

Chapter II

Financial Institutions: Soundness and Resilience

The Banking Stability Indicator shows that risks to the banking sector have increased since the publication of the last FSR in June 2013. Banking Stability Measures, based on co-movements in banks' equity prices, indicate that the distress dependencies within the banking system have started rising. Network analysis has been used to measure the impact of contagion in the interconnected banking system to the failure of a major corporate and a major corporate group.

The strain on asset quality continues to be a major concern. A few sectors, namely, Infrastructure, Iron & Steel, Aviation, Textiles and Mining continue to contribute significantly to the problem assets of the banking sector, while the performance of the retail sector has been good. Some factors affecting the asset quality adversely are current economic slowdown – global and domestic, persistent policy logjams, delayed clearances of various projects, aggressive expansion by corporates during the boom phase with resultant excess capacities, deficiencies in credit appraisal, etc. Reserve Bank has recently issued a discussion paper to address the issue of stressed assets.

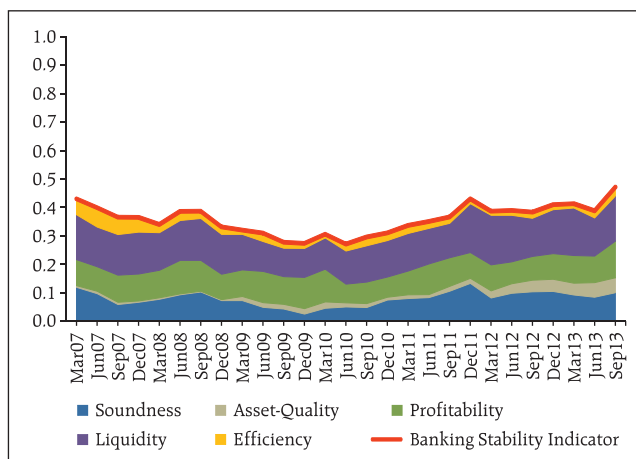
Macro stress tests indicate that if the adverse macroeconomic conditions persist, the credit quality of commercial banks could deteriorate further. However, under improved conditions, the present trend in credit quality may reverse during the second half of 2014-15. The present level of provisions of SCBs may not be sufficient to meet the expected losses under heightened adverse macroeconomic conditions.

Banking Sector Risks

2.1 The risks to the banking sector, as at end September 2013 have increased since the publication of the previous FSR¹. The Banking Stability Indicator

(BSI), which combines the impact on all major risk dimensions, shows an increase in vulnerability in the banking sector since September 2010 (Chart 2.1 & 2.2).

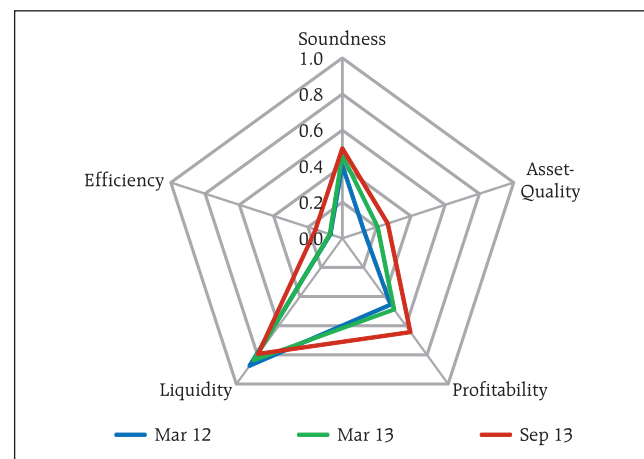
Chart 2.1: Banking Stability Indicator



Increase in indicator value shows lower stability. The area for each dimension signifies its contribution towards risk.

Source: RBI Supervisory Returns and Staff Calculations.

Chart 2.2: Banking Stability Map



Away from the centre signifies increase in risk.

¹ FSR – June 2013 - with reference to data as at end March 2013.

Distress Dependencies and Interconnectedness

Banking Stability Measures (BSMs)² – Distress Dependency Analysis

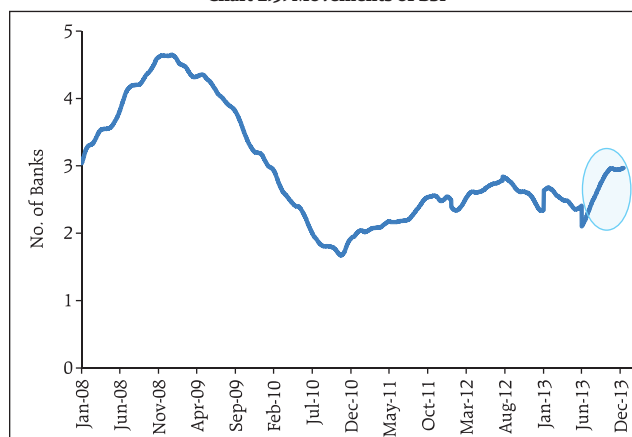
Common Distress in the System-Banking Stability Index

2.2 The Banking Stability Index (BSI), which measures the expected number of banks that could become distressed given that at least one bank becomes distressed, has risen sharply since August 2013. The BSI takes into account individual bank's probabilities of distress besides embedding banks' distress dependency. Therefore, the indicator exhibits larger and nonlinear increases than the Probabilities of Distress (PoDs)³ of individual banks. The BSI depicted a rising trend beginning September 2010, moderated during the first half of 2013 and again reversed the trend in August 2013 indicating escalation in common distress in the banking system (Chart 2.3).

Distress Relationship Among Banks

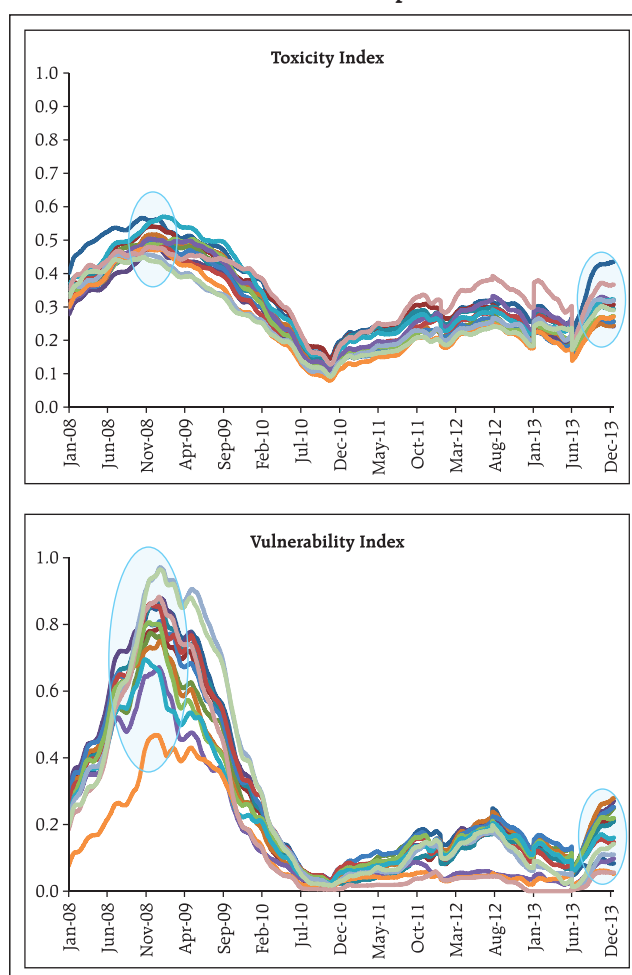
2.3 Both the toxicity as well as vulnerability indices (TI and VI) have shown a co-movement with that of BSI indicating signs of rising toxicity and vulnerability of the selected banks. Further, the spread among the banks' VI during its current upward trend is lower than the spread observed during the financial crisis, indicating that rise in the vulnerability of SCBs has become more broad-based. The vulnerability levels are however significantly lower than the levels observed during the crisis. Further, the spread in the banks' toxicity indices during the current period is more divergent than the spread observed during the financial crisis, indicating that the degree of the toxic behaviour of banks, *i.e.* the capacity to transmit the distress to other banks has diverged (Chart 2.4).

Chart 2.3: Movements of BSI



Source: Bloomberg Data and RBI Staff Calculations.

Chart 2.4: Distress Between Specific Banks



Note: Both the charts contain 15 lines which show the toxicity and vulnerability of the selected 15 banks.

Source: Bloomberg Data and RBI Staff Calculations

² Study is based on the equity prices of 15 major banks. These banks represent about 60 per cent of total assets of scheduled commercial banks in India. This model for Indian banking system has been developed by Mr. Miguel A. Segoviano, in collaboration with the Reserve Bank. Details are given in the Annex-2.

³ The PoDs for banks were estimated from their equity return distributions. Under this approach, first, banks' historical distributions of equity returns are estimated. Then, the probability of returns falling under the historical worse 1 per cent of the cases (99 VaR) is quantified. Therefore, the PoD of a specific bank represents the probability that the bank's equity return would fall in the tail region (historical one percentile).

Interconnectedness

Contagion Risks in the Indian Banking Sector

2.4 The network tools⁴ had been used earlier to measure the degree of interconnectedness and also assess the effects of contagion in case of failure of major lending and borrowing banks in the interbank system. In this issue of the FSR, network tools are being used to assess impact of contagion in a stressed scenario. The failure of a major corporate or a major corporate group could also trigger a contagion in the banking system due to the exposures of a large number of banks to the corporate.

Contagion Impact of Credit and Interest Rate Shocks

2.5 The network analysis in previous FSRs considered the failure of a bank as a random event and measured the contagion impact. The current analysis captures contagion effects under different conditions – stressed credit and interest rate

scenarios. These stressed conditions lead to losses in capital due to additional provisioning requirements. If, in the case of one or more banks, the loss is large enough to cause distress to the bank/s⁵, there will be further losses due to the contagion caused by the distressed bank/banks. Depending on the importance of the distressed bank /banks in the network, the contagion losses may be substantial. The total loss to the banking system due to the stressed conditions will then be the combined impact of (a) the loss caused by the stressed conditions⁶, and (b) the resultant contagion losses due to distress in one or more banks as a result of the stressed credit or interest rate environment.

2.6 The analysis shows that the total loss to the banking system after taking into account contagion losses could significantly exceed losses due to the direct impact of the stressed conditions alone (Table 2.1). These risks will need to be taken into

	Initial Loss	Additional Losses Due to Contagion	Total Loss
Credit Shocks			
NPAs increase by 100 per cent	14.3	26.8	40.1
30 per cent restructured standard advances become NPAs (sub-standard)	2.9	0.0	2.9
30 per cent restructured standard advances are written off	10.7	24.1	34.8
Interest Rate Shocks (Trading Book)			
Parallel upward shift of INR yield curve by 250 bps	4.7	0.0	4.7
Steepening of the INR yield curve (0 to 100 bps linear in 0 to 15 years bucket)	0.6	0.0	0.6
Inversion of the INR yield curve [#]	3.1	0.0	3.1
Interest Rate Shocks (Banking Book)*			
Parallel upward shift of INR yield curve by 250 bps	21.0	32.6	53.6
Steepening of the INR yield curve (0 to 100 bps linear in 0 to 15 years bucket)	2.9	1.1	4.0
Inversion of the INR yield curve [#]	12.9	29.5	42.4

*: Banking Book was assumed to be marked-to-market.

#: Shocks of 250 bps, 100 bps, -50 bps and -100 bps for maturity buckets upto 1 year, 1-3 years, 3-5 years and 5 years & more, respectively.

Source: RBI Staff Calculations

⁴ The network model used in the analysis has been developed in the Reserve Bank in collaboration with Professor Sheri Markose (University of Essex) and Dr. Simone Giansante (Bath University). Details are given in the Annex-2.

⁵ For the purpose of this analysis, a bank is considered to be distressed if its core capital adequacy ratio falls below 6 per cent. It may be noted that this is a stringent failure condition considered for the purpose of stress testing the system. The net receivables have been considered as loss for the receiving bank.

⁶ Details of credit and interest rate risks are discussed under 'Sensitivity Analysis - Top-Down Stress Tests - Bank Level' (Paragraph 2.56) .

cognisance while assessing the impact of credit and interest rate shocks on the banking system.

Solvency Contagion in the Interbank Market

2.7 The Indian government holds majority share (over 51 per cent) in case of public sector banks (PSBs). An analysis of contagion losses arising from the failure of major borrower in the system under the assumption that PSBs may not be allowed to fail shows that the losses are much lower than when PSBs are assumed to fail with the same probability as other banks (Table 2.2).

Contagion Losses - Credit Concentration

2.8 The performance of the corporate sector in the current economic scenario has been a matter of concern. The impact of deterioration in the health of corporate borrowers on the asset quality of the banking system has been discussed elsewhere in this report. Here, an attempt has been made to assess how default by a large corporate borrower or a corporate group triggers contagion risks in the interbank system.

2.9 The failure of a corporate borrower / borrower group causes a direct loss to the banking system to the extent of the banking system's exposure to the corporate borrower / borrower group. The extent of failure varies depending on the degree of the loss given default of the corporate borrower / borrower group.

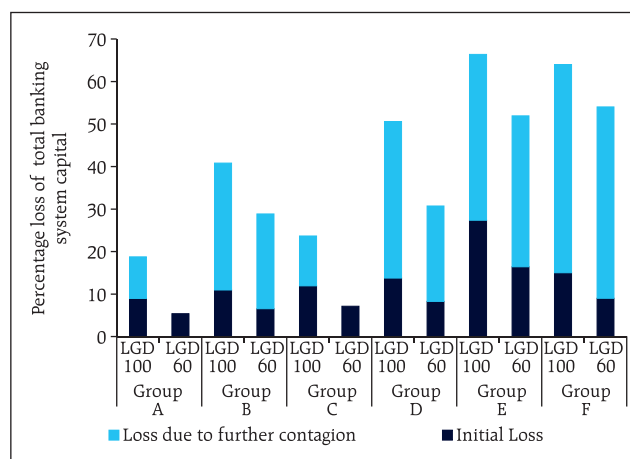
2.10 The total loss to the banking system from the failure of the corporate / group will typically be distributed across banks in proportion to their individual exposures to the corporate /group. If, in the case of one or more banks, the loss is large enough to cause distress to the bank, then there will be further losses to the banking system due to the contagion caused by the distressed bank / banks. Depending on the importance of the distressed bank /banks in the network of interbank exposures, the contagion losses may be substantial.

2.11 The analysis here attempts to assess the impact of direct and contagion losses to the banking system

Trigger Bank	Percentage loss of Tier I capital of the banking system assuming all banks have the same probability of failure	Percentage loss of Tier I capital of the banking system assuming that PSBs will not fail
A	12.2	6.1
B	9.5	5.2
C	2.7	2.3
D	2.2	2.2
E	2.3	2.3

Source: RBI Staff Calculations

Chart 2.5: Impact of the Failure of a Borrower Group



Source: RBI Staff Calculations

due to the failure of a large corporate group or individual corporate borrower. The analysis is based on two scenarios – a loss given default (LGD) of 100 per cent and 60 per cent.

2.12 The above analysis shows that in several cases, the contagion losses are significant and could exceed the direct losses caused by the failure of the corporate/group.

2.13 The aforesaid stress scenario indicates that the failure of a large corporate group could result in a total loss of over 60 per cent of the banking system's capital (when the LGD is 100 per cent) and over 50 per cent of the banking system's capital (when the LGD is 60 per cent) (Chart 2.5). The loss could be at 14 per cent

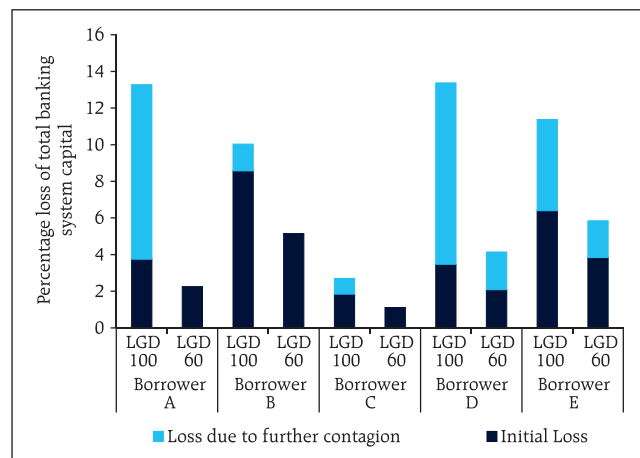
and 6 per cent in case of the failure of a large corporate borrower taking LGD as 100 per cent and 60 per cent, respectively (Chart 2.6).

2.14 Such risks posed by a large corporate or corporate group are sought to be minimised by large exposure limits prescribed by regulators. In the Indian context, a bank's exposure to a single borrower can go up to 25 per cent of the bank's total capital while its group exposure limit can go up to 55 per cent of its total capital⁷.

2.15 These exposure norms have evolved in the context of the country's growth and development requirements, but are on the higher side by international standards. The Financial Sector Assessment Programme (FSAP) of India, conducted during 2011-12 by the IMF and World Bank, had assessed India to be "materially non-compliant" vis-à-vis the Basel Core Principle 10 related to "Large exposure limits". The FSAP report commented that "the large exposure limit of 40 per cent - which can exceptionally be brought to 50 per cent for infrastructure exposures - for a group borrower, is significantly higher than the large exposure limits of 25 per cent which is considered good international practice this limit has the potential to allow the default of one particular consolidated borrower to cause a serious loss of capital in a banking company".

2.16 A recent Basel Committee consultative document on "Supervisory Framework for Measuring and Controlling Large Exposures - Consultative Document", published in March 2013 has also proposed that the threshold defining large exposure should be set at 5

Chart 2.6: Impact of the Failure of a Corporate Borrower



Source: RBI Staff Calculations

per cent of a bank's eligible capital base and that the large exposure limit may be fixed at 25 per cent of the Common Equity Tier 1 (CET1) or Tier 1 capital (as against the currently used total capital).

2.17 In the light of the above analysis, and international best practices, a review of the extant single and group borrower exposure limits would considerably enhance the stability of the banking sector.

Joint Solvency-Liquidity Contagion

2.18 The above contagion analyses were based on the impact of the failure of a bank on its lenders, *i.e.* the risks arising from a solvency contagion. In the event of a failure of a bank, however, both solvency (triggered by a net borrower bank) and liquidity (triggered by a net lender bank) shocks are likely to emanate. An estimate of such risks was made by an extension of the network technique to develop a joint solvency- liquidity contagion model⁸. A flowchart

⁷ RBI Master Circular on Large Exposures, July 01, 2013 (http://www.rbi.org.in/scripts/BS_ViewMasCircularDetails.aspx?id=8130)

⁸ A bank typically has both positive and negative net lending positions against other banks. In the event of failure of such a bank, both solvency and liquidity contagion will happen concurrently. A failing bank essentially becomes insolvent and thus impacts all its creditor banks. At the same time it starts to liquidate its assets to meet as much of its obligations as possible. This process of liquidation generates a liquidity contagion as the trigger bank starts to call back its loans. The lender/creditor banks which are well capitalised will survive the shock and will generate no further contagion. On the other hand, those lender banks whose capital falls below the threshold core capital ratio of 6 per cent will trigger a fresh contagion. Similarly, the borrowers whose liquidity buffers (for the analysis, excess CRR, excess SLR, available MSF and available export credit refinance are considered as liquidity buffers) are sufficient will be able to tide over the stress without causing further contagion. But some banks may have to call back certain assets (for the analysis, only short term money market asset have been assumed to be callable) after exhausting its liquidity buffers to address the liquidity stress. This process of calling in short term assets will again propagate a contagion. The contagion from both the solvency and liquidity side will stop/stabilise when the loss/shocks are fully absorbed by the system with no further banks coming under duress.

depicting the stylised process of solvency and liquidity contagion is presented in Chart 2.7.

2.19 Considering the same trigger banks as earlier, the failure of any of the two banks with the largest net borrower positions can potentially result in enormous loss in banking sector capital due to the joint liquidity and solvency contagion (about three fourths of Tier 1 capital of the banking sector). However, the losses are significantly lower (though not insignificant) if it is assumed that PSBs will not be allowed to fail (Table 2.3).

Scheduled Commercial Banks⁹

Trends in Credit and Deposit

2.20 Credit growth on y-o-y basis during the period ended September 2013 at 17.1 per cent exceeded the growth in deposits at 13.8 per cent. As a result there has been a significant rise in the incremental C-D ratio on y-o-y basis to 91.9 per cent as at end September 2013 from 79.6 per cent as at end March 2013. Viewed in the context of falling household financial savings as per cent of GDP, and the reliance on deposits by banks as the dominant source of funding, this trend is a cause for concern. Bank group wise data on credit and deposit trends are given in Chart 2.8.

Chart 2.7: Flowchart depicting a joint liquidity solvency contagion

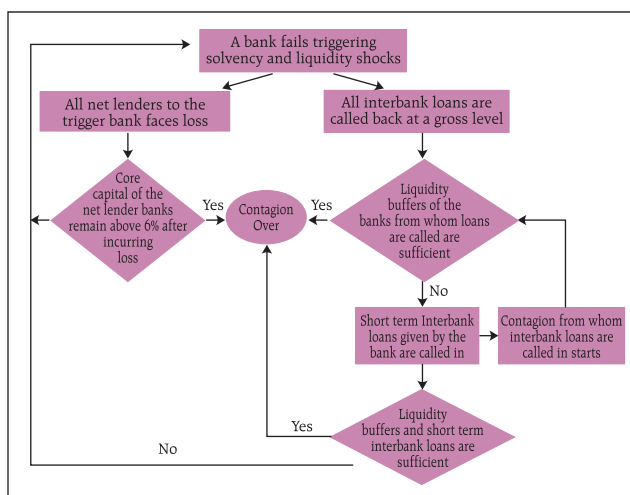
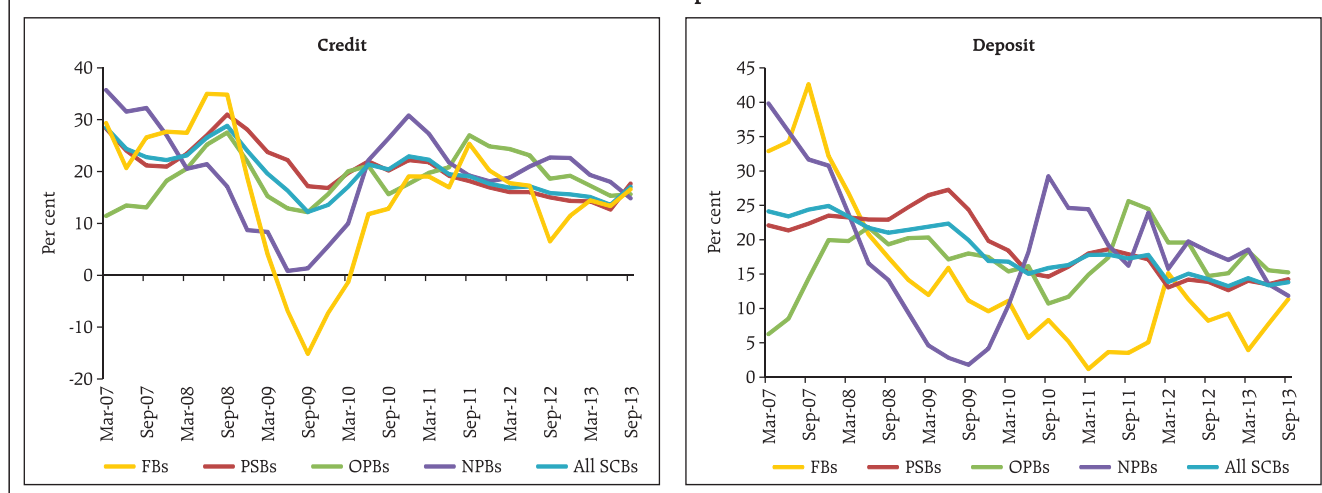


Table 2.3: Joint Solvency-Liquidity Contagion Triggered by Top 5 Net Borrowers

Trigger Bank	Percentage loss of Tier I capital of the banking system assuming all banks have the same probability of failure	Percentage loss of Tier I capital of the banking system assuming that PSBs will not fail
A	76.5	22.2
B	74.5	23.4
C	24.4	19.1
D	17.2	16.1
E	22.6	17.2

Source: RBI Staff Calculations

Chart 2.8: Credit and Deposit: Y-o-Y Growth



Note: PSBs=Public Sector Banks, NPBs=New Private Banks, OPBs=Old Private Banks and FBs=Foreign Banks
Source: RBI Supervisory Returns

⁹ Analyses of SCBs are based on their domestic operations.

Sector-wise Deployment of Credit

2.21 Year-on-year credit growth to medium and small enterprises declined from 25.0 per cent as at end March 2013 to 21.1 per cent as at end September 2013. Export credit continued to contract while credit growth to retail housing increased to 18.7 per cent as at end September 2013 from 15.5 per cent as at March 2013 (Chart 2.9).

Soundness

Capital Adequacy

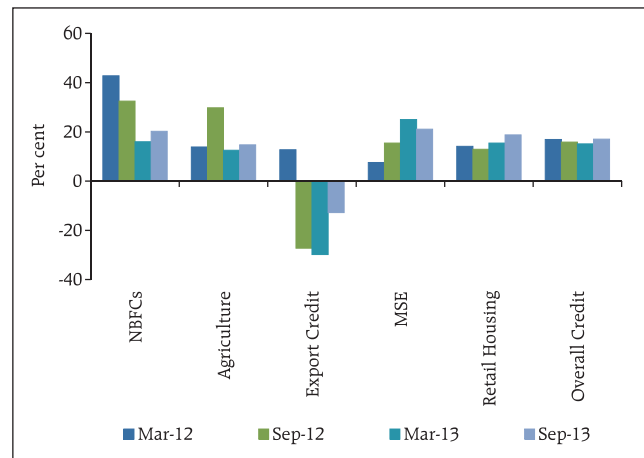
2.22 The Capital to Risk Weighted Assets Ratio (CRAR)¹⁰ at system level declined to 12.7 per cent as at end September 2013 from 13.8 per cent in as at end March 2013 (Chart 2.10).

2.23 At bank-group level, PSBs recorded the lowest CRAR at 11.2 per cent as at end September 2013 followed by OPBs at 14.5 per cent. The CRAR of FBs and NPBs were 16.3 per cent and 15.9 per cent, respectively (Chart 2.10).

2.24 The changing pattern of Risk Weighted Assets (RWA) was studied based on the trend in the RWA to total assets¹¹ ratio and Coefficient of Variation (CV)¹² of the ratio among the banks¹³. The RWA to total assets ratio measures riskiness of assets of SCBs, whereas, CV measures the normalised dispersion among the bank-wise RWA to total assets ratio. A rising trend in RWA to total assets along with declining trend in CV indicates that the rise in proportion of risky assets in the total assets of SCBs is becoming more broad-based involving more banks (Chart 2.11).

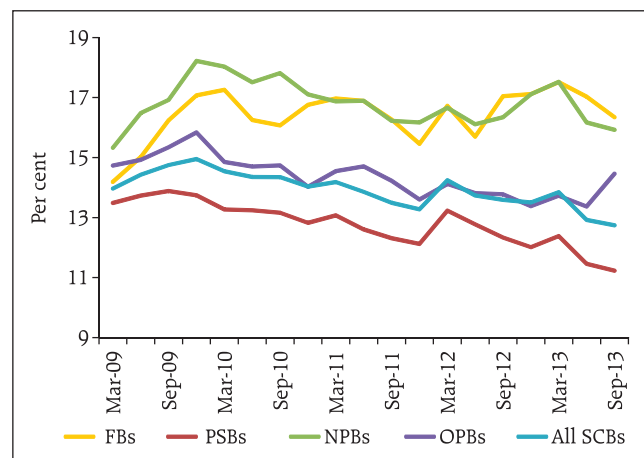
2.25 Some possible reasons for the rise in the RWA to total assets could be the downgrading of some borrowers and rising NPAs. It was observed that the share of 'A and above' rated corporate exposures of SCBs, attracting less than 100 per cent risk weights,

Chart 2.9: Credit Growth-Select Sectors



Source: RBI Supervisory Returns

Chart 2.10: Capital to Risk Weighted Assets Ratio



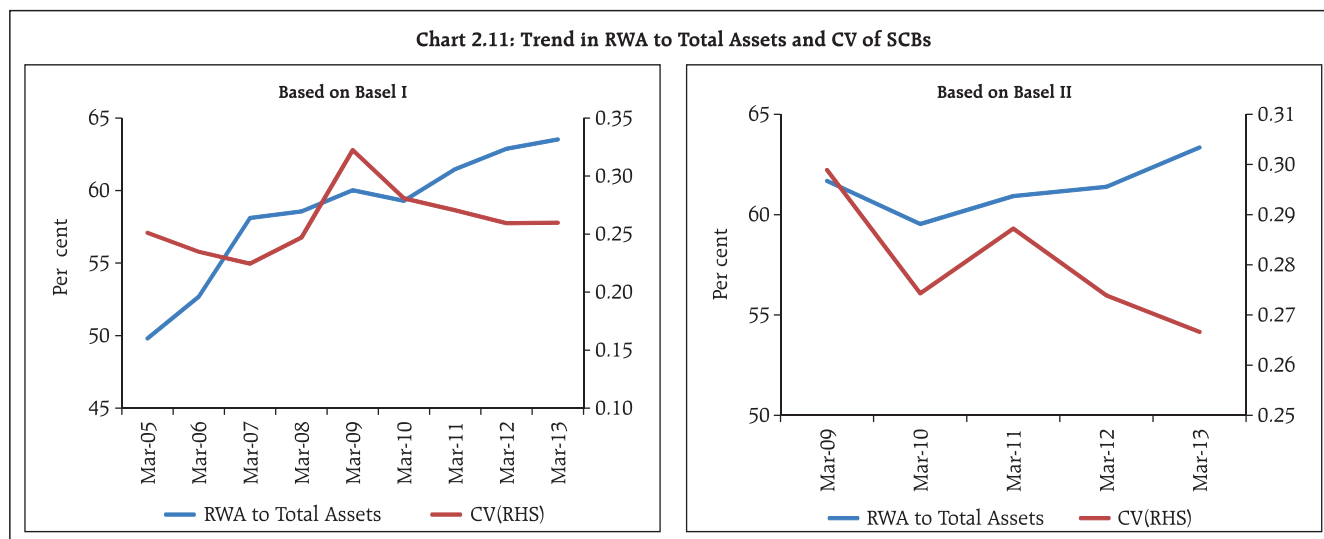
Source: RBI Supervisory Returns

¹⁰ Since June 2013, SCBs started reporting CRAR as per Basel III guidelines.

¹¹ Total assets comprise on-balance sheet as well as off-balance sheet items.

¹² Coefficient of Variation of a variable X = $\frac{\text{Standard Deviation of X}}{\text{Mean of X}}$

¹³ This analysis is based on 63 SCBs and comprises 95 per cent assets of all SCBs.

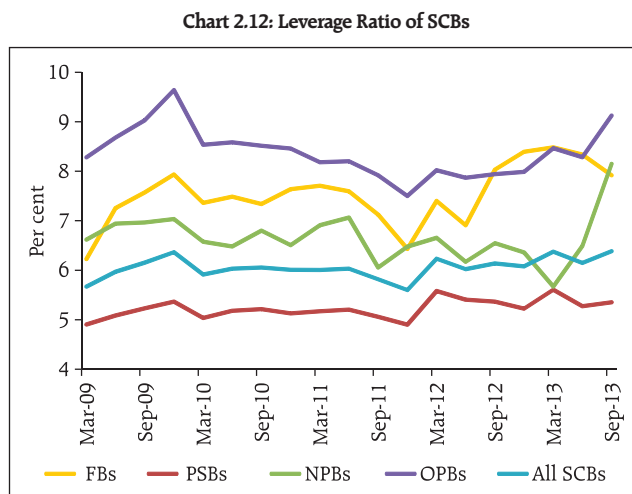


Source: RBI Supervisory Returns

declined from around 45 per cent of the total long term rated advances as at March 2009 to around 22 per cent as at March 2013. Whereas, 'BBB and below' rated corporate exposures of SCBs, attracting risk weights in the range of 100 to 150 per cent, increased from around 55 per cent to around 78 per cent during same period.

Leverage

2.26 The Tier I leverage Ratio¹⁴ of SCBs was 6.4 per cent as at end September 2013 against 6.4 per cent and 6.1 per cent of March 2013 and September 2012, respectively. Among the bank-group level, NPBs recorded the highest Tier I leverage ratio at 9.1 per cent as at end September 2013, whereas, in the case of the PSBs, it was the lowest at 5.4 per cent (Chart 2.12).



Source: RBI Supervisory Returns

Estimation of Losses¹⁵, Provisioning and Capital Adequacy

2.27 The estimated expected loss (EL) of SCBs at system level increased to 2.5 per cent of total advances as at end September 2013 from 2.1 per cent as at end

¹⁴ Tier I Leverage Ratio is here defined as the ratio of Tier I capital to Total Assets. Total Assets includes off-balance sheet items also.

¹⁵ Procedure of Estimation of Losses is given in the Annex-2. Internationally, it is recommended to use estimated losses (EL & UL) approach for the purpose of making provisions and capital, for the next one year. For this purpose, PD is derived based on annual slippage. As the purpose of this study is to judge the adequacy of provisioning and capital levels being maintained by SCBs and not to estimate the required level of provisions and capital to be maintained for next one year, the PDs being used here is based on GNPA.

End-Quarter	Expected Loss			Unexpected Loss			Expected Shortfall		
	Baseline	Medium Stress	Severe Stress	Baseline	Medium Stress	Severe Stress	Baseline	Medium Stress	Severe Stress
Sep-13*	2.5			7.4			7.5		
Mar-14	2.5	2.8	3.2	7.4	8.1	8.9	7.5	8.2	9.0
Sep-14	2.8	3.5	4.3	7.6	8.8	10.0	7.8	8.9	10.2
Mar-15	2.6	3.7	4.9	7.5	9.0	10.6	7.6	9.1	10.8

* Estimation of losses for the quarter ended September 2013 is based on the observed numbers.

Source: RBI Supervisory Returns and Staff Calculations

March 2013 and is expected to rise further to 2.8 per cent by September 2014 under baseline scenario (Table 2.4). Under severe stress conditions the EL could increase to 4.9 per cent by March 2015. The present level of total provisions¹⁶ being maintained by the SCBs at 2.8 per cent of total advances, may be just adequate under the baseline scenario, leaving a gap between the present provisioning level and EL under adverse macroeconomic conditions¹⁷. The unexpected loss (UL) and expected shortfall (ES) of SCBs are estimated to be around 7.4 per cent and 7.5 per cent of total advances for the quarter ended September 2013. The corresponding losses may further rise to 10.6 per cent and 10.8 per cent as at end March 2015 under severe stress scenario. However, the Tier I capital to total advances ratio¹⁸ of 12.5 per cent maintained by SCBs as at the end of September 2013 is sufficient to cover the UL as well as the ES even under severe stress, though the adequacy of Tier I capital varies across banks.

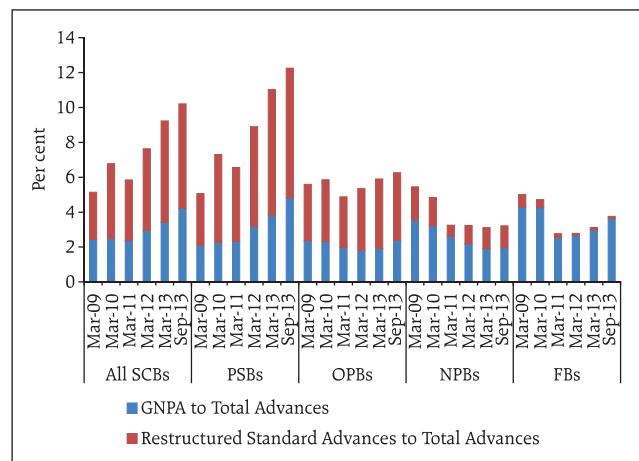
Deteriorating Asset Quality

2.28 Asset quality continues to be a major concern for SCBs. The GNPA ratio of SCBs increased to 4.2 per cent as at end September 2013 from 3.4 per cent of March 2013. The restructured standard advances also increased to 6.0 per cent of total advances as at end

September 2013 from 5.8 per cent of March 2013. Overall the stressed advances¹⁹ rose significantly to 10.2 per cent of total advances as at end September 2013 from 9.2 per cent of March 2013 (Chart 2.13).

2.29 Among the bank-groups, the public sector banks continue to have distinctly higher stressed advances at 12.3 per cent of total advances, of which restructured standard advances were around 7.4 per cent (Chart 2.13).

Chart 2.13: Asset Quality of SCBs



Source: RBI Supervisory Returns

¹⁶ Total Provisions include provisions for credit losses, risk provision for standard advances and provisions for restructured standard advances.

¹⁷ The stress scenarios have been defined in table 2.7 under macro-stress tests (Para 2.51).

¹⁸ This Tier I capital to total advances ratio is different from core CRAR and CRAR, which are defined as Tier I capital to RWA and Tier I & II capital to RWA, respectively.

¹⁹ Stressed Advances is defined as GNPA and restructured standard advances.

Concerns on Restructuring

2.30 Concerns have emerged regarding the large and growing quantum of 'forborne' assets and their potential impact on the asset quality of banks. There was a sharp uptick in growth rate of restructured advances in 2008-09, due to relaxation in asset classification for restructured advances granted by the Reserve Bank in the wake of the global financial crisis. Thereafter, the growth rate of restructured advances has remained relatively high with the ratio of restructured advances to standard advances showing a secular increase and remaining above the GNPA ratio. The regulatory concern regarding restructuring arises from the possibility of the relaxations not being used judiciously by banks commensurate with the viability of projects. These relaxations for asset classification/provisioning will be phased out by April 1, 2015.

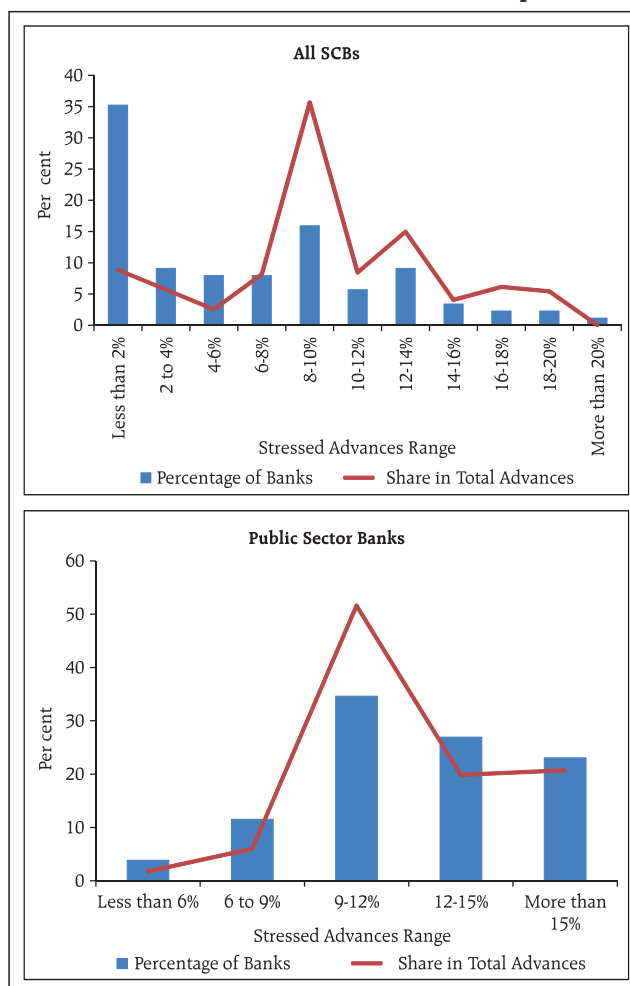
2.31 Bank-wise distribution of stressed advances to total Advances ratio shows that smaller banks have lower stressed advances than the system level average. The largest contribution comes from the PSU banks (Chart 2.14).

Size of Industries

2.32 The stressed advances of medium and large sized industries (including large projects) account for 16.3 and 17.1 per cent of total advances to the respective segments, whereas, in the case of 'micro & small' sized industries stressed advances were around 8.2 per cent of the total advances to the segment. The services sector has also been registering similar trend but their stressed advances ratio is lower than that of industries (Chart 2.15).

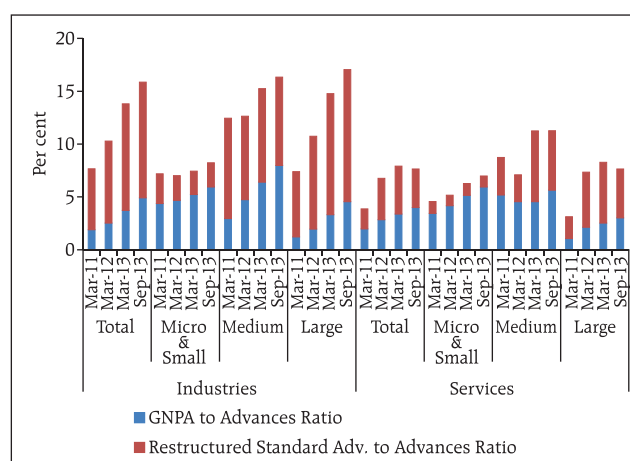
2.33 Medium & large segments of both industries and services taken together have stressed advances ratio around 14.5 per cent of total advances in that segment and in the case of public sector banks they are around 17 per cent followed by old private banks at 13.6 per cent. Though the share of medium & large segments to total loans is the highest for foreign banks around 74 per cent, the level of stressed advances in this bank-

Chart 2.14: Distribution of Stressed Advances: Bank-wise-September 2013



Source: RBI Supervisory Returns

Chart 2.15: Asset Quality at System Level: Industries' Size-wise



Note: GNPA and Restructured Standard Advance to Total Advance in the respective segments.

Source: RBI Supervisory Returns

group is only 4.2 per cent. The share of medium & large segments to total loans is the second largest for the public sector banks and they also have the highest stressed advances in this segment (Chart 2.16). Further, the medium and large segments, having a share of about 54 per cent in total advances, accounted for over 90 per cent of restructured accounts. The share of micro and small segments is marginal.

Sectors' Contribution to GNPA's

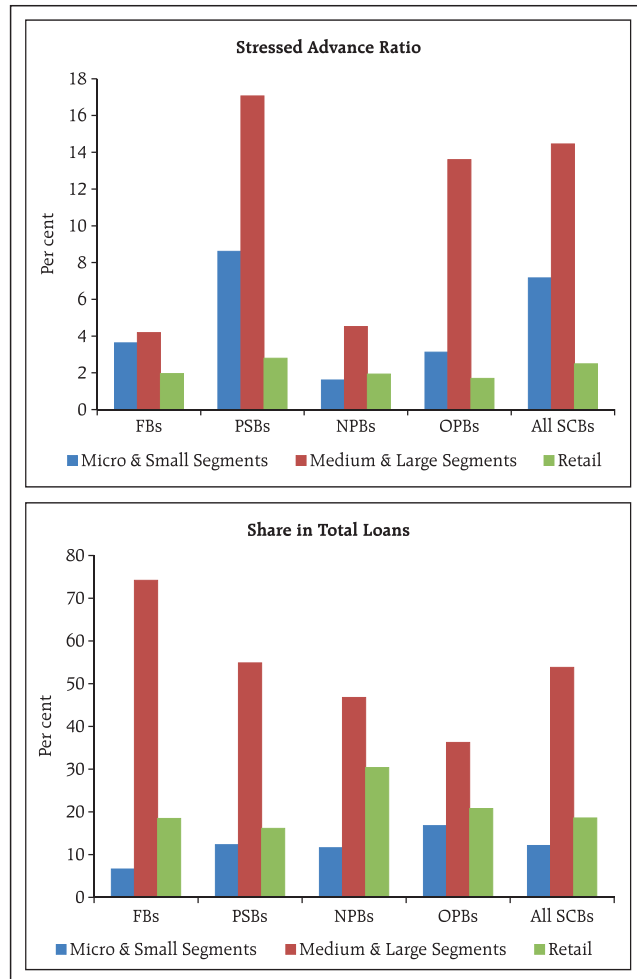
2.34 Though agriculture recorded the highest GNPA ratio at 5.5 per cent as at end September 2013 followed by industries at 4.9 per cent, industries recorded the highest share in restructured standard advances as per cent of total advances at 10.9 per cent as at end September 2013. Industries thus contributed the highest share of stressed advances in their loans portfolio at 15.9 per cent as at end September 2013, followed by services at 7.6 per cent. Loans under the retail segment fared much better with GNPA and restructured standard advances to total advances at 2.2 per cent and 0.3 per cent as at end September 2013, respectively (Chart 2.17). Incidentally, the new private sector banks, having the largest share of retail segment in their loans portfolio around 30 per cent, seemed to have benefited in terms of better asset quality relative to other bank-groups. Public sector banks have the lowest share of retail segment in their loans portfolio - around 16 per cent (Chart 2.16).

2.35 There are five sectors, namely, Infrastructure, Iron & Steel, Textiles, Aviation and Mining which have high level of stressed advances. At system level, these five sectors together contribute around 24 percent of total advances of SCBs, and account for around 51 per cent of their total stressed advances (Table 2.5).

2.36 The share of above mentioned five sectors in the loans portfolio of Public Sector Banks is the highest around 55 per cent followed by Old Private Sector Banks.

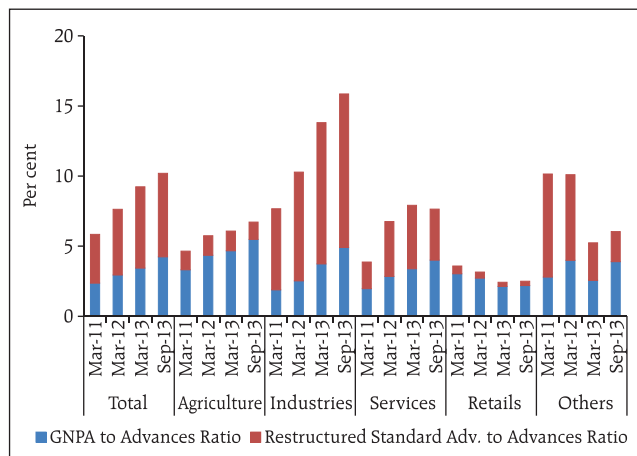
2.37 There are various factors affecting the asset quality of SCBs adversely, such as the current

Chart 2.16: Size-wise Asset Quality and Share: Bank-group wise (Sep-13)



Note: Stressed Advance Ratio is Stressed Advance to Total Advance in the respective segments.
Source: RBI Supervisory Returns

Chart 2.17: Asset Quality at System Level: Major Sectors



Source: RBI Supervisory Returns

Sector		Mar-09	Mar-10	Mar-11	Mar-12	Mar-13	Sep-13
Infrastructure	Share in Total Advances	9.5	11.8	13.5	13.2	14.5	14.7
	Share in Total Stressed Advances	8.3	8.8	8.4	21.2	27.6	30.3
Iron & Steel	Share in Total Advances	3.9	4.1	4.4	4.6	4.9	4.7
	Share in Total Stressed Advances	5.1	7.8	7.7	6.7	8.1	9.2
Textiles	Share in Total Advances	3.8	3.8	3.8	3.4	3.7	3.4
	Share in Total Stressed Advances	9.0	11.6	12.2	8.9	7.4	7.4
Aviation	Share in Total Advances	0.9	1.0	0.9	0.7	0.5	0.5
	Share in Total Stressed Advances	0.1	1.1	1.8	6.3	3.5	3.5
Mining	Share in Total Advances	0.5	0.6	0.7	0.7	0.7	0.6
	Share in Total Stressed Advances	0.3	0.2	0.4	0.4	0.5	0.8
Total of these Sectors	Share in Total Advances	18.6	21.3	23.3	22.6	24.2	23.9
	Share in Total Stressed Advances	22.8	29.5	30.5	43.3	47.2	51.1

Source: RBI Supervisory Returns

slowdown- global and domestic, persistent policy logjams, delayed clearances of various projects, aggressive expansion by corporate during the high growth phase, inadequate credit appraisal, etc.

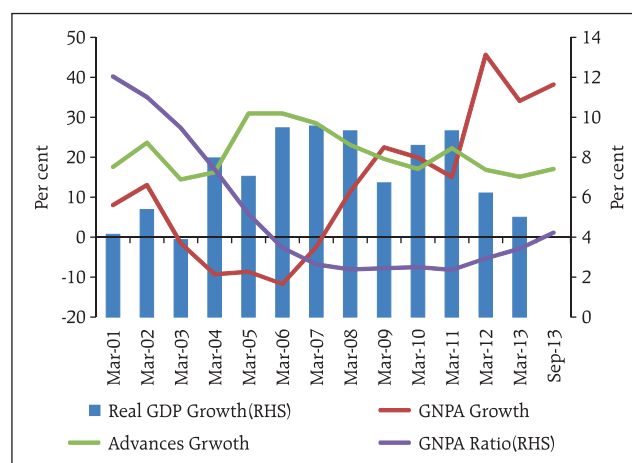
Credit Appraisal

2.38 Before 2008, asset quality of SCBs was improving on a secular basis, following implementation of Prudential Guidelines. The GNPA ratio had declined sharply from 12.0 per cent as at end March 2001 to 3.5 per cent as at end March 2006 and thereafter this ratio was flat till March 2011. The GNPA ratio has been persistently rising since then. The trend is not uniform across bank – groups. It is possible that boom period credit disbursement was associated with less stringent credit appraisal, amongst various other factors that affected credit quality. During 2005-08, the Indian economy was growing at around 9 per cent, the y-o-y growth in loans moved up from 16 per cent in 2004 to a peak of 31 per cent in 2005-06. One of the major reasons behind this accelerated credit growth could be the competitive credit disbursement under the erstwhile PLR regime and surplus available with banks for credit due to sharp decline in the statutory liquidity ratio (SLR) from 30.5 per cent of

total assets as at end March 2005 to 22.6 per cent as at end March 2008. In addition, the push for infrastructure projects, many of which later got into a logjam, also resulted in accelerated growth in GNPA since 2006 (Chart 2.18).

2.39 Early detection and prompt corrective action in problem accounts, concerted efforts at recovery, improvements in corporate governance, accountability at all levels, a more supportive legal infrastructure, etc. could go a long way in addressing issues related to asset quality. These issues are being addressed

Chart 2.18: Performance of the Economy and NPAs



Source: RBI Supervisory Returns and CSO Data

through policy guidelines being framed by the Reserve Bank. In this context, Reserve Bank has brought out a discussion paper on "Early Recognition of Financial Distress, Prompt Steps for Resolution and Fair Recovery for Lenders: Framework for Revitalising Distressed Assets in the Economy" (Box 2.1).

Components of NPA: Recovery Management

2.40 Over time, share of upgradation in the reduction of NPAs has increased significantly, while write-offs continued to be the highest contributor. Though reduction in NPAs due to write-offs can help banks manage their tax liabilities on impaired loans,

Box 2.1: Discussion Paper on 'Early Recognition of Financial Distress, Prompt Steps for Resolution and Fair Recovery for Lenders: Framework for Revitalising Distressed Assets in the Economy'

In order to ensure that the banking system recognises financial distress early, takes prompt steps to resolve it, and ensures fair recovery for lenders and investors, the Reserve Bank has come up with a discussion paper which outlines a corrective action plan that will incentivize early identification of problem cases, timely restructuring of accounts which are considered to be viable, and prompt steps by banks for recovery or sale of unviable accounts. The major proposal in the discussion papers are as follows:

- Early formation of a lenders' committee with timelines to agree to a plan for resolution: When principal or interest payment overdue between 61-91 days, all lenders, including NBFC-SIs, should form a lenders' committee to be called Joint Lenders' Forum (JLF) under a convener and formulate a joint corrective action plan (CAP) for early resolution of the stress in the account. JLF formation and subsequent corrective actions will be mandatory in accounts having aggregate fund-based and non-fund based exposures of ₹1000 million and above. Even in other cases lenders have to monitor the asset quality and take corrective actions for effective resolution as deemed appropriate, under our extant guidelines. The option under CAP by the JLF would generally include; rectification, restructuring and recovery.
- Incentives for lenders to agree collectively and quickly to a plan – better regulatory treatment of stressed assets if a resolution plan is underway, accelerated provisioning if no agreement can be reached.
- Improvement in current restructuring process: Independent evaluation of large value restructurings mandated, with a focus on viable plans and a fair sharing of losses (and future possible upside) between promoters and creditors.
- More expensive future borrowing for borrowers who do not co-operate with lenders in resolution.
- Lenders should carry out their independent and objective credit appraisal in all cases and must not depend on credit appraisal reports prepared by outside consultants, especially the in-house consultants of the borrower company. Lenders should ascertain the source and quality of equity capital brought in by the promoters /shareholders. While carrying out the credit appraisal, banks should verify as to whether the names of any of the directors of the companies appear in the list of defaulters/willful defaulters. Further, with a view to ensuring proper end-use of funds and preventing diversion/siphoning of funds by the borrowers, lenders could consider engaging auditors for specific certification purpose without relying on certification given by borrower's auditors.
- More liberal regulatory treatment of asset sales:
 - Lenders can spread loss on sale over two years provided loss is fully disclosed.
 - Takeout financing/refinancing possible over a longer period and will not be construed as restructuring.
 - Leveraged buyouts will be allowed for specialised entities for acquisition of 'stressed companies'.
 - Steps to enable better functioning of Asset Reconstruction Companies mooted.
 - Sector-specific companies/private equity firms encouraged to play active role in stressed assets market.

it impacts their profitability and ability to raise resources (Chart 2.19). While recurring and systemic write-offs are a concern for the regulator, the banks' boards are expected to be judicious in permitting write offs.

2.41 The y-o-y growth in slippages has increased after the recent financial crisis. However, simultaneously, y-o-y growth in upgradation of NPAs has also increased though the trends have been diverse across bank groups. (Chart 2.19).

2.42 The ratio of slippages to recovery and upgradation for the banking sector as a whole deteriorated from a low of 125.4 per cent in 2005-06 to 264.1 per cent during 2009-10 and remained elevated at 257.0 per cent in 2012-13. Recovery performance also varied widely across banks.

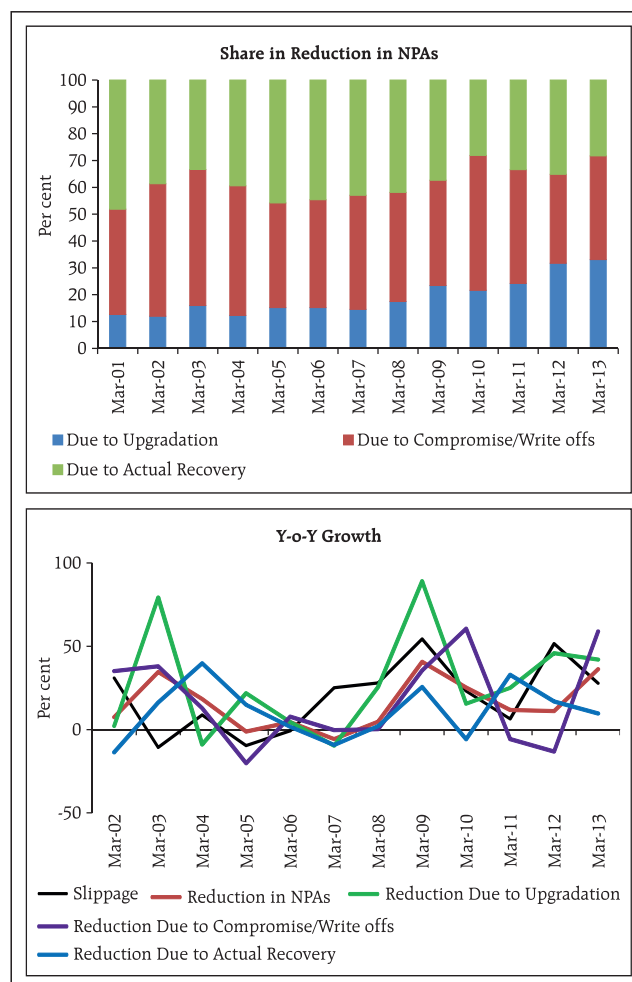
Other Issues

2.43 Excessive volatility in INR could affect corporates with unhedged exposures, eventually leading to adverse impact on asset quality of banks. An assessment of the exact quantum of unhedged exposures of corporates is difficult with the current level of information available. To minimize the risk, banks have been advised to price the risk of unhedged exposures into their credit risk premia, during their credit appraisal. Reserve Bank has also issued draft guidelines requiring banks to make incremental provisions and capital based on the estimated likely losses for corporates from such unhedged forex exposures.

Profitability

2.44 The profitability of all SCBs, measured by return on assets (RoA) and return on equity (RoE) declined to 0.8 per cent and 10.2 per cent in September 2013, respectively, from 1.0 per cent and 12.9 per cent in March 2013. The growth in profit after tax (PAT) decelerated to -9.7 per cent during September 2013 from 12.9 per cent of March 2013, mainly due to the lower growth in net interest income, higher risk provisions and write-offs. Y-o-Y growth in other operating income increased to 30.5 per cent during

Chart 2.19: Movement in Various Components of NPAs



Source: RBI Supervisory Returns

September 2013 from 14.4 per cent of March 2013 due to the higher income from fee based services and forex operations (Table 2.6).

2.45 Withdrawal of the special concessions in terms of asset classification/provisioning provided on restructuring, would lead to increase in provisioning requirements of the banking sector especially for PSBs. Further, banks are required to estimate and make provisions for employee benefits including pension and other superannuation benefits based on actuarial valuations as per AS-15. The IBA guidance note dated February 26, 2013 on funding superannuation benefits to be followed uniformly by all banks, could also translate into additional provisioning requirements.

	Y-o-Y Growth						Return on Assets	Return on Equity
	Net Interest Income Growth	Other Operating Income Growth	Earning Before Provisions & Taxes Growth	Risk Provisions Growth	Profit Before Tax Growth	Profit After Tax Growth		
Mar-09	24.4	24.0	33.1	35.5	27.2	23.3	1.1	14.5
Mar-10	14.8	3.1	9.2	13.2	1.7	4.3	1.0	12.9
Mar-11	34.6	0.5	21.7	38.6	26.2	23.6	1.1	13.6
Mar-12	15.8	7.4	15.3	35.6	10.2	14.6	1.1	13.4
Mar-13	10.8	14.4	9.9	10.2	10.3	12.9	1.0	12.9
Sep-13	11.6	30.5	12.8	63.2	-7.6	-9.7	0.8	10.2

Source: RBI Supervisory Returns.

Performance of Overseas Branches of Indian Banks

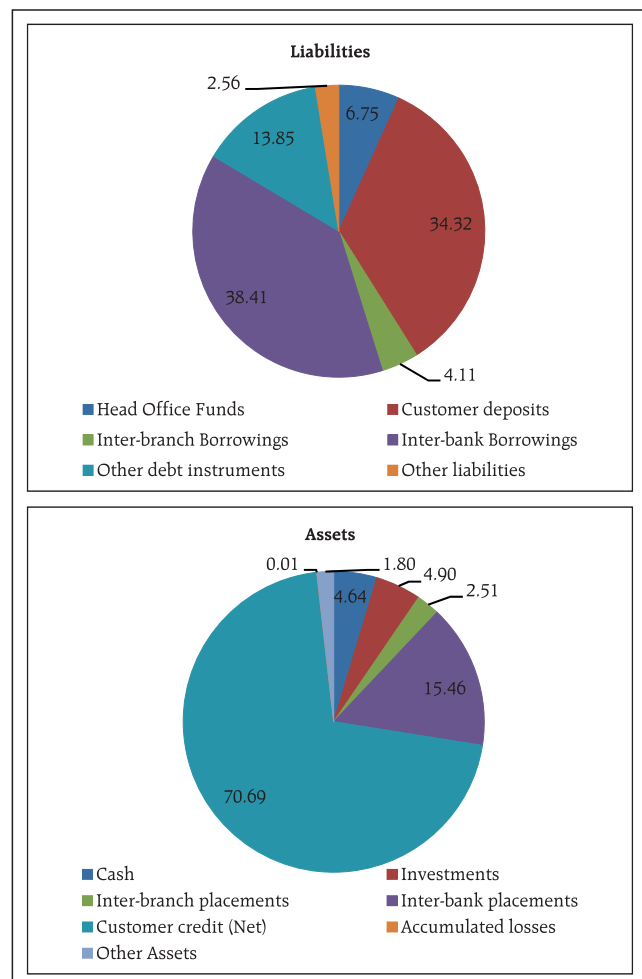
2.46 Indian banks are operating at important financial centres spread over 55 countries through branches, subsidiaries, joint ventures and representative offices (ROs). They had a network of 178 branches (including Overseas Banking Units (OBUs)), 24 subsidiaries, 7 joint ventures and 54 ROs as at end March 2013 as against 165 branches (including OBUs), 24 subsidiaries, 6 joint ventures and 55 ROs as at end March 2012.

2.47 Inter-bank borrowings and customer deposits are the major components of the liabilities of overseas branches of Indian banks, which together contribute around 73 per cent of total liabilities. Customer credit and interbank placement are the major components of the total assets of overseas branches, which together contributes around 86 per cent of total assets (Chart 2.20)

2.48 The total assets of overseas branches of Indian banks increased by USD 25.6 billion to USD 154.9 billion as at March 31, 2013 mainly due to the increase in customer credit (gross) by USD 15.3 billion and inter-bank placement by USD 7.6 billion over the previous year. This asset growth was funded mainly by inter-bank borrowings (USD 9.3 billion), customer deposits (USD 8.8 billion and other debt instruments (USD 4.9 billion).

Chart 2.20: Liabilities and Assets Composition of Overseas Branches of Indian Banks- March 2013

(Per cent)



Source: RBI Supervisory Returns

2.49 Gross problem assets (credit plus investments) of the overseas branches had risen sharply by 78 per cent to USD 1.8 billion as at end March 2013 from USD 1.0 billion of March 2012. Consequently, the ratio of problem assets to total assets has gone up to 1.2 per cent in March 2013 from 0.8 per cent in March 2012.

2.50 The aggregate net profit of the overseas branches of Indian banks during FY: 2012-13 declined by 7.3 per cent to USD 1.4 billion against increase of net profit by 24.6 per cent during the last financial year. This decline in net profit growth resulted in fall of RoA of overseas branches of Indian banks to 0.9 per cent as at end March 2013 from 1.3 per cent of March 2012.

Resilience - Stress Tests

Macro Stress Test - Credit Risk

2.51 The resilience of the Indian banking system to macroeconomic shocks is tested through a series of macro stress tests for credit risk at the *system, bank-group* and *sector* level. These tests encompass assumed risk scenarios incorporating a baseline and two adverse macroeconomic scenarios representing medium and severe risk (Table 2.7). The adverse scenarios were derived broadly based on 0.5 to 1.0 standard deviation for medium risk and 1.25 to 2.0 standard deviation for severe risk (10 years historical data).

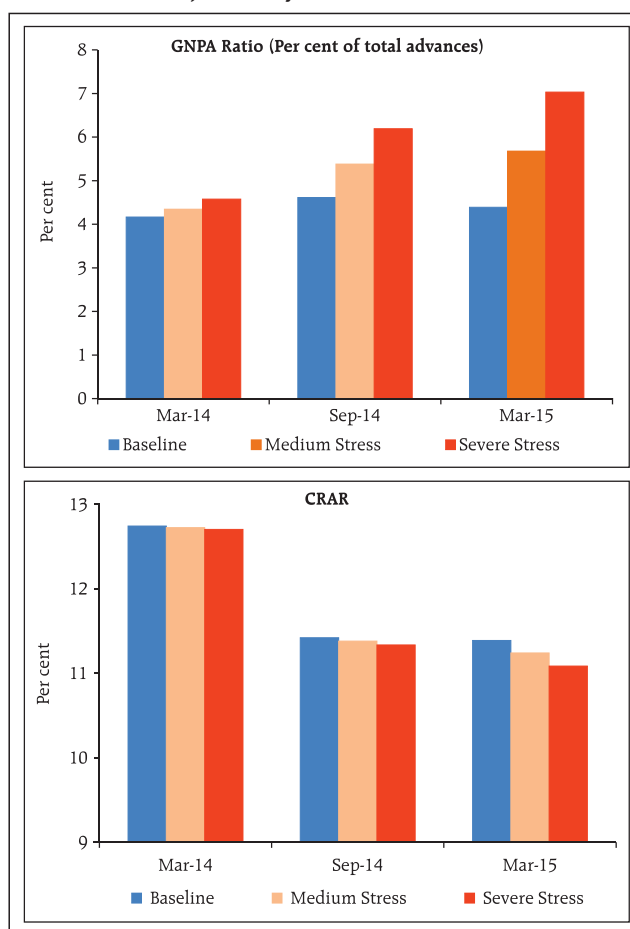
System Level Credit Risk

2.52 The macro stress tests on credit risk suggest that under baseline scenario, GNPA ratio of all SCBs is expected to rise to around 4.6 per cent by September 2014 from 4.2 per cent as at end September 2013, which may subsequently improve to 4.4 per cent by March 2015 if the macroeconomic conditions improve. Whereas, if the macroeconomic conditions deteriorate further, the GNPA may rise further and under severe stress conditions, it could move upto 7.0 per cent by March 2015. Under such severe risk scenario, the system level CRAR of SCBs could decline to 11.1 per cent by March 2015, but still remain above the regulatory requirement of 9 per cent (Chart 2.21).

FY	Macro-variable	Baseline	Medium Stress	Severe Stress
2013-14*	GDP Growth	5.0	3.6	2.0
	WPI Inflation	6.5	8.2	10.2
	Short-term Interest Rate	8.4	9.6	11.1
	Exports to GDP Ratio	15.2	13.9	12.4
	Gross Fiscal Deficit	4.8	5.6	6.6
2014-15	GDP Growth	5.8	3.6	1.5
	WPI Inflation	6.0	8.6	12.5
	Short-term Interest Rate	8.3	10.3	12.2
	Exports to GDP Ratio	15.4	13.4	11.4
	Gross Fiscal Deficit	4.7	6.0	7.4

* Average for the last two quarters (December & March) of 2013-14.

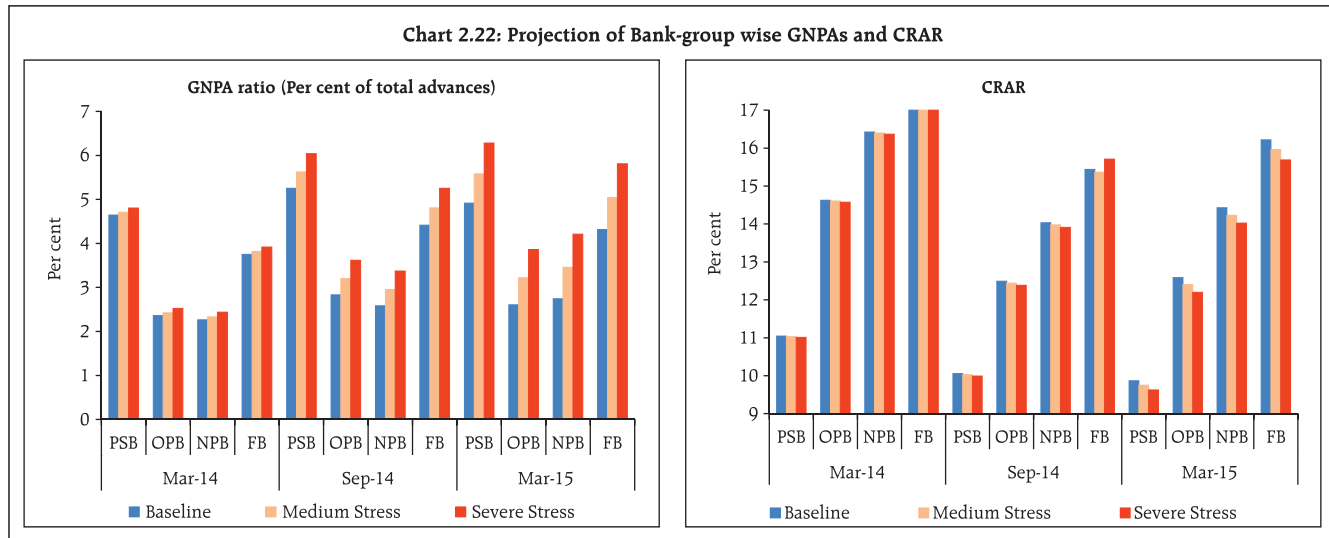
Chart 2.21: Projection of System Level GNPA & CRAR of SCBs



Note: The projection of system level GNPA has been done using three different but complementary econometric models, viz., Multivariate regression, Vector Autoregression (which takes into accounts feedback impact of credit quality to macro variables and interaction effects) and Quantile regression (which can deals tail risk and takes into account non-linear impact of macroeconomic shocks).

Source: RBI Supervisory Returns and Staff Calculations

²⁰ These stress scenarios are stringent and conservative assessments under hypothetical-severely adverse economic conditions and should not be interpreted as forecasts or expected outcomes.



Note: Projection of GNPA at bank-group level was done using multivariate regression model, which does not take into account feedback and non-linear impact impacts.

Source: RBI Supervisory Returns and Staff Calculations

Bank Group Level Credit Risk

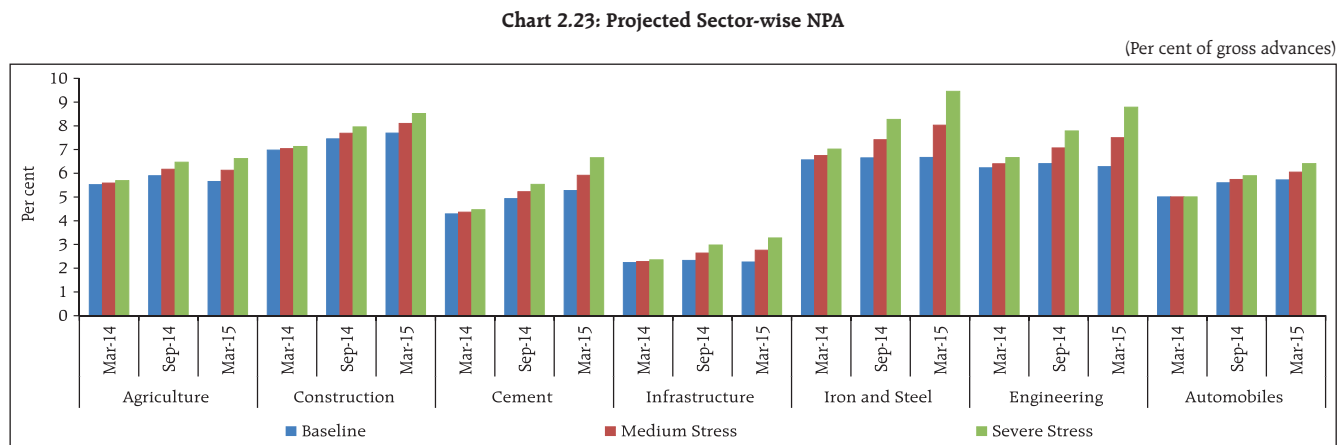
2.53 Among the bank-groups, public sector banks are expected to register the highest GNPA ratio. Under baseline scenario, the GNPA of PSBs and foreign banks may be around 4.9 per cent and 4.3 per cent by March 2015, respectively. Whereas, GNPA ratio of old private banks and new private banks are expected to rise to 2.6 per cent and 2.7 per cent by March 2015, respectively, from 2.4 per cent and 1.9 per cent of September 2014 (Chart 2.22).

2.54 CRAR of PSBs, which is the lowest at 11.2 per cent, may decline further to 9.6 per cent by March 2015 under severe stress scenario, thus moving much closer to the minimum capital requirement. Under

such severe risk scenario, the CRAR of new private sector banks, old private banks and foreign banks may decline to 14.0 per cent, 12.2 per cent and 15.7 per cent by March 2015 from 15.9 per cent, 14.5 per cent and 16.3 per cent recorded as at end September 2013, respectively (Chart 2.22).

Sector Level Credit Risk

2.55 Macro stress test of sector level credit risk revealed that among the selected seven sectors, Construction sector is expected to have highest NPA ratio around 7.7 per cent (under baseline) by March 2015 followed by Iron & Steel. However, the adverse macroeconomic shocks seem to have maximum impact on Iron & Steel and Engineering (Chart 2.23).



Source: RBI Supervisory Returns and Staff Calculations

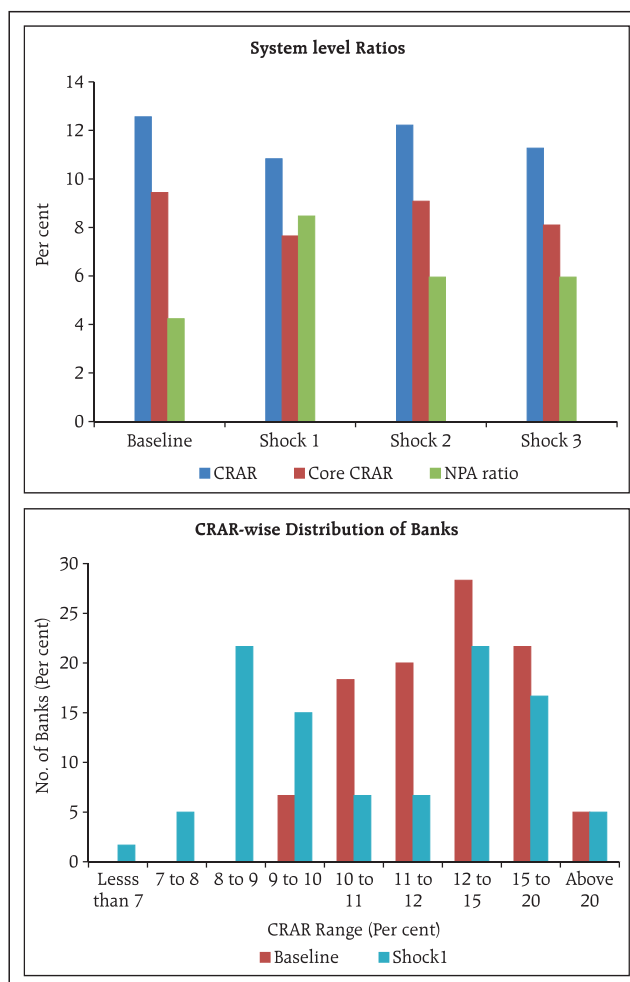
Sensitivity Analysis²¹ - Top-Down Stress Tests - Bank Level

2.56 A number of single factor sensitivity stress tests (*top-down*)²² were carried out on SCBs (60 banks comprising 99 per cent of total banking sector assets) to assess their vulnerabilities and resilience under various shocks and scenarios. The resilience of the commercial banks in respect of credit, interest rate and liquidity risks were studied through top down sensitivity analysis by imparting extreme but plausible shocks. The results are based on September 2013 data.

Credit Risk

2.57 Under different static credit shocks as on September 2013, the system level CRAR of SCBs still remained above the required minimum of 9 per cent (Chart 2.24). The capital losses at the system level could be about 15 per cent in the case of severe stress condition (shock 1). Further, under this scenario, the impact on profitability of banks would be quite significant as their entire profit (before tax) would be lost and the system level (tier I) leverage ratio²³ would come down from 6.6 per cent to 5.3 per cent. The stress test results further showed that 28 per cent banks, sharing about 43 per cent of SCBs' total assets, would fail to maintain required CRAR with 100 per cent assumed rise in NPAs (shock 1). Also leverage ratio of 15 percent banks, sharing about 11 percent of SCBs' total assets, would fall below 3 percent under this scenario.

Chart 2.24: Credit Risk



Shock 1: NPAs increases by 100 per cent

Shock 2: 30 per cent of restructured advances turn into NPAs (Sub-Standard category)

Shock 3: 30 per cent of restructured advances are written-off (Loss category)

Source: RBI Supervisory Returns and Staff Calculations

²¹ The sensitivity analysis is done in addition to macro stress tests; while in the former shocks are given directly to asset quality (NPAs), in the latter, shocks are in terms of adverse macroeconomic conditions. Also, macro stress tests are done at system, bank-group and sectoral levels, whereas, sensitivity analysis was done at system, bank-group and bank levels.

²² For details on stress tests, please refer to the Annex-2. The provisioning norms used for these stress tests are based on existing average prescribed provisioning for different asset categories, instead of enhanced provisioning requirements considered in earlier FSRs. The provisioning requirements have been taken as 25, 75 and 100 per cent for sub-standard, doubtful and loss advances, respectively. Further, the norms have been applied only on the additional NPAs, calculated under a stress-scenario, instead of on the entire credit portfolio. As a result of assumed increase in NPAs, loss of income on the additional NPAs for one quarter is also included in total losses in addition to additional provisioning requirements. This aims to provide a more realistic loss estimates under the assumed stress scenarios.

²³ Leverage ratio is defined as a percentage of Tier I capital to Total Assets (On-balance-sheet-Assets + Off-Balance-Sheet-Credit-equivalent).

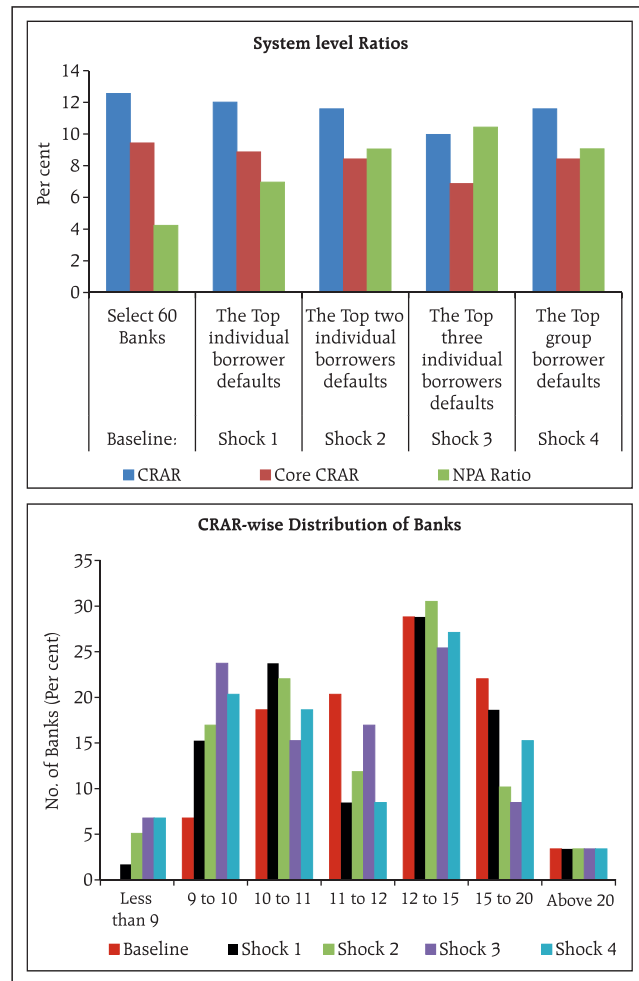
2.58 The impact of credit shocks on Public Sector Banks are more pronounced which would bring down their CRAR from 11.2 per cent to 9.2 per cent under shock1 (100 per cent increase in NPAs). Under the assumed stress scenario (shock1), the leverage ratio of PSBs would also be down by 165 basis points.

2.59 The stress tests on credit concentration risk of banks show that the impact under various stress scenarios is significant for about 7 per cent of banks, comprising 5 percent of assets, failing to maintain 9 percent CRAR. The impact on CRAR, at the system level, under the assumed scenarios of default of top three individual borrowers and default of top group borrower would be 259 and 98 basis points respectively and the system should be able to withstand these shocks (Chart 2.25).

Interest Rate Risk

2.60 The interest rate risk in the trading book (direct impact on AFS and HFT portfolio of banks) under various stress scenarios is manageable with reduction in CRAR by 71 basis points at the system level, with a few small banks getting impacted adversely. The total capital loss at system level would be about 5.6 per cent. This impact is due to upward movement (2.5 percentage points) of yield curve, especially for the low maturity buckets because of their relatively large size. However, the impact in terms of profitability of banks would be significant with about 38 per cent of profit (before tax) of banks being lost under the above shock. The impact of interest rate shock on the trading book has reduced from the estimate of 111 basis points provided in the previous FSR on account of shifting of a few investments from trading book to HTM under the regulatory relaxation provided in August 2013. For an assumed shock of 2.5 percentage points parallel upward shift of the yield curve, the impact on the HTM portfolio of banks, if marked-to-market, could be about 3.1 percentage points on the capital, an increase over the 2.6 percentage points reported in FSR-June 2013.

Chart 2.25: Credit Risk: Concentration



Shock 1: The top individual borrower defaults
Shock 2: The top two individual borrowers defaults
Shock 3: The top three individual borrowers defaults
Shock 4: The top group borrower defaults
Source: RBI Supervisory Returns and Staff Calculations

Liquidity Risk

2.61 To capture the impact on the liquidity risk, analysis has been done with five definitions of liquid assets. As per these definitions, the liquid assets comprise of Cash, CRR, Inter-bank-deposits and Investments. Different liquid asset ratios are arrived at using various definitions under the baseline scenario. The stress scenarios are constructed to test the ability of banks to meet a run on their deposits using only their liquid assets. It is assumed that (1) ten per cent of total deposits would be withdrawn in a short period (say 1 or 2 days) and (2) three per cent of total deposits would be withdrawn in each

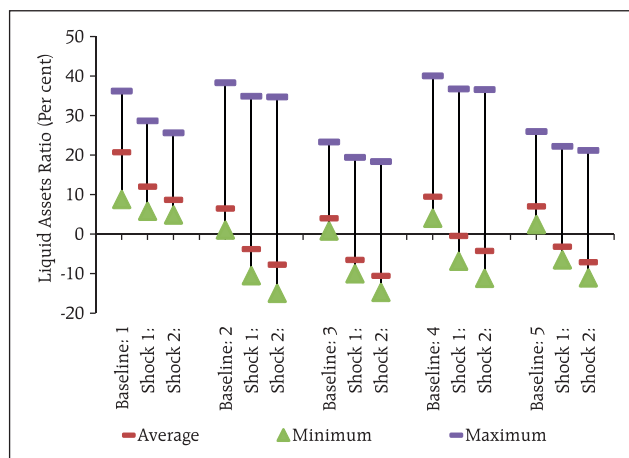
day for 5 consecutive days. Under the stress scenarios, there were indications of deterioration in the liquidity position of banks though SLR investments helped the banks to ward off the liquidity pressure; so also CRR deposits to some extent helped to overcome sudden and unexpected withdrawal by depositors (Chart 2.26).

Derivatives Portfolio of Banks

2.62 The derivatives portfolio of banks in India grew sharply in the years leading up to the global financial crisis. Though the portfolio size has shrunk since 2008, it still remains large with the outstanding notional principal constituting over 130 per cent of banks' total assets as on September 30, 2013. The credit equivalent of derivatives portfolio is about 5 per cent of the balance sheet assets. The foreign banks as a group account for about 62 per cent of the outstanding notional principal in the derivatives market, whereas their share in the balance sheet assets of the banking system is only 7.3 per cent. There was a marginal increase in the size of outstanding notional principal and their credit equivalent in September 2013 (Chart 2.27 and 2.28)

2.63 Among the sample banks²⁴, the majority of outstanding derivative transactions are interbank

Chart 2.26: Liquidity Risk

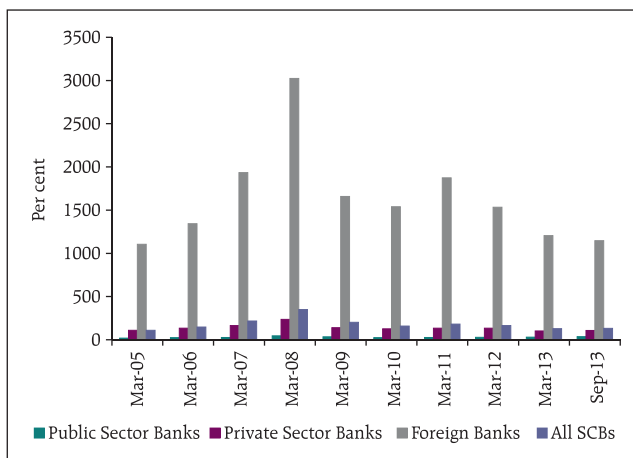


Liquid Assets Definitions	
1	Cash + Excess CRR + Inter Bank Deposits + SLR Investments
2	Cash + Excess CRR + Inter Bank Deposits maturing-within-1-month + Investments maturing-within-1-month
3	Cash + Excess CRR + Inter Bank Deposits maturing-within-1-month + Excess SLR Investments
4	Cash + CRR + Inter Bank Deposits maturing-within-1-month + Investments maturing-within-1-month
5	Cash + CRR + Inter Bank Deposits maturing-within-1-month + Excess SLR Investments
A baseline and two shock scenarios have been constructed for each of the above definitions.	
Liquidity Shocks	
Shock1	10 percent deposits withdrawal (cumulative) in a short period (say 1 or 2 days)
Shock2	3 percent deposits withdrawal (each day) within 5 days

Source: RBI Supervisory Returns and Staff Calculations

Chart 2.27: Trend in Notional Principal of Derivatives

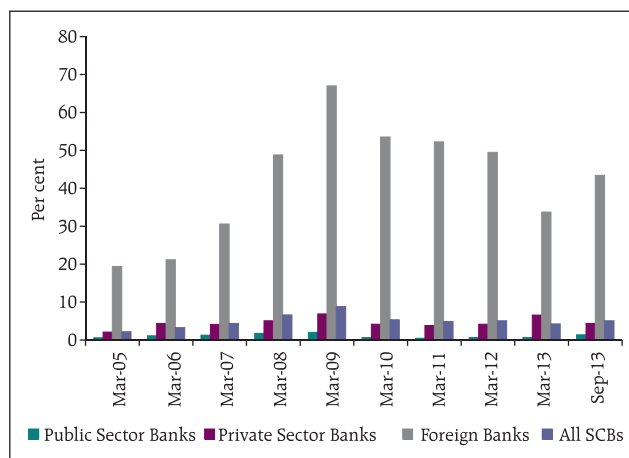
(Per cent to Total Assets)



Source: RBI Supervisory Returns

Chart 2.28: Trend in Credit Equivalent of Derivatives

(Per cent to Total Assets)



Source: RBI Supervisory Returns

²⁴ Stress tests on derivatives portfolios were conducted for a sample of 24 select banks. Details are in Annex-2.

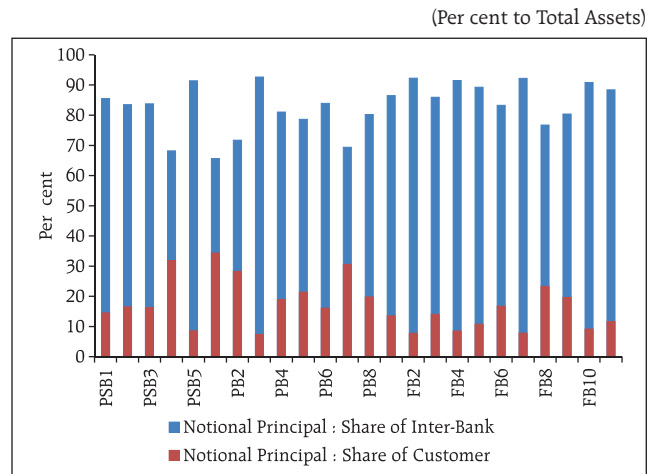
transactions. The average interbank segment of the derivatives portfolio constituted about 83 per cent of the total outstanding derivatives as at September 2013. The customer segment constituted a small portion of outstanding derivative transactions covering 17 per cent on an average basis. Interestingly the coverage of the customer segment of the public and private sector banks within the overall outstanding derivatives transaction exceeded 20 per cent on an average basis (Chart 2.29).

2.64 A series of bottom-up stress tests (sensitivity analysis) on derivative portfolios were conducted for the select sample with the reference date as September 30, 2013. The banks in the sample reported the results of four separate shocks on interest and foreign exchange rates. The shocks on the interest rates ranged from 100 to 250 basis points, while 20 per cent appreciation / depreciation shocks were assumed for foreign exchange rates. The stress tests were carried out for individual shocks, on stand-alone basis. The results showed that the average net impact of interest rate shocks on sample banks was not high. However, the foreign exchange shock scenarios showed relatively large impact in September 2013 position due to the depreciated rupee rate prevailing at that time (Chart 2.30).

Securities Market-Possible Concentration Risks Due to Common Set of Banks in SGF

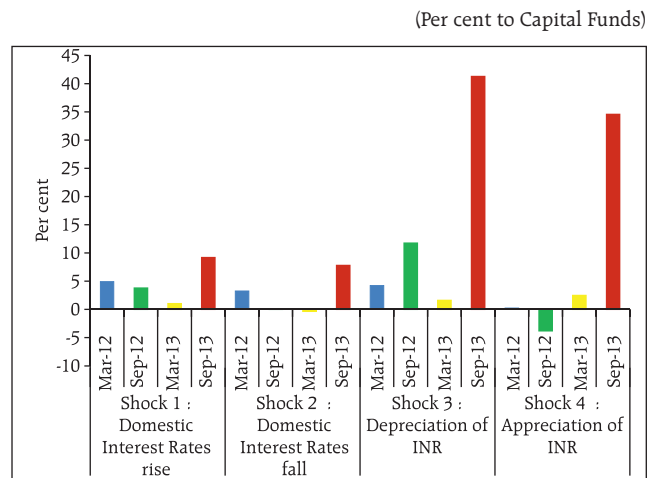
2.65 The exposures of Settlement Guarantee Funds (SGF) of NSCCL and ICCL to the top 5 banks are 22.9 per cent and 21.8 per cent, respectively, which are well below the exposure limits specified by NSCCL, SGF of 75 per cent to top five banks put together. While the exposure of the SGF of NSCCL and the exposure of the SGF of ICCL are individually less than the upper limit, the fact that three banks are common in the list of top five banks, makes it even more important that the exposures limits are monitored on an ongoing basis (Table 2.8).

Chart 2.29: Share of Inter-bank & Customer Segments in Derivatives Transactions – September 2013



PSB: Public Sector Bank, PB: Private Sector Bank, FB: Foreign Bank
Source: Sample Banks (Bottom-up stress tests on derivate portfolio)

Chart 2.30: Stress Tests - Impact of shocks on Derivative Portfolio of Select Banks (Change in net MTM on application of a shock)



Source: Sample Banks (Bottom-up stress tests on derivate portfolio)

Table 2.8: Exposure of NSCCL and ICCL to Top Five Banks as at end September 2013

NSCCL of NSE			ICCL of BSE		
Sr. No.	Bank Name	Exposure as a % of SGF	Sr. No.	Bank Name	Exposure as a % of SGF
1.	Bank 1	8.3	1.	Bank 1	7.3
2.	Bank 2	6.2	2.	Bank 2	5.6
3.	Bank 3	4.2	3.	Bank 3	4.6
4.	Bank 4	2.4	4.	Bank 4	2.6
5.	Bank 5	1.9	5.	Bank 5	1.6
Total Exposure to Top 5 Banks		22.9	Total Exposure to Top 5 Banks		21.8

Note: In case of BSE exposure is a % of SGF+Total Liquid Assets
Source: NSE & BSE

Regional Rural Banks (RRBs)

2.66 RRBs account for around 2.6 per cent of the banking assets. Gross loans and deposits of 64 RRBs went up by 20.2 per cent and 13.5 per cent during 2012-13, respectively, thus raising the CD ratio to 66.1 per cent as at end March 2013 from 62.5 per cent of March 2012. The GNPA as per cent of gross loans increased to 5.7 per cent as at March 2013 from 5.0 per cent of March 2012.

Amalgamation of RRBs

2.67 The process of consolidating RRBs was initiated in the year 2005. In the first phase of amalgamation of RRBs which took place between 2005 and 2010, RRBs of the same sponsor banks within a state were amalgamated bringing down their number to 82 from 196. In the current phase of amalgamation, which started from October 1, 2012, the Government of India (GoI) plans to mainly amalgamate geographically contiguous RRBs within a state under different sponsor banks to have just one RRB in medium sized states and 2 or 3 RRBs in large states. GoI has so far issued 18 notifications amalgamating 41 RRBs into 17 new RRBs within 11 states bringing down their effective number to 58. Consequent to the consolidation of RRBs a minimum CRAR of 8 per cent has been prescribed on an ongoing basis with effect from March 31, 2014.

Financial Institutions

2.68 There are four Financial Institutions (FIs) which are under the purview of the Reserve Bank three of these, namely, NABARD, SIDBI and NHB are refinancing institutions (RFIs), whereas, fourth FI, EXIM Bank is a term lending institution (TLI). Total assets of these FIs together is ₹4197.5 billion and they are highly capitalized with CRAR of all the four FIs taken together is 18.8 per cent (ranging between 14 to 31 per cent) as at end September 2013 which is well above the minimum regulatory requirement of 9 per cent. Further, these have GNPA to total gross advances at 0.9 per cent as at end September 2013.

2.69 For long term economic growth, infrastructure development is an important pre requisite. The banking system with its current ALM has borne the burden of financing to a large extent and is showing resultant strains. To ensure availability of substantial and long-term-maturity it may be necessary to revisit the mandate of these institutions and involve them to a greater extent.

Scheduled Urban Co-operative Banks (SUCBs)

2.70 The SUCBs account for 1.5 per cent of the assets of the banking system. At the system level²⁵, the CRAR of SUCBs declined to 12.5 per cent as at end September 2013 from 12.7 per cent as at end March 2013 but remained above the minimum regulatory requirement of 9 per cent, whereas, at bank level, seven banks failed to maintain the minimum required CRAR. The asset quality of SUCBs, measured in terms of GNPA, deteriorated significantly to 7.5 per cent of gross advances as at end September 2013 from 3.6 per cent as at end March 2013, resulting in significant decline in the provision coverage ratio to 55.3 per cent as at end September 2013 from 77.3 per cent as at end March 2013. The profitability of SUCBs, measured in terms of RoA declined to 0.7 per cent as at end September 2013 from 0.9 per cent as at end March 2013. However, liquidity ratio improved to 34.9 per cent as at end September 2013 from 34.0 per cent as at end March 2013 (Table 2.9).

	Mar-13	Sep-13
CRAR	12.7	12.5
Gross NPAs to Gross Advances	3.6	7.5
Return on Assets (annualized)	0.9	0.7
Liquidity Ratio	34.0	34.9
Provision Coverage Ratio	77.3	55.3

Note:

1. Data are provisional and based on OSS Returns
2. Liquidity Ratio = $100 * (\text{Cash} + \text{due from banks} + \text{SLR investment}) / \text{Total Assets}$.
3. PCR = NPA provisions held as per cent of Gross NPAs.

²⁵ System of 51 SUCBs.

2.71 Stress test for assessment of credit risk was carried out for SUCBs using the data based on Off-Site Surveillance (OSS) returns as on September 30, 2013. The impact of credit risk shocks on the CRAR of the SUCBs was observed under four different scenarios²⁶. The results showed that except under the extreme fourth scenario, the system level CRAR of SUCBs remained above the minimum regulatory required level of CRAR, though individually a larger number of banks (more than 50 per cent banks) failed to meet the required level of CRAR.

2.72 Stress test on liquidity risk was carried out under two different scenarios assuming 50 per cent and 100 per cent increase in cash outflows in the 1 to 28 days time bucket. It was further assumed that there was no change in cash inflows under both the scenarios. The stress test results indicate that the SUCBs would be significantly impacted (around 50 per cent banks) even under less severe stress scenario (scenario I).

2.73 The Reserve Bank adopted a multi-layered regulatory and supervisory strategy aimed at the consolidation of UCBs by way of merger/amalgamation of viable UCBs and the exit of unviable banks for the revival of this sector, which led to a gradual reduction in the number of UCBs. The closures of UCBs were due to various reasons such as high non-performing advances, negative net-worth, deterioration in financial health, non-compliance with RBI guidelines, frauds, affairs conducted in a manner detrimental to the interests of depositors, misappropriation of funds, sanctioning of loans in excess of permissible limit, sanctioning of loans to the entity in which directors have interest, *etc.* The total number of UCBs as at end March 2013 stood at 1606 as against 1618 as at end March 2012 (Table 2.10).

Financial Year (FY)	Number of UCBs				
	Operational as on last day of previous FY	Merged during FY	Cancellation of licenses / rejection of applications for license*	Closed during FY (5) = (3) + (4)	Operational as on last day of current FY
(1)	(2)	(3)	(4)	(5)	(6)
2008-09	1,770	22	27	49	1,721
2009-10	1,721	13	34	47	1,674
2010-11	1,674	13	16	29	1,645
2011-12	1,645	14	13	27	1,618
2012-13	1,618	3	9	12	1,606

*Rejection of application of the existing urban co-operative credit societies for license

Rural Co-operative Banks

Systemic Implications of some Rural Cooperative Banks continuing without licence

2.74 Pursuant to the recommendations of the Committee on Financial Sector Assessment (CFSA), the RBI had revised the licensing norms for rural co-operative banks during October 2009. Accordingly, all 31 State Co-operative Banks and 348 District Central Co-operative Banks (DCCBs) were licensed as on 30 June 2013, whereas, 23 DCCBs in four States had remained unlicensed.

2.75 These 23 DCCBs are not complying with Section 11(1), 22(3)(a) and 22 (3)(b) of BR Act, 1949. These banks have large accumulated losses and have shown erosion of assets as well as of deposits. Since, allowing these DCCBs to continue banking business would be detrimental to the interest of depositors, Reserve Bank had imposed directions on these banks restraining them from acceptance of fresh deposits with effect from May 9, 2012 and thereafter Show-Cause Notices were issued to them on March 7, 2013

²⁶ Four scenarios are: i) 50 per cent increase in GNPA (classified into sub-standard advances, ii) 50 per cent increase in GNPA (classified into loss advances), iii) 100 per cent increase in GNPA (classified into sub-standard advances, and iv) 100 per cent increase in GNPA (classified into loss advances).

to Show-Cause as to why their licence application to carry on banking business in India should not be rejected. Further regulatory action against these banks is being examined now.

Non-Banking Financial Companies (NBFCs)²⁷

Capital Adequacy

2.76 Capital to risk-weighted assets ratio (CRAR) norms were made applicable to NBFCs-ND-SI w.e.f. April, 2007²⁸, in terms of which every systemically important non-deposit taking NBFC is required to maintain a minimum capital, consisting of Tier-I and Tier- II capital, of not less than 15 per cent of its aggregate risk-weighted assets. The aggregate CRAR of the ND-SI sector stood at 28.4 per cent for the quarter ended September 2013 as against 27.4 per cent in the corresponding quarter of 2012 (Chart 2.31).

Asset Quality

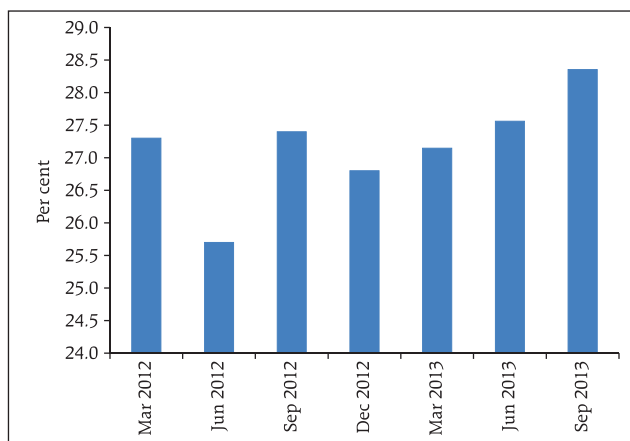
2.77 The gross NPA ratio of the ND-SI sector stood at 3.5 per cent for the quarter ended September 2013 as against 3.1 per cent for the same quarter in the preceding year (Chart 2.32).

Stress Tests - Credit Risk

System level (NBFC-D and NBFC-ND-SI)

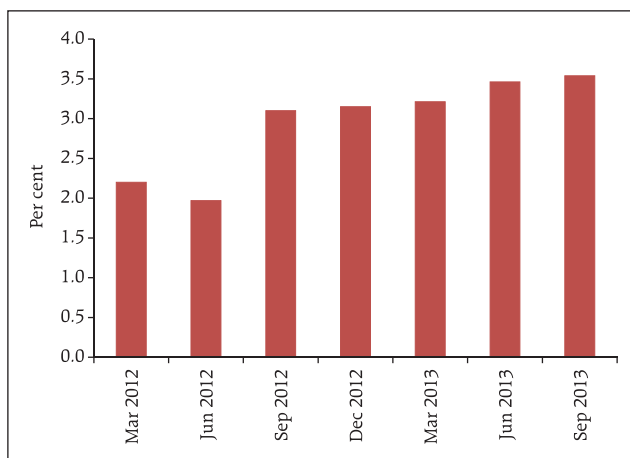
2.78 A stress test on credit risk for NBFC sector (includes both deposit taking and ND-SI) for the period ended September 2013 was carried out under two scenarios (i) where gross NPA increased two times and (ii) gross NPA increased 5 times from the current level. It was observed that in the first scenario, CRAR dropped by 1.1 percentage points from 23.5 to 22.4 per cent while in the second scenario CRAR dropped by 4.9 percentage points (CRAR dropped from 23.5 to 18.6 per cent). It may be concluded that even though there was shortfall in provisioning under both the scenarios, the impact on CRAR was negligible as the sector had a higher level of CRAR at 23.5 per cent as against the bench mark CRAR of 15 per cent.

Chart 2.31: Trends in Capital to Risk Weighted Assets Ratio



Source: RBI Supervisory Returns

Chart 2.32: Trends in Gross NPA Ratio



Source: RBI Supervisory Returns

²⁷ NBFCs-ND-SI (Non-Deposit taking and Systemically Important NBFCs) only used in this analysis.

²⁸ Vide Notification No. DNBS.193 DG (VL) 2007, dated 22-02-2007

Select NBFCs

2.79 A stress test on credit risk for individual NBFCs for the period ended September 2013 was also carried out under two scenarios, *viz.*, (i) gross NPA increased two times and (ii) gross NPA increased 5 times from the current level. As at the end of September, 2013 around 4.8 per cent of the companies were unable to comply with the minimum regulatory capital requirement of 15 per cent. The percentage of NBFCs, not able to meet the minimum required level of capital adequacy went up to 8.6 per cent and 13.4 per cent under the first and second stress scenarios respectively.

Insurance Sector

2.80 The Insurance Regulatory and Development Authority (IRDA) vide Fifth Amendment to the Investment Regulations during 2013 has taken several policy changes, which include, increasing the scope

of investments in AA rated bonds, thrust to investments in infrastructure, controls to protect the policyholders interest, restricting the insurer to invest in bonds which are rated below A to the prescribed percentage, *etc.*

2.81 The total investment of insurance sector increased by 11.1 per cent to ₹18.7 trillion as at end March 2013 from ₹16.8 trillion as at end March 2012, which further increased by 11.6 per cent during first quarter of 2013-14 to ₹19.2 trillion as at end June 2013. The life insurance continues to be contributor in the investment of insurance sector with share of 93.3 per cent as at end June 2013.

2.82 Most of the Non-Performing Assets (NPAs) of insurances sector are with PSU insurers and recorded 82.6 per cent growth on y-o-y basis during 2012-13 to ₹70.1 billion as at end March 2013. Whereas, NPAs of private sector insures was ₹0.1 billion as at end March 2013.