# India's Financial Sector Reforms: Fostering Growth While Containing Risk*

Rakesh Mohan

I am honoured to be back at Yale where I got my basic economics grounding from James Tobin, Bill Nordhaus, and Robert Evenson, among others. In all these years, this is my first lecture at Yale, so I am particularly pleased to have this opportunity. Thank you Professor Srinivasan.

The turmoil in international financial markets since late July this year and the increased uncertainty that financial markets are currently experiencing have brought issues relating to financial sector stability to the fore. In some ways, the recent developments are unprecedented in their occurrence and in terms of the emerging magnitude of financial sector losses. The sudden loss of confidence among traditional counterparties reflects extreme information asymmetry arising from the complex layering of risk diffusion and high leveraging; and the breakdown of risk assessment by reputed rating agencies and the like. The speed of contagion and the extensive involvement of large, reputed and regulated financial institutions are indicative of regulatory shortcomings, which has then necessitated unconventional responses of central banks. All this has raised serious concerns relating to the ability and flexibility of national financial systems to withstand shocks emanating from such unusual developments. It has also spurred some reconsideration on some aspects of monetary policy and of financial regulation, particularly as they relate to the maintenance of financial stability.

India has so far remained relatively insulated from these developments and our impact analyses suggest that our exposure to troubled sub-prime assets and related

* Address by Dr.Rakesh Mohan, Deputy Governor, Reserve Bank of India at Yale University on December 3, 2007. Assistance of Michael Patra, Muneesh Kapur and Indranil Bhattacharya in preparing the speech is gratefully acknowledged.

derivatives is negligible in comparison to many other economies. Whereas this may be regarded by some as fortuitous, it is perhaps our nuanced approach to financial sector reform and development that has served us well; our approach has been marked by conscious gradualism with the implementation of coordinated and sequenced moves on several fronts that are predicated on the preparedness for change of the financial system in particular, and of the economy in general. We have also built in appropriate safeguards to ensure stability, while taking account of the prevailing governance standards, risk management systems and incentive frameworks in financial institutions in the country. Overall, these progressive but cautious policies have contributed to efficiency of the financial system while sustaining the growth momentum in an environment of macroeconomic and financial stability. Nevertheless, we in the Reserve Bank are maintaining enhanced vigilance to be able to respond appropriately to the prevailing heightened uncertainties in global financial conditions. The policy challenge is to continue to ensure financial stability in India during this period of international financial turbulence, while maintaining the momentum of high growth accompanied by price stability.

Against this backdrop, I thought I would take this opportunity to review India's approach to financial sector reforms, the path we have traversed for over almost two decades from a restrictive, even repressed past, the nuances of our somewhat unorthodox approach to instituting competition and efficiency in financial intermediation and the challenges we face in the development of our financial sector in the years ahead.

## II. Financial Sector Reforms and Outcomes

In retrospect, the key success of financial sector reforms in India since they were instituted in the early 1990s has been the maintenance of financial stability through a period marked by repeated financial crises across the world. The process of reforms is noteworthy not only for the turbulence around its path but also for the sheer dimensions of the change achieved from the position where we started.

Until the beginning of the 1990s, the state of the financial sector in India could be described as a classic example of "financial repression" (MacKinnon 1973; Shaw 1973). The sector was characterised, *inter alia*, by administered interest rates, large pre-emption of resources by the authorities, extensive micro-regulations directing the major portion of the flow of funds to and from financial intermediaries, relatively opaque accounting norms and limited disclosure, and dominant public ownership. Compartmentalisation of activities of different types of financial intermediaries and strong entry barriers thwarted competition resulting in low levels of efficiency and productivity and severe credit constraints on the private sector, especially in the absence of any access to external finance. Capitalisation levels were low due to lack of commercial considerations in credit planning and weak recovery culture which also resulted in large accumulation of non-performing loans. The predominance of

Government securities in the fixed-income securities market of India mainly reflected the captive nature of this market as most financial intermediaries were mandated to invest a sizeable portion of funds mobilised by them in such securities to finance high Government borrowings at administered/ concessional interest rates. In the capital market, new equity issues were governed by a plethora of complex regulations and extensive restrictions with very little transparency and depth in the secondary market trading of such securities. Comprehensive exchange control resulted in little depth in the foreign exchange market with most external transactions governed by inflexible/low limits and prior approval requirements. Monetary policy was subservient to the fisc. The provision of fiscal accommodation through ad hoc treasury bills led to high levels of monetisation of fiscal deficit during the major part of the 1980s. The expansionary effects of fiscal spending were sought to be curbed through interest rate regulations, credit rationing and high reserve requirements, effectively preventing the development of financial markets.

Elsewhere, I have attempted to document the various facets of India's experience with financial sector reforms – the guiding objectives and intellectual/analytical underpinnings; the choice of pace and sequencing; specific aspects of policy measures for the banking sector, non-bank financial companies, term lending institutions and other financial intermediaries; development of financial markets; and changes in the monetary policy framework (Mohan, 2004; Mohan, 2006c). Today, I propose to undertake an evaluation of the financial sector reforms in terms of actual outcomes.

### *II.1 Monetary Policy*

While assessing monetary policy, it would be reasonable to assert that it has been largely successful in meeting its key objectives in the post-reforms period since the early 1990s. Inflation has averaged close to five per cent per annum in the decade gone by, notably lower than the average of 7-8 per cent in the previous four decades. Structural reforms from the early 1990s coupled with improved monetary-fiscal interface and reforms in the Government securities market enabled better monetary management from the second half of the 1990s onwards. A number of other factors such as increased competition, productivity gains and strong corporate balance sheets have also contributed to this low and stable inflation environment, but it appears that calibrated monetary measures had a substantial role to play as well. More importantly, the regime of low and stable inflation has, in turn, stabilised inflation expectations and the threshold level of inflation tolerance in the economy has come down significantly (Table 1).

It is encouraging to note that despite the high international crude oil prices, other commodity prices and elevated food prices, inflation remains low and inflation expectations appear to be consistent and stable. Consequently, both nominal and real interest rates have fallen. Due to both financial restructuring and low interest rates in recent years, the growth rate in interest expenses of the corporates has declined consistently since 1995-96; such decline has significant implications for the

**Table 1: Growth and Inflation in India – A Historical Record**

(Per cent)

| Period (Averages) | GDP Growth Rate | WPI Inflation Rate |
|---|---|---|
| 1 | 2 | 3 |
| 1951-52 to 1959-60 | 3.6 | 1.2 |
| 1960-61 to 1969-70 | 4.0 | 6.4 |
| 1970-71 to 1979-80 | 2.9 | 9.0 |
| 1980-81 to 1990-91 | 5.6 | 8.2 |
| 1991-92 (Crisis Year) | 1.4 | 13.7 |
| 1992-93 to 1999-00 | 6.3 | 7.2 |
| 2000-01 to 2006-07 | 6.9 | 5.1 |
| 2003-04 to 2006-07 | 8.6 | 4.9 |

**Source:** Reddy (2007).

improvement in bottom lines of the corporate sector as a whole and their resilience to financial shocks.

In terms of the monetary policy framework, India's approach has been somewhat unorthodox. Traditionally, central banks have pursued the twin objectives of price stability and growth or employment, while in recent years, greater attention has been given to the maintenance of price stability through inflation targeting regimes. Although there is no explicit mandate for price stability in the Indian context, the objectives of monetary policy in India have evolved as those of maintaining a judicious balance between price stability and ensuring adequate flow of credit to the productive sectors of the economy. Considerations of financial stability, however, have ascended the hierarchy of monetary policy objectives in recent years in view of the increasing openness of the Indian economy, financial integration and the possibility of cross border contagion. Accordingly, we believe that regulation, supervision and development of the financial system remain within the legitimate ambit of overall monetary policy broadly interpreted.

In the wake of financial sector reforms and opening up of the economy in the 1990s, the Reserve Bank switched over in 1998-99 to a multiple indicator approach whereby macroeconomic and financial market data on both quantum and rate variables are all examined, along with output, in framing monetary policy. We believe that the specific features of the Indian economy, including its socio-economic characteristics, make it necessary for the monetary authority to operate with multiple objectives and indicators for some time to come. A single objective for monetary policy, as is usually advocated, particularly in an inflation targeting (IT) framework, is a luxury that India cannot afford, at least over the medium term. As regards IT, even though there has been an increase in the number of central banks adopting IT since the early 1990s, a number of central banks, notably the Federal Reserve, retain multiple objectives.

Internationally, there is no unique or even best way of monetary policy making and different approaches or frameworks can lead to successful policies by adapting appropriately to diverse institutional, economic and social environments (Issing, 2004). Moreover, some evidence suggests that average inflation as well as its volatility in prominent non-IT industrial countries has, in fact, been somewhat lower than that in prominent IT industrial countries. IT is not found to have any beneficial effect on the level of long-term interest rates either (Gramlich, 2003; Ball and Sheridan, 2003). Furthermore, an IT framework reduces the flexibility available to a central bank in reacting to shocks (Kohn, 2003). Emerging Market Economies (EMEs) face additional problems in an IT regime. These economies are typically more open and it exposes them to large exchange rate shocks which can have a significant influence on short-run inflation. A boom-bust pattern of capital flows can lead to substantial movements in exchange rates. EMEs may have to manage exchange rates more heavily since they are more commodity-price sensitive than advanced economies and commodity price fluctuations can wreak havoc with the forecastability of consumer price inflation (Eichengreen, 2002). An empirical evaluation of the experience of EMEs that have adopted IT confirms that IT is a more challenging task in such economies compared to developed economies that have adopted IT. While inflation in EMEs was indeed lower after they adopted IT, their performance was not as good as that experienced in developed IT countries. Deviation of inflation from its targets is found to be larger and more common in EMEs (Fraga, Minella and Goldfaj, 2003). Inflation targeting by itself is not a sufficient condition for success. In view of the above, the characterisation of inflation targeting as "the gold standard for stabilising monetary policy" is misleading. Indeed, in the recent episode of financial market turmoil, even central banks with explicit inflation targeting or price stability as the predominant objective were forced to scale down the emphasis on price stability, notwithstanding continued inflationary pressures. Such central banks had to inject liquidity and reduce policy rates – in some cases, holding back the earlier expectations of tightening – as they had to lay greater emphasis on financial stability and growth.

The overall macroeconomic record of the Indian economy since the early 1990s indicates an acceleration in growth and a significant reduction in inflation. Inflation has averaged below 5 per cent in the current decade so far, substantially lower than that of around 8 per cent in the preceding two and a half decades. Pre-emptive monetary and prudential measures have led to this welcome situation of a reduction in inflation and acceleration in growth while ensuring financial stability. Indeed, a cross-country comparison of major EMEs that have adopted IT indicates that growth in India has been amongst the highest while inflation remains relatively low (Table 2). Amongst the sample of G-20 and major Asian countries, growth in India during 2000-2007 was the second highest after China. Inflation in India during the current decade has halved from that prevailing during the 1990s and is, at present, lower than many developing economies. A recent survey by McKinsey and Company of CEOs across the world, in both developed countries and EMEs, found that among all the countries surveyed, India had the highest proportion of CEOs, 40 per cent, who did not expect inflation to increase in coming years (McKinsey Quarterly, 2007). Thus, it would appear that, at least, among business leaders, inflation expectations are well-anchored in India. Although there has been above average growth in monetary and credit aggregates in the past 3-4 years, financial stability has been maintained through a judicious use of monetary and prudential measures. Thus, the recent record of macroeconomic management in India is exemplary, even amongst the EMEs that target inflation. The challenge

**Table 2: Real GDP Growth and Consumer Price Inflation: Cross-Country Comparison**

(Annual Averages, per cent)

| | Real GDP Growth | | | Consumer Price Inflation | | |
|---|---|---|---|---|---|---|
| **Country** | **1990-1999** | **2000-2007** | **2003-2007** | **1990-1999** | **2000-2007** | **2003-2007** |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **Developing Economies** | | | | | | |
| Argentina | 4.3 | 3.4 | 8.6 | 253.7 | 9.0 | 9.6 |
| Brazil | 1.7 | 3.3 | 3.6 | 854.8 | 7.3 | 7.2 |
| China | 10.0 | 9.9 | 10.6 | 7.8 | 1.7 | 2.6 |
| **India** | **5.7** | **7.0** | **8.5** | **9.6** | **4.5** | **4.8** |
| Indonesia | 4.3 | 5.1 | 5.4 | 14.4 | 8.7 | 8.6 |
| Korea | 6.3 | 5.1 | 4.4 | 5.7 | 3.0 | 2.9 |
| Malaysia | 7.2 | 5.4 | 5.9 | 3.7 | 2.0 | 2.2 |
| Mexico | 3.4 | 2.9 | 3.2 | 20.4 | 5.2 | 4.1 |
| Philippines | 2.8 | 5.0 | 5.6 | 9.7 | 5.0 | 5.3 |
| Russia | -3.8 | 6.8 | 6.9 | 222.2 | 14.2 | 11.0 |
| South Africa | 1.4 | 4.2 | 4.5 | 9.9 | 5.3 | 4.4 |
| Thailand | 5.3 | 4.9 | 5.4 | 5.0 | 2.5 | 3.1 |
| Turkey | 3.9 | 5.1 | 6.6 | 76.7 | 26.8 | 12.0 |
| **Developed Economies** | | | | | | |
| Australia | 3.3 | 3.3 | 3.3 | 2.5 | 3.2 | 2.7 |
| Canada | 2.4 | 2.9 | 2.7 | 2.2 | 2.3 | 2.2 |
| France | 1.9 | 2.0 | 1.8 | 1.9 | 1.9 | 2.0 |
| Germany | 2.3 | 1.4 | 1.4 | 2.4 | 1.7 | 1.7 |
| Italy | 1.4 | 1.3 | 1.0 | 4.1 | 2.4 | 2.3 |
| Japan | 1.5 | 1.7 | 2.0 | 1.2 | -0.3 | -0.1 |
| United Kingdom | 2.1 | 2.8 | 2.8 | 3.3 | 1.6 | 1.9 |
| United States | 3.1 | 2.5 | 2.8 | 3.0 | 2.8 | 2.9 |

**Source:** World Economic Outlook Database, IMF.

for monetary policy now is to reduce inflation further in the medium term towards international levels, while maintaining the momentum of high growth and preserving financial stability.

## *II.2 Banking Sector*

In the post-reform period, banks have experienced strong balance sheet growth in an environment of operational flexibility. Concomitantly, the financial health of banks has improved significantly, both in terms of capital adequacy and asset quality. Moreover, this progress has been achieved while setting the groundwork for the adoption of international best practices in prudential and accounting norms. Increased competitiveness and productivity gains have also been enabled by proactive technological deepening and flexible human resource management. These significant gains have been achieved even while renewing our commitment to social banking *viz.*, maintaining the wide reach of the banking system and directing credit towards important but disadvantaged sectors of society. The banking system's wide reach, judged in terms of expansion of branches and the growth of credit and deposits indicates continued financial deepening (Mohan, 2006a).

On the liability side, deposits continue to account for about 80 per cent of the total liabilities while on the asset side, the shares of loans and advances and investments have seen marked cycles, reflecting banks' portfolio preferences as well as growth cycles in the economy. In this regard, while the share of loans and advances declined in the second half of 1990s on account of the industrial slowdown as well as tightening of prudential norms, banks' credit portfolio has witnessed sharp growth in the period 2003-07.

The overall capital position of commercial banks has witnessed a marked improvement during the reform period (Table 3). Illustratively, as at end-March 2007, all 81 scheduled commercial banks operating in India maintained CRAR at or above 9 per cent relative to the Basel I norm of 8 per cent. For the Indian banking system, the ratio of capital to risk weighted assets works out to 13 per cent currently. While improved capitalisation of public sector banks was initially brought through infusion of funds by government to recapitalise these banks, subsequently, public sector banks were allowed to raise funds from the market through equity issuance subject to the maintenance of 51 per cent public ownership. As a result, ownership in public sector banks is now well diversified.

Despite tightening prudential norms in terms of classification of non-performing assets, the resulting measured asset quality of banks has improved considerably as the share of non-performing loans (NPLs) (as ratios of both total advances and assets) have declined substantially and consistently since the mid-1990s. In fact, the ratio of net NPLs to net advances at 1.0 per cent in India is now comparable to that of several advanced economies (Table 4). Improvement in the credit appraisal process, upturn of the business cycle, new initiatives for resolution of NPLs (including promulgation of the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act), and greater provisioning and write-off of NPLs enabled by greater profitability, have contributed to the reduction in incremental NPLs.

**Table 3: Distribution of Commercial Banks According to Risk-weighted Capital Adequacy**

(Number of banks)

| End-March | Capital Adequacy | | | | |
|---|---|---|---|---|---|
| | Below 4 per cent | Between 4-9 per cent* | Between 9-10 per cent @ | Above 10 per cent | Total |
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1996 | 8 | 9 | 33 | 42 | 92 |
| 2001 | 3 | 2 | 11 | 84 | 100 |
| 2007 | – | – | 2 | 79 | 81 |

* : Relates to 4-8 per cent before 1999-2000,
@ : Relates to 8-10 per cent before 1999-2000.
**Source**: Reserve Bank of India.

**Table 4: Non-Performing Loans (NPL) of Scheduled Commercial Banks**

(Per cent)

| End-March | Gross NPL/ Gross Advances | Gross NPL/ Assets | Net NPL/ Net Advances | Net NPL/ Assets |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 1996-97 | 15.7 | 7 | 8.1 | 3.3 |
| 1997-98 | 14.4 | 6.4 | 7.3 | 3.0 |
| 1998-99 | 14.7 | 6.2 | 7.6 | 2.9 |
| 1999-00 | 12.7 | 5.5 | 6.8 | 2.7 |
| 2000-01 | 11.4 | 4.9 | 6.2 | 2.5 |
| 2001-02 | 10.4 | 4.6 | 5.5 | 2.3 |
| 2002-03 | 8.8 | 4.0 | 4.4 | 1.9 |
| 2003-04 | 7.2 | 3.3 | 2.8 | 1.2 |
| 2004-05 | 5.2 | 2.5 | 2.0 | 0.9 |
| 2005-06 | 3.1 | 1.8 | 1.2 | 0.7 |
| 2006-07 | 2.4 | 1.5 | 1.0 | 0.6 |

**Source :** Reserve Bank of India.

Efficiency gains are reflected in containment of the operating expenditure as a proportion of total assets (Table 5). This has been achieved in spite of large expenditures incurred by Indian banks in installation and upgradation of information technology and, in the case of public sector banks, large expenditures under voluntary pre-mature retirement of nearly 12 per cent of their total staff strength.

**Table 5: Earnings and Expenses of Scheduled Commercial Banks**

(Rs. billion)

| Year | Total Assets | Total Earnings | Interest Earnings | Total Expenses | Interest Expenses | Establish-ment Expenses | Net Interest Earnings |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 7 | 8 | 9 |
| 1969 | 68 | 4 | 4 | 4 | 2 | 1 | 2 |
| | | (6.2) | (5.3) | (5.5) | (2.8) | (2.1) | (2.5) |
| 1980 | 582 | 42 | 38 | 42 | 27 | 10 | 10 |
| | | (7.3) | (6.4) | (7.2) | (4.7) | (1.7) | (1.8) |
| 1991 | 3,275 | 304 | 275 | 297 | 190 | 76 | 86 |
| | | (9.3) | (8.4) | (9.1) | (5.8) | (2.3) | (2.6) |
| 2000 | 11,055 | 1,149 | 992 | 1,077 | 690 | 276 | 301 |
| | | (10.4) | (9.0) | (9.7) | (6.2) | (2.5) | (2.7) |
| 2005 | 22,746 | 1,902 | 1,558 | 1,693 | 891 | 501 | 667 |
| | | (8.1) | (6.6) | (7.2) | (3.8) | (2.1) | (2.8) |
| 2006 | 25,865 | 2,208 | 1,854 | 1,962 | 1,072 | 592 | 783 |
| | | (7.9) | (6.7) | (7.0) | (3.9) | (2.1) | (2.8) |
| 2007 | 31,854 | 2,762 | 2,373 | 2,450 | 1,440 | 663 | 933 |
| | | (8.0) | (6.9) | (7.1) | (4.2) | (1.9) | (2.7) |

**Note** : Figures in brackets are ratios to total assets.
**Source :** Reserve Bank of India.

In consonance with the objective of enhancing efficiency and productivity of banks through greater competition, there has been a consistent decline in the share of public sector banks in total assets of commercial banks. Nevertheless, public sector banks appear to have responded to the new challenges of competition, as reflected in their increased share in the overall profit of the banking sector. This suggests that, with operational flexibility, public sector banks are competing relatively effectively with private sector and foreign banks. Shares of Indian private sector banks, especially new private sector banks established in the 1990s, in the total income and assets of the banking system have increased considerably since the mid-1990s (Table 6).

Indian private sector banks, particularly new private sector banks, have made rapid progress in terms of increasing their income and asset size since the mid-1990s. In terms of branch expansion, the compound growth rate of private sector banks over the period 2002-07 was almost three times that of all scheduled commercial banks and more than four times that of public sector banks (Table 7). Among the private sector banks, the four big banks *viz.*, Centurion Bank of Punjab, HDFC Bank, ICICI Bank and UTI/Axis bank have experienced rapid branch expansion in the range of 16-46 per cent per annum in terms of compound growth rates. While private sector banks, as a group, have recorded a compound growth of 24 per cent per annum in their staff, public sector banks have witnessed a decline in the staff strength

**Table 6: Bank Group-wise Shares: Select Indicators**

(Per cent)

| Item | 1995-96 | 2000-01 | 2004-05 | 2005-06 | 2006-07 |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| **Public Sector Banks** | | | | | |
| Income | 82.5 | 78.4 | 75.6 | 72.4 | 68.4 |
| Expenditure | 84.2 | 78.9 | 75.8 | 73.0 | 68.9 |
| Total Assets | 84.4 | 79.5 | 74.4 | 72.3 | 70.5 |
| Net Profit | -39.1@ | 67.4 | 73.3 | 67.3 | 64.6 |
| Gross Profit | 74.3 | 69.9 | 75.9 | 69.8 | 64.1 |
| **New Private Sector Banks** | | | | | |
| Income | 1.5 | 5.7 | 11.8 | 14.4 | 17.8 |
| Expenditure | 1.3 | 5.5 | 11.4 | 14.1 | 17.9 |
| Total Assets | 1.5 | 6.1 | 12.9 | 15.1 | 16.9 |
| Net Profit | 17.8 | 10.0 | 15.0 | 16.7 | 17.1 |
| Gross Profit | 2.5 | 6.9 | 10.7 | 13.8 | 16.7 |
| **Foreign Banks** | | | | | |
| Income | 9.4 | 9.1 | 7.0 | 8.0 | 9.0 |
| Expenditure | 8.3 | 8.8 | 6.6 | 7.4 | 8.3 |
| Total Assets | 7.9 | 7.9 | 6.8 | 7.2 | 8.0 |
| Net Profit | 79.8 | 14.8 | 9.7 | 12.5 | 14.7 |
| Gross Profit | 15.6 | 15.7 | 9.0 | 12.2 | 14.6 |

**@ :** Public sector banks, as a group, had recorded net losses during 1995-96.
**Source :** Reserve Bank of India.

**Table 7: Operations of Private Sector Banks: Progress**

| Item | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Compound growth (per cent per annum) (2006-07/ 2002-03) |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **No. of branches** | | | | | | |
| Centurion Bank of Punjab | 62 | 63 | 77 | 242 | 279 | 45.6 |
| HDFC Bank | 215 | 295 | 446 | 515 | 638 | 31.2 |
| ICICI Bank | 392 | 419 | 515 | 569 | 713 | 16.1 |
| UTI Bank/Axis Bank | 137 | 185 | 250 | 352 | 501 | 38.3 |
| All Private Sector Banks | 5,592 | 5,950 | 6,453 | 6,813 | 7,363 | 7.1 |
| All Public Sector Banks | 47,963 | 48,299 | 48,970 | 49,817 | 51,392 | 1.7 |
| All Scheduled Commercial Banks | 53,768 | 54,474 | 55,669 | 56,893 | 59,031 | 2.4 |
| **No. of employees** | | | | | | |
| Centurion Bank of Punjab | 945 | 1112 | 1,374 | 4,471 | 14,458 | 97.8 |
| HDFC Bank | 4,791 | 5673 | 9,030 | 14,878 | 21,477 | 45.5 |
| ICICI Bank | 11,544 | 13,609 | 18,029 | 25,384 | 33,321 | 30.3 |
| UTI Bank/Axis Bank | 2,338 | 3,447 | 4,761 | 6,553 | 9,980 | 43.7 |
| All Private Sector Banks | 59,374 | 81,120 | 90,530 | 110,505 | 139,285 | 23.8 |
| All Public Sector Banks | 757,251 | 752,627 | 738,110 | 744,333 | 729,172 | -0.9 |
| All Scheduled Commercial Banks | 828,328 | 847,945 | 856,671 | 876,955 | 896,307 | 2.0 |
| **Net profits (Rupees billion)** | | | | | | |
| Centurion Bank of Punjab | -0 | -1 | 0 | 1 | 1 | — |
| HDFC Bank | 4 | 5 | 7 | 9 | 11 | 31.0 |
| ICICI Bank | 12 | 16 | 20 | 25 | 31 | 26.7 |
| UTI Bank/Axis Bank | 2 | 3 | 3 | 5 | 7 | 36.1 |
| All Private Sector Banks | 29 | 35 | 35 | 50 | 65 | 22.1 |
| All Public Sector Banks | 123 | 16 | 154 | 165 | 201 | 13.1 |
| All Scheduled Commercial Banks | 170 | 223 | 210 | 246 | 312 | 16.4 |
| **Deposits (Rupees billion)** | | | | | | |
| Centurion Bank of Punjab | 28 | 30 | 35 | 94 | 149 | 51.3 |
| HDFC Bank | 224 | 304 | 434 | 558 | 683 | 32.2 |
| ICICI Bank | 482 | 681 | 998 | 1,651 | 2,305 | 47.9 |
| UTI Bank/Axis Bank | 170 | 210 | 317 | 401 | 588 | 36.4 |
| All Private Sector Banks | 2069 | 2,686 | 3,146 | 4,285 | 5,520 | 27.8 |
| All Public Sector Banks | 10,794 | 12,268 | 14,365 | 16,225 | 19,942 | 16.6 |
| All Scheduled Commercial Banks | 14,045 | 15,755 | 18,376 | 21,647 | 26,970 | 17.7 |
| **Advances (Rupees billion)** | | | | | | |
| Centurion Bank of Punjab | 13 | 16 | 22 | 65 | 1,122 | 70.9 |
| HDFC Bank | 118 | 178 | 256 | 351 | 470 | 41.4 |
| ICICI Bank | 533 | 627 | 914 | 1,462 | 1,959 | 38.5 |
| UTI Bank/Axis Bank | 72 | 94 | 156 | 223 | 369 | 50.5 |
| All Private Sector Banks | 1,377 | 1,704 | 2,213 | 3,130 | 4,148 | 31.7 |
| All Public Sector Banks | 5,493 | 6,327 | 8,542 | 11,063 | 14,401 | 27.2 |
| All Scheduled Commercial Banks | 7,600 | 8,636 | 11,508 | 15,168 | 19,812 | 27.1 |

**Note :** Centurion Bank of Punjab was formed in October 2005 as a result of the merger of Centurion Bank with Bank of Punjab. Data for Centurion Bank of Punjab for 2005-06 and 2006-07 reflect the data of the combined entity, while that for the prior period pertain only to the Centurion Bank.

**Sources :** 1. Annual Accounts of Scheduled Commercial Banks, 1979-2004, Reserve Bank of India.
2. A Profile of Banks, 2006-07, Reserve Bank of India.

over the same period reflecting, *inter alia*, restructuring facilitated by greater use of technology and computerisation. In terms of growth of capital and reserves and surplus, the new private sector banks experienced annual growth in the range of 30-68 per cent, while deposits and advances have increased by 32-51 per cent and 39-71 per cent, respectively. Net profits recorded a compound annual growth of 27-36 per cent. In terms of all these parameters, new private sector banks grew much faster than the existing private sector banks, as might be expected.

There has been some discussion in recent times on the policy of branch licensing of banks by the Reserve Bank of India: that it could have restricted competition and growth of new banks. These data exhibit the very high growth experienced by the leading private sector banks and it is arguable whether there could have been much faster expansion without impairing their prudential quality and integrity of their balance sheets.

What is most encouraging is the very significant improvement in the productivity of the Indian banking system in terms of various productivity indicators (Mohan, 2006a). These improvements could be driven by two factors: *technological improvement*, which expands the range of production possibilities and a *catching up effect*, as peer pressure amongst banks compels them to raise productivity levels. Here, the role of new business practices, new approaches and expansion of the business introduced by the new private banks have been of the utmost importance.

To sum up, significant improvement in the performance of public sector banks has been witnessed over the past decade or so, facilitated by the phased introduction of wide-ranging financial sector reforms since the early 1990s. Gradual introduction of best international practices and norms, refinements in the supervisory practices, tightening of risk weights/provisioning norms in regard to sectors witnessing high credit growth, greater market discipline brought about by raising of capital from the capital markets and listing on the stock exchanges, interest rate deregulation, and scaling down of statutory pre-emptions are amongst the key factors that have led to better performance. Concomitantly, greater competition has been induced in the domestic banking sector by successful introduction of new generation private sector banks. Despite strong growth in balance sheets of the new banks, the banking system has exhibited remarkable stability. Although there have been a few instances of weaknesses in a few new private sector banks, pre-emptive measures in the form of the mergers of such banks with stronger banks, or infusion of new capital and change in ownership, on a voluntary or involuntary basis, have contributed to the strength of the domestic banking system, engendered confidence in the depositors and enabled maintenance of overall financial stability. Notwithstanding the substantial improvement, the domestic banking system will need to be further strengthened to face greater external competition and introduction of financial innovations and fuller capital account convertibility.

### *II.3 Financial Markets*

The most notable impact of financial sector reforms is clearly discernible in the development of various segments of financial markets in India. The reforms since the early 1990s have led to a regime characterised by market-determined interest and exchange rates, price-based instruments of monetary policy, current account convertibility, substantial capital account liberalisation and vibrant government securities and capital markets. Derivative instruments have been cautiously introduced in a phased manner, both for product diversity and, more importantly, as a risk management tool. All these developments have facilitated the process of price discovery in various financial market segments.

There has been a significant increase in trading volumes and market liquidity (Table 8). Illustratively, average daily turnover in the money market has increased from Rs.427 billion in 1997-98 to over Rs.888 billion by 2006-07. The operations under the liquidity adjustment facility (LAF) have largely been able to steer overnight rates within the corridor set by the policy rates. Under the LAF, the Reserve Bank absorbs (reverse repo) as well as injects (repo) liquidity, depending upon the liquidity conditions and consistent with the overall monetary policy stance. Changes in fixed reverse repo/repo rates set by the Reserve Bank from time to time for the conduct of LAF, under which the central bank conducts daily auctions for the banks, have emerged as the main instruments for interest rate signalling in the Indian economy.

Inter-bank turnover in the foreign exchange market has nearly quadrupled between 2000-01 and 2006-07 to Rs. 840 billion. Average daily turnover in the foreign exchange market (inter-bank as well as merchant) has increased from US $ 5 billion in 1997-98 to US $ 23 billion by 2006-07. The exchange rate of the Indian rupee has exhibited significant two-way movements in the recent years. Efficiency in the foreign

**Table 8: Depth of Financial Markets in India – Average Daily Turnover**

(Rs. billion)

| Year | Money Market* | Government Securities Market | Foreign Exchange Market # | Equity Market (Cash Segment) ** | Equity Market (Derivative Segment—NSE) |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1991-92@ | 66 | 4 | n.a | n.a. | n.a. |
| 2000-01 | 427 | 28 | 212 | 93 | 0.1 |
| 2001-02 | 655 | 63 | 232 | 33 | 4 |
| 2002-03 | 768 | 71 | 242 | 37 | 18 |
| 2003-04 | 287 | 84 | 307 | 63 | 84 |
| 2004-05 | 385 | 48 | 400 | 66 | 101 |
| 2005-06 | 600 | 36 | 564 | 95 | 192 |
| 2006-07 | 888 | 49 | 840 | 118 | 298 |

* : Includes the call money, the notice money, the term money, the CBLO and the repo markets.
\# : Inter-bank turnover only.
@ : Data for G-Sec and equity market relate to 1995-96.
** : Include both BSE and NSE.
n.a.: not available

exchange market has also improved as reflected in the decline in bid-ask spreads.

In the government securities market, the issuance of long-term securities has enabled the development of yield curve across 30-year maturity. In the government securities market, the drop in turnover in 2004-05 and 2005-06 could be attributed to factors such as 'buy and hold' tendency of the participants such as insurance companies, which now hold a substantial portion of government securities, particularly those of longer maturities. Furthermore, certain regulatory changes introduced in late 2004 allowing banks to hold a larger proportion of their investment portfolio in the "held to maturity" (HTM) category reduced the proportion of portfolio used for trading, thereby affecting the magnitude of G-sec trading. The decline could also be attributed to the increase in interest rates over the period, which prompted banks and other players to hold rather than trade, so as to avoid trading losses. To keep the markets liquid and active, the Reserve Bank has recently allowed short selling in government securities among eligible participants, and trading in the 'when issued' segment, but these facilities have not seen much activity yet. Efforts are also on to increase liquidity through the active consolidation of existing securities.

The derivatives market has also gained vibrancy during the last couple of years. The total notional principal amount outstanding has more than trebled between March 2005 and June 2007 led by a significant jump in interest rate related contracts. Over this period, while the notional amount under interest rate related contracts quadrupled, that in foreign exchange contracts nearly trebled (Table 9). Certain legislative changes in 2006 provided clear legal legitimacy to OTC derivative contracts, which was somewhat ambiguous earlier.

The Government and the Securities and Exchange Board of India along with the Reserve Bank are taking steps to activate the corporate debt market. As has been experienced elsewhere, among the various financial markets, the corporate debt market is indeed the most difficult to develop for a variety of reasons. The expansion of the pension fund and insurance industries will progressively result in the presence of a larger financial investor base, which will help in the overall expansion of financial markets and in particular the corporate debt market.

**Table 9: Outstanding Derivatives: Notional Principal Amount**

(Rupees billion)

| S. No | Description | March 2005 | March 2006 | March 2007 | June 2007 |
|---|---|---|---|---|---|
| **1** | **Foreign exchange contracts (outstanding)** | **13,013** | **17,285** | **29,254** | **37,625** |
| 2 | Forward forex contracts | 12,487 | 15,286 | 24,653 | 32,044 |
| 3 | Currency options purchased | 526 | 1,998 | 4,601 | 5,581 |
| **4** | **Futures** | **732** | **1,430** | **2,290** | **2,068** |
| **5** | **Interest rate related contracts** | **13,119** | **21,842** | **41,958** | **54,998** |
| 6 | Of which: single currency interest rate swaps | 12,817 | 21,530 | 41,597 | 54,590 |
| **7** | **Total -Contracts/Derivatives** | **26,864** | **40,558** | **73,502** | **94,691** |

**Note**: Data pertain to scheduled commercial banks.

It is quite apparent that there exist well-functioning, deep, liquid, and well-integrated markets for bonds, currency and derivatives in India, contrary to what is often asserted. The trading volumes have generally witnessed significant growth in the various segments of the financial market. It is noteworthy that the increase in foreign exchange market turnover in India between April 2004 and April 2007 was the highest amongst the 54 countries covered in the latest Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity conducted by the Bank for International Settlements (BIS). According to the survey, daily average turnover in India jumped almost 5-fold from US $ 7 billion in April 2004 to US $ 34 billion in April 2007; global turnover over the same period rose by only 66 per cent from US $ 2.4 trillion to US $ 4.0 trillion. Reflecting these trends, the share of India in global foreign exchange market turnover trebled from 0.3 per cent in April 2004 to 0.9 per cent in April 2007. In view of the above, comments that are often made regarding missing financial markets are rather misleading. Moreover, empirical evidence points towards greater market integration (Mohan, 2007c). A good deal of development has indeed taken place in the government securities market, the forex market, OTC interest rate derivatives and the like. The corporate bond market is indeed in its infancy; and, more efforts have to be made to develop various exchange traded derivative markets.

It, however, needs to be recognised that financial markets are often governed by herd behaviour and contagion. Deregulation, liberalisation, emergence of financial conglomerates and globalisation of financial markets pose growing risks to financial stability. In this regard, it needs to be stressed that volatility in currency and bond markets can have significantly more adverse employment, output and distributional consequences compared to volatility in equity markets. Premature liberalisation of money and bond markets can lead to large and volatile capital inflows, which could potentially exacerbate complications for macroeconomic and monetary management. Furthermore, excessive fluctuations and volatility in financial markets can mask the underlying value and give confusing signals, as has happened in developed markets, thereby hindering efficient price discovery (Mohan, 2006c). As large segments of economic agents in India may not have adequate resilience to withstand volatility in currency and money markets, the Reserve Bank's policy approach has been to be increasingly vigilant and proactive to any incipient signs of volatility in financial markets.

Notwithstanding the progress made since the early 1990s, the Reserve Bank recognises that domestic financial markets need to develop much further, especially in order to support the recent acceleration in growth momentum of the Indian economy and in the context of the envisaged move towards fuller capital account convertibility. The Indian experience demonstrates that development of markets is an arduous and time consuming task that requires conscious policy actions and effective implementation. Without real sector development in terms of the physical infrastructure and improvement in supply elasticities, the financial sector can misallocate resources, potentially generate bubbles and possibly amplify the risks. Hence, financial sector reforms have complementarity with the pace and process of reforms in the real sector in India.

Given the large weight on stability, especially in view of low income levels for a large segment of the population, the careful and cautious approach to development of financial markets followed so far would need to be pursued in the coming years. The pace of further progress would depend upon the development of the necessary expertise in the public sector banks, further expansion of private sector banks and foreign banks. We recognise the need to develop further various segments of the domestic financial market to help in better risk management by various market participants. The demand for various risk management tools could be expected to increase, especially in the presence of potentially larger fluctuations in exchange rate and interest rates in the future. In recognition of the need to widen the range of instruments available to market participants, the Reserve Bank has placed draft guidelines on introduction of credit derivatives in the country. More recently, a draft report on the introduction of currency futures in India has also been put in the public domain for comments and feedback; and work is in progress on the introduction of interest rate futures.

Summing up, it is widely recognised that the Indian financial sector over the last decade has been transformed into a reasonably sophisticated, diverse and resilient system delivering a wide variety of financial services efficiently and profitably, with a spectrum of financial market segments in which financial institutions are able to participate with operational and functional autonomy in an environment of increasing deregulation and international competition. The acceleration of growth in the real economy suggests that the financial system has served well the overall needs of the economy. During this period, while the global financial environment has become more risky in the wake of new instruments and participants and the rapid advance in communication technology integrating markets worldwide, a unique feature of the Indian reform process is that it has been instituted and carried forward with the objective of sustaining and accelerating the growth momentum while containing risk and entrenching financial stability.

## III. Indian Reform Outcomes in the International Context

Some commentators have criticised the Indian approach to financial sector reforms as unclear, timid and conservative in the context of the cross-country experience and have advocated more bold and drastic measures so as to speed up the transition to higher growth. There is also some discomfort with our approach to foreign banks, although even in this regard, we are ahead of WTO norms and we have set up roadmaps and review deadlines conditional upon broader consensus on international commerce in financial services. Admittedly, we have been cautious and somewhat conservative in our approach to financial sector reforms relative to some other EMEs. In this regard, it is important to note that not only has there been a steady upward shift in India's growth path, but this has also been accompanied by enduring stability. A remarkable feature of India's growth experience has been its resilience to both global and domestic shocks. In this regard, while the broad objectives of financial sector reforms were to enhance efficiency and productivity, the process of reforms was initiated in a gradual and properly sequenced manner so as to have a reinforcing effect. The approach has been to consistently upgrade the financial sector by adopting the international best practices through a consultative process.

With increased deregulation of financial markets and increased integration of the global economy, the 1990s were turbulent for global financial markets: 63 countries suffered from systemic banking crises in that decade, and 45 in the 1980s. Among countries that experienced such crises, the direct cost of reconstructing the financial system was typically very high: for example, recapitalisation of banks had cost 55 per cent of GDP in Argentina, 42 per cent in Thailand, 35 per cent in Korea and 10 per cent in Turkey. There were high indirect costs of lost opportunities and slow economic growth in addition (McKinsey & Co., 2005). It is therefore particularly noteworthy that India could pursue its process of financial deregulation and opening of the economy without suffering financial crises during this turbulent period in world financial markets. The cost of recapitalisation of public sector banks at less than 1 per cent of GDP is therefore low in comparison.

In our own assessment, the gradualist approach has been appropriate, particularly in the context of democratic polity, and given the multi-ethnic and linguistic composition of the country. The steady pace of reforms has borne fruit, including larger sections of society within the reform process. What is remarkable is the sheer magnitude and quality of the reform effort as evident in actual outcomes. The banking system in India has undergone significant changes during the last 16 years. A cross-country survey of crucial banking indicators reveals that the Indian banking system is now comparable to those of developed economies in terms of key indicators (Table 10). The capital adequacy ratio at 12.4 per cent for the system as a whole at end March 2006 is comparable to that of most advanced economies. Similarly, banks' non-performing loans to total loans have steadily declined and are lower than many emerging economies. In terms of return on assets, the Indian banking system's performance is comparable to that of advanced economies such as Germany and the U.K.

Cross-country comparisons indicate that many other countries have also achieved considerable progress in strengthening their banking sector. However, a noteworthy aspect of the Indian experience is that we have been able to strengthen our banking system without any crisis and with negligible cost to the fisc, while simultaneously achieving acceleration in growth, price stability and consistent development of financial markets. Our banking sector reform has been unique in the world in that it combines a comprehensive reorientation of competition, regulation and ownership in a non-disruptive and cost-effective manner. Indeed, our banking reform is a good illustration of the dynamism of the public

**Table 10: Cross-Country Select Banking Indictors – A comparison**

(Per cent)

| Country | Regulatory Capital to Risk-Weighted Assets (CRAR) | | Nonperforming Loans to Total Loans | | Provisions to Non-performing Loans | | Return on Assets (ROA) | |
|---|---|---|---|---|---|---|---|---|
| | 2002 | 2006 | 2002 | 2006 | 2002 | 2006 | 2002 | 2006 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| **Developing Economies** | | | | | | | | |
| Argentina | - | - | 18.1 | 3.4 | 73.8 | 130.2 | -8.9 | 2.0 |
| Brazil | 16.6 | 18.9 | 4.5 | 4.1 | 155.9 | 152.8 | 2.1 | 2.5 |
| China | - | - | 26.0 | 7.5 | - | - | - | 0.9 |
| India | 12.0 | 12.4 | 10.4 | 3.5 | - | 58.9 | 0.8 | 0.9 |
| Indonesia | 20.1 | 21.3 | 24.0 | 13.1 | 130.0 | 99.7 | 1.4 | 2.6 |
| Korea | 11.2 | 12.8 | 2.4 | 0.8 | 89.6 | 175.2 | 0.6 | 1.1 |
| Malaysia | 13.2 | 13.5 | 15.9 | 8.5 | 38.1 | 50.7 | 1.3 | 1.3 |
| Mexico | 15.7 | 16.3 | 3.7 | 2.1 | 138.1 | 207.4 | 0.7 | 3.1 |
| Philippines | 16.9 | - | 26.5 | 18.6 | 30.1 | 37.4 | 0.8 | 1.3 |
| Russia | 19.1 | 14.9 | 5.6 | 2.6 | 112.5 | 159.3 | 2.6 | 3.2 |
| South Africa | 12.6 | 12.3 | 2.8 | 1.2 | 46.0 | - | 0.4 | 1.4 |
| Thailand | 13.0 | 13.8 | 15.7 | 7.5 | 62.9 | 79.4 | - | 2.3 |
| Turkey | 24.4 | 21.1 | 12.7 | 3.2 | 64.2 | 90.8 | 1.2 | 2.4 |
| **Developed Economies** | | | | | | | | |
| Australia | 9.6 | 10.4 | 0.4 | 0.2 | 106.2 | 204.5 | 1.4 | - |
| Canada | 12.4 | 12.5 | 1.6 | 0.4 | 41.1 | 55.3 | 0.4 | 1.0 |
| France | 11.5 | - | 4.2 | 3.2 | 58.4 | 58.7 | 0.5 | - |
| Germany | 12.7 | - | 5.0 | 4.0 | - | - | 0.1 | 0.5 |
| Italy | 11.2 | 10.7 | 6.5 | 5.3 | - | 46.0 | 0.5 | 0.8 |
| Japan | 9.4 | 13.1 | 7.4 | 2.5 | - | 30.3 | -0.7 | 0.4 |
| United Kingdom | 13.1 | 12.9 | 2.6 | 0.9 | 75.0 | - | 0.4 | 0.5 |
| United States | 13.0 | 13.0 | 1.4 | 0.8 | 123.7 | 137.2 | 1.3 | 1.3 |

**Source :** Global Financial Stability Report, 2007, IMF.

sector in managing the overhang problems and the pragmatism of public policy in enabling the domestic and foreign private sectors to compete and expand (Reddy, 2007).

The overall stability that has been imparted to a system undergoing reforms has served us well so far in the face of the recent financial developments. To exemplify the argument, I thought I would spend some time on the recent financial developments, possible causes and likely consequences so as to better appreciate the conduct of India's financial sector reforms.

## IV. Recent International Financial Developers: Issues in Monetary Policy and Financial Sector Regulation

In contrast to earlier crises, the cause-and-effect sequences are blurred in the current turmoil in view of the extreme information asymmetry. Some defining features of the global economy which could have a direct bearing on the current crises are: the 'Great Moderation' – i.e., the sustained decline in inflation/inflation volatility and consequently, a secular lowering of nominal and real interest rates across the world which could have enhanced the appetite for risk; significant monetary accommodation by the major economies – the US, Euro area and Japan – since 2000 reflected in abundant liquidity in financial markets, macro imbalances between the US and Asia, sizeable currency misalignments and carry trades, compression of risk spreads, mispricing of widely diffused risks and even real sector implications for several emerging economies; and the strong macroeconomic performance of Asia which has contributed to the relentless search for yields and the increasing appetite for risk (Mohan, 2007e).

The combination of sustained low inflation accompanied by accommodative monetary policy worldwide could have generated excessive confidence in the ability of central banks and monetary policy to keep inflation rates and interest rates low indefinitely, leading to under pricing of risk and hence excessive risk taking. This result is analogous to the excessive foreign borrowing undertaken by private sector borrowers and banks in East Asian countries in the 1990s when exchange rates were seen as relatively fixed, and hence their risk perceptions were low, and hence risk was under priced. It may be ironic that the perceived success of central banks and increased credibility of monetary policy, giving rise to enhanced expectations with regard to stability in both inflation and interest rates, could have led to the mispricing of risk and hence enhanced risk taking. Yet another view is that more than success or failure of central banks, the repeated assurances of stability and guidance to markets about the future path of interest rates, coupled with the availability of ample liquidity were an invitation to markets to underprice risks. This view, consequently, puts the blame on those central banks that failed to give space to markets to assess risks by eschewing surprise elements in policy. It is possible that with increased globalisation resulting in the containment of prices of tradable goods during this period and hence of measured inflation, the excess liquidity has shown up in elevated asset prices worldwide, along with increased cross border capital flows in search of yields.

As some withdrawal of monetary accommodation commenced in response to perceived or visible inflationary pressures, the sub-prime crisis revealed these vulnerabilities starkly as confidence plunged, markets froze and triggered off panic among investors and lenders regarding their inability to value complex risky assets and structured derivative products. According to some estimates, total losses related to sub-prime could exceed US $ 200 billion (The Economist, 2007), over a fifth of India's GDP measured at market exchange rates**.** According to the OECD estimates, losses could amount to US $ 300 billion. With the deterioration in credit confidence, banks have been forced to advance loans to their off-balance sheet "special investment vehicles (SIVs)" which used up their capital thereby rendering other borrowers credit constrained. Thus, it can be argued that the sub-prime is a symptom rather than a cause. Arguably, the outcome could have been quite different if, for instance, interest rates declined on the back of ebbing inflation but there was no accommodation in monetary policy and therefore no excess liquidity. There is also a persuasive opposite view, as best articulated by Alan Greenspan, that the great moderation in inflation could be attributed to real economy phenomena: the long run of productivity growth in the US; and the impact of new workers in China and India in dampening wage growth worldwide and hence inflation.

It is widely understood that the credit market is characterised by information asymmetry. First, the availability of information technology has reduced the cost of information collection and maintenance considerably. Thus, a widespread belief has arisen that information on credit quality of small borrowers who may be widely dispersed across jurisdictions can be made impersonal, packaged, processed, and sold. Second, with the availability of such technology, and the belief that such information was available on a structured basis, a great deal of financial innovation could take place which essentially enabled the investor or risk taker to become progressively remote from the ultimate borrowers where the actual risks lay. A whole host of intermediaries in the form of mortgage brokers, mortgage companies, societies and the like were then able to package their mortgage assets including non conforming loans and sell down to different categories of investors, including Special Investment Vehicles (SIVs), hedge funds and the like, most of whom were not regulated. The guiding principle behind this activity was that it is feasible for credit rating agencies to have enough information on a continuous basis to rate the instruments that had been packaged. It can certainly be argued that this is not a new development since mortgage backed securities (MBS) and asset backed securities (ABS) have been with us for some time and have been successful in providing liquidity to credit markets on a continuous basis without any accidents. The difference perhaps is that MBS packaged by the government sponsored entities (GSEs) were subject to certain relatively well enforced norms that presumably reduced the potential risk embedded in these instruments.

These considerations lead to the third set of issues that relate to the role of effective financial regulation and supervision. Has the recent crisis underscored the need for strengthening of oversight of financial markets in advanced countries? Traditionally, financial surveillance has placed relatively more emphasis on banking regulation. Banks are leveraged financial entities who are also effective trustees of public money by virtue of holding deposits. Hence, they have to be effectively regulated and supervised in order to maintain public confidence in the banking system and depositors have to be protected from excessive risk-taking by banks. On the other hand, investors in hedge funds are high net worth individuals who do not need such protection. They are informed investors who are able to exploit the information efficiency of markets and, therefore, should be able to understand the risks implied by information asymmetry. The current crisis was, however, triggered by the difficulties encountered by these investors who had taken large exposures to sub-prime mortgage investments without having accounted for the potential risks embedded in these instruments.

What has been our approach to these issues? Although there is a current move in some jurisdictions, particularly in the U.K., to move towards "principles-based" regulation, from the traditional "rules-based" regulation, we are continuing with the traditional rules-based regulatory approach for now. While progressively providing greater flexibility to banks in their portfolio decisions, relative to the situation before the reforms, we have kept a close eye on the risk exposure of regulated financial institutions. We have therefore been cautious about derivatives and are introducing them gradually, based on our perception of the risk management capabilities of the various regulated institutions. Admittedly, this does cause impatience in those institutions that believe their risk management capacities to be of a high order. However, the issue that we have to consider is the reality of the large variance between different institutions in such capabilities. It is true that financial markets cannot be held hostage to the most laggard institutions. So, we have adopted a measured approach to the introduction of modern financial innovations.

Second, we do monitor the exposures of banks to risky sectors and seek to limit their exposure to such sectors through prudential regulations. Banks exposure to capital markets in all forms (both fund based and non-fund based) cannot exceed 40 per cent of their net worth. Similarly, as we observed very high credit growth in certain segments such as real estate, housing, non banking finance companies (NBFCs) and other retail credit, risk weights were increased, along with provisioning norms for standard assets.

Third, in terms of the evolving global prudential framework, the emphasis has generally been more on capital, as a means of reducing vulnerability to risks, than on prudential requirements for liquidity risk. Aspects relating to liquidity have been largely left to each regulator to assess and prescribe a suitable framework under Pillar II of Basel II. In the Indian context, while banks have flexibility in devising their own risk management strategies as per Board approved policy, the Reserve Bank has taken steps to mitigate liquidity risks at the very short-end, risks at the systemic level and at the institution level as well (Reddy, 2007c). Some of the important measures in this regard are:

- Overnight unsecured market for funds is restricted only to banks and primary dealers (PD). Repo markets - both bilateral repos and collateralised borrowing and lending obligations (a form of tripartite repos) were developed. As a result, volumes have shifted from the overnight unsecured market to the collateralised market.
- As greater inter-linkages and excessive reliance on call money borrowings by banks could cause systemic problems, prudential measures have been introduced to address the extent to which banks can borrow and lend in the call money market. On a fortnightly average basis, call market borrowings outstanding should not exceed 100 per cent of capital funds (i.e., sum of Tier I and Tier II capital) of latest audited balance sheet. However, banks are allowed to borrow a maximum of 125 per cent of their capital funds on any day, during a fortnight. Similarly, on a fortnightly average basis, lending in the

call market should not exceed 25 per cent of their capital funds; however, banks are allowed to lend a maximum of 50 per cent of their capital funds on any day, during a fortnight.

- 'Purchased inter-bank liabilities' (IBL) of a bank should not exceed 200 per cent of its net worth (300 per cent for banks with CRAR more than 11.25 per cent).
- Like other supervisors, the Reserve Bank has issued asset liability management guidelines for dealing with overall asset-liability mismatches taking into account both on and off balance sheet items.
- The Reserve Bank, in its supervisory oversight of banks' activities, also monitors the incremental credit deposit ratio of banks. Although banks may implement sophisticated risk management strategies, this single ratio with a minimum lag indicates the extent to which banks are funding credit with borrowings from wholesale markets or what is now known as purchased funds.
- The Reserve Bank guidelines on securitisation of standard assets have laid down detailed policy on provision of liquidity support to Special Purpose Vehicles (SPVs). The liquidity provision is subject to conditions to ensure that the liquidity support is only temporary and invoked to meet cash flow mismatches. Any commitment to provide such liquidity facility is to be treated as an off-balance sheet item and attracts 100 per cent credit conversion factor as well as 100 per cent risk weight.

Fourth, since the Reserve Bank also has regulatory responsibility for NBFCs, we have also acted to introduce various prudential norms in their activities where we believe there could be systemic effects. The regulatory interventions are graded: higher in deposit taking institutions and lower in non-deposit taking institutions. The recent crises in developed financial markets have also illustrated how thin these lines of separation are: difficulties experienced by non-deposit intermediaries such as the SIVs are eventually falling on the deposit taking regulated institution such as banks.

Thus, we do feel that judicious prudential regulation and supervision and heightened market surveillance and anticipation are necessary for the healthy governance of financial markets. We have, of course, to be careful to not stifle entrepreneurship and financial innovation. But we do need to constantly ask the question: "Financial innovation towards what objective?" As long as financial innovation is seen to promote price discovery, greater intermediation efficiency, and hence, overall efficiency and growth, it must be encouraged, but with appropriate safeguards to maintain financial stability.

The lessons from the current financial market crisis go both ways. On the one hand, market innovation has indeed helped in bringing financial markets closer to those who need credit and did not have access to it earlier. Despite all the problems associated with sub-prime borrowers, it must be recognised that almost 10 million borrowers benefited from this market and were enabled access to housing finance, which had not been deemed possible earlier. With about 20 per cent of these borrowers reported to be delinquent, and in difficulty, it still means that about 8 million people clearly benefited from this market. On the other hand, the difficulties encountered draw attention to the kind of issues that can arise when the speed of innovation and incentive structures are flawed such that malpractices occur, and intrinsic difficulties arise in capturing and commoditising information that is perhaps not yet susceptible to such commoditisation.

A key question that has emerged from the current developments in financial markets relates to the role of monetary authorities in the context of such a crisis. This issue is of concern to all of us in central banking. Over the last decade or two, it would appear that the focus of central banks has been narrowing, relative to the more complex responsibilities that they have traditionally shouldered. A great deal has been written on this issue, a great deal has changed in terms of practices and, in some countries, the regulatory structure itself has been altered to move central banks to being relatively pure monetary authorities. According to this view, central banks should focus largely on keeping inflation low and stable, and in doing this also contribute to financial stability. To quote Harvard economist Kenneth Rogoff: "Indeed many economists believe that central bankers could perfectly well be replaced with a computer programmed to implement a simple rule that adjusts interest rates in response to output and inflation. But while [this] view is theoretically rigorous, reality is not" (Businessworld, September 17, 2007). Although some central banks, such as the US Federal Reserve, have an explicit mandate to also promote growth, a good deal of thinking in recent times tends to argue that inflation control by itself would promote growth and that central banks would be better off to concentrate on this objective alone.

It is instructive to examine what central banks have done in the current context. The responses of the central banks to the recent events in financial markets have shown that concerns for financial stability can assume overriding importance, irrespective of the legislative mandate handed down to central banks as part of ongoing reforms. This is evident in the fact that central banks initially reacted through the injection of liquidity, including through special facilities and the expansion of list of eligible collateral. Discussions involving central bankers in various fora indicate their willingness to consider other courses of action in favour of protecting growth. As we all know, the US Federal Reserve has gone further in cutting interest rates to promote both growth and in the interest of financial stability; the U.K. authorities have had to provide liquidity to a specific institution, while giving a blanket guarantee to depositors on the safety of their deposits. Accordingly, it is becoming evident that central banks do have a role beyond inflation targeting. Evidently, both growth and financial stability matter for central banks.

When it comes to the crunch, in their roles as lenders of last resort (LOLR), and in discharging their responsibilities as the guardians of financial stability, central banks do need to perform functions that are more complex. Should central banks be lenders of last resort to the system as a whole by injecting systemic liquidity through open market operations only, or should they also provide liquidity to individual financial institutions that are judged to be solvent but illiquid? How do they arrive at such judgments if they do not have adequate information on individual institutions? Can they have such detailed information without ongoing responsibilities for regulation and supervision? This issue is not dissimilar, in terms of the existence of asymmetric information, to that of the problem of adequate transparency of information related to the value of collateral underlying asset backed securities.

Banks and financial institutions are typically leveraged institutions: thus judgements related to their solvency depend on the valuation of their assets at the time when difficulties arise. In the current case, banks have invested through a chain of vehicles in securities whose values are in doubt. Banks also have commitments to vehicles whose liquidity and/or viability are in doubt. When providing LOLR liquidity support, how is the central bank to make a judgement on the solvency of institutions to whom it is providing liquidity? As a greater recognition and appreciation of the appropriate role of central banks gains ground, it is possible that this will result in further rethinking on the functioning of central banks. A case in point is the separation of financial regulation and supervision from monetary policy which could have contributed to ineffective and inadequate surveillance in the context of the current crisis. There is a view that problems of information asymmetry might have got further aggravated with banks reporting both to the monetary authority and the regulatory body in charge of banking supervision.

Since the Reserve Bank of India is also the banking regulator and supervisor, we receive continuing information on the banking activities; moreover, in times such as the current turmoil, we can also obtain information quickly from leading systematically important institutions on exposures of relevance. Thus, there is a high scope for prompt corrective action.

## V. Challenges for the Future

Let me conclude by turning to the emerging challenges facing the financial sector in India that could shape the path of the next generation of reforms. The sustained acceleration in growth, supported by a range of anecdotal indications, is resulting in the movement of large numbers of households into higher income and consumption categories, with enhanced demand for financial services. Alongside, industrial production and export growth have remained buoyant and the rising prominence of services in the economy is generating a surge in demand for financial intermediation. A lead indicator is the sizeable expansion already underway in domestic bank lending to households and small and medium industrial and service enterprises which are poised to emerge as the new growth drivers of financial sector activity. For the Indian financial system, the biggest challenge is how to extend itself and innovate to meet these new demands for financial inclusion and respond adequately to new opportunities and risks. Innovative channels for credit delivery for serving the new credit needs have to be developed, perhaps with greater use of information technology and intensified skills development in human capital.

Acceleration in growth over the past few years has brightened medium-term prospects for growth of the Indian economy. As in the past, domestic savings are expected to finance the bulk of the investment requirements. In this context, the banking system will continue to be an important source of financing and there could be strong demand for bank credit. Although bank credit has witnessed sharp growth since 2003-04 onwards, it needs to be recognised that the credit-GDP ratio still remains relatively low. Moreover, a significant segment of the population remains excluded from banking services. As the growth process strengthens and becomes more inclusive, it is expected that demand for financial products could continue to witness high growth in the coming years. Thus, it is likely that growth in bank credit and monetary aggregates could be higher than what might be expected from historical relationships and elasticities in view of ongoing structural changes. This, however, raises critical issues for the central bank such as the appropriate order of monetary/credit expansion. In the absence of a yardstick, excessive growth in money supply could potentially show up in inflationary pressures over course of time, given the monetary lags. Indeed, recent inflationary pressures across the globe are attributable, in part, to global liquidity glut. In the absence of inflationary pressures as conventionally measured, excessive money and credit growth could also lead to asset price bubbles, with adverse implications for banking sector stability and lagged conventional inflation. Thus, the Reserve Bank will have to face ongoing challenges to provide appropriate liquidity to the system so as to ensure growth in non-inflationary environment.

Demand for housing finance has emerged as a key driver of bank credit in the past few years. As incomes grow further and the pace of urbanisation picks up, and, in view of the substantial backlog, demand for housing and housing finance can be expected to record continuous high growth over the next few years. In view of the expected high demand, pressure on real estate prices may continue. Moreover, real estate markets are characterised by opacity and other imperfections in developing countries, and certainly in India. Such developments can easily generate bubbles in the real estate market, because of problems in the elasticity of supply, and information asymmetries. Strong demand for housing and buoyancy in real estate prices in an environment of non-transparency, thus, could potentially pose risks to the banking system. In conjunction with interest rate cycles, the banking system as well as the regulator would need to be vigilant to future NPAs and the US-like sub-prime woes.

Higher investment needs of the growing economy will depend heavily upon the ability of the financial markets to raise resources from savers and allocate them efficiently for the most productive purposes. In view of the acceleration in growth as well as the focus on inclusive growth, financial markets will have to play a greater role in efficient allocation of resources. Further development of financial markets will also be needed in view of the growing openness and the envisaged move towards fuller capital account convertibility. The Reserve Bank will therefore continue to take measures to further deepen, widen and integrate the financial markets. While permitting a wider range of instruments and players in the financial markets, it will need to be ensured that development takes place in an orderly manner so as to avoid sub-prime like accidents and ensure stability. There is a premium on ensuring stability in low-income countries like India, with a significant share of population not in a position to withstand large changes in interest rates and exchange rates. Prudential exposure norms on exposures of banks and NBFCs will need to be fine-tuned so as to protect the balance sheets of banks and interests of depositors. The formation of credit information bureaus is expected to provide credit histories of borrowers and this could allow greater flow of bank credit to the relatively neglected sectors, while also imparting stability to the financial sector.

So far, financial sector reforms have been calibrated with a progressive integration into the world economy. A key consideration in the choice of pace and sequencing has been the management of volatility in financial markets and implications for the conduct of monetary operations. Fuller capital account openness will inevitably lead up to the challenge of managing the impossible trinity of independent monetary policy, open capital account, and managed exchange rate. In the context of the ongoing financial sector reforms, it needs to be recognised that the impact of financial fluctuations on the real sector in developing economies is significantly different from mature economies which specialise in technology intensive products in which the degree of exchange rate pass through is low, enabling exporters and importers to ignore temporary shocks and set stable product prices to maintain monopolistic positions, despite large currency fluctuations. Mature and well developed financial markets in these countries absorb the risks associated with exchange rate fluctuations with negligible spillover on real activity. On the other hand, for the majority of developing countries which specialise in labour-intensive and low and intermediate technology products vulnerable to pricing power by large retail chains, exchange rate and financial price volatility has significant employment, output and distributional consequences which in turn, have implications for financial sector stability and soundness.

A further challenge for policy in the context of fuller capital account openness will be to preserve the financial stability of different markets as greater deregulation of capital outflows and debt inflows occurs. The vulnerability of financial intermediaries can perhaps be addressed through prudential regulations and their supervision; risk management of non-financial entities will have to be through further developments in both the corporate debt market and the forex market, which enable them to manage their risks through the use of newer market instruments. This will require market development, enhancement of regulatory capacity in these areas, as well as human resource development in both financial intermediaries and non-financial entities. Given the volatility of capital flows, it remains to be seen whether financial market development in a country like India can be such that this volatility does not result in unacceptable disruption in exchange rate determination with inevitable real sector consequences, and in domestic monetary conditions.

Going forward, there will be a continuous need to adapt the strategy of liquidity management as well as exchange rate management for effective monetary management and short-term interest rate smoothening. The key questions we continue to face with are what should be the instruments and modes of management of liquidity in the interest of growth and financial stability and how much should capital flows affect exchange rate. These issues become even more relevant under a freer regime of capital flows. Global developments are expected to have an increasing role in determining the conduct of monetary and exchange rate policies in our country. In an environment of global convergence, retaining independence of monetary policy may become increasingly difficult, calling for hard choices in terms of goals and instruments.

In India, we have not favoured the adoption of inflation targeting, while keeping the attainment of low inflation as a central objective of monetary policy, along with that of high and sustained growth that is so important for a developing economy. Apart from the legitimate concern regarding growth as a key objective, there are other factors that suggest that inflation targeting may not be appropriate for India. First, unlike many other developing countries we have had a record of moderate inflation, with double digit inflation being the exception, and which is largely socially unacceptable. Second, adoption of inflation targeting requires the existence of an efficient monetary transmission mechanism through the operation of efficient financial markets and absence of interest rate distortions. Third, inflationary pressures still often emanate from significant supply shocks related to the effect of the monsoon on agriculture, where monetary policy action may have little role. Finally, in an economy as large as that of India, with various regional differences, and continued existence of market imperfections in factor and product markets between regions, the choice of a universally acceptable measure of inflation is also difficult.

As regards banking regulation and supervision, there is no unique theoretical model or just one practical approach to the regulation and supervision of a financial system. India has traditionally followed an institution-based system of regulation. In India, the current model of regulation with the Reserve Bank exchanging relevant information with other regulators in a synchronised manner is functioning effectively. The supervisory activities of the Reserve Bank have benefited from its price stability objective, and it is recognised that safety and soundness of banks must be evaluated jointly with its responsibility to ensuring stability and growth in the economy. In this regard, the Reserve Bank with joint responsibilities for monetary policy and supervision has both the insight and the authority to use techniques that are less blunt and more precisely calibrated to the problem at hand. Such tools improve its ability to manage crises and, more importantly, to avoid them. In this backdrop, the recommendations of separating banking sector regulation from the conduct of monetary policy by some observers appear to be independent of the history, legacy and efficiency of the current regulatory system in India. Such recommendations are essentially based on the UK experience – which itself has now been subject to severe criticism in the episode involving the Northern Rock – and completely ignore the huge diversity of the regulatory system in other countries including those prevailing in successful international financial centres such as the US.

As noted in several policy statements in the Indian context, the principal challenge for public policy is to ensure a smooth transition to higher growth path, accompanied by low and stable inflation and well anchored inflation expectations. From a central banking perspective, the new challenges facing us are many. First, if the Indian banking system is to attain international excellence, it will require action on several fronts like introduction of greater competition; convergence of activities and supervision of financial conglomerates; induction of new technology; improvement in credit risk appraisal; encouragement of financial innovations; improvement in internal controls; and establishment of an appropriate legal framework. The role of the Reserve Bank in this context amounts to promoting safety and soundness while allowing the banking system to compete and innovate. Second, as a central bank, the Reserve Bank would further need to develop the financial markets, especially the money, government securities and foreign exchange markets to enhance the efficiency of the transmission mechanism, along with the corporate debt market. Third, price stability and financial stability would continue to be of concern with expected increase in credit expansion and global integration.

## References

Ball, L and N. Sheridan (2003), "Does Inflation Targeting Matter?", NBER Working Paper No 9577.

Economist (2007), "Banks: Capital Punishment", November 8.

Eichengreen, Barry (2002), "Can Emerging Markets Float? Should They Inflation Target?", Working Paper Series 36, Banco Central do Brasil, February.

Fraga, A.; Minella, A. and Goldfajn, I (2003), "Inflation Targeting in Emerging Market Economies", NBER Working Paper 10019, October.

Gramlich, Edward (2003), "Maintaining Price Stability", Remarks before the Economic Club of Toronto, Toronto, Canada, October.

Issing, O (2004), "Inflation targeting: A View from the ECB", Federal Reserve Bank of St. Louis Review, Vol. 86, No.4, July/August.

Jalan, B (2002), "Monetary Policy: Is a Single Target Relevant?", In India's Economy in the New Millennium: Selected Essays (ed.). B. Jalan, Mumbai: UBS Publishers Distributors.

Kohn, Donald L (2004), "Panel Discussion: Inflation Targeting", Federal Reserve Bank of St. Louis, July-August

McKinnon, Ronald I. 1973. *Money and Capital in Economic Development*. Washington, D.C.: Brookings Institution.

McKinsey Quarterly (2007), "India's Executives: Confident in their Economy and Eager to Hire".

Mohan, Rakesh (2004), "Challenges to Monetary Policy in a Globalising Context", Reserve Bank of India Bulletin, January.

_____ (2006a), "Reforms, Productivity and Efficiency in Banking: The Indian Experience", Reserve Bank of India Bulletin, March.

_____ (2006b), "Evolution of Central Banking in India", Reserve Bank of India Bulletin, June.

_____ (2006c), "Monetary Policy and Exchange Rate Frameworks: The Indian Experience", Reserve Bank of India Bulletin, June.

_____ (2007a), "Current Challenges to Monetary Policy Making in India", Reserve Bank of India Bulletin, March.

_____ (2007b), "Monetary Policy Transmission in India", Reserve Bank of India Bulletin, April.

_____ (2007c), Development of Financial Markets in India, Reserve Bank of India Bulletin, June.

_____ (2007d), "Capital Account Liberalisation and Conduct of Monetary Policy: The Indian Experience", Reserve Bank of India Bulletin, July.

_____ (2007e), "Recent Financial Market Developments and Implications for Monetary Policy", Reserve Bank of India Bulletin, October.

Reddy, Y.V. (2004), "Financial Stability: Indian Experience", Reserve Bank of India Bulletin, July.

_____ (2007a), "Globalisation and Monetary Policy: Some Emerging Issues", Reserve Bank of India Bulletin, April.

_____ (2007b), "Some Perspectives on the Indian Economy", Reserve Bank of India Bulletin, November.

_____ (2007b), "Global Developments and Indian Perspectives: Some Random Thoughts", Valedictory address at the Bankers' Conference 2007 on November 27, 2007 at Mumbai.

Shaw, Edward S. 1973. *Financial Deepening in Economic Development*. New York: Oxford University Press.