a) Undisclosed reserves
b) Revaluation reserves
c) General provisions/general loan loss reserves
d) Hybrid debt capital instruments
e) Subordinated debt

Chapter 6

Summary and Concluding Observations

Indian banking sector has traversed a challenging path since the days of bank nationalization. The banks operating towards implementations of the core agenda of nationalization for more than two decades experienced an attitudinal shift with the advent of the broad-based reform era since the 1990s. The reforms featuring opening up of the economy to the transnational market forces ushered in a whole gamut of changes in the operation of the banking sector. The most important factor shaping the world today is globalization. The benefits of globalization have been well documented. But in the complex network of global relations, banking system needs to tune itself to reap the benefits of globalization. Banks today have had to become more efficient but even then they require making timely realignment in their functioning in response to the contemporary courses of happenings. It is this issue that brings to the fore the necessity of investigating the underlying factors motivating the forces towards resilience of the banks. Neglect of this factor may induce fragility into the banking system and may culminate into a crisis situation. This thesis addresses this vital issue and makes an attempt to examine some of the unexplored issues relevant to the Indian banking sector in the contemporary emerging global economic scenario in three different but interrelated essays.
The first essay on Early Warning System makes quite a few contributions to literature. One, based on credits, deposits and investments of Scheduled Commercial Banks in India, four banking crisis episodes during 1994-2006 had been identified. Two, an attempt has been made to devise an Early Warning System for forecasting banking crisis in India. The signal extraction method identifies certain ‘leading’ indicators such as spread of RBI policy interest rate over 91-day T-bills, base money supply, GDP, short-term debt as a proportion international reserves, REER overvaluation and LIBOR from a wide set of the domestic macroeconomic and global economic indicators that may effectively predict domestic banking crisis in future. Divergence of these fundamental economic variables, beyond their respective critical levels, can signal an upcoming banking crisis. Three, the Essay also develops a composite indicator based on these univariate indicators and identifies a cut-off value of 0.205. If this threshold is breached, probability of future banking crisis will increase alarmingly. The ‘leading’ univariate indicators of the signaling method incorporated as explanatory variables in the probit model has also reconfirmed the results of their strong predictive capabilities.

In Essay 2, a Macro-Prudential Analysis of the default rate of Public Sector Banks and its interlinkages with macroeconomic conditions have been established through a Recursive Vector Auto-Regression model. The most interesting finding of this study is that as Real Effective Exchange Rate appreciates, policy interest rate such as the Bank Rate rises to contain inflation and stabilize the exchange rates. The result suggests that default rate of Public Sector Banks are being affected by external disturbances through foreign exchange rates in recent years. Another important contribution to literature is that
the resilience of PSBs has been ‘stress tested’ by generating a combination of extreme macroeconomic scenarios. Based on the Impulse Response Functions of the Vector Auto-Regression model used in this study, the simulation exercises show that default rate of PSBs can increase on an average from 4% to 7% depending on the type of scenario generated. The study thus concludes that a buffer Capital Adequacy Ratio on an average of 3% accumulated during 1996-97 to 2002-03 may not be sufficient to deal with nearly twice the amount of NPAs generated during that period in the face of the worst but plausible macroeconomic conditions.

Moving from the linkages between the banking sector and global and domestic macroeconomic conditions as explored in Essays 1 and 2, the third essay explores how financial markets impact the banking sector. In Essay 3, issues relating to conditional volatility of bank stocks based on daily data have been examined. The stock markets in India largely moves in tandem with Foreign Institutional Investment flows. In a volatile market like this it is important to understand the behavior of bank stock returns. This Essay makes the following contributions. First it identifies the conditional volatility of bank stocks are best explained by higher order asymmetric GARCH models. Second, it was found higher-order asymmetric GARCH model has the best forecasting performance in the very short –term horizon of about three days. Third, investigation of the seasonal patterns revealed persistent Friday Effect and negative volatility on Tuesdays. Finally, the most important finding of this essay reveals bank stock returns in India are very much exposed to interest rate risk, exchange rate risk and market risks. Particularly, market risks are very predominant.
What emerges from the findings of all the essays covering various aspects of the Indian banking sector’s interlinkages with the global and domestic macroeconomic conditions is that variables like exchange rates, policy interest rates like Bank Rate, have an intimate connection with banking crisis in India. Additional variables like GDP, inflation, LIBOR are also important in signaling stress in the banking sector.

The following policy implications emerge based on the findings of the three essays. Banking stability is an important precondition for financial stability. Monetary policy instruments specially should be adjusted with a balanced overview towards maintaining banking and price stability in aggregate rather than focusing only on price stability alone. A decade ago RBI’s monetary policy was focusing on price stability alone and the trade-off was between economic growth and controlling inflation. Recently financial stability has been added as the third objective. In the light of the contemporary nature of interaction between real and financial sectors in a liberalizing economy like ours, financial stability analysis has recently become an integral part of the central bank’s primary mission. As India is predominantly bank-based economy banking sector stability is thus a crucial precursor for financial stability. When banks are perceived to be inefficient due to deterioration of credit risk, the effectiveness of monetary policy in pursuing price stability is reduced. Thus the RBI is caught in a policy dilemma of controlling inflation on one hand and maintaining banking stability on the other. On one hand there is pressure on Monetary Policy Instruments to rise to contain inflation and on the other rising interest rates lead to protracted deterioration of asset quality.
In the last couple of years RBI has implement appropriate measures in relation to capital flows depending on the existing economic scenario. At one point of time RBI encouraged capital inflows and when foreign exchange reserves got full RBI restrictions were imposed. Again in the current global economic turmoil RBI is again encouraging inflows. In our study on Macro-Prudential Analysis the policy dilemma and the challenging job of maintaining the holy trinity of independent monetary policy, market determined exchange rates and capital flows emerged from our results. To tackle the problem of excessive capital flows without creating any adverse repercussions on the banking sector, the RBI has implemented liberalized norms like investing in high-yielding equities and bonds outside India.

With the lifting of external restrictions, open external positions emerge and have become very large as capital inflows increase thus creating a situation of high vulnerability. Taking into account the interest rate and exchange rate exposures of banks, they are repeatedly advised to hedge their exposures and undertake pre-emptive strategies to insulate their balance sheets from currency risk and interest rates risks. An efficient and developed financial sector offers better protection against these risks. So the RBI stand of cautioning banks to be more alert to these risks is well justified.

Real Effective Exchange Rate or REER has surfaced as a very important variable so far as the Indian banking sector is concerned as revealed from our findings on Early Warning System and Macro-Prudential Analysis. In this context it is important to note that the currency market is extremely volatile and while we have a system to control Nominal Effective Exchange Rate or NEER through central bank intervention, the same
does not exist for REER. The field of derivatives has a solution here. It is prudent to get involved in financial futures. On the basis of the results derived it is thus suggested that if REER derivatives are adequately used, banks’ balance sheets are less likely to be impacted by volatile movements in REER. So recent thoughts, in this direction is well corroborated by the results derived in this thesis.

Our results show the banking sector is vulnerable to global shocks (via trade, capital reversals, equity and world interest rates) if Fuller Capital Account Convertibility is implemented there is likely to be increased stress on the banking sector both in the form of exchange rate risk and increased burden of interest rates. Sy (2007) argues will bring in new instruments and market participants thus complicating the task of financial supervisors and regulators and cross-border transactions (CBT) will augment the dimensions of credit risk. In this backdrop it is to be thus noted if Fuller Capital Account Convertibility is actually implemented, it should be done very prudently, if at all, keeping in mind the most appropriate time to introduce it and the emerging dimensions of relevance.

Foreign interest rates like London –Inter Bank Offer Rate is found to have predictive efficacy in our Essay on Early Warning System. The continuous relaxation of External Commercial Borrowings (ECB) norms could lead to a systemic crisis in the banking sector through a sharp deterioration in the risk adjusted lending portfolios of domestic banks as prime borrowers shift to lower cost international debt.123 In the current global economic turmoil domestic borrowers have been unable to cope with the pressures of

123 ‘Full Rupee Convertibility: Good, Bad or Ugly’, Economic Times, 28.03.06
LIBOR hike and consequent increased of foreign loan repayment burden. So they turned to the domestic market for cheaper loans to meet foreign debt obligations. In this situation domestic interest rate could rise. Thus it is critical to restrict or at least moderate External Commercial Borrowings on account of this chain-effect.

Short-term debt as proportion of reserves is important on signaling banking crisis (Essay 1). Thus, strict short-term debt regulations need to continue and foreign exchange reserves should be adequate to meet all external payments. Foreign exchange reserves are largely built from capital flows, which, beyond a certain level, may make the economy vulnerable to financial contagion. As sentiments of foreign investors fluctuate very much there should be more emphasis on improving the current account balance build reserves through trade flows also.

Finally banks should try to increase their Capital Adequacy Ratio and build heavy capital buffers. Given the limitations to raise capital through other routes and excessive reliance by banks on equity capital the government should reduce its stake from current 51% to 33%. This will enable banks to build surplus capital and become more resilient in the face of adverse macroeconomic scenarios.

The results arrived at in this study are based on the set of data worked upon with state-of-the-art methodologies. There had been difficulties with availability of some important data. With more advanced methodologies and better data availability more intuitive results may be arrived at. There exists immense scope of future research in this direction. It is emphasized that researches need to have a multi-dimensional overview of the contemporary scenario encompassing the macroeconomic factors, financial market
operations and international issues, among others, facing banks so as to arrive at effective policy implementations.

### Chronology of Important Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 1 &amp; 3, 1991</td>
<td>External Payments Crisis. Rupee Devalued in two stages. Cumulative devaluation about 18 percent in USD terms</td>
</tr>
<tr>
<td>Nov 1991</td>
<td>The Narasimham Committee Report suggested far reaching reforms in the Indian Banking sector. These included a phased reduction in the SLR and CRR as well as accounting standards, income recognition norms and capital adequacy norms. A dual exchange rate system called Liberalized Exchange Rate Management System (LERMS) introduced. This was the initial step to enable a transition to a market determined exchange rate system.</td>
</tr>
<tr>
<td>April 1992</td>
<td>Adoption of Basel I norms for Scheduled Commercial Banks (SCBs) in April 1992.</td>
</tr>
<tr>
<td>1993</td>
<td>Amendment of Banking Regulation Act to allow entry of new private sector banks.</td>
</tr>
<tr>
<td>May 15, 1993</td>
<td>Guidelines for the establishment of private sector banks issued. Deposits under Foreign Currency (Non-resident) Accounts (Banks) Scheme or FCNR(B) were accepted by banks for maturities from 6 months to 3 years.</td>
</tr>
<tr>
<td>April 1993</td>
<td>Unified Exchange rate introduced.</td>
</tr>
</tbody>
</table>
liabilities for computation of NDTL for the purpose of maintenance of CRR and the banks will be paid interest at the Bank Rate on all eligible cash balances maintained with the RBI under Section 42 of the RBI Act, 1934.

October 27, 2001
Banks which have large exposure to corporates advised to monitor and review on a monthly basis, through a suitable reporting system, the unhedged portion of the foreign currency exposures of those corporates, whose total foreign currency exposure is relatively large.

November 22, 2001
Infusion of capital either through domestic issue or overseas float, after the published balance sheet date, would be taken into account in calculating capital funds for the purpose of determination of exposure ceiling.

January 10, 2002
To meet adverse impact of interest rate risk banks advised to build up an Investment Fluctuation Reserve (IFR) within a period of 5 years. The prudential target for IFR was 5% of their investments in HFT and AFS categories. Later the target was revised to 10%. To build up IFR, banks advised to transfer maximum amount of the gains realized on sale of investment in securities to the IFR account with the objective of achieving IFR of a minimum of 5 per cent of the portfolio within a period of 5 years.

February 16, 2002
Consolidated guidelines issued on Foreign Direct Investments (FDI) in the banking sector up to 49 per cent.

May 3, 2002
Banks were advised to compute IFR with reference to investments in two categories, viz., Held for Trading (HFT) and Available for Sale (AFS) and not include investments under Held To Maturity (HTM) for the purpose.

May 9, 2002
Effective March 31, 2001, an asset would be classified as doubtful if it remained in the sub-standard category for 12 months.

May 24, 2002
Banks were advised that loans and advances secured by mortgage of residential property may be assigned a risk weight of 50 per cent instead of the existing 100 per cent for the purpose of Capital adequacy. Loans against mortgage of commercial real estate would continue to attract 100 per cent risk weight as hitherto. Bank’s investment in mortgage backed securities (MBS) of residential assets of Housing Finance Companies (HFCs) which are supervised by the National Housing Bank (NHB) would be eligible for risk weight of 50 per cent for the purpose of capital adequacy.

May 28, 2002
In order to ensure that the loan assets relating to projects under implementation were appropriately classified and asset quality correctly reflected, the norms on income recognition, asset classification and provisioning with respect to industrial projects under implementation, which involve time overrun, earlier applicable to FIs only, were made applicable to banks also.

May 30, 2002
Based on the recommendations of the Working Group on Wilful Defaulters, the term ‘wilful default’ was redefined and widened to cover the aspects of diversion and/or siphoning off funds therein.

October 12, 2002
Revised guidance notes on management of credit risk and market risk for updating their risk management systems.

2003
i) Idea of Benchmark Prime Lending Rate (BPLR) floated in credit policy for first time

2003
Risk based supervision for 23 banks introduced on a pilot basis

January 16, 2003
Trading of dated Government of India (GOI) securities including treasury bills and State Government securities in dematerialized form permitted on automated order-driven system of the National Stock Exchange (NSE), BSE and Over-the-Counter Exchange of India (OTCEI).

February 5, 2003
Revised guidelines on CDR issued to make its operation more efficient.

February 27, 2003
Banks may recognize income on accrual basis in respect of the three categories of projects under implementation which are classified as ‘standard’ in terms of the guidelines issued in May 2002.

April 23, 2003
The final guidelines on Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, 2002 was issued.

May 7, 2003
To give further relaxation in building IFR it was decided that effective from March 31, 2003 onwards, while IFR would continue to be treated as Tier II capital, it would not be subject to the ceiling of 1.25 per cent of the total Risk Weighted Assets (RWAs). However, for purpose of compliance with the capital adequacy norms, Tier II capital including IFR would be considered up to a maximum of 100 per cent of total Tier I capital.

April 23, 2004
In view of sustained large capital flows on the one hand and the finite stock of government securities with the Reserve Bank, and the absence of the option of issuing central bank securities under the RBI Act on the other hand, a new scheme, Market Stabilization Scheme (MSS), was introduced to manage the large capital flows. Under this scheme, the Reserve Bank has been empowered to issue government Treasury Bills and medium duration dated securities exclusively for sterilization purposes, so as to manage liquidity appropriately.

June 15, 2004
The risk weight in respect of exposure by banks to public FIs raised to 100% for credit risk and 2.5% for market risk effective April 1, 2005.

June 18, 2004
Banks advised to draw a roadmap for migration to Basel II norms by the end of 2004 and prepares quarterly review of the progress made.

June 21, 2004
a) Boards of banks to oversee furnishing of requisite information of all borrowers to CIBIL and report compliance of the same to the RBI
b) Graded higher provisioning requirement according to the age of NPAs in ‘doubtful for more than three years’ category introduced for SCBs, w.e.f March 31, 2005.
c) Process of identifying wilful defaulters and the mechanism related to redressal of grievances are two distinct processes. Banks to provide for capital charge for market risk in respect of trading book exposures (including derivatives), effective March 31, 2005. Capital charge would be introduced for securities under AFS category with effect from March 31, 2006.

September 2, 2004
Banks permitted to exceed the 25 per cent limit under HTM category provided that the excess comprises only SLR securities and the total SLR securities held in the HTM category are not more than 25 per cent of their NDTLs. To enable the above, banks were allowed to shift SLR securities to the HTM category.

October 14, 2004
Industrial Development Bank of India (IDBI) Ltd. included in the Second Schedule to the Reserve Bank of India Act, 1934 with effect from October 11, 2004

October 15, 2004
Guidelines relating to the process of issue of Subordinated Debt Instruments under Tier-II and Tier-III Capital issued.

December 23, 2005
Risk weight on housing loans extended by SCBs to individuals against mortgage of housing properties and investments in Mortgage Backed Securities (MBS) of Housing Finance Companies (HFCs) was increased from 50 per cent to 75 per cent and in the case of consumer credit including personal loans and credit cards the risk weight increased from 100% to 125%

2005
Guidelines for Operational Risk Management

April 30, 2005
Banks with capital of at least 9% of RWAs for both credit risk and market risk for both HFT and AFS categories may transfer the balance in excess of five per cent of securities included under HFT and AFS categories in the IFR to Statutory Reserve, which is eligible for inclusion in Tier I capital.

June 2005
Guidelines issued regarding collaterals & exposure limits of banks in real estate

July 2005
Risk weight on banks’ exposure to commercial real estate fixed at 100%

July 26, 2005
The risk weight for credit risk on capital market and commercial real estate exposure increased from 100% to 125%

September 3, 2005
Guidelines on one time settlement scheme for SME accounts issued to public sector banks for recovery of NPAs below Rs.10 crore.
October 10, 2005
Banks, which have maintained capital of at least nine per cent of the risk weighted assets for both credit risks and market risks for both HFT and AFS category as on March 31, 2006, would be permitted to treat the entire balance in the IFR as Tier I capital.

November 2005
Provisions for standard assets revised in view of the continued high credit growth in real estate sector, personal loans, credit card receivables, loans and advances qualifying as capital market exposure and increasing default rate associated with personal loans and credit card receivables.

November 10, 2005
Revised guidelines on CDR mechanism issued.

2006
Stress Testing Guidelines
February 2006
Guidelines on securitization of standard assets issued.

March 2006
The surrogate capital charge for market risk was replaced by capital charge for market risk.

March 31, 2006
Tarapore Committee report on FCAC

April 2006
The risk weight on banks' exposure to commercial real estate was increased from 125% to 150%.

May 25, 2006
The risk weight on exposure of banks to commercial real estate increased to 150% from 125%. Further, total exposure of banks to venture capital funds will form a part of its capital market exposure and, henceforth, a higher risk weight of 150 per cent will be assigned to these exposures.

May 29, 2006
The general provisioning requirement for banks on standard advances in specific sectors, i.e., personal loans, loans and advances qualifying as capital market exposures, residential housing loans beyond Rs.20 lakh and commercial real estate loans increased to 1.0 per cent from the present level of 0.40 per cent.

June 22, 2006
Revised norms issued to SCBs on utilization, creation, and disclosures of floating provisions, i.e., provisions which are not made in respect of specific non-performing assets or are made in excess of regulatory requirement for provisions for standard assets.

July 12, 2006
Banks permitted to phase out the additional general provisioning on standard advances in specific sectors, i.e., personal loans, loans and advances qualifying as capital market exposures, residential housing loans beyond Rs.20 lakh and commercial real estate loans.

August 10, 2006
Guidelines issued on penal rate of interest in case of default in maintaining stipulated balances under CRR.

January 31, 2007
Increase in the provisioning requirement in respect of standard assets related to respect of personal loans (including credit card receivables), loans and advances qualifying as capital market exposure and real estate loans from the present level of 1% to 2% w.e.f January 31, 2007.

2007
Draft Guidelines on Credit Default Swaps

March 2007
Prudential limits on the extent of their Inter-Bank Liability (IBL) as a proportion of their net worth

March 13, 2007
Banks to use floating provisions only for contingencies under extra-ordinary circumstances for making specific provisions in impaired accounts

April 19, 2007
Implementation of a revised time frame for adoption of Basel II on April 2007. Commercial banks with operational presence outside India required to migrate to the Standardized approach for credit risk and the Basic Indicator approach for operational risk w.e.f March 31, 2008 whereas, banks which have local presence are encouraged to migrate to these approaches by March 31, 2009.

April 27, 2007
Prudential Guidelines on implementation of Capital Adequacy and Market discipline