements in interest rates.

(iv) Prepayment Risk: This risk is related to interest rate cycle. It increases in a falling interest rate scenario. There is

also the inherent asset-liability mismatch arising from very long maturity real estate loans such as retail housing loans.

(v) Transfer of Risks from Subsidiaries: The risk that difficulties faced by specialised non-bank subsidiaries or connected entities involved in the real estate sector may get transferred to the parent bank.

(vi) Operational Risk (frauds): The incidence of frauds in the area of housing loans has witnessed a sharp increase in the recent years. Submission of forged documents, laxity in conduct of due diligence of borrowers / builders, non-observance of appraisal procedures and laxity in post-disbursement supervision mainly contributed to frauds in this area.

Apart from these, there could be 'second round' effects in that the risks related to adverse changes in the macroeconomic and financial environment could get linked to a period of declining real estate prices. Internationally, loan-to-value ratio (LTV) is regarded as a dominant indicator of default probability of residential mortgage loans, loans with high LTV (say, above 80 per cent) could be assigned higher risk weight. The suggestion is based on empirical evidence from some countries. While acknowledging the obvious shortcomings of LTV being positively correlated with probability of default, it needs to be pointed out that in India there is no reliable real estate price index as yet and any estimation of LTV is thus only a conjecture.

Kingdom have all had rapid appreciation of real estate prices in recent years.

7.95 While equity prices have since corrected by 56.8 per cent (as on November 26, 2008) from the peak level, real estate prices continue at their elevated levels, although some reports do suggest some softening of prices in some parts of the country in recent months.

7.96 Sharp rise in asset prices raises some concerns for financial stability (Box VII.6). Real estate prices, like other asset prices, have important effects on output and inflation. There are primarily two ways through which real estate prices affect the economy. First, in a rising prices scenario, the expectation of further appreciation is factored into the prices. That expectation stimulates demand for homes, which, in turn, stimulates new construction activity and aggregate demand. Second, higher real estate prices increase household wealth, which stimulates

consumer spending. If real estate prices rise above the level than what is justified by the fundamentals, too many houses will be built. At some point, the correction would set in and asset prices then return to their fundamental values. When this happens, the sharp downward revision of asset prices can lead to a sharp contraction in the economy, both directly, through effects on investment, and indirectly, through the effects of reduced household wealth on consumer spending. There is, thus, concern that rapid rise in real estate prices at some stage might have adverse effects on the economy.

7.97 Over the years, banks in India enlarged their exposure to the real estate market. Such exposure at end-March 2008 constituted 19.3 per cent of total bank credit as against 1.6 per cent at end-March 2004. The Reserve Bank alerted banks about 'early signs of overheating of the Indian economy' during 2006-07 on the back of some evidence of firming up of demand



### Box VII.6: Real Estate Price and Financial Stability

Asset prices such as real estate prices and stock prices, are conceptually different from the prices of current consumption goods and services. Real estate prices are somewhat special in that they are forward looking and reflect the market expectations on valuations of future stream of services associated with the asset. That is, they convey information about future demand and supply conditions. In addition, changes in real estate prices influence household wealth and, therefore, impact consumer spending and aggregate demand. Accordingly, asset prices contain important information about the current and future state of the economy and can play an important role in monetary policy setting with the overall objectives of price stability and sustainable output growth.

Standard economic principles suggest that prices are determined by the fundamentals of supply and demand. So rising prices typically reflect growth in demand relative to supply. In the case of real estate price movements, however, many of these fundamental factors that shape the market's expectations of future supply and demand are not directly observable. As a result, it is difficult to ascertain whether rapid shifts in real estate prices are reflecting changes in the underlying fundamentals or not. When the expectations turn out to be wrong or get revised as new information becomes available, the real estate market may witness dramatic adjustments in prices and raises concern that prices have lost touch with the underlying fundamentals. In such a circumstance, there is the fear that a 'bubble' may be developing that may eventually burst.

Price bubbles in the real estate market have distinct features - a price bubble implies that the market is sending misleading price signals and, therefore, distorting resource allocations. For example, overinvestment in some assets and under-investment in others is a likely outcome. The bubble may also be accompanied by excessive

accumulation of debt. Second, given the distortions and imbalances created during the run-up in prices, the bursting of the bubble and associated rapid decline in prices can wreak havoc with the balance sheets of individuals and financial institutions. This can impart ripple effects through the rest of the economy. For example, rapid declines in asset prices have at times been associated with sharp contractions of economic activity and severe financial problems as the imbalances and distortions are reversed. Finally, the biggest hurdle is to determine if there is a bubble or not.

There is general agreement among policymakers that, regardless of the cause of a rapid rise in housing or other asset prices, the rapid unwinding of such price booms should be monitored carefully by policymakers. Otherwise, the risk of misallocating resources and risk-bearing, as well as increased moral hazard problems could ultimately make the financial system more fragile. Therefore, a key ingredient for ensuring asset price bursts triggering widespread adverse effects on the financial system is to develop a healthy banking system providing real estate loans and monitor real estate price movement across regions on a regular basis.

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pressures, in particular, the combination of high growth and consumer inflation coupled with escalating asset prices and tightening infrastructural bottlenecks. In this context, to supplement monetary measures and to protect the banking system from a possible enduring asset bubble without undermining growth impulses, prudential measures were also initiated in the form of enhanced provisioning requirements and risk weights in specific sectors in addition to select supervisory reviews.

7.98 In view of the risks posed by accelerated exposures to the real estate sector, the Reserve Bank initiated several regulatory measures including advising banks to frame Board approved policy, prescribing higher risk

weights, disclosure and reporting of the REE, and even revising the definition of REE. In June 2005, the Reserve Bank advised banks to have a Board mandated policy in respect of their real estate exposure, robust risk management framework covering single/group exposure limits, margins, collaterals/security, repayment schedule and availability of supplementary finance. In view of the rapid increase in loans to the real estate sector raising concerns about asset quality and the potential systemic risks posed by such exposure, the risk weight on banks' exposure to commercial real estate was increased from 100 per cent to 125 per cent in July 2005 and further to 150 per cent in April 2006. However, as a counter cyclical measure, it was decided

on November 15, 2008 to reduce the risk weights on claims secured by commercial real estate to 100 per cent and to reduce the provisioning requirements for all types of standard assets to a uniform level of 0.40 per cent except in the case of direct advances to the agricultural and SME sectors, which would continue to attract a provisioning of 0.25 per cent, as hitherto.

7.99 The risk weights on housing loans extended by banks to individuals against mortgage of housing properties and investments in mortgage backed securities (MBS) of housing finance companies (HFCs), recognised and supervised by National Housing Bank (NHB), were increased from 50 per cent to 75 per cent in December 2004. However, on a review, banks were advised to reduce the risk weight in respect of exposures arising out of housing loans up to Rs.30 lakh to individuals against the mortgage of residential housing properties from 75 per cent to 50 per cent, in view of the lower perception of risks in these exposures.

7.100 Banks are required to disclose their gross exposure to the real estate sector in their published balance sheets to act as market discipline. As part of the regular off-site reporting mechanism, banks are required to report on a monthly basis their gross exposures to various real estate sectors. Real estate exposures both at macro and micro levels are closely monitored and any unusual spurt in exposures are taken up with respective banks for further discussion.

7.101 Apart from the above-mentioned regulatory measures, several measures were taken to prevent/contain the frauds in the area of housing loans such as: (i) caution advices against borrowers/developers/builders, etc., in all cases of frauds in housing loans in which amount involved was Rs.5 lakh and above against each individual borrower; (ii) *modus operandi* circulars/making the

banks aware of the various practices being adopted by fraudsters; (iii) dialogues with the State Governments impressing upon them the need for rationalising stamp duty/registration fees in order to tackle the problem of availing multiple finance by borrowers by mortgaging the same property with different banks; and (iv) detailed instructions to banks in May 2006 highlighting the need for adopting best risk management practices covering credit appraisal, verification of documents, pre and post sanction appraisal, ensuring due diligence, among others, in order to reduce the incidence of frauds in the residential mortgage segment.

#### **4. Mitigating Risks through Financial Sector Policies**

7.102 Owing to globalisation and integration, any disruption in the financial system has a tendency to spill over to other segments of the economy and also spread to other geographical regions, thereby causing a contagion effect. The loss of confidence, if it happens, has the potential to cause large scale damages, and ultimately adversely affect the real economy. In view of the cross border contagion and disruptive herd behavior, any imbalance or any anticipated risks in the economy, which starts materialising, needs to be mitigated immediately. The strategy to mitigate the risk depends upon various factors such as the nature of the risk, its extent of reach and the emerging macrofinancial conditions. At the same time, policy trade-offs between inflation, growth, and financial stability are becoming increasingly difficult.

7.103 The turbulence in the global financial markets during most part of 2007-08 and 2008-09 so far, has been characterised by an abrupt and widespread increase in the pricing of credit risk alongwith a significant demand for liquidity in many asset markets, most notably in the inter-bank market. Contingency consultations among central banks about