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**The Current State of Financial and  
Regulatory Frameworks in Asian  
Economies: The Case of India**

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**Abstract**

Despite having a low exposure to the toxic assets involved in the sub-prime crisis and a gradualist approach towards liberalization of the financial sector, certain parts of the Indian financial sector were significantly affected by the global financial crisis. The consequent tightening of liquidity and slump in global and domestic demand had a strong adverse affect on the industrial sector, a large part of which includes small and medium-sized enterprises. There was a significant decline in employment and output in some of these enterprises. Though Indian policymakers reacted in a proactive manner and introduced a host of measures to counter the adverse effects of the financial crisis, the recovery has not been uniform; several markets and sectors are still reeling from the crisis' aftershocks. The proposed Basel III norms are going to have a significant impact on the Indian financial sector. While it is in a comfortable position to meet some of the proposed Basel III norms, the implementation of some of the other norms will be a challenge.

**JEL Classification: F41, G15, O11**

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## 1. INTRODUCTION

The effects of the recent global financial crisis have dented India's growth prospects much more than had been originally anticipated. In 2007, even as the sub-prime crisis unfolded in the United States (US), the decoupling theory (Akin and Kose 2007; The Economist 2008), argued that business cycles in a number of emerging markets got decoupled from those in advanced economies thanks to the rapid expansion of intra-regional trade over the past few decades, high savings ratios, and a burgeoning stockpile of international reserves. India was also expected to remain insulated from the developments in the US for two main reasons. Firstly, the Indian banking sector had no direct exposure to the toxic sub-prime mortgage assets or the failed institutions. Secondly, much of India's recent growth can be attributed to a rise in domestic demand especially capital formation. External demand in the form of exports of goods and services accounted for only 20% of the country's gross domestic product (GDP).

Despite these factors, India was greatly affected by the global crisis and the country's growth rate dropped from a peak of 10.6% in Q3 2006 to 5.8% in Q4 2008. A key reason for this dip in growth rate was India's increased integration with the rest of the world. Despite a low export-to-GDP ratio, India's level of global integration as measured by the sum of financial and trade flows, increased from 47% in 1997–98 to 117% in 2007–08.<sup>1</sup> Consequently, the crisis impacted India by reducing the Indian corporate sector's access to global capital markets, bringing down domestic liquidity, and causing stock prices to fall. The financial crisis also affected certain sectors that were heavily dependent on finance like real estate, exports, and small and medium-sized enterprises (SMEs). Given that some of these sectors are labor-intensive, the global meltdown has strongly impacted employment.

The global crisis' impact on India's financial sector was mitigated due to the gradualist and calibrated approach taken by Indian policymakers towards liberalization of this sector. Indian policymakers also introduced several countercyclical measures during periods of credit upturn prior to the crisis. Furthermore, a series of measures were undertaken in the post sub-prime crisis period to enhance the resilience of the sector to future crisis.

In this paper, we evaluate the impact of the global financial crisis in India. In Section 2, we provide a brief overview of the Indian financial sector, highlighting some of the key characteristics and policy initiatives that improved the sector's resilience. In Section 3, we analyze the impact of the global meltdown on the Indian financial sector as well as the policy measures that were undertaken to counter its effects. Then, we estimate the impact of the crisis on SMEs, focusing on employment and output in these sectors. We also draw attention to some of the policy decisions that were outlined to lessen the impact of the crisis on these sectors. In Section 4, we highlight some of the policy measures that were introduced to strengthen the Indian financial sector and enable it to withstand future turmoil after the outbreak of the US' subprime crisis. Section 5 looks at the global reform agenda, mainly concentrating on the Basel III proposals. This section enumerates some of the key proposals as well as the likely impact these proposals will have on the Indian economy.

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<sup>1</sup> Fiscal years in India run from April to March. Thus, for example, the fiscal year covering 1 April 2007 to 31 March 2008 is denoted as 2007–08.

## 2. A BRIEF OVERVIEW OF THE INDIAN FINANCIAL SECTOR

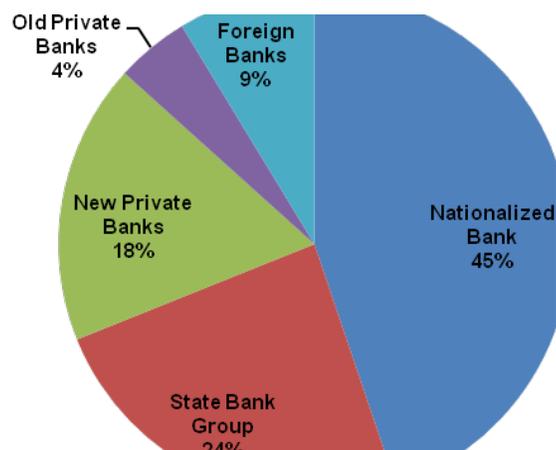
The direct effect of the sub-prime crisis on India's financial sector was limited, primarily due to India's limited exposure to complex derivatives and certain prudential policies put in place by the regulators. India's relative resilience is also an outcome of the country's approach toward financial sector liberalization including capital account convertibility. India has adopted a calibrated and gradualist approach toward opening up its capital account and has prioritized certain agents and flows in the liberalization process. In particular, right from the onset of the liberalization process it was recognized that in order to withstand the crisis, policies would need to shift away from debt- to non-debt-creating flows, enforce strict regulation of external commercial borrowings (ECBs) (especially the ones with short-term maturity), dissuade volatile flows from non-resident Indians, and gradually liberalize outflows. As a result, India was able to prevent excessive reliance on foreign borrowing and dollarization of the economy.

Furthermore, the market for credit derivatives in India is in a nascent stage and the originate-to-distribute model is significantly different from the one prevailing in advanced markets (Reddy 2008). India has restrictions on investments by domestic residents in such products issued abroad and regulatory guidelines on securitization do not permit immediate profit recognition. Derivative instruments have been cautiously introduced in a gradualist manner for product diversity and as a risk management tool.

The resilience of the Indian financial sector also lay in the fact that most of the sector is domestically owned. Furthermore, nearly 70% of the banking sector's assets are held by public sector banks (Figure 1).<sup>2</sup> The relatively lower presence of foreign banks helped minimize the crisis' direct impact on India's domestic economy. Foreign banks tend to be susceptible to capital flows reversal consequent to problems at host country, the parent bank or country of origin (Ram Mohan 2009).

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<sup>2</sup> The dominance of public sector banks was the outcome of the nationalization of privately owned banks. The Reserve Bank of India (RBI) and the State Bank of India were nationalized in 1949 and 1955, while several other major private banks were nationalized in 1969 and 1980. Though the nature of governance and incentive framework in these public sector banks did not encourage excessive risk-taking and thereby discouraged excessively risky exposures, this conservative approach has been criticized on grounds that it has hindered Indian banks from competing globally, allowed inefficiencies to go unchecked, saddled banks with high numbers of non-performing loans, and stifled productivity.

**Figure 1: Decomposition of the Indian Banking System 2009-10 (Assets)**

Source: RBI (2010a)

The financial sector in India is subject to prudential regulations governing both capital and liquidity. Indian banks have significant liquid assets as they are required to maintain cash reserve ratio (CRR) and statutory liquidity ratio (SLR). The excess SLR is a source of liquidity buffer as it allows central bank liquidity for managing banks' day to day liquidity needs. A lowering of the SLR leads to additional resources being made available for liquidity support. A number of measures were also introduced to reduce non-collateralized borrowing and lending. At the same time measures were taken to develop market repurchase agreements and the collateralized borrowing and lending obligation markets. The non-bank players have been phased out of the collateralized call money market thereby making it a pure inter-bank market.

Liquidity risks can increase manifold during periods of crisis, and India put in place a number of measures to mitigate these risks at the short end. Banks' reliance on borrowed funds is discouraged and stable sources of funds were promoted by imposing prudential limits on banks' purchased inter-bank liabilities and linking these limits to the net-worth of the firm. In March 2007, the banks' inter-bank liabilities were limited to twice their worth. Banks, whose capital adequacy ratio (CRAR) was 25% above the minimum CRAR of 9%—i.e., 11.25%—could have higher inter-bank liabilities limit of 300%. A close monitoring of incremental credit aggregates, including credit-deposit ratio helped to identify signs of overheating. Typically, in the Indian context, an incremental credit-deposit ratio of 100%, with a high overall absolute credit deposit ratio of around 70% is considered "overheating." The focus on the credit deposit ratio also encourages banks to raise more deposits and reduce the use of purchased funds. The use of SLR and the focus on the credit deposit ratio reduced the extent of leverage in the banking system.

Investment in non-government securities is also regulated. Short-term investment of banks is limited to certificate of deposits and commercial paper. Furthermore, all non-government security investments are subject to credit rating, and investment in unlisted government securities is limited to 10% of overall non-SLR investment portfolio and requires complete disclosure.

In India there has been an ongoing review of credit-conversion factors, risk weights, and provisioning norms to strengthen capital requirements. In addition, some of the complex structures such as synthetic securitization have not been allowed so far. The RBI has also issued detailed guidelines on the implementation of the Basel II framework. The minimum

CRAR for banks in India at 9% is higher than the Basel norm of 8%. The banks were also asked to ensure a minimum Tier I capital ratio of 6% from April 2010. The current average CRAR for scheduled commercial banks is over 13%, while the Tier I ratio is at 9%. In addition, India did not include items like intangible assets and deferred tax assets that are now being considered to be deducted internationally.

To mitigate risks, the RBI imposed additional prudential measures in respect of exposures to specific sectors, which included formulating specific policies covering exposure limits, collaterals to be considered, margins to be kept, etc. For example, considering the sharp rise in loans to real estate sectors and rising concerns about asset quality and systemic risks, the risk weight on banks' exposure to commercial real estate was increased from 100% to 150%, while those on loans extended to individuals against mortgage of housing properties and investments in mortgage-backed securities of housing finance companies were increased from 50% to 75% in December 2004.

Similarly, with a view to insulate banks from asset price volatility, prudential norms were prescribed. Initially, the exposure was capped at 5% of a bank's total advances as of the last day of the previous financial year. However, from April 2007, the aggregate exposure of a bank to the capital markets was restricted to 40% of its net worth. Within this ceiling, a bank's direct investment in shares, convertible bonds/debentures, units of equity owned mutual funds, and exposure to venture capital funds cannot exceed 20%. The aggregate exposure of a consolidated bank to capital market and its direct investment in capital markets are capped at 40% and 20% of the consolidated net worth, respectively. With the strong growth of consumer credit and capital market exposure before the crisis, the RBI increased the risk weights from 100% to 125%.

In the context of securitization, Indian regulations prohibit originators from booking profits upfront at the time of the securitization. In addition, it is necessary to maintain capital at the required minimum of 9% on any credit enhancement provided. Furthermore, during the life of the credit enhanced transaction, release of credit enhancement is disallowed. Consequently, banks in India have not had incentive to engage in unbridled securitization as was seen in the "originate to distribute" models of securitization.

The derivatives were bought under the capital adequacy regime by laying down credit conversion factors that were linked to the maturities of real interest contracts and exchange rate contracts. Since April 2003, banks have had the option to determine individual/group borrower exposure through either the original exposure method based on original maturity or the current exposure method based on residual maturity. The former was withdrawn in August 2008 as it was determined that banks had gained sufficient expertise by then. Currently, credit exposures due to interest rate and exchange rate derivative transactions are computed using the current exposure method. To improve the capital cushion available for these derivatives the conversion factors were doubled for certain residual maturities. In April 2007, additional guidelines were introduced covering eligibility criteria, principles for undertaking derivative transactions, permissible derivative instruments, and issues related to suitability of a derivative product for a client.

Regulatory measures for non-banking financial companies (NBFCs) have been aimed at containing leverage and minimizing regulatory arbitrage between NBFCs and the banking system. To prevent banks from using NBFCs as a delivery vehicle for seeking regulatory arbitrage or to circumvent bank regulations, the capital adequacy ratios and prudential limits for NBFCs have been progressively brought nearer to those applicable to banks. The initial emphasis was on deposit-taking NBFCs, and non-deposit-taking NBFCs were subject to minimal regulations. In recent years, however, large non-deposit-taking NBFCs have also been

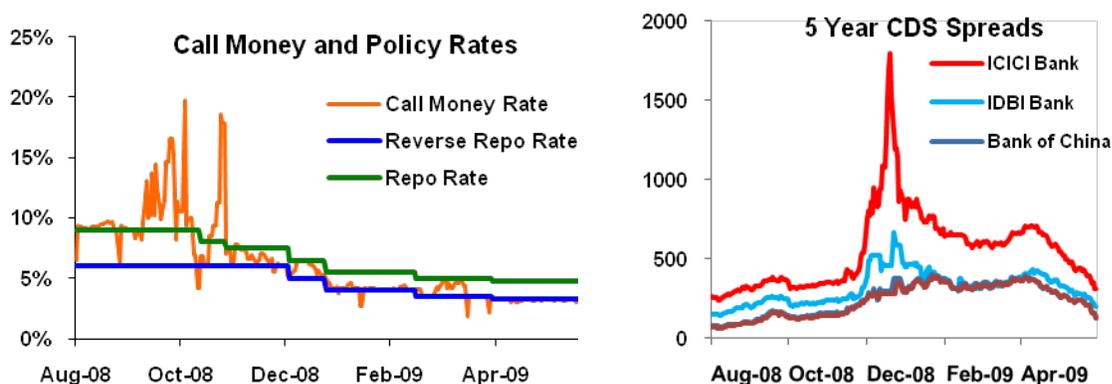
bought under regulation. Capital adequacy requirements were introduced in order to strengthen the capital base of these companies and reduce the possibility of excessive leverage. A capital adequacy ratio of 10%, which was higher than for banks, has been prescribed for non-deposit-taking NBFCs since April 2007. In addition, credit and investment concentration norms were also introduced under which non-deposit-taking NBFCs can only invest up to 15% of their owned funds in any single company and up to 25% of their owned funds to a single group of borrowers. Furthermore, these NBFCs are only able to lend and invest up to 25% of an owned fund to a single party and 40% of an owned fund to a single group of parties.

### **3. IMPACT OF THE GLOBAL FINANCIAL CRISIS**

#### **3.1 Impact of the Crisis on the Indian Financial Sector**

In the initial days of the sub-prime crisis, the impact on India was relatively small. The Indian financial sector remained largely impervious to the effects of the sub-prime crisis since the financial institutions were well capitalized, and had extremely limited exposure to the US sub-prime assets and other complex derivatives. Mohan (2008) pointed out that a study carried out by the RBI in September 2007 found that none of the Indian or foreign banks within India, with whom consultations had been held, had a direct exposure to sub-prime assets. However, some Indian banks had invested in the collateralized debt obligations and bonds that had some underlying entities with sub-prime exposure. Consequently, while there was no evidence of direct impact from exposure to these assets, some banks suffered losses on account of mark-to-market losses due to widening of credit spreads. However, these losses were very small compared to the effected banks' balance sheets.

However, the global financial crisis had a significant negative impact on some of the other financial sub-sectors like money market, equity, foreign exchange, and credit markets. These markets came under pressure for a variety of reasons, including the drying up of overseas financing for Indian corporations and banks, difficulty in raising funds in a bearish capital market, and a decline in the internal accrual of companies. In the immediate aftermath of the collapse of Lehman Brothers there was a tightening of the money market and call money rates rose to more than 20% in October 2008. At the time of the onset of the crisis, the Indian corporate sector held several types of short-term dollar liabilities including trade finance. There was a sharp collapse in trade finance after the fall of Lehman Brothers, and Indian corporations were forced to pay a large volume of trade credit that would have otherwise been rolled over. At the same time, overseas branches of Indian banks funded themselves in the short-term inter-bank market in US dollars since the deposit base was only a fraction of the balance sheet in these countries (Varma 2009). The collapse of the inter-bank market in the post-Lehman period resulted in the Indian banking system having to pay dollar liabilities that could not be rolled over. Given the shortage of dollar liquidity, Indian corporations and banks were forced to borrow in rupees and then convert it into dollar, which in turn squeezed India's money market and the call money rate shot well outside the band set by the RBI (Figure 2).

**Figure 2: Impact of the Crisis on the Indian Banking Sector**

Source: RBI(2010a) and Global Economic Monitor available at <http://data.worldbank.org/data-catalog/global-economic-monitor> (last accessed March 2011).

Patnaik and Shah (2010) also suggested that because Indian multinationals that were using the global money market were short on dollars after the collapse of Lehman Brothers, they borrowed in India and took capital out of the country, thereby tightening the domestic money market. Some of these troubled companies that had issued commercial paper in the market—especially the real estate companies and the non banking companies—found it difficult to roll over the maturing paper. The commercial paper and certificates of deposit markets became illiquid. The credit default swaps CDS spreads for Indian banks also rose sharply in October and November 2008 as the risk perception of the stakeholders of these banks went up significantly.

The squeeze in credit can also be seen from a sharp drop in the flow of credit to the Indian corporate sector. Table 1 shows that overall credit to the corporate sector was 14.7% lower in 2008-09 as compared to 2007-08. Much of this decline was due to a sharp drop in the flow of funds from foreign sources. Despite a significant weakening of the Indian rupee in 2008-09, compared to previous years, there was a 41.2% decline in funds flowing in from foreign sources. Barring foreign direct investments (FDI), all other foreign sources of credit experienced a sharp drop, with resources raised through ECBs and American depository receipts or global depository receipts declining by 60% or more.

**Table 1: Flow of Credit to the Commercial Sector**  
(Rs. 10 million)

				Growth Rate	
	2007-08	2008-09	2009-10	2008-09	2009-10
<b>A. Adjusted Non-Food Bank Credit</b>	<b>4,44,807</b>	<b>4,21,091</b>	<b>4,80,258</b>	<b>-5.3%</b>	<b>14.1%</b>
i) Non-food Credit	4,32,846	4,11,824	4,66,960	-4.9%	13.4%
ii) Non-SLR Investment by SCBs	11,961	9,267	13,298	-22.5%	43.5%
<b>B. Flow from Non-Banks (B1+B2)</b>	<b>5,64,558</b>	<b>4,39,926</b>	<b>5,80,821</b>	<b>-22.1%</b>	<b>32.0%</b>
<b>B1. Domestic Sources</b>	<b>2,55,230</b>	<b>2,58,132</b>	<b>3,64,989</b>	<b>1.1%</b>	<b>41.4%</b>
1. Public issues by non-financial entities	51,478	14,205	31,956	-72.4%	125.0%
2. Gross private placements by non-financial entities	68,249	77,856	1,41,964	14.1%	82.3%
3. Net issuance of CPs subscribed to by non-banks	10,660	4,936	25,835	-53.7%	423.4%
4. Net credit by housing finance companies	41,841	25,876	28,485	-38.2%	10.1%
5. Gross accommodation by NABARD, NHB, SIDBI and EXIM Bank	22,267	31,408	33,871	41.1%	7.8%
6. Systemically important non-deposit taking NBFCs	36,460	42,277	60,663	16.0%	43.5%
7. LIC's investment in corporate debt, infrastructure and social sector	24,275	61,574	42,215	153.7%	-31.4%
<b>B2. Foreign Sources</b>	<b>3,09,328</b>	<b>1,81,794</b>	<b>2,15,832</b>	<b>-41.2%</b>	<b>18.7%</b>
1. ECBs/FCCBs	91,180	31,350	14,356	-65.6%	-54.2%
2. ADR/GDR issues	11,836	4,788	15,124	-59.5%	215.9%
3. Short-term credit from abroad	68,878	-12,972	35,170	-118.8%	
4. FDI to India	1,37,434	1,58,628	1,51,182	15.4%	-4.7%
<b>C. Total Flow of Resources (A+B)</b>	<b>10,09,365</b>	<b>8,61,017</b>	<b>10,61,079</b>	<b>-14.7%</b>	<b>23.2%</b>

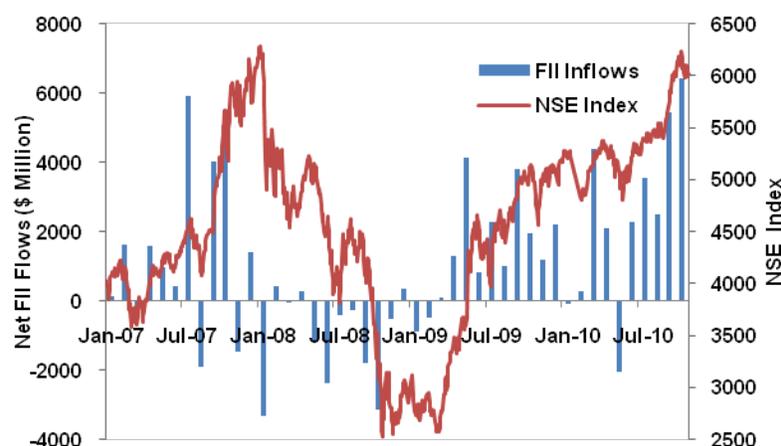
Notes: ADR = American depository receipts, CP = commercial paper, ECB = external commercial borrowings, EXIM = Export import, FCCB = Foreign currency convertible bond, FDI = foreign direct investment, GDR = global deposit receipts, LIC = Life insurance corporation, NABARD = National bank for agriculture and rural development, NBFC = non-banking financial companies, NHB = National housing bank, SCB = Scheduled commercial banks, SIDBI = Small industries development bank of India, SLR = Statutory liquidity ratio.

Source: RBI (2010b) and RBI (2009)

ECBs were a major source of finance for the Indian corporate sector in the high growth period of 2003–2007 as it allowed corporations access to global capital at relatively cheaper rates. The outstanding volume of ECBs had more than doubled from US\$26 billion in March 2006 to more than US\$62 billion in March 2008. Given the relatively long maturity of most of Indian ECBs, there was not a significant reduction in the outstanding volume of ECBs in 2008-09, remaining more or less constant. Foreign capital raised through American depository receipts or global depository receipts also shrank from US\$8.8 billion in 2007-08 to US\$1.2 billion in 2008-09. Short-term credit like trade credit also dried out and there was a net outflow of US\$6.8 billion in the second half of 2008-09, compared with a net inflow of US\$9.1 billion in 2007-08.

Like other emerging market countries, India also experienced a sell-off in domestic equity markets by foreign portfolio investors, reflecting deleveraging. The process started well before the collapse of the Lehman Brothers, with foreign investors pulling more than US\$6.5 billion out of the Indian equity market between January 2008 and August 2008. This capital outflow accelerated after the Lehman Brothers' collapse, with foreign institutional investors FIIs taking out another US\$6.5 billion during September 2008 to April 2009. As evident from Figure 3 this outflow of capital had a profound impact on the equity market with the National Stock Exchange index declining by 37.5% between January 2008 and August 2008 and a further 35% between September 2008 and April 2009.

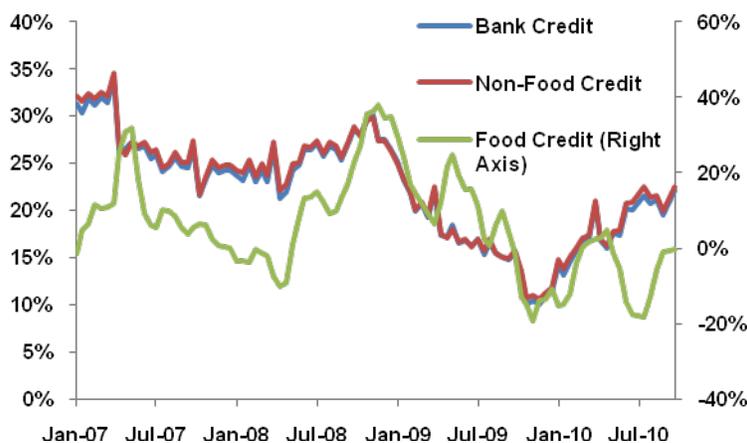
**Figure 3: FII Inflows and National Stock Exchange Index**



Source: Securities and Exchange Board of India Database.

In contrast, FDI flows remained relatively stable during the crisis. Gross FDI inflow during 2008-09 stood at US\$36.3 billion, marginally lower than the US\$36.8 billion recorded in 2007-08. However, since the last quarter of 2008-09, there has been a slowdown in the volume of FDI equity inflows into India. According to the Department of Industrial Policy and Promotion, FDI equity inflow between January and May 2009 was only US\$10.6 billion, down by almost 50% from the previous year.

**Figure 4: Impact of the Crisis on Bank Credit**



Source: RBI (2010a)

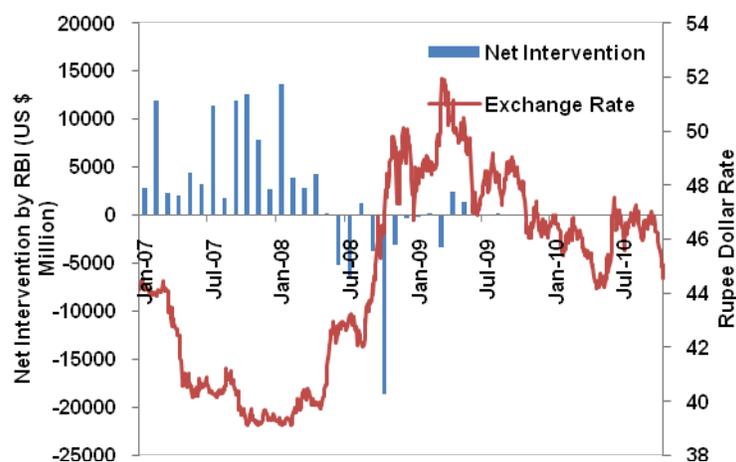
With overseas financing drying up, corporations shifted their demand to domestic sources. Initially, as seen in Figure 4, there was an uptick in credit as domestic banks, especially public sector banks, were able to provide some additional credit. However, since November 2008, there has been a steady decline in credit growth. A part of this decline can be attributed to a slowdown in credit demand as companies have had to re-evaluate investment and growth plans amidst the global and domestic slowdown. On the other hand, despite a soft monetary policy and liquidity injections from the central bank, banks have been hesitant to increase lending. Concerns about deteriorating asset quality, particularly for smaller firms or industries that are seen as having poor growth prospects, has reduced the supply of credit.

In their search for alternate sources of financing, corporations started to withdraw their investment from the domestic money market and mutual funds, thereby imposing redemption pressure on these mutual funds. The pressure cascaded down the line to some of NBFCs

where these mutual funds had parked a significant portion of their funds. Disbursements by NBFCs were clearly hit during the crisis but the impact differed according to the capital structure of the company, with NBFCs having larger asset-liability mismatches being affected more. Similarly, NBFCs that were more dependent on mutual funds for funding were also adversely impacted. Apart from witnessing a rise in cost of funds, many of the NBFCs also recorded deterioration in asset quality. Aggregate gross non-performing assets (NPA) trended up from 1.1% in 2007-08 to 2.8% in 2008-09, driven by deterioration in unsecured asset classes including personal loans, unsecured SME loans, etc.

While the substitution of overseas financing by domestic financing led to tightening of the money markets and credit markets, the foreign exchange market came under pressure due to the reversal of capital flows as part of the global deleveraging process. This along with the fact that corporations were converting domestically raised funds into foreign currency to meet their external obligations put downward pressure on the rupee, which depreciated by 22% between April 2008 and March 2009.

**Figure 5: Exchange Rate and Net Intervention**



Source: RBI (2010a)

In response to the increased demand for the US dollar and a need to manage the volatility of the rupee, the RBI heavily intervened in the foreign exchange market by selling US\$36.6 billion of reserves (Figure 5). However, this further added to liquidity tightening.

### 3.2 Revival of Financial Flows and Stabilization of Financial Sector

Indian policymakers adopted a proactive stance while dealing with the aftermath of the crisis. A series of monetary, fiscal, and external sector policy measures were initiated to mitigate the impact of the crisis on the financial and the real sectors. Monetary and external policies were aimed at bolstering domestic and external liquidity while the fiscal policy was aimed at boosting aggregate demand.

Indian policymakers acted swiftly and decisively to contain the negative impact of the crisis. As liquidity constraints led to tightness in the money market and the spiking of call money rates, the RBI introduced a series of measures aimed at injecting liquidity. Between August 2008 and January 2009, the CRR was lowered from 9% to 5%. This move resulted in a rise in the money multiplier from 4.3 in March 2008 to 5.3 in April 2009, thereby ensuring an increase in broad money supply.

The RBI also sharply cut back various policy rates to encourage credit expansion. While the repo rate was lowered from 9% to 4.75%, the reverse repo rate was reduced from 6% to 3.25%. The RBI also resorted to conventional open market operations involving an outright purchase of government securities in the secondary market as well as provision of liquidity through repos under its daily liquidity adjustment facility. However, owing to a weak transmission mechanism and heightened risk averseness, the lowering of policy rates did not fully translate into a reduction in retail rates. The weighted average benchmark prime lending rate of public sector banks fell by only two percentage points—from 14% in March 2008 to 12.1% in June 2009—while the average lending rates of the public sector banks declined by only 1.5 percentage points over this period (Mohanty 2009). In September 2008, a second repo auction in a day under the Liquid Adjustment Facility (LAF) was re-introduced. A special refinance facility was introduced in October 2008, to allow banks to get refinancing from RBI against a declaration of having extended bona fide commercial loans. The SLR requiring banks to keep 25% of their liabilities in government securities was also reduced to 24% to enable banks to expand their credit operations.

Over the past few years, the RBI has issued a large amount of Market Stabilization Scheme (MSS) bonds to sterilize the impact of foreign capital inflows.<sup>3</sup> In the post-crisis period, the RBI injected liquidity by unwinding these bonds. As a result, the RBI's balance sheet did not show an unusual increase, in contrast to the global trend.

Finally, a number of refinance windows were opened to allow easy access to credit for some of the troubled sectors such as real estate, SMEs, and exporters. There was also a reduction of prudential norms relating to provisioning and risk weights. Mohan (2009) estimated that the actual/potential injection of liquidity as a result of these measures was Rs 4.9 trillion, or 9.2% of GDP (Table 2).

**Table 2: Actual/Potential Release of Primary Liquidity**

<b>Key Monetary Measures/Facilities</b>	<b>Amount (Rs. Crores)</b>	<b>Share in GDP (%)</b>
<b>Monetary Policy Operations</b>	<b>326616</b>	<b>6.14</b>
1. Cash Reserve Ratio (CRR) Reduction	160000	3.01
2. Open Market Operations	68835	1.29
3. MSS Unwinding/De-sequestering	97781	1.84
<b>Extension of Liquidity Facilities</b>	<b>165012</b>	<b>3.10</b>
1. Term Repo Facility	60000	1.13
2. Increase in Export Credit Refinance	25512	0.48
3. Special Refinance Facility for SCBs (Non-RRB)	38500	0.72
4. Refinance Facility for SIDBI/NHB/EXIM Bank	16000	0.30
5. Liquidity Facility for NBFCs through SPV	25000	0.47
<b>Total</b>	<b>491628</b>	<b>9.24</b>

Notes: GDP = gross domestic product, MSS = Market Stabilization Scheme, RRB = regional rural banks, SPV = special purpose vehicles

Source: Mohan (2009).

On the external front, the rupee was allowed to depreciate in a controlled manner, thereby ensuring against a speculative run on the currency that would have had disastrous consequences for India's external debt and balance of payments. Part of the outflow of capital was met by drawing down reserves. Between September 2008 and March 2009, the RBI sold

<sup>3</sup> MSS bonds are short-term government securities introduced in April 2004 to sterilize the expansionary effects of surges in capital inflows. The amount sterilized through MSS bonds remained immobilized in the central government's account with the RBI. As of end-September 2008, the MSS amounted to more than 1.7 trillion rupees.

reserves worth US\$29 billion. The central bank also provided foreign exchange swap facility with a three month tenor, to Indian public and private sector banks having overseas branches and subsidiaries. In addition, to fund the swap facility, the banks were allowed to borrow under the LAF for the corresponding tenor at the prevailing repo rate. The foreign exchange swap facility was extended to 31 March 2010 and the prudential limit on overseas borrowing by banks was doubled.

In addition, to attract foreign capital, interest rates on non-resident Indian deposits were progressively raised by 100 to 175 basis points. Furthermore, the cap on foreign investment in corporate bonds was raised from US\$3 billion to US\$15 billion, while norms for FII and ECBs were relaxed. The ceiling on the interest rates at which companies could borrow from abroad was increased and some of the end-use restrictions that were imposed on the deployment of such funds during the high capital inflow period of 2006 and 2007 were restored to the status quo position. Some of the NBFIs that were earlier prohibited from overseas borrowing were allowed to raise short-term borrowings subject to RBI approval.

While most of the monetary policy measures were aimed at ensuring adequate liquidity, the fiscal measures endeavored to boost aggregate demand. Fortunately, a number of fiscal measures had been announced and implemented prior to the transmission of the crisis. These included a complete waiver of existing farm loans for small and marginal farmers, an increase in civil servants' salaries in conformity with the recommendations of the Sixth Pay Commission, and extending the National Rural Employment Guarantee Scheme to cover the entire country.<sup>4</sup> In addition, to ensure against transmission of the sharp rise in international commodity prices in the first half of 2008 to domestic retail prices, large scale food and fertilizer subsidies were introduced.

As the crisis progressed, India, initiated a slew of fiscal measures to increase aggregate demand. The measures included a general reduction in excise duties and service tax, approval for additional expenditure, allowing various state governments to borrow additional amount for undertaking capital expenditure, etc. The government also introduced some measures that were aimed at selected industries that were adversely impacted by the crisis. For example, labor-intensive export industries such as handlooms, carpets, and handicrafts; textiles; gems and jewelry marine products; and SMEs were provided with an interest subvention of 2% until 31 March 2009 subject to a minimum rate of interest of 7% per annum for pre-shipment and post-shipment export credit. In addition, a fund of Rs 1.1 billion to ensure a full refund of terminal excise duty/central sales tax was set up, and various export incentive schemes of Rs 3.5 billion were also introduced. An additional Rs 1.4 billion was allocated to the textile sector to clear the entire backlog of the Technology Up-gradation Fund Scheme. The India Infrastructure Finance Company Limited was allowed to raise Rs 100 billion through the issuance of tax-free bonds to support its infrastructure schemes under a public-private partnership mode.

As a result of these measures, India's financial sector has enjoyed relatively sound health in 2010. The tightness in the liquidity market eased greatly with the inter-bank call money rate returning to within the LAF corridor. There was also a significant reduction in Indian banks' CDS spreads during the first half of 2009. Balance sheets of scheduled commercial banks increased by 16.5% on a year-on-year basis in September 2010. This was largely driven by an upturn in credit off-take, with advances increasing by 20.7%. However, this was significantly lower than the peak growth rate of 25% achieved in the pre-crisis period. In contrast, deposit growth has been sluggish and deposits grew by only 16%. Consequently, there has been a sharp rise in

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<sup>4</sup> Under this scheme, an adult member of any rural household willing to do public works-related unskilled manual work is guaranteed 100 days of employment in every financial year.

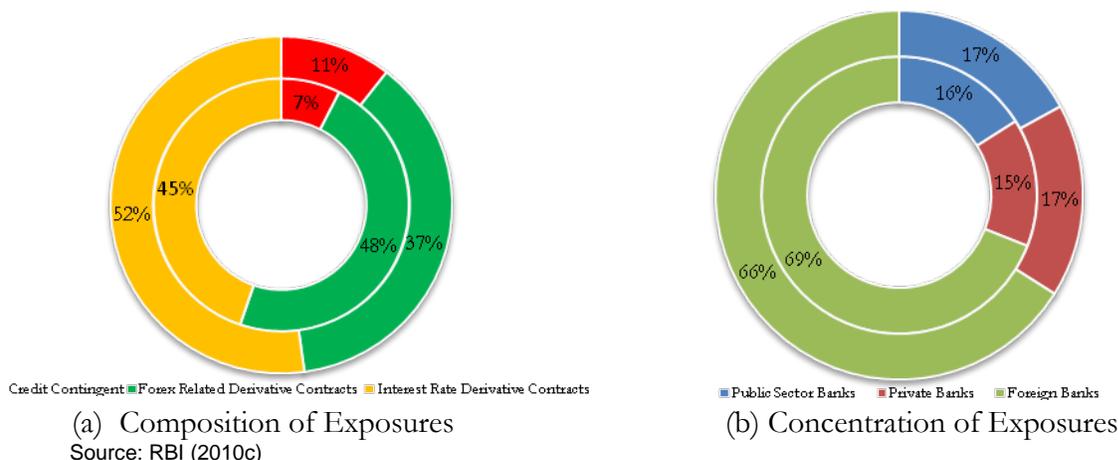
incremental credit-to-deposit ratio, especially for certain banks that funded their incremental advances through borrowings and retirement of investment. The rise in credit was largely due to a rise in retail loans (of which housing loans were a major part), prior sector lending, and infrastructure. In response to the rise in housing loans, the RBI introduced a series of measures to curb a buildup of excessive risks, including an increase in risk weights and a rise in provisioning norms.

Indian banks also had leverage multiples that were significantly lower than global ratios. According to RBI (2010), the leverage multiples of the top 50 American, European, and Japanese banks was around 30 in 2007, as compared to the leverage multiple of 16.8 in 2009-10 for Indian banks. Apart from low leverage, the exposure of Indian banks to highly leveraged companies is also relatively moderate.

Securitization volumes continued to decline in India in 2009-10 with issuance volumes declining by nearly 22%. This dip was largely due to 60% reduction in single corporate loan securitizations or Loan Sell-Offs (LSO). A number of factors contributed to the decline including market volatility, and tight liquidity. Redemption pressures faced by mutual funds due to proposed regulatory changes on minimum holding period and minimum retention requirements in case of securitization deals also contributed to the slowdown.

There was also a significant decline in the total off balance sheet exposures of the scheduled commercial banks (SCBs), with the OBS exposures, as a percentage of total balance sheets, dropping by 218% to 178% during 2009-10. In 2010-11 there has been a moderate increase with OBS exposures increasing to 210.8% in the first half of 2010-11. Most of the banks in India, especially domestic banks, mostly hold traditional OBS items like financial and performance guarantees, acceptances, endorsements, and forward exchange rate contracts. However, as can be seen from Figure 6, foreign banks continue to have high OBS exposures, which increased from 1555% as of the end of March 2010 to 1828% as of the end September of the same year.

**Figure 6: Concentration and Composition of OBS Exposures**



The financial soundness of the Indian banking sector is exemplified by looking at some of the key indicators in Table 3. Indian banks on average are well capitalized and the current ratios are in excess of what is required under Basel II norms. As pointed out earlier, commercial banks in India are required to maintain capital to the extent of 9% of risk-weighted assets, different from the Basel II requirement of 8%. From 1 April 2010, these banks are also required to maintain a core CRAR (Tier I capital to total risk-weighted assets) of 6% as compared to the Basel II requirement of 4%. The capital adequacy position of most Indian banks was well above the

regulatory requirements with CRAR and core CRAR being in excess of 14% and 10% respectively in March 2010 and September 2010.

**Table 3: Financial Performance of Indian Banking Sector**

	2005-06	2006-07	2007-08	2008-09	2009-10
Real business per employee (in Rs. Millions)	40.22	47.04	55.20	59.85	66.98
Real profit per employee (in Rs. Millions)	0.27	0.31	0.41	0.45	0.46
Net NPA ratio (per cent)	1.22	1.02	1.00	1.05	1.12
CRAR (per cent)	12.32	12.28	13.01	13.98	14.58
Return on Assets (per cent)	1.01	1.05	1.12	1.13	1.05

Source: RBI (2010d)

However, a worrying feature is the deterioration of asset quality in the aftermath of the global financial crisis. In 2009-10, the stock of NPAs grew at a rapid rate of 20.6%, which was higher than the 16.7% rate of growth of gross advances. This led to deterioration in the gross and net ratio of NPAs to gross and net advances in 2009-10. The increase in NPAs was mitigated by the onetime special dispensation in restructuring norms permitted by the RBI for entities that were temporarily affected by the global crisis.

The profitability of the Indian banking sector also suffered a setback with a decline in the rate of growth of profit. The decline was brought about by subdued credit off-take and preference for risk-free but low yielding investments during the crisis. Increased requirements for provisions also adversely affected banks profitability.

### 3.3 Impact of the Crisis on Micro-, Small- and Medium-Sized Enterprises

The micro-, small, and medium-sized enterprises (MSMEs) sector is an important contributor to the Indian economy in terms of output, employment, and exports. The sector accounts for 45% of manufacturing output and 40% of India's exports and is also one of the biggest employment generators; about 59 million people are employed by MSMEs. Given the importance of this sector and to make credit easily available, a large part of this sector is covered under priority sector lending.<sup>5</sup> This mandated priority sector lending also helped mitigate the impact of the credit squeeze on the SME sector.

The Indian manufacturing sector was hit hard by the global meltdown. Though the sector witnessed some slowdown even prior to the Lehman Brothers' collapse, the deceleration was exacerbated post-October 2008. In Table 4, the industrial growth during the period January 2007 to October 2010 is split into three periods viz. pre-crisis, crisis, and post-crisis. It is evident that the Indian industrial sector was hit hard due to the global meltdown, growing by only 0.9% during the period October 2008 to May 2009. The SME sector faced a host of problems that included holdup of payments from both foreign and domestic buyers that were adversely affected by the global slowdown, a significant increase in stocks of finished goods due to falling demand, and a fall in value of inventories including some raw materials like metal and crude oil products. SMEs also suffered a sharp slowing down of capacity expansion due to a fall in investment demand as well as a decline in demand for employment intensive industries, such as gems and jewelry, construction and allied activities, textiles, auto and auto components, and

<sup>5</sup> State-owned and Indian private banks need to earmark 40% of their loans for the priority sectors which include agriculture, small enterprise, microcredit, education, and housing finance. The limit is 32% for foreign banks.

other export-oriented industries. The adverse impact on employment was quite severe in some of these sectors.

**Table 4: Average Annual Growth Rates of Key Industries**

	January 07 to September 08	October 08 to May 09	June 09 to October 10
Industrial Production	8.1%	0.9%	13.7%
Beverages and Tobacco	13.8%	7.4%	0.4%
Chemical	9.4%	1.8%	9.2%
Food	6.5%	-14.5%	6.8%
Leather	7.5%	-11.7%	8.9%
Non-Metal and Minerals	5.0%	3.3%	15.2%
Paper	4.1%	-0.8%	6.3%
Rubber	6.2%	3.8%	15.0%
Wood	43.0%	-4.7%	0.2%
Textiles	4.8%	1.5%	7.1%
Metal and Machinery	9.8%	2.7%	25.6%

Source: RBI (2010a)

In an attempt to gauge the impact of the global financial meltdown on employment and earnings, the Labour Bureau commissioned a quarterly survey of a sample of companies across a broad spectrum of sectors, a number of which are dominated by SMEs. The gems and jewelry sector was hit quite hard as it is quite heavily dependent on exports, which account for nearly 14% of India's merchandise exports. The industry is highly fragmented and unorganized and most of the units are family-owned enterprises. With the decline in economic activity in the US, one of the largest destinations of Indian products in this sector, there was a decline of more than 20% in sales to the US. This coincided with a dip in domestic sales due also to the rising price of gold. This resulted in laying off of skilled and unskilled worker. According to the Labour Bureau (2009), employment in this sector dropped by 0.16 million between October and December 2008 at a monthly rate of 10.3%, compared to an increase of 0.02 million between April and September 2008. The decline was higher for exporting units (11.3%) than non-exporting units (8.9%). There were some signs of recovery of employment in this sector during January to March 2009, when employment recovered by 0.03 million.

**Table 5: Estimated Change in Employment in Select Sectors**

	(Millions)								
	April to September 2008	October to December 2008	January to March 2009	April to June 2009	July to September 2009	October to December 2009	January to March 2010	April to June 2010	July to September 2010
Textile	0.206	-0.107	0.208	-0.154	0.318	0.016	-0.119	-0.063	0.245
Leather	0.008	0.006	-0.033	0.007	-0.008	0.009	0.000	0.021	0.004
Metals	-0.001	-0.100	-0.029	-0.001	0.065	0.023	0.004	0.045	0.027
Automobile	-0.008	-0.169	0.002	0.023	0.024	0.006	0.029	0.051	0.029
Gems & Jewelry	0.022	-0.159	0.033	-0.020	0.058	0.007	0.024	0.004	0.004
Transport	0.007	0.004	-0.004	-0.001	0.000	-0.002	-0.002	-0.021	0.013
IT-BPO	0.258	0.066	0.092	-0.034	0.026	0.570	0.129	0.129	0.108
Handloom-Power	-0.014	-0.016	0.007	0.049	0.015	0.009	-0.005	-0.003	0.006

Source: Labour Bureau, Quarterly Report on Employment Trends, Various Issues. available at <http://labourbureau.nic.in/reports.htm>

Textiles, another sector that contributes heavily to Indian exports, accounts for nearly 17% of total export earnings. It is also highly employment intensive and is the largest provider of employment after agriculture, employing around 35 million people. Table 5 shows that the global

financial crisis was associated with a sharp drop in economic activity in the textile sector. This had an effect on employment as well. Though employment in this sector increased by 0.21 million between April and September 2008, it fell by 0.11 million during October to December 2008. Sectors worst affected included spinning, weaving, and finishing of textiles, and manufacturing of other textiles, which lost about 0.11 and 0.09 million. Like the gems and jewelry sector, the textile sector witnessed a recovery in terms of employment in January to April 2009, with average employment increasing by 0.96%, though there were differences between exporting and non-exporting units. The exporting units experienced a decline of 1.09% during October to December 2008 and another 0.06% during January to March 2009 while the non exporting units increased employment by 0.02% and 1.78% in these two periods.

Two other sectors where SMEs play a very important role and were impacted by the global crisis, are the leather and auto components sectors. In 2008, the leather sector provided employment to about 2.5 million people and around 80% of the units in the sector were in the unorganized sector. Labour Bureau (2009) estimated that employment in this sector declined by 0.03 million during January to March 2009. While tanning and dressing of leather enterprises laid off about 10,000 workers, nearly 20,000 workers lost their jobs in the footwear sector. The losses were shared by the exporting and the non-exporting units. While in the exporting units employment declined by 2.37% per month, in the non-exporting sector employment declined at a higher rate of 3.94% during January to April 2009. The auto component sector also lost about 0.17 million workers during October to December 2008, with a majority of the job losses (0.15 million) in the motor vehicle accessories production sector. The exporting units were worst hit, experiencing a decline in workforce of 9.23% during October to December 2008, and another 1.48% during January to March 2009. In contrast, employment in non-exporting units declined by 3.88% during October to December 2008, but recovered by 1.04% in January to March 2009.

Given the importance of SMEs in output, exports, and employment, policymakers introduced a number of measures to alleviate the overall impact of the global meltdown on these sectors. Some of the broad measures, such as additional plan expenditure and steps to ensure full utilization of funds already provided, helped stimulate aggregate demand of the SME sectors as well. In addition, certain measures, aimed specifically at the SME sectors, were also implemented. These include the pre- and post-shipment export credit for labor intensive exports—i.e., textiles (including handlooms, carpets, and handicrafts), leather, gems and jewelry, and marine products. Policymakers provided the SME sector with an interest subvention of 2% subject to a minimum rate of interest of 7% per annum. Some of the measures aimed at boosting exports, such as funds to ensure full refund of terminal excise duty/central sales tax, additional allocation for export incentive schemes, making the government back-up guarantee available to the Export Credit Guarantee Corporation to enable it to provide guarantees for exports to difficult markets and products and refund of service tax on foreign agent commissions, helped a number of SME sectors that were export-oriented.

The cost of these schemes was borne by the government and was reflected in wider fiscal deficit since the onset of the crisis. For example, in the case of the 2% subvention, the estimated cost was Rs 12.5 billion between December 2008 and March 2009. A further Rs 14 billion have been provided to extend the scheme to March 2011. Similarly, the credit guarantee scheme was launched by the government to ensure collateral-free credit to the MSME sector. The Ministry of MSMEs and Small Industries Development Bank of India (SIDBI), established a trust with the majority being contributed by the government and SIDBI in the ratio of 4:1, respectively. The contribution amount to the trust as of 31 March 2010 was around Rs 19.1 billion. By the end of March 2010, more than 300,000 proposals from MSMEs were approved for guaranteed coverage for aggregate credit of Rs 115.5 billion.

To alleviate financing problems and facilitate the flow of credit to SMEs, the RBI announced a refinancing facility of Rs 70 billion for SIDBI, which was available to support incremental lending, either directly to SMEs or indirectly via banks, NBFCs, and state financial corporations (SFC). Furthermore, to boost collateral-free lending, the guarantee coverage under the Credit Guarantee Scheme for SMEs on loans has been extended from Rs 5 million to Rs 10 million with guarantee coverage of 50%. The guarantee cover was subsequently extended to 85% for credit facility up to Rs 0.5 million. To encourage banks to cover more loans under the guarantee scheme, the lock-in period was reduced from 24 to 18 months. Various public sector units were also advised to ensure prompt payments of bills to MSMEs.

As a result of these measures the industrial sector started seeing signs of revival from mid-2009, recording an average growth of 13.7% between June 2009 and October 2010. However, the employment data paints a different scenario. Aggregate employment, which declined by 0.47 million during October to December 2008 in the sectors highlighted in Table 5, increased by 0.28 million during January to March 2009. However, employment again shrunk by 0.13 million from April to June 2009. Overall, employment exhibited a turnaround from July 2009, with 1.46 million jobs being added between July 2009 and September 2010. However, a disaggregated analysis shows a different picture. More than 95% of these jobs were created in two industry groups: textiles and information technology/business process outsourcing (BPO). The other six sectors just added marginally, with employment in automobile and auto parts, gems and jewelry, and transport being lower than pre-crisis levels.

The revival of SMEs is likely to be hampered by the recent crisis engulfing the Indian microfinance sector. Interestingly, the microfinance sector remained relatively resilient to the effects of the global crisis. Despite an overall liquidity crunch, the outstanding microfinance loans increased from Rs 229.54 billion in 2009-10 to Rs 359.39 billion in 2008-09. At these levels, microfinance constituted 1.29% of gross bank credit for scheduled commercial banks in 2009-10, an increase of 0.27% over the last year. The client outreach has also increased sharply from 56 million in 2008-09 to 70 million in 2009-10.

Much of the rise in the microfinance sector has been concentrated in the state of Andhra Pradesh, where the government introduced a series of projects to fight poverty including the Society to Eliminate Rural Poverty. Several livelihood promotion programs, including employment generation, vocational training, and access to credit through self help groups (SHGs), were undertaken. These SHGs have the deepest penetration in Andhra Pradesh with 1.47 million SHGs reaching 17.1 million clients. Traditionally, SHGs were based on member savings and rules-capped bank loans to the SHGs were capped at three to four times this savings base, which limited the borrowings to less than Rs 100,000. However, under the total financial inclusion program initiated by the state government, banks increased their lending to SHGs up to Rs 500,000. Furthermore, in some cases the repayment period was increased from a one year to five year period. Any amount of interest paid by SHGs above 3% was reimbursed to the SHG by the Andhra Pradesh government, provided the group did not default on its bank loan.

The presence of the large and well-funded state-backed SHG program and some of India's largest and fastest growing microfinance institutions (MFIs) led to rapid proliferation of credit across Andhra Pradesh and wide use of multiple loans by borrowers. The problem was exacerbated by the high level of household debt, with an average outstanding debt per household of Rs 65,000, eight times higher than national average of Rs 7,700 per poor household. The rapid growth of the two approaches has significantly increased access to credit. State-sponsored SHG-lending reached 17.1 million SHG members with Rs 117 billion outstanding, while MFIs reached 9.7 million borrowers with Rs 72 billion outstanding. This combined outreach and continued growth resulted in borrower accounts of SHGs and MFIs

together, which, on a per capita basis in Andhra Pradesh, is over four times the median of Indian states. Thus, Andhra Pradesh had a much higher penetration of microfinance than any other state in India, which resulted in households having too many loans and too much debt than was supportable with their income levels and ability to repay.

The increased competition between the MFIs and SHGs often resulted in both models vying for the same households in the same village. There was an alarming rise in the level of multiple borrowings and most individuals started using microloans simply to repay old microloans, and rarely for productive investment. At the same time, banks found it easier to lend to MFIs than SHGs for a number of reasons. Lending to MFIs lowered costs as well as risks as these loans qualified for priority sector lending and the banks could pass the cost of servicing to the MFIs. MFI's high success rates resulted in attracting more players and intensifying competition. MFIs also moved beyond lending to households with existing predictable cash flows and began targeting households relying on uncertain, daily cash flows. The easy money also altered the credit culture in the state with borrowers becoming blasé about borrowing and negotiating loans by pitting MFIs against each other.

In this context, the present crisis was triggered by a series of external factors that resulted in a slowdown of labor income. These included heavy rains in Andhra Pradesh, which lowered farm employment; stir for a separate state of Telengana, which disrupted several economic activities; and inadequate employment opportunities under the National Rural Employment Guarantee Act (NREGA). This resulted in several instances of defaults. As MFI officials and group members pressured some of the defaulters to make payments, there were several cases of finance-related suicides in the state.

In response, the government passed an ordinance in October 2010 that aimed at imposing a set of conditions on MFIs such as district-by-district registration, requirements to make collections near local government premises, and a shift to monthly repayment schedules. This restricted ground-level operations of the MFIs and loan collections for MFIs in Andhra Pradesh dropped sharply. The problem was amplified with politicians at the state level making populist announcements, which led to a rise in non-repayment of loans. Faced with low loan collections, the MFIs with proportionally larger exposures in Andhra Pradesh found it difficult to refinance their loans with commercial banks or to raise new equity, and ran the risk of becoming illiquid and insolvent. Some MFIs that have a more diverse portfolio also ran the risk of having to absorb large losses in Andhra Pradesh, which may have had an impact on their growth elsewhere. It is possible that a few MFIs had to close or dramatically scale down their operations in Andhra Pradesh.

In recent months there have been several rounds of negotiations among stakeholders to ensure the viability of the microfinance industry. MFIs have agreed to lower interest rates and restructure debt. The RBI constituted a committee to study issues and concern about the microfinance sector. The committee recommended the creation of a separate category of NBFCs operating in the microfinance sector to be designated as NBFC-MFIs. Furthermore, the committee also proposed that these NBFC-MFIs hold more than 90% of their assets in the form of qualifying assets, that there should be a limit of Rs 50,000 annual family income and or Rs 25,000 for loans to single borrowers, and more than 75% of loans given by MFIs should be for income generating purposes as well as certain restrictions on other services provided by MFIs. Regarding interest chargeable to the borrower, the committee recommended an average "margin cap" of 10% for MFIs that have a loan portfolio of Rs 1 billion and of 12% for smaller MFIs, and a cap of 24% interest on individual loans. Furthermore, MFIs can levy only three charges viz. processing fee, interest, and insurance charges. To mitigate the problem of over-borrowing, multiple lending, and coercive methods of recovery, the committee also proposed that a borrower can be member of only one SHG or joint liability group, not more than two MFIs

can lend to a single borrower, a minimum period of moratorium between the disbursement of a loan and the commencement of recovery, the tenure of the loan must vary with its amount and establishment of grievance redressal procedures, and establishment of an ombudsmen.

It is important to find a speedy resolution to ensure that poor people have access to responsible financial services. This would involve the resumption of collecting and disbursing loans throughout Andhra Pradesh as well as banks continuing to provide liquidity to microfinance providers of all kinds.

## **4. POST CRISIS REGULATORY RESPONSE**

As was discussed in Section 3.2, policymakers reacted proactively to the crisis. To ensure adequate liquidity in the economy and access to credit, policy interest rates and quantum of bank reserves kept with the RBI were reduced aggressively. In addition, some of the troubled sectors like SMEs, NBFCs, real estate, and exports were provided additional refinance facilities for specific sectors. To augment foreign exchange liquidity, the interest rate ceiling on the foreign currency deposits by non-resident Indians were increased, the ECB regime for corporations was relaxed, NBFCs and housing finance companies were allowed access to foreign borrowing, and a rupee-dollar swap facility was provided for Indian banks' overseas branches.

Thorat (2010) pointed out that a number of countercyclical measures were also introduced. Some of the additional risk weights and provisioning norms that were introduced during a period of high credit growth were withdrawn and restored to previous levels. The regulations overseeing the restructured accounts were modified, and banks were allowed to treat the restructured accounts as "standard" assets provided that they met certain safeguards such as conditions of viability, adequate provisioning, and full disclosure. This step was introduced to preserve the economic and productive value of assets that were otherwise viable and was a onetime measure.

To alleviate some of the pressure on the NBFCs, they were permitted to issue perpetual debt instruments qualifying for regulatory capital. In addition, NBFCs' deadline to raise their CRAR from 12% to 15% was postponed by one year. Some of the existing disclosure norms for NBFCs were also strengthened and the systemically important NBFCs were advised to make additional disclosures in their balance sheets relating to CRAR, exposure to real estate sector, and maturity pattern of assets and liabilities.

Slow growth rate and the restructuring could have an adverse impact on the banks. To mitigate this, and to ensure that banks built up provisions when their earnings are good, banks were advised by RBI, in December 2009, that their total provision coverage ratio, including floating provisions, should not be below 70% by September 2010.

The recent crisis has brought into question the role of a number of financial instruments and procedures. Regulators in India have decided to move cautiously and in a calibrated manner in adopting some of these instruments. For example, in the case of securitization, to ensure that the originators do not compromise on due diligence of assets that are generated for securitization, a minimum lock-in period of one year for bank loans is required before these can be securitized (Thorat 2010). Furthermore, RBI also proposes to stipulate that the minimum retention criteria for the originators be 10% of the pool of assets being securitized to ensure due diligence.

India has also moved cautiously on currency and interest rate futures. Currency futures were introduced in India in August 2008 on the recommendation of a working group set up by the RBI that looked at the international experience. Banks were allowed to become direct trading-cum-clearing members of the currency futures exchanges subject to certain prudential criteria such as minimum net worth, CRAR, profitability, etc. While initially only US dollar-rupee contracts were allowed, the futures market broadened in January 2010 to include currency futures contracts in currency pairs of euro-rupee, yen-rupee and pound sterling-rupee. To effectively manage interest rate risk, interest rate futures were introduced in August 2009. The standardized interest rate futures contracts are on a 10-year notional coupon-bearing government of India security with a notional coupon of 7% per annum with semi-annual compounding.

In line with India's approach toward financial liberalization in a calibrated manner, credit derivatives were sought to be introduced in a gradual manner with the RBI issuing draft guidelines for CDS in 2007. However, with the role of these credit derivatives coming under the spotlight in the recent financial crisis the issuance of the final guidelines has been postponed. The current proposal envisages the introduction of plain over-the-counter (OTC) single-name CDSs for corporate bonds for resident entities subject to appropriate safeguards.

Finally, the RBI has set up a Financial Stability Unit to look into issues relating to financial stability. The unit is entrusted with conducting macro-prudential surveillance and stress tests, to gauge the strength of the financial sector.

## **5. IMPACT OF THE BASEL III NORMS ON THE INDIAN BANKING SYSTEM**

The Basel III guidelines aim to improve the banking sector's ability to endure long periods of economic and financial stress by laying down more rigorous and stringent capital and liquidity requirements for them. The Basel Committee on Banking Supervision (BCBS) published its latest recommendations on bank solvency and liquidity in December 2010 and January 2011. The new regulations are aimed at enhancing the quality, consistency and transparency of the capital base and strengthening the risk coverage of the capital framework. These regulations increase the minimum Tier 1 capital requirement. The Tier 1 capital ratio will be set at 4.5% in 2013, increasing to 5.5% in 2014 and 6% in 2015. The minimum Tier 1 common equity requirement is also set to be increased to 4.5% from 2% incrementally. The regulations also introduce a new capital conservation buffer of 2.5%, which will be used to withstand losses during periods of stress. This buffer needs to be met exclusively with common equity. Banks that do not maintain such buffers will face restrictions on share buybacks, payment of dividends and bonuses. In addition, a countercyclical buffer, within the range of 0% to 2.5% of common equity or other fully loss absorbing capital will be implemented according to national circumstances.

The new guidelines also prescribe changes for the way deductions are made while calculating the capital adequacy percentages and this is likely to have an impact on Indian banks. One of the proposed guideline is to make the deductions deductible only if they exceed 15% of core capital at an aggregate level or 10% at an individual level. This is unlikely to have a major impact on Indian banks because, according to existing RBI guidelines, all deductibles are deducted. Moreover, Indian banks do not have re-securitization exposures and small trading books.

The new guidelines require 100% deduction from core capital, which is stricter than the existing RBI guidelines that require 50% deduction from Tier I capital and 50% from Tier II capital, except in cases of intangible assets and deferred tax assets wherein 100% deduction is done from Tier I capital. Similarly, the new guidelines have a stricter definition of significant interest. Under the proposed guidelines, any investment exceeding 10% of issued share capital is treated as significant investment and deducted. In contrast, in the Indian context investments up to 30% of issued share capital RBI carry 125% risk weight or risk weight as warranted by external ratings while in the case of investments between 30% and 50% of issued share capital, there is a 50% deduction from Tier I and 50% deduction from Tier II capital.

The current crisis demonstrated the need for banks to build capital buffers during periods of economic growth. This allows banks to absorb losses with these buffers during periods of economic contraction. A way to offset the contraction of the buffer is to restrict discretionary payments such as dividends and bonuses to shareholders, employees, and other capital providers. However, during the current crisis, several banks continued to make these payments despite deteriorating financial conditions and declining capital levels. To address the need to maintain a buffer to absorb losses and restrict banks from making inappropriate distributions in the face of declining capital, the BCBS proposed the creation of a new buffer of 2.5% of risk-weighted assets over and above the minimum core capital requirement of 4.5%. This buffer must be held in tangible common equity capital. This would effectively mean that new minimum capital requirements increase to 7%. The banks would be able to dip into the proposed capital buffer during stress periods to adhere to the minimum requirement on core capital. Moreover, once this buffer was accessed, certain triggers would likewise be activated, conserving the internally generated capital. The bank would also be held back from making discretionary payments such as dividends and bonuses.

A major factor that exacerbated the impact of the crisis was the inherent procyclicality of the banking sector. To mitigate such procyclicality, the BCBS committee suggested establishing a countercyclical buffer. This would be made up of equity or fully loss-absorbing capital. The countercyclical buffer could be fixed by the relevant national authorities once a year and could range from 0% to 2.5% of risk-weighted assets. The exact amount of the buffer could be set according to changes in the credit-to-GDP ratio. This buffer would protect the banking sector from system-wide risks that could arise out of excessive aggregate credit growth. Hence, during good times there will be a pro-cyclical buildup of the buffer. With a rise in credit growth, there will be a requirement to build up a higher countercyclical buffer. While banks would be capable at the time to comply with the additional requirement, the requirement could be immediately reduced during periods of stress.

The adoption of Basel III norms significantly increase the regulatory capital requirement of Indian banks. Furthermore, within capital, the proportion of the more expensive core capital could increase. According to the proposed norms, the minimum core capital requirement is set to be raised to 4.5%. In addition, the introduction of the conservation and countercyclical buffer means that the capital requirement would increase to between 7% and 9.5%. Indian banks, as per the current norms are required to maintain Tier I capital of at least 6%. However, since innovative perpetual debt and perpetual non-cumulative preference shares cannot exceed 40% of the 6% Tier I capital, the minimum core capital is 3.6% (i.e., 60% of 6%).

Given that most Indian banks are capitalized well beyond the stipulated norms, they may not need substantial capital to meet the new stricter norms.<sup>6</sup> However, there are differences among various banks. While core capital in most of the private sector banks and foreign banks exceeds 9%, there are some public sector banks that fall short of this benchmark. These public sector banks, which account for more than 70% of the assets in the banking sector and are a major source of funding for the productive sectors, are likely to face some constraints due to the implementation of the Basel III norms. These banks are also unable to freely raise capital from the market as the government has a policy of maintaining at least 51% stake in these banks. Currently, there are only six banks where the government stake is higher than 70%. The other option is for the government to infuse capital to these banks to augment their core capital.

Moreover, a rise in risk-weighted assets as well as the proposed disqualification of some non-common Tier I and Tier II capital instruments for inclusion under regulatory capital would increase the requirement of additional capital. According to ICRA (2010), if risk-weighted assets were to grow at an annualized rate of 20%, there would be a requirement of additional capital by the banking sector (excluding foreign banks) of about Rs 6000 billion as a whole over the next nine years, ending on 31 March 2019. Of this, public sector banks would require about 75–80% of this additional capital and private Indian banks accounting for the rest.

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<sup>6</sup> As of 30 June 2010, the aggregate capital to risk weighted assets ratio of the Indian banking system stood at 13.4% of which Tier I capital constituted 9.3%.

**Table 6: Capitalization Profile of Key Indian Banks as of 31 March 2010**

	<b>Tier I</b>	<b>Core Tier I</b>	<b>Tier II</b>	<b>CRAR</b>	<b>GOI Share</b>
Allahabad Bank	8.1%	7.7%	5.5%	13.6%	55.2%
Andhra Bank	8.2%	7.8%	5.8%	13.9%	51.6%
Bank of Baroda	9.2%	8.4%	5.2%	14.4%	53.8%
Bank of India (Consolidated)	8.6%	7.5%	4.4%	13.0%	64.5%
Bank of Maharashtra	6.4%	5.6%	6.4%	12.8%	76.8%
Canara Bank	8.5%	8.0%	4.9%	13.4%	73.2%
Central Bank of India	6.8%	4.7%	5.4%	12.2%	80.2%
Corporation Bank	9.3%	8.2%	6.1%	15.4%	57.2%
Dena Bank	8.2%	7.3%	4.6%	12.8%	51.2%
IDBI Bank	6.4%	4.4%	5.1%	11.5%	52.7%
Indian Bank	11.1%	10.5%	1.6%	12.7%	80.0%
Indian Overseas Bank	8.7%	7.7%	6.1%	14.8%	61.2%
Oriental Bank of Commerce	9.3%	8.6%	3.3%	12.5%	51.1%
Punjab National bank	9.1%	8.0%	5.0%	14.2%	57.8%
Punjab & Sind Bank	7.7%	7.1%	5.4%	13.1%	100.0%
State Bank of India - Group	9.3%	8.6%	4.2%	13.5%	59.4%
Syndicate Bank	8.2%	7.2%	4.5%	12.7%	66.5%
UCO Bank	7.1%	4.9%	6.2%	13.2%	63.6%
Union Bank	7.9%	7.1%	4.6%	12.5%	55.4%
United Bank	8.2%	6.9%	4.6%	12.8%	84.2%
Vijaya Bank	7.7%	6.4%	4.8%	12.5%	53.9%
<b>Public Sector Banks</b>	<b>8.6%</b>	<b>7.7%</b>	<b>4.8%</b>	<b>13.4%</b>	
Axis Bank	11.2%	10.9%	4.6%	15.8%	..
Federal Bank	16.9%	16.9%	1.4%	18.4%	..
HDFC Bank	13.3%	13.1%	4.2%	17.4%	..
ICICI Group	12.9%	12.1%	6.2%	19.2%	..
Indusind	9.7%	9.7%	5.7%	15.3%	..
ING Vysya Bank	10.1%	9.6%	4.8%	14.9%	..
Jammu & Kashmir Bank	12.8%	12.8%	3.1%	15.9%	..
Kotak Group	17.3%	17.3%	2.0%	19.3%	..
South Indian Bank	12.4%	12.4%	3.0%	15.4%	..
Yes Bank	12.9%	11.8%	7.8%	20.6%	..
<b>Private Banks</b>	<b>12.9%</b>	<b>12.4%</b>	<b>5.1%</b>	<b>17.9%</b>	..
Barclays Bank	16.6%	16.6%	0.5%	17.1%	..
Citibank - Group	17.3%	17.3%	0.6%	17.9%	..
Deutsche Bank	16.5%	16.5%	0.7%	17.2%	..
HSBC Bank	16.6%	16.6%	1.4%	18.0%	..
RBS	7.9%	6.7%	4.6%	12.5%	..
Standard Chartered Bank	8.9%	8.9%	3.5%	12.4%	..
<b>Foreign Banks</b>	<b>13.9%</b>	<b>13.8%</b>	<b>1.9%</b>	<b>15.8%</b>	..
<b>Scheduled Commercial Banks</b>	<b>10.0%</b>	<b>9.2%</b>	<b>4.6%</b>	<b>14.5%</b>	

Source: ICRA (2010).

While the concept of a countercyclical buffer is intuitively appealing, operationalizing it has many challenges. These include defining a business cycle in a global setting although business cycles are not globally synchronized, identifying an inflection point in the business cycle to indicate when to initiate building up the buffer, choosing the appropriate indicator that identifies both good and bad times, determining the right size of the buffer, etc. Given the different stages of financial sector development in different countries there will be a need to allow national discretion in applying the framework. In India there is also a concern about the variable (most likely the credit-to-GDP ratio) will be used to calibrate the countercyclical buffer. However, this may not be the most appropriate variable candidate for India (Subbarao 2010). Unlike in advanced countries, in India and other developing economies, the credit-to-GDP ratio is a

volatile variable and is likely to go up for structural reasons like enhanced financial intermediation owing to high growth or efforts of deeper financial inclusion. Moreover, while credit growth can be a good indicator of the build up phase, credit contraction tends to be a lagging indicator of emerging pressures in the system.

During the global financial crisis, several banks found it difficult to maintain adequate liquidity and central banks had to pump in liquidity. The crisis also demonstrated that severe liquidity risks can crystallize quickly and may be associated with the disappearance of certain sources of funding. In this context, Basel III attempts to increase the resilience of internationally active banks to liquidity stresses and has developed two internationally consistent regulatory standards to supervise liquidity risk.

The first is the liquidity coverage ratio (LCR), which requires banks to maintain a stock of high quality liquid assets that is sufficient to cover net cash outflows for a 30-day period under a stress scenario. The LCR is defined as

$$\frac{\text{Stock of High Quality Liquid Assets}}{\text{Net Cash Outflows over a 30 day time period}}$$

and, according to the Basel III norms this ratio should be greater than 100%. This will come into effect in 2015. Initially, “high-quality assets” were defined extremely conservatively and included cash, central bank reserves, and sovereign debt. However, subsequently the definition was widened to include GSE obligations and non-financial corporate and covered bonds rated AA- or above. However, these cannot comprise more than 40% of high quality liquid assets. Net cash outflows are defined as cumulative expected cash outflows minus cumulative expected cash inflows arising in the specified stress scenario in the time period under consideration. Net cash flow is calculated by applying run-off rates to different sources of funding. A run-off rate reflects the amount of funding maturing in the 30-day window that will not roll over. Various sources of funding are associated with different run off rates.

The LCR should be complemented with the net stable funding ratio (NSFR) of 100% or more. This is meant to provide incentive to banks to seek more stable forms of funding. The ratio is defined as

$$\frac{\text{Available Stable Funding}}{\text{Required Stable Funding}}$$

While available stable funding is a weighted average of liabilities, in which stable sources of funding such as insured retail deposits and capital have high weights and volatile funding like short-term wholesale borrowings have lower weights, required stable funding is a weighted average of assets where liquid assets like cash and government bonds and risky-private securities have high weights.

After an observation period that began in 2011, the LCR will be introduced on 1 January 2015, and the revised NSFR will move to a minimum standard by 1 January 2018. Currently, as per RBI guidelines, banks have adopted a granular approach towards measurement of risk by looking at the cumulative mismatches over different time periods. The net cumulative negative mismatches during the next day, 2–7 days, 8–14 days, and 15–28 days buckets should not exceed 5%, 10%, 15%, and 20% of the cumulative cash outflows in the respective time buckets.

The primary challenge for India will be to develop the capability to collect accurate and relevant data granularly. Given that Indian financial markets were not subject to the same stress level as markets in advanced countries, predicting the appropriate stress scenario will be a tough call. However, at the same time, most Indian banks follow a retail business model whereby there is limited dependence on short-term or overnight funding. Furthermore, Indian banks possess a

large amount of liquid assets that will enable them to meet new standards. From the Indian point of view, a key issue is the extent to which SLR holdings should be considered in the estimation of the liquidity ratios. On the one hand, while there is a case for these to be excluded as they are expected to be maintained on a regular basis; however, it would also be reasonable to treat at least a part of the SLR holdings in calculating the liquidity ratio under stressed conditions, especially since these are government bonds against which the RBI provides liquidity.

The recent crisis also brought into focus the flaws of the incentive system adopted in some advanced countries regarding the compensation structure of key personnel. While the performance-based incentive system was devised to acquire and retain talent, it resulted in too much emphasis being given to short-term profits and compromising long-term interests. The BCBS proposes to increase the variable pay, aligning it with long-term value creation. In addition, the BCBS also proposes to institute deferral and claw-back clauses to offset future losses created by executives.

In India, more than 70% of the banking sector is dominated by public sector banks, where compensation is determined by the government with the variable component limited. Furthermore, private and foreign banks are statutorily required to obtain the RBI's regulatory approval for remuneration of their whole-time directors and chief executive officers. Recently, in a move to join the global initiative on compensation structures and align Indian compensation structures to Financial Stability Board (FSB) guidelines, RBI issued draft guidelines on compensation of high-level executives. These guidelines attempt to ensure effective governance of compensation, align compensation with prudent risk taking, and improve supervisory oversight of compensation. However, the Indian banking system is currently facing a different predicament. With the majority of the banking sector also a part of the public sector, ideally one would like to attract the best talent into this sector. However, there is a disparity between the compensation packages of public and private sector bank executives, the former receiving significantly less valuable packages. This disparity should be rectified as it is leading to a loss of talent from the public sector to private sector.

The primary objectives of the Basel reforms are to ensure the reduction of incidence, severity, and costs of financial crises and the associated output loss. However, the proposals enshrined in the reform package will be associated with some macroeconomic costs. These include a rise in lending rates as well as a drop in the overall quantum of lending. According to BCBS (2010), a one percentage point increase in the capital ratio raises loan spreads by 13 basis points, and a median 0.09% decline in output. Furthermore, the additional cost of meeting the liquidity standard amounts to around 25 basis points in lending spreads when risk-weighted assets are left unchanged. However, the lending spreads drop to 14 basis points or less after considering the fall in risk-weighted assets and the corresponding lower regulatory capital needs associated with the higher holdings of low-risk assets. The median decline in output as a result of meeting a higher liquidity requirement is in the order of 0.08%.

## 6. CONCLUSION

Despite limited exposure to subprime assets and toxic assets that were at the heart of the financial crisis, the Indian financial sector was affected by the financial turmoil due to India's increased integration with global capital markets. The global crisis resulted in significant tightening in the market, equity, foreign exchange, and credit markets. The crisis was also transmitted to the real sector as output, employment, and capital formation were adversely affected. In particular, the SME sector was negatively impacted from a fall in demand and

reduced access to credit. This led to a sharp drop in employment in some select sectors like metal, automobiles, and gems and jewelry.

Indian policymakers reacted in a proactive manner and introduced a host of measures to assuage the impact of the crisis. These measures went far in mitigating the impact of the crisis and the economy started to exhibit signs of recovery from mid-2009. However, the recovery is not uniform and several sectors as well as certain financial markets are yet to recover from the crisis.

Regarding the Basel III norms, not all the reform measures are going to be a binding constraint for India. While it is in a comfortable position to meet some of the proposed Basel III norms, the implementation of some of the other norms would be a challenge.

With increasing trade and financial linkages, almost all countries are susceptible to crises originating in other parts of the world. The recent financial crisis has amply shown that maintenance of financial stability requires constant vigilance and there is no place for complacency. Moreover, much of this vigilance must be done in good times to detect and negate any incipient signs of instability.

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