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469A Bukit Timah Road  
#07-01, Tower Block, Singapore 259770  
Tel: 6516 6179 / 6516 4239  
Fax: 6776 7505 / 6314 5447  
Email: [isassecc@nus.edu.sg](mailto:isassecc@nus.edu.sg)  
Website: [www.isas.nus.edu.sg](http://www.isas.nus.edu.sg)



## **The Bank Lending Channel of Monetary Policy Transmission: India and the Global Financial Crisis**

M. Shahidul Islam and Ramkishan S. Rajan<sup>1</sup>

### **Executive Summary**

Following the collapse of Lehman Brothers in September 2008, the global liquidity crisis affected the Indian financial market adversely. This was largely due to the sudden and large-scale reversals of the foreign institutional investments from the Indian market. However, as the crisis started to spread to the real economy and inflation subdued to some extent, the Reserve Bank of India (RBI) eased policy interest rates sharply and began a process of injecting large-scale liquidity into the financial system. As foreign and non-bank domestic sources of funding dried up, faced with severe refinancing risks, both big corporate houses and small businesses relied heavily on domestic banks as alternative sources of funds. This threatened to put intense pressure on Indian credit markets and brought into the spotlight the 'credit view' channel of monetary transmission, particularly the bank lending channel.

The bank lending channel, which works quite effectively during normal circumstances can breakdown during times of financial stress, as appears to have been the case in the ongoing global financial crisis. As evident in the case of the United States, the Federal Reserve Board's massive quantitative easing measures have not resulted in broad money and credit growth, as the commercial banks were holding the extra liquidity in terms of excess reserves instead of lending them. Consequently, the broad money multiplier (a ratio of broad money to monetary base) has collapsed in the United States.

In contrast the RBI's monetary actions have been quite effective, as reflected in the stability or even rise of key monetary variables, particularly base money, commercial credit and broad money. The reserve money growth in India has been moderate, owing to the decline in net foreign assets and reduction in cash reserve ratios. Nevertheless, both broad money and commercial credit have maintained their historic growth trend. As a result, the broad money multiplier in India has increased since September 2008. The replacement of non-banks as a major source of fund in the fiscal year 2008-09 is further evidence of the healthy performance of the bank lending channel in India even during a period of intense global financial stress.

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<sup>1</sup> M. Shahidul Islam is a Research Associate at the Institute of South Asian Studies (ISAS), an autonomous research institute at the National University of Singapore. He can be contacted at [isamsi@nus.edu.sg](mailto:isamsi@nus.edu.sg). Ramkishan S. Rajan is a Visiting Senior Research Fellow at ISAS and an Associate Professor at George Mason University, Virginia, United States. He can be contacted at [isarsr@nus.edu.sg](mailto:isarsr@nus.edu.sg) or [rrajan1@gmu.edu](mailto:rrajan1@gmu.edu).

Nevertheless, despite the apparent success of the RBI's policy interventions to offset any potential credit crunch, bank lending rates has not declined in line with the RBI's credit easing policies. This in turn may be due to a combination of increased demand for funds as well as some structural limitations in further downward adjustment in the cost of credit. In addition, the private and foreign banks in India have shown clear conservatism in the midst of the crisis whereas the public banks have responded to the RBI's moral suasion to lower lending rates and ensure adequate credit is delivered to the commercial sector. Overall, the analysis, based on different monetary variables, supports the view that both the RBI's monetary actions and public sector commercial bank's lending behaviour helped India avert the freezing of the credit market.

Bank lending will always remain an important source of finance for small and medium sized enterprises that may not be able to access alternative sources of borrowing. However, the crisis has also made apparent that during the period of acute global risk aversion and distress, domestic banks in India were critical as a source of financing even to large corporates that might ordinarily be able to raise funds in the international capital markets.

## 1. Introduction

The ongoing global financial crisis has reignited a number of debates pertaining to financial regulation, capital account openness, as well as the effectiveness of fiscal and monetary policies. With regard to monetary policy specifically, the crisis has highlighted the need to revisit the monetary policy transmission mechanism, and in particular, the role of the banking system in this process. In a nutshell, the monetary policy transmission mechanism refers to the channels via which monetary policy actions feed through the system and ultimately impact the real economy.<sup>2</sup> The conventional channels of monetary policy concentrate on the impact via various asset markets. First, lower policy interest rates decrease the cost of capital, thus stimulating the demand for investment and consumer durables. Second, lower policy interest rates lead to a flow of funds to other assets like equities, causing a rise in asset prices, and this stimulates consumption demand (through the wealth effect) and investment demand (through the so-called Tobin's  $q$  effect).<sup>3</sup> Third, other things being equal, lower interest rates tend to cause the currency to depreciate, hence stimulating net exports.

However, in the presence of market information asymmetries and other market inefficiencies in financial markets, the conventional channels of monetary policy may not always operate effectively.<sup>4</sup> This in turn has led to a focus on the 'credit view' of monetary transmission which places central attention on the role of banks. There are different channels within the broad rubric of the 'credit view'. In this paper we limit our analysis to the bank lending channel of monetary policy transmission, an important but oft-neglected channel.<sup>5</sup> Financial reforms may have led to a decrease in the relative importance of the bank lending channel over the years in the United States and elsewhere in much of the developed world. However, it remains a crucial channel in many developing economies, including India, where many companies, especially small and medium-sized enterprises (SMEs) are highly dependent on bank loans with no close substitutes when it comes to financing. Indeed, a recent empirical study by Pandit et al. (2006) confirms the significance of the bank lending channel in India.<sup>6</sup> The bank lending channel, which works quite effectively during normal circumstances, can breakdown during times of financial stress, as appears to have been the case in the ongoing global financial crisis. This paper examines the role of banks in the transmission of monetary policy in India during the crisis period.

## 2. The Bank Lending Channel and Credit Crunch: A Simple Exposition

The bank lending channel places central emphasis on the role of banks in the financial system as these types of financial institutions are considered to be well-suited to solve the

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<sup>2</sup> We assume, quite realistically, that prices are sticky, such that changes in nominal variables impact the real economy in the short-term at least.

<sup>3</sup> Tobin's  $q$  is the ratio of the market value of a firm's assets (as measured by the market value of its outstanding stock and debt) to the replacement cost of the firm's assets. It is believed that investment demand is positively associated with this ratio.

<sup>4</sup> Bernanke and Gertler (1995) discuss the limitations of the monetary channel of monetary policy. According to the authors, it is difficult to explain the magnitude, timing and the composition of the economy's response to monetary policy shocks merely in terms of neoclassical cost-of-capital effects.

<sup>5</sup> The bank lending channel of monetary policy was formalised by Bernanke and Blinder (1988). For a readable overview of the various channels of monetary policy, see Mishkin (1996). The other notable channel within the 'credit view' is the balance sheet channel which works as follows: expansionary monetary policy causes a rise in equity prices that raises the net worth of firms leading to higher investment spending and aggregate demand.

<sup>6</sup> Also see Rangarajan and Arif (1990).

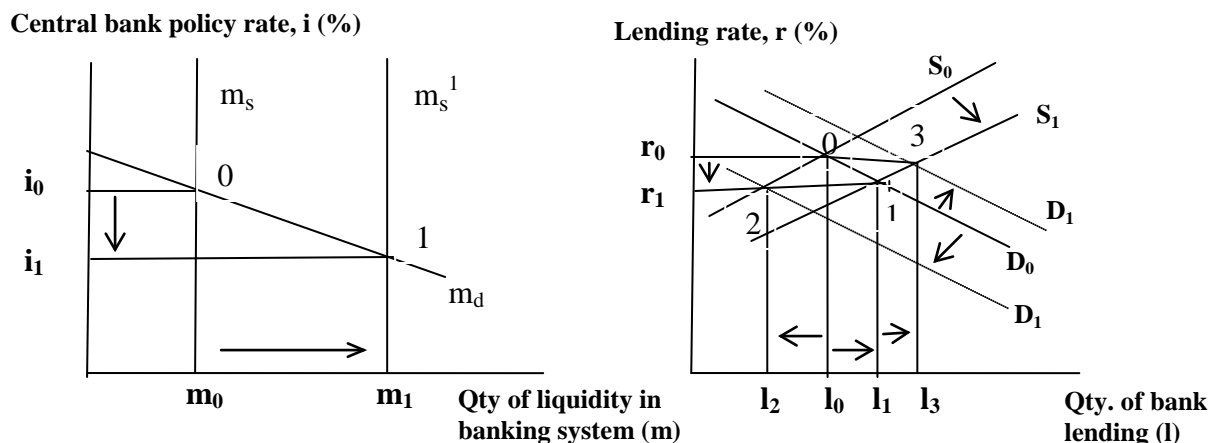
information problems/asymmetries that are prevalent in the credit markets. In the presence of information frictions, publicly issued bonds and bank intermediated loans are not very close substitutes. As a result, a large number of firms depend on commercial banks for funding, particularly SMEs. The basic idea behind the bank lending channel is as follows: an expansionary monetary policy raises the excess reserves of banks, leading to lower bank lending rates, hence increasing bank lending and economic activity.

In the case of India, the major monetary policy instruments used by the Reserve Bank of India (RBI) include:

- the repo rate which is the rate at which RBI injects rupee liquidity in the banking system;
- the reverse repo rate which is the rate at which RBI sucks excess rupee liquidity from the market;
- the cash reserve ratio (CRR) which is the minimum reserves each bank must hold to customer deposits and notes; and
- the statutory liquidity ratio (SLR) which is the proportion of total demand and time liability that a bank has to maintain in form of cash, gold or other approved securities with the RBI.<sup>7</sup>

At a broad conceptual level the basic bank lending channel in India operates as follows. A reduction in RBI's policy rate (repo rate) or downward adjustment of CRR and SLR infuses liquidity into the banking system. This greater liquidity from the central bank at lower costs in turn increases the supply of bank credit (from  $S_0$  to  $S_1$ ), leading to a fall in bank lending rates (from  $r_0$  to  $r_1$ ) and a consequent rise in the quantity of bank lending (from  $l_0$  to  $l_1$ ) (Figure 1).

**Figure 1: A Simple Illustration of the Bank Lending Channel**



Source: Authors

However, during a situation of bank distress, infusions of liquidity into the banking system may not readily translate into a rise in bank lending as banks become highly risk averse –

<sup>7</sup> There is also the bank rate which is the rate at which RBI lends to the commercial banks the bank rate. However, this rate is used very inactively by the RBI and the repo rate has become a *de facto* policy rate.

especially in the face of growing nonperforming loans (NPLs) and eroding capital bases ('capital crunch') – and choose instead to hoard funds (essentially their cost of credit remains unchanged as actual or expected NPLs offset the reduction in central bank rates). In the context of Figure 1, this implies that there is little or no shift in the supply of the bank lending curve despite the increase in liquidity to the banking system by the central bank. This in turn suggests no change in bank lending rates or the quantity of bank lending.

It is, of course, possible that due to moral suasion from the central bank or for some other reason, banks may feel obliged to lower lending rates ( $r_1$ ). However, if this is the case, they could still choose to restrict lending (to  $l_2$ ). While some might interpret this situation as one of disequilibrium, that is, a mandated ceiling interest rate, causing an excess of demand over supply; from a bank's perspective, it may view effective demand as having declined as there are fewer creditworthy customers who would qualify for bank loans (that is, from the bank's viewpoint, the demand schedule has shifted from  $D_0$  to  $D_1$ ). This is a situation where the monetary policy transmission breaks down in the sense that the central bank-infused liquidity into the banking system does not find its way to the rest of the economy; credit is clogged up in the banks. This is the classic credit crunch where the problem is not so much the *cost of funds* but the *availability of funds*, and there is an endless debate about whether the lack of credit creation is due to the fact that banks are not lending or there are insufficient 'creditworthy' customers as perceived by the banks.<sup>8</sup> The relevant point here, however, is that increases in reserve money without any corresponding expansion of broad money will show up as a decline in the broad money multiplier – the ratio of broad money to base money.

## 2.1 The Bank Lending Story in the United States

Let us consider the case of the United States. As part of the monetary easing programme in response to the crisis, the Fed funds rate has been cut to its lower bound (setting a target between 0 and 0.25 percent) and the bank prime loan rate in the United States subsequently declined in line with the Fed rate cut (Figure 2). However, there was a sharp rise in the LIBOR-OIS spread (a measure of the degree of risk aversion of banks) in September-October 2008 (Figure 3).<sup>9</sup> Given this risk aversion, banks were not extending credit to the public, choosing instead to hoard reserves or place them in government securities, consequently leading to a drop in the money multiplier (Figure 4).<sup>10</sup>

More precisely, thanks to the massive credit easing programme, the monetary base (M0) in the United States more than doubled from US\$843 billion in August 2008 to US\$1.75 trillion in May 2009.<sup>11</sup> However, broad money growth did not increase at the same pace.<sup>12</sup> As a result, the money multiplier collapsed from 9.1 in August 2008 to 4.7 in April 2009. In other

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<sup>8</sup> Alternatively there may be no credit crunch in that lending has decreased because the demand for lending has actually gone down and firms and consumers cut on spending.

<sup>9</sup> In August 2006 before the credit crisis, this spread averaged 8 basis points but reached 200 basis points in September 2008 (Harrison, 2008).

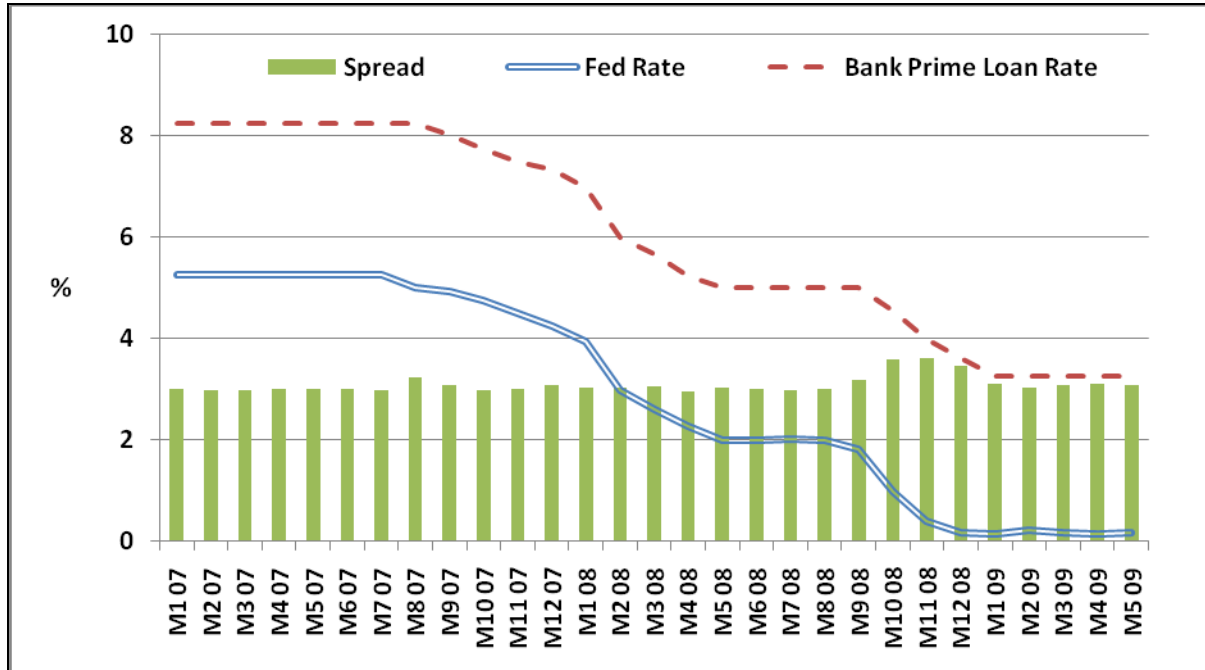
<sup>10</sup> As conventional monetary policy reached its limit (following short-term interest rates coming down to near zero), the Fed switched to a policy of quantitative easing.

<sup>11</sup> The monetary base is defined as currency in circulation and bank demand deposits at the Fed or central monetary authorities.

<sup>12</sup> M2 refers to broad money in the case of the United States and M3 to India.

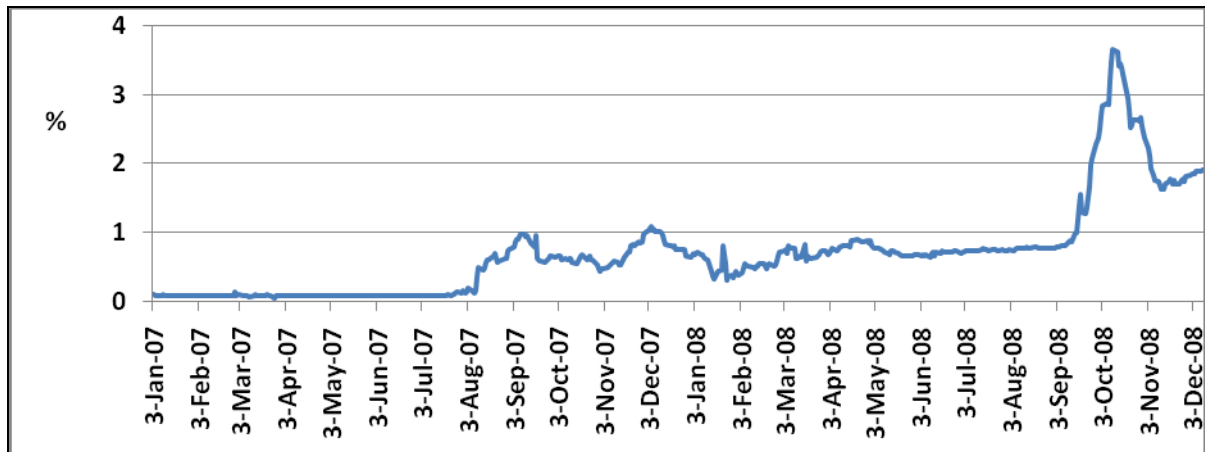
words, the gigantic increase in the Fed balance sheet has not translated into credit growth as banks chose to hold the excess reserves rather than make loans to the private sector.<sup>13</sup>

**Figure 2: Spread between the Fed Fund Rate and the United States Bank Prime Loan Rate, M1:2007 to M5:2009**



Source: Based on the Federal Reserve Bank of St. Louis, United States.

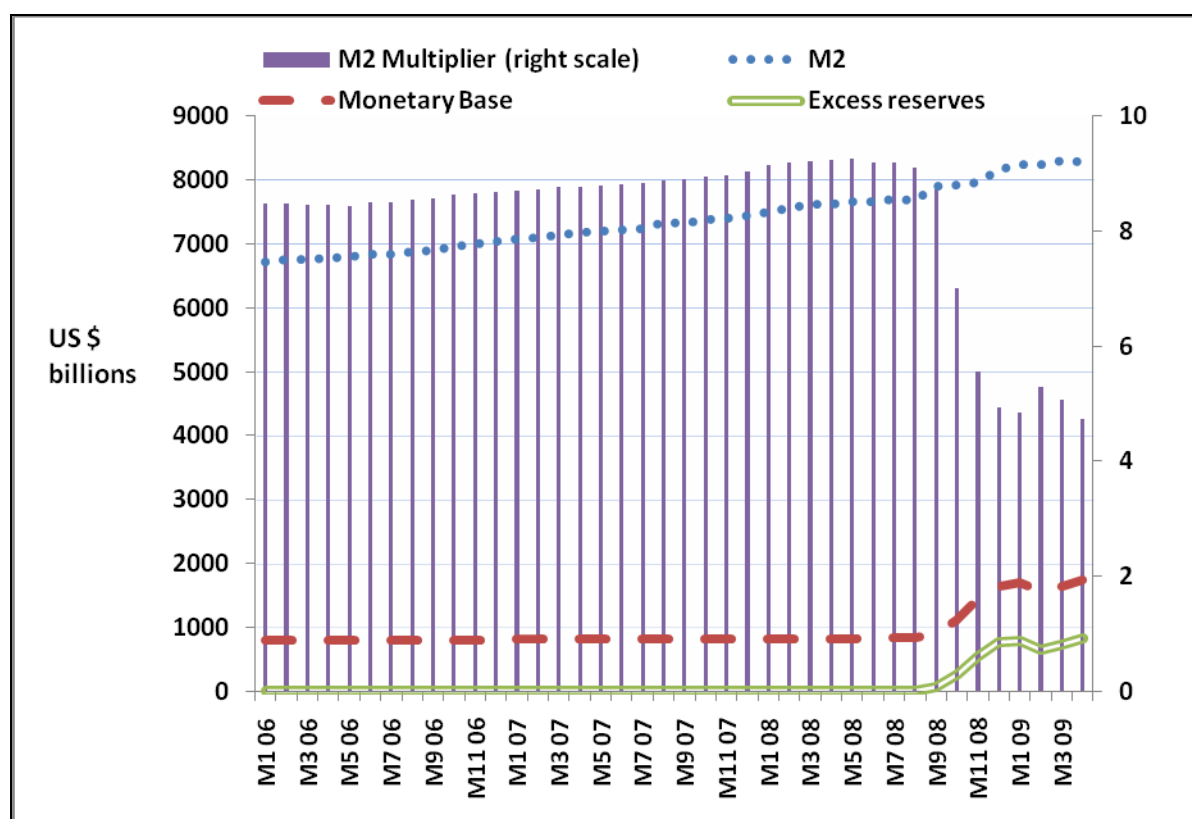
**Figure 3: LIBOR-OIS Spread on a Daily Basis, M1:2007 to M12:2008**



Source: Based on the Federal Reserve Bank of St. Louis, and the British Banker's Association.

<sup>13</sup> For instance, in April 2009, the total reserves (US\$882 billion), accounted for 50 percent of M0 (US\$1.75 trillion). Of this, US\$824 billion was bank's excess reserves and only US\$58 billion (or six percent of the total reserves) was available for credit (see Fed St. Louis website for details).

**Figure 4: Trends in the Monetary Base, Broad Money, Excess Reserves and M2 Multiplier in the United States, M1:2006 to M4:2009**



Source: Based on the Federal Reserve Bank of St. Louis, United States.

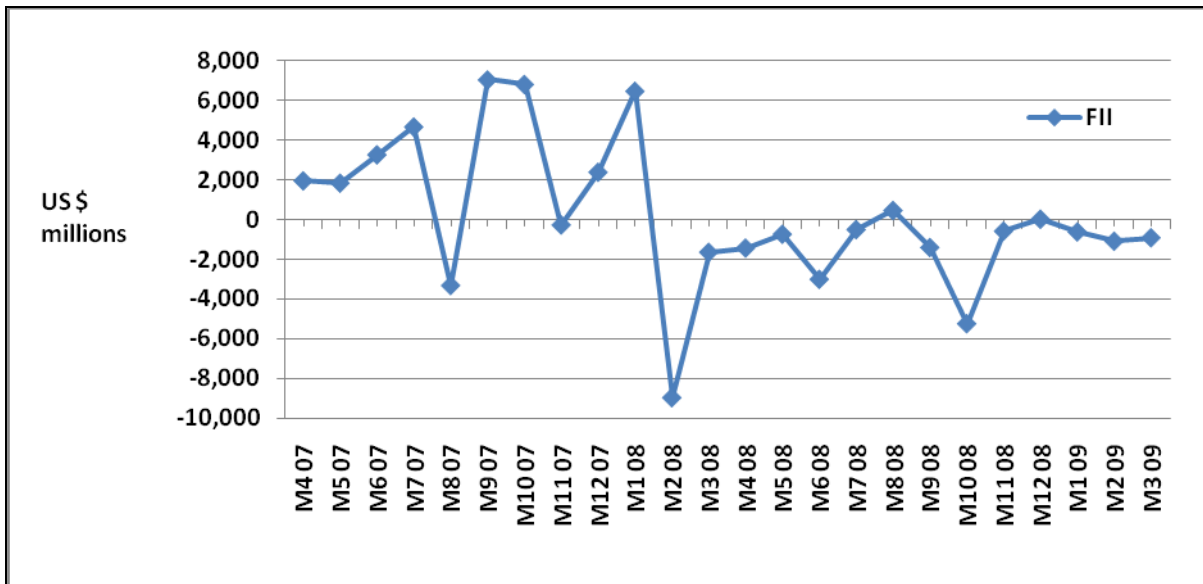
### 3. Monetary Policy Actions and Bank Lending in India during the Crisis

The global financial crisis initially hit India via the financial channels, particularly following the collapse of Lehman Brothers in September 2008 and consequent global deleveraging.<sup>14</sup> Owing largely to massive outflows of foreign institutional investor (FII) funds from the Indian equity market the BSE Sensex, India's flagship equity index, witnessed a free fall from early 2008, and the Indian rupee experienced a rapid depreciation vis-à-vis the United States dollar (Figure 5 and 6). In addition, banks and corporates that had depended on global wholesale markets for "cheap" foreign currency funding suddenly found themselves facing a major liquidity crisis as credit dried up with the skyrocketing of concerns about counterparty risks.<sup>15</sup> As these entities turned to domestic banks and non-banks such as mutual fund withdrawals for refinancing (so as to remain liquid), there were huge pressures on domestic sources of liquidity.

<sup>14</sup> See Rajan (2009).

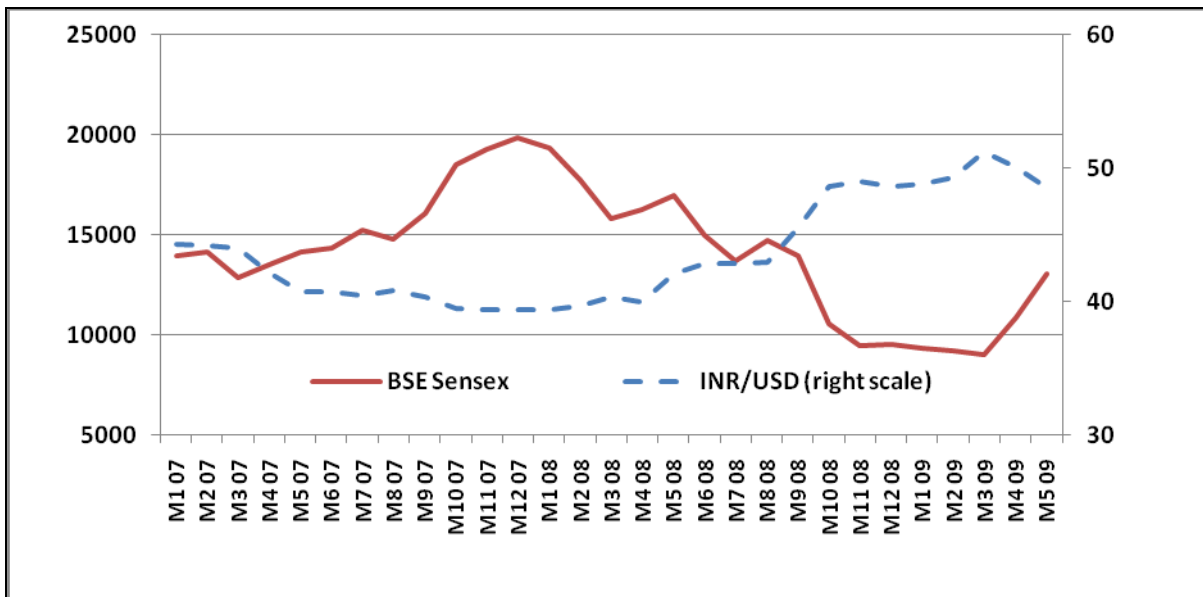
<sup>15</sup> The non-bank sources of funds include issuances in capital markets, commercial paper, non-banking financial companies (NBFCs), financial institutions, external commercial borrowings, issuances of American Depository Receipts/Global Depository Receipts and foreign direct investment. See Mohan (2009a) for details on the extent of drying up of these external sources of finance.

**Figure 5: Trends in Net FII Flows in India, M4:2007 to M3:2009**



Source: Based on Reserve Bank of India.

**Figure 6: Trends in the BSE Sensex Index and Rupee/US\$ Bilateral Exchange Rate, M1:2007 to M5:2009**



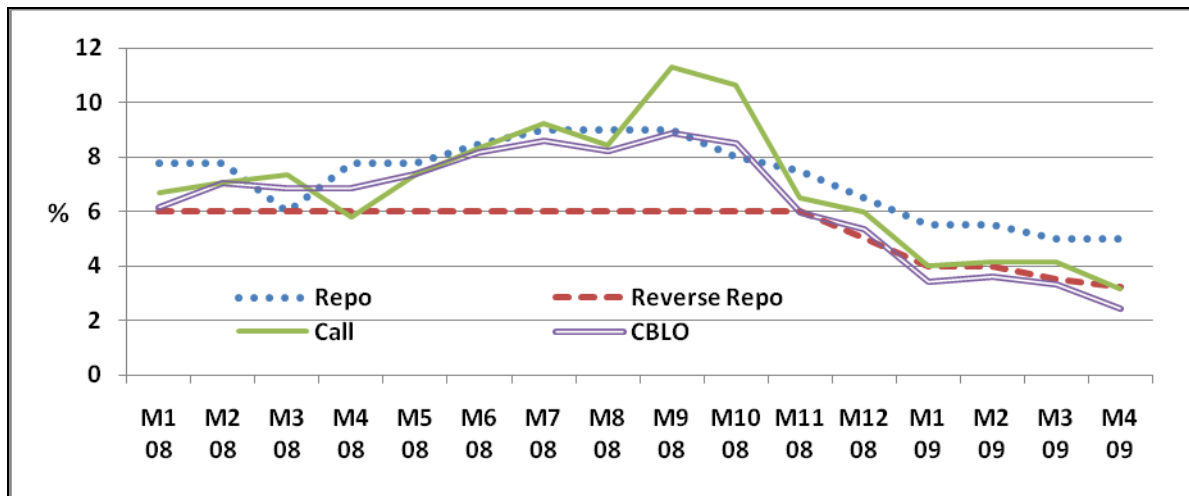
Source: Based on Reserve Bank of India and Bombay Stock Exchange Ltd.

In the case of the banking sector these pressures were reflected most obviously in the sharp rise in volatilities in the Indian call money market. As is apparent from Figure 7, the overnight interest rate, including collateralised borrowing and lending obligations (CBLO), stayed above the ceiling of the RBI’s Liquidity Adjustment Facility (LAF) rate corridor in September-October 2008.<sup>16</sup>

<sup>16</sup> CBLO is a type of money market instrument. Mohan (2007) offers a useful description of the CBLO: “In line with the objective of widening and deepening of the money market and imparting greater liquidity to the market for facilitating efficient price discovery, new instruments, such as collateralised lending and borrowing obligations (CBLO), have been introduced. Money market instruments such as market repo and



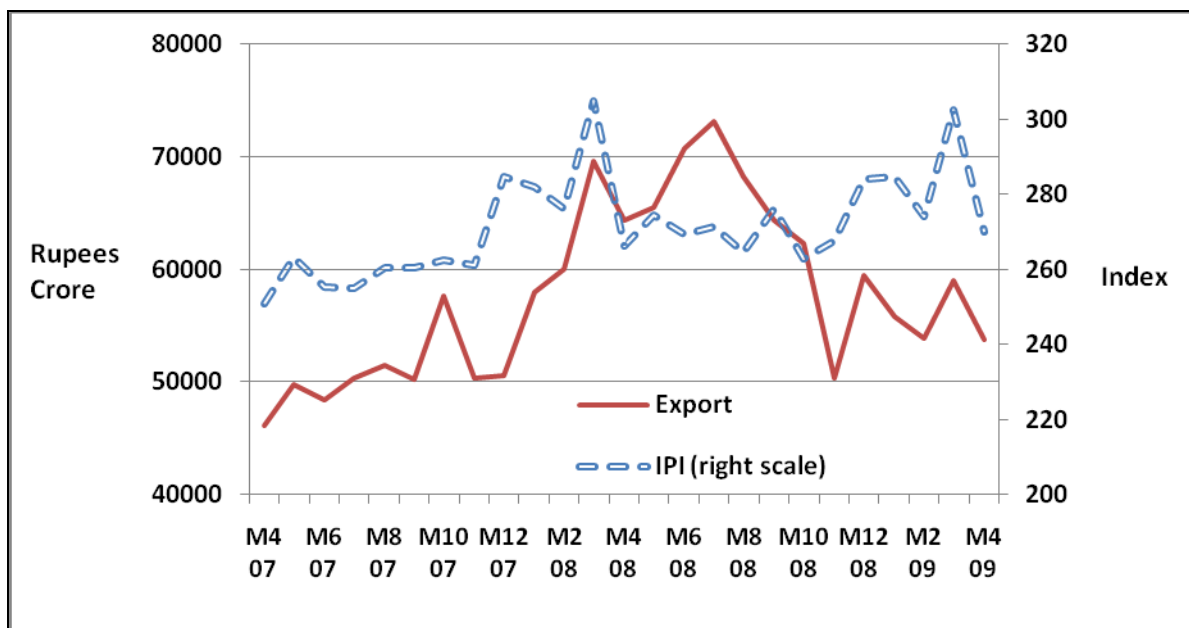
**Figure 7: Trends in the Repo, Reverse Repo and Call Money and CBLO Rate, M1:2008 to M4:2009**



Source: Based on the Reserve Bank of India and the Clearing Corporation of India Ltd.

The wealth destruction in India and globally due to asset price declines as well as the increased cost of credit inevitably caused the country’s export growth to plunge and industrial production to decelerate in August-November 2008 (Figure 8).

**Figure 8: Trends in India’s Exports and Industrial Production Index, M4:2007 to M4:2009**



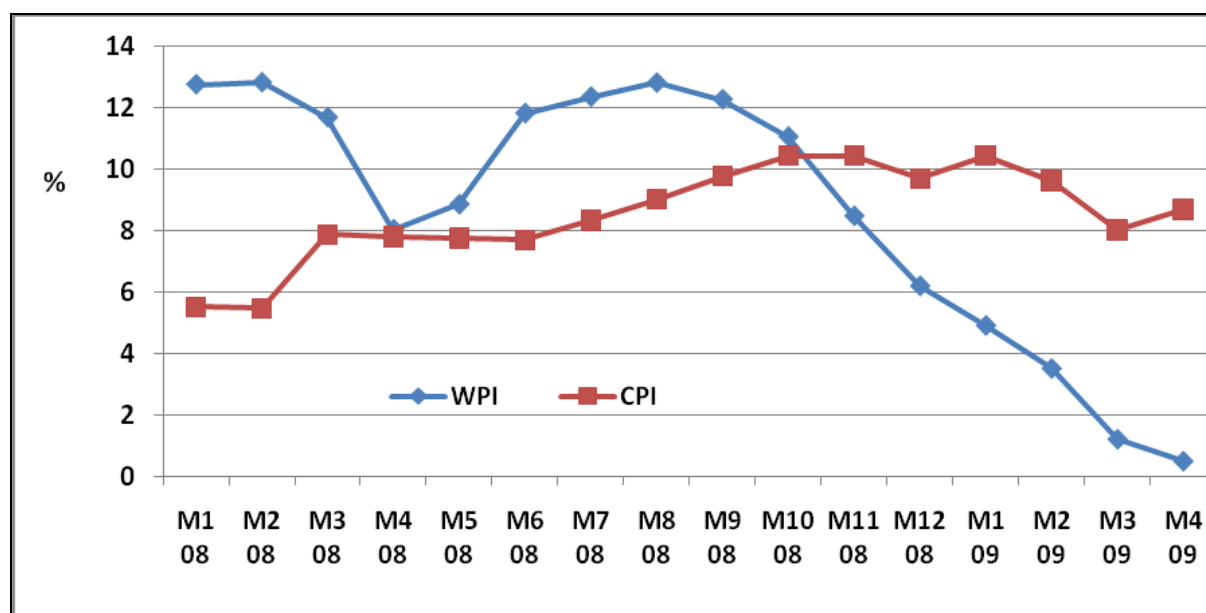
Source: Based on the Reserve Bank of India and the Ministry of Statistics and Programme Implementation, Government of India.

CBLO have provided avenues for non-banks to manage their short-term liquidity mismatches and facilitated the transformation of the call money market into a pure inter-bank market” (p.2). Also see Nachane and Islam (2009) for a broad overview of financial sector reforms in India and South Asia.

### 3.1 The RBI's Monetary Policy Actions and Impact

Given the RBI's concerns about inflation, it continued to maintain a tight monetary stance until September 2008. However, owing to the collapse of commodity prices and the knock-on demand-reducing effects of the global financial crisis, inflation started to subdue, especially in terms of the wholesale price index (WPI) (see Figure 9). Concurrently the gravity of the financial crisis became apparent, and from mid September-October 2008, the RBI took several policy measures to ease both the rupee and the foreign exchange liquidity conditions in the financial system. With regard to domestic liquidity, the RBI reduced the key policy rates (the repo and the reverse repo) via the LAF (Figure 10; also see Figure 7), while the CRR was cut sharply and the SLR was reduced by one percentage point.<sup>17</sup> Fresh government bond issuances under the market stabilisation scheme (MSS) were ceased.<sup>18</sup>

**Figure 9: Change in Wholesale Price Index and Consumer Price Index (Year-on-Year Variation), M1:2008 to M4:2009**

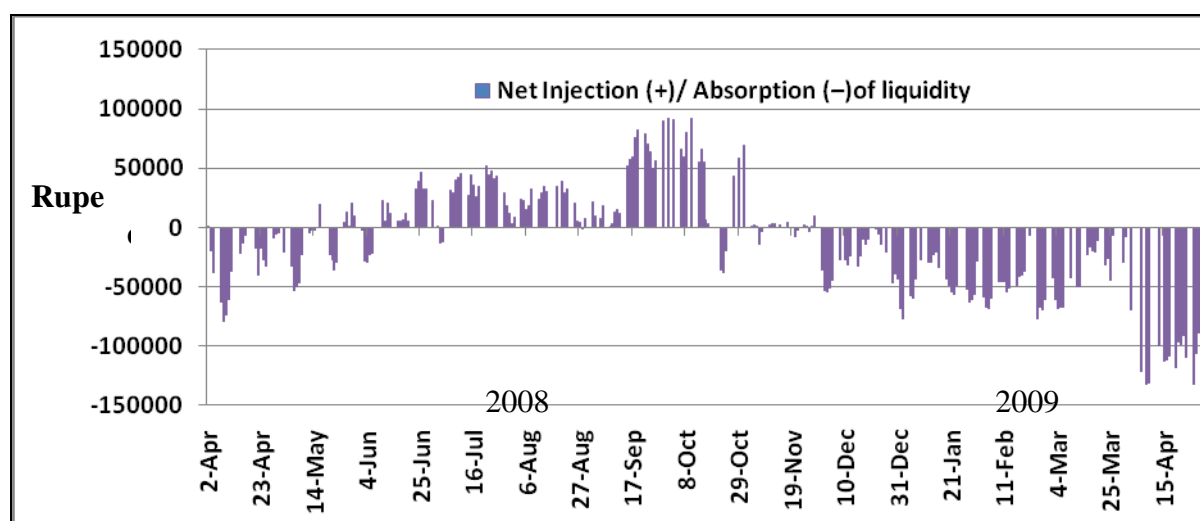


Source: Based on Labour Bureau, Ministry of Labour, Government of India.

<sup>17</sup> The repo rate was reduced by 350 basis points to 5.5 percent in mid-October 2008 to 4.75 percent in April 2009, and the reverse repo rate was cut by a cumulative 200 basis points from 6 to 4 percentage point in December 2008 to 3.25 percent in April 2009. The CRR was reduced from nine percent in September 2008 to five percent by early January 2009 of net demand and time liabilities (NDTL) and the SLR was reduced by one percentage points, that is, from 25 percent of NDTL to 24 percent. (Subbarao, 2009b). Also see the RBI website for details Measures for Liquidity Management and Improving Credit Flow ([http://www.rbi.org.in/Scripts/BS\\_PressReleaseDisplay.aspx?prid=19468](http://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=19468)).

<sup>18</sup> MSS balances declined from Rs175,362 crore at end-May 2008 to around Rs88,000 crore by end-March 2009. See Ouyang and Rajan (2008) for a discussion of the MSS and monetary sterilisation in India pre-crisis.

**Figure 10: Net Injections and Absorption of Liquidity under the LAF on a Daily Basis, 2008-09**



Source: Based of Reserve Bank of India.

Foreign exchange liquidity was eased by loosening restrictions on external commercial borrowings (ECBs) and short-term trade credits, while interest rate ceilings on non-resident deposits were raised in order to attract more foreign funds into the country. The RBI which had allowed the rupee to depreciate until September 2008, shifted to a currency intervention to manage the rupee decline by leaning-against-the-wind, hence releasing further foreign exchange into the market.<sup>19</sup> The monetary policy operation and the extension of liquidity facilities released liquidity amounted to over Rs490,000 crore (about nine percent of India's gross domestic product [GDP]) from mid-September 2008 to March 2009 (Table 1).

**Table 1: Actual/Potential Release of Primary Liquidity, Mid-September 2008 to March 2009**

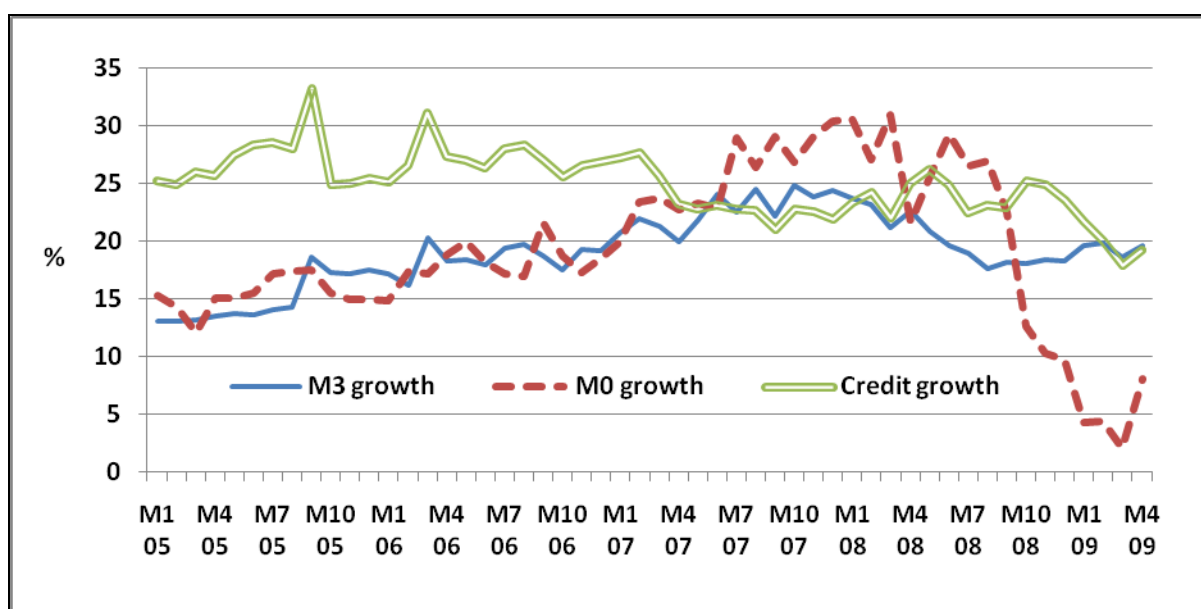
Measure/Facility	Amount (Rs crore)
<b>Monetary Policy Operations</b>	
a) Cash Reserve Ratio (CRR) Reduction	160,000
b) Open Market Operations	68,835
c) MSS Unwinding/De-sequestering	97,781
<b>Extension of Liquidity Facilities</b>	
d) Term Repo Facility	60,000
e) Increase in Export Credit Refinance	25,512
f) Special Refinance Facility for SCBs (Non-RRB)	38,500
g) Refinance Facility for SIDBI/NHB/EXIM Bank	16,000
h) Liquidity Facility for NBFCs through SPV	25,000
Total (a-h)	<b>491,628</b>
<b>Memo</b>	
Statutory Liquidity Ratio (SLR) Reduction	40,000

Source: Mohan (2009a) and Subbarao (2009b).

<sup>19</sup> In addition, further rupee depreciation could have worsened the balance sheets of corporates that had borrowed in foreign currency on an unhedged basis. While FII outflows had stabilised somewhat by late 2008, the rupee in turn was under downward pressure primarily because corporates sold funds raised locally to repay external foreign currency loans that were due and not being rolled over.

How did these monetary measures affect the growth of reserve money, broad money and non-food credit? As can be seen in Figure 11, since June 2008 the growth of reserve money has fallen sharply (year-on-year) until March 2009. The two main reasons for this deceleration were the decline in net foreign assets (NFA) due to a loss of foreign exchange reserves, and more importantly, the decline in the CRR, which implied lower net domestic assets (NDAs) as a result of a fall in bank reserves with the RBI. Infusions of liquidity by the RBI via the LAF and other quasi-open market operations helped to partially offset some of these declines.<sup>20</sup> More important for the macro-economy is the fact that credit and broad money continued to grow at a stable and robust rate. The decline in reserve money and consequent increase in broad money inevitably implied a sharp rise in the money multiplier (Figure 12), in sharp contrast to the United States, as discussed earlier. The fact that credit was rising robustly implies that there was no significant credit crunch in India during the period under consideration.

**Figure 11: Year-On-Year Growth in Base Money, Broad Money and Commercial Credit, M1:2005 to M4:2009**

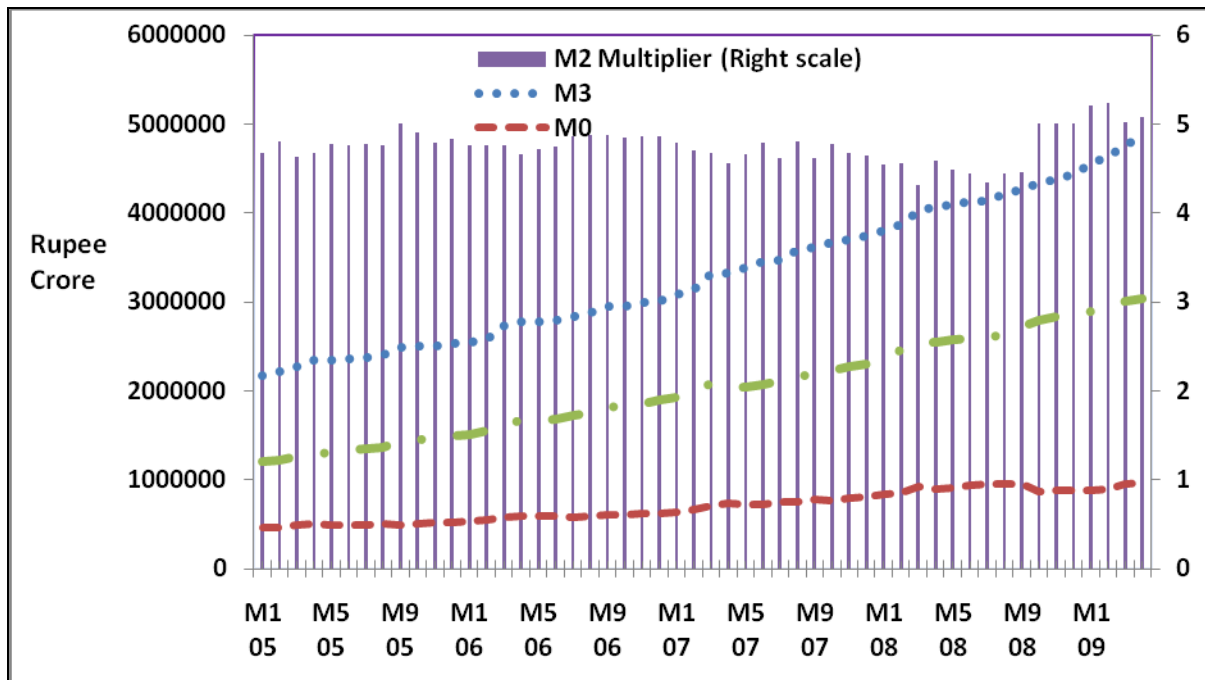


Source: Based on Reserve Bank of India.

To further emphasise this point, one can also look at the broad picture of credit by examining trends in the ratios of key monetary variables to GDP. As monthly GDP data is not available we have employed the industrial production index (IPI) as a proxy of GDP. As depicted in Figure 13, neither the M3-to-IPI nor credit-to-IPI ratios dropped below their previous trends and have in fact increased marginally. Hence, contrary to prevailing perceptions, analysis based on different indicators shows that monetary and credit growth in India have been maintained at their historic growth trends even in the midst of severe global economic crisis.

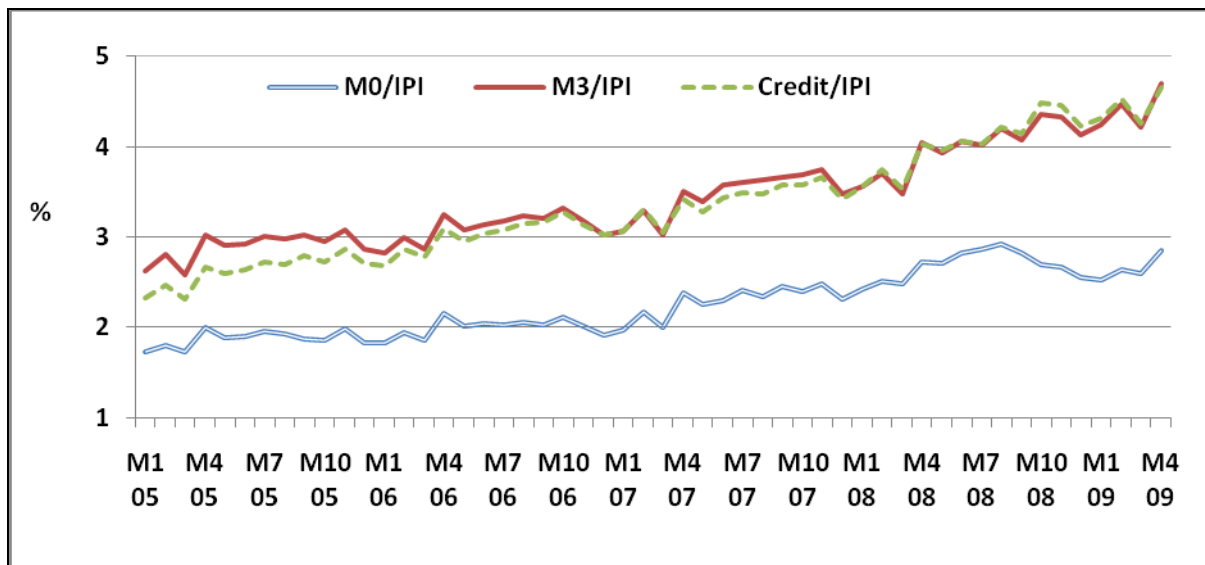
<sup>20</sup> Sharp declines in NFA (a five-percent reduction in 2008-09 compared to an expansion of over 25 percent in the corresponding period previous year) translated into a fall in reserve money growth (Economic Survey 2008-09, Government of India). Nevertheless, the year-on-year growth in M0 (adjusted for changes in the CRR) was 19 percent at end-March 2009 compared with 25 percent in the previous year (Mohan, 2009a).

**Figure 12: Trends in Base Money, Broad Money, Credit and Broad Money Multiplier in India, M1:2005 to M4:2009**



Source: Based on Reserve Bank of India.

**Figure 13: Change in the Ratios of Base Money to IPI, Broad Money to IPI and Commercial Credit to IPI, M1:2005 to M4:2009**



Source: Based on the Reserve Bank of India and the Ministry of Statistics and Programme Implementation, Government of India.

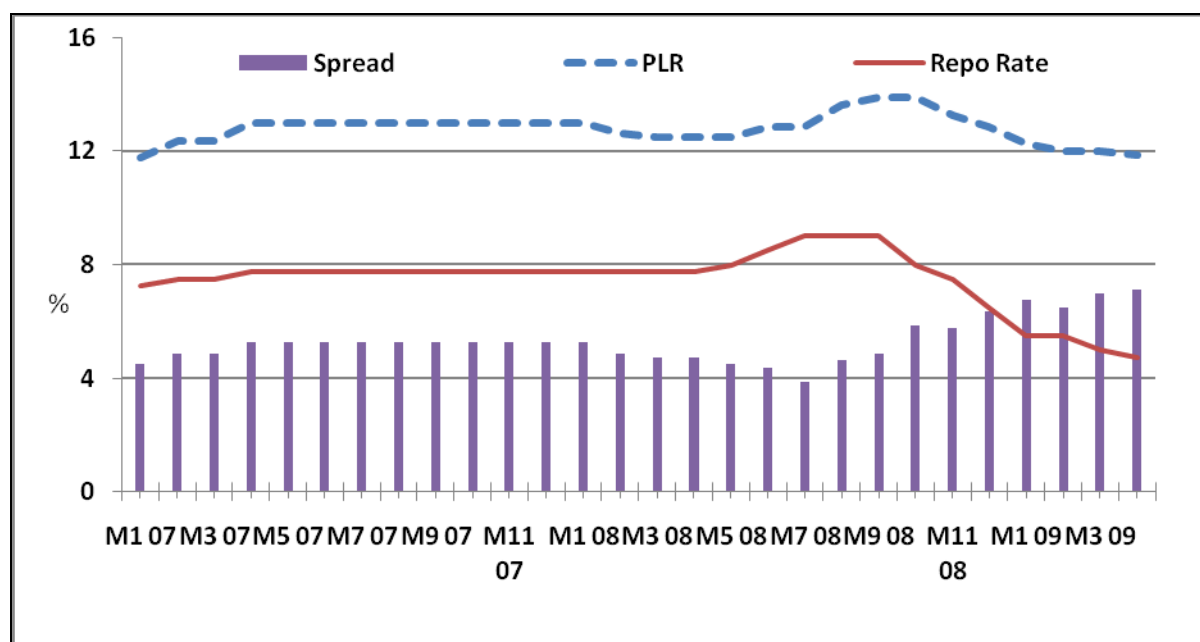
Overall, the monetary actions clearly eased the liquidity crunch in India, as seen by the decline in the call rates which mostly remained within the informal corridor set by the repo and reverse repo rates of the LAF (Figure 7). The added liquidity has partly offset the drying-up of non-bank sources of funds. For instance, by December-January of the fiscal year 2008-

09, credit from the banking sector accounted for 60 percent of the total credit, whereas non-banks were the source of 55 percent of credit in a similar period of 2007-08.<sup>21</sup>

### 3.2 Bank Lending in India During the Crisis

Despite the seeming success of RBI's policy interventions to offset any potential credit crunch, surprisingly, the bank lending rate has not declined in line with the RBI's credit-easing policies. As depicted in Figure 14, the repo rate has fallen markedly, but the prime lending rate has not dropped at the same pace, with the result that the spread between the two rates remains high. However, the credit-deposit ratio has fluctuated between 72 to 75 percent which is comparable with the record high credit-deposit ratios in recent years, so it is apparent that banks were lending.<sup>22</sup>

**Figure 14: The Interest Rate Spread between Repo Rate and Prime Lending Rate, M1:2007 to M4:2009**



Source: Based on the Reserve Bank of India.

Conceptually, one can reconcile these seemingly contradictory facts, viz. robust lending but downward rigidity in lending rates, if one believes that the increase in supply of loans was also matched by an increase in demand, such that overall lending grows but there is little or no change in lending rates (point 3 in Figure 1). As noted in the case of India, there was a significant rise in demand for funds domestically as many corporates shifted from overseas borrowing (which had dried up) to domestic sources, including banks.

In addition, there are some structural issues concerning further downward adjustments in benchmark prime lending rates (BPLR). The BPLR adjustment is directly linked to the rate of inflation and deposit rates. The WPI inflation in India has declined in the recent past but the consumer price index (CPI) inflation has still hovered at about eight to ten percent as it tends

<sup>21</sup> Macroeconomic and Monetary Development, January 2009, RBI.

<sup>22</sup> In India, the C-D ratios were 74.6 in 2006-07, 74.2 2007-08, 72.3 2008-09. However, in April 2009, the ratio was 70 (RBI Bulletin, various issues).

to react with a lag (Figure 9). The deposit rates in commercial banks are generally two percent higher than the CPI inflation rate to ensure that savers get positive returns. The inability of banks to reduce deposit rates may have limited their scope somewhat to lower lending rates despite the lower repo rates. In addition, the maturity period of deposits may be another consideration when banks cut lending rates. Indian banks raised the saving deposit (those with higher maturity periods, one to three years) during the high inflation period. These rates cannot automatically be adjusted downwards even if inflation rate comes down. The bulk of the banks' time deposits continue to be at fixed interest rates. Banks may, therefore, need some time to re-price their loans. Further complicating things is that the interest rates on small savings are not market-determined and cannot be reduced easily.

Apart from structural problems that hinder the reduction of the BPLR, the other issue is moral suasion. The RBI has been able to influence the public sector banks – that accounted for over 70 percent loan growth in 2008-09<sup>23</sup> – to reduce the BPLR and increase the credit flows to the private sector, but private and foreign commercial banks have been rather reluctant or slow to respond to such calls.<sup>24</sup> As apparent from Tables 2 and 3, the private sector and foreign commercial banks showed clear conservatism, both in terms of increasing credit flows to the private sector as well as in reducing their interest rates. Private and foreign banks appear to have chosen to park some of the excess liquidity at the RBI's reverse repo window and investing in SLR securities (Figures 10 and 15). This explains why there has been a rise in SLR bonds despite the RBI having lowered the SLR rate.

**Table 2: Credit Flows from Scheduled Commercial Banks (in %, year-on-year changes)**

	<b>4 January 2008</b>	<b>4 January 2009</b>	<b>28 March 2008</b>	<b>28 March 2009</b>
<b>Public Sector Banks</b>	19.8	28.6	22.5	20.4
<b>Private Banks</b>	24.2	11.8	19.9	10.9
<b>Foreign Banks</b>	30.7	16.9	28.5	4.0

Source: Macroeconomic and Monetary Development, Various Issues, Reserve Bank of India.

**Table 3: Deposit and Lending Rate in India: M10:2008 to M4:2009 (in basis points)**

	<b>Deposit Rate</b>	<b>Lending Rate</b>
<b>Public Sector Banks</b>	125-250	125-225
<b>Private sector banks</b>	75-200	100-125
<b>Top 5 foreign banks</b>	100-200	0-100

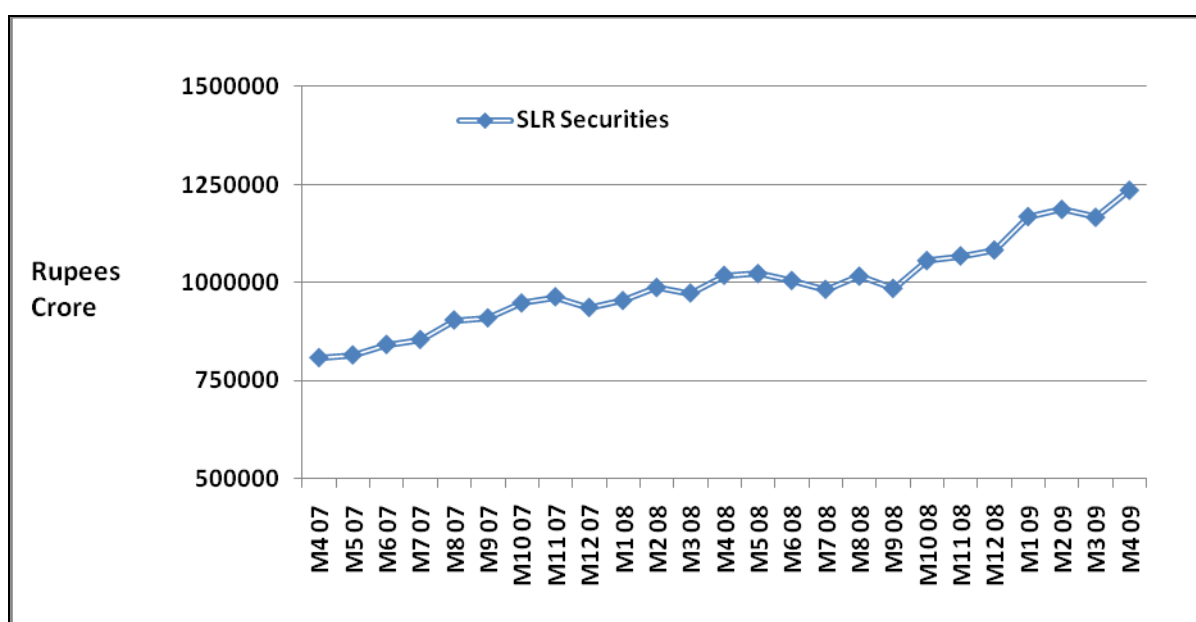
Note: A basis point is one-hundredth of one percent

Source: The Business Standard, 27 April 2009.

<sup>23</sup> As of March 2009 (RBI, 2009).

<sup>24</sup> See the Annex for a brief discussion of where the lending by public banks was concentrated.

**Figure 15: Investment in SLR Securities, M4:2007- M4:2009**



Source: Based on Reserve Bank of India.

#### 4. Conclusions

One might reasonably argue that the RBI, being an inflation hawk, might have been insufficiently sensitive to the global financial crisis early on by not lowering policy interest rates fast enough in the first instance because it was fighting the last battle (that is, commodity price-induced inflation).<sup>25</sup> Nonetheless, once the RBI realised the magnitude of the problem, their response was swift and decisive. In the face of huge reversals in foreign capital flows to India, the RBI's injection of domestic liquidity stabilised the domestic credit markets, hence minimising the negative fallout of the global turmoil on the real economy. Monetary policy response was especially important in India, given the limited fiscal space compared to China and its other East Asian neighbours (Rajan, 2009).<sup>26</sup> These responses were especially effective since India, by and large, has had a strong and well-capitalised banking system.<sup>27</sup>

Bank lending has been and will always remain an important source of finance for SMEs that may not be able to access alternative sources of finance. However, the current episode of the acute global liquidity crisis has emphasised that during the period of severe global risk aversion and distress, domestic banks in India were critical as a source of financing even to large corporates that might otherwise raise funds in the international capital markets. The bank lending channel in India operated fairly well in the midst of the global credit crunch, and India does not appear to have faced a severe domestic credit crunch as experienced in the United States and elsewhere. This in turn may have been due to the fact that the Indian banking sector is largely controlled by the public sector banks (in terms of total assets,

<sup>25</sup> For instance, see Shah (2008).

<sup>26</sup> This is not to suggest that fiscal policy was not effective. The fiscal policy responses taken during the crisis in the form of additional capital spending, cuts in indirect taxes, expanded guarantees for SMEs and infrastructure spending all helped, though the exact magnitude of the stimulus imparted is unclear.

<sup>27</sup> Also see Mohan (2009a).



deposits and advances).<sup>28</sup> These public banks have been more responsive to the RBI's moral suasion and other credit easing measures compared to private sector banks, particularly foreign banks, which have shown severe conservatism in terms of bank lending during the crisis period. This may be a valuable lesson for the further liberalisation of India's banking sector, although these possible macro stability gains must be traded off against possible microeconomic benefits from greater private sector competition.

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<sup>28</sup> The public sector banks in India accounted for 69.9, 73.9 and 72.6 percent of assets, deposits and loans in 2007-08 (RBI 2008). Also see Gopalan and Rajan (2009).

## Annex: Public Bank Lending During the Crisis

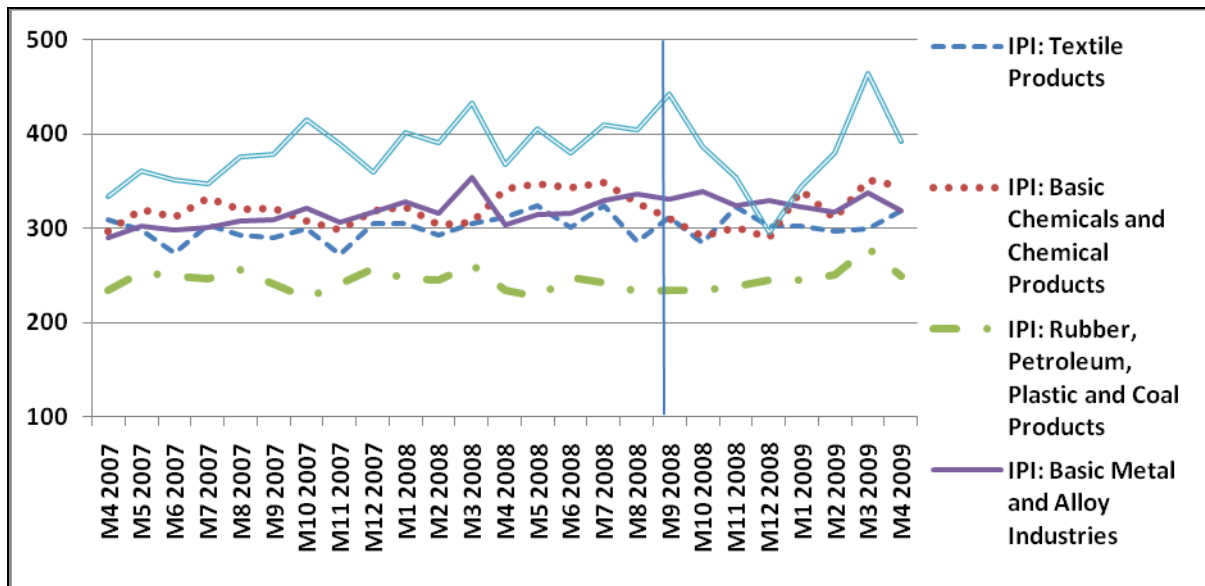
While public banks were the ones that were increasing lending during the crisis period in India, it would be interesting to examine to whom these banks were lending. Table A1 exhibits the disaggregated data on sectoral deployment of non-food bank credit (NFC) (y-o-y growth). The credit growth in the agriculture sector prior to and during the crisis has held steady and mainly been channelled to infrastructure, petroleum, coal products and nuclear fuels, iron and steel, engineering, construction, and chemical and chemical products industries. The last two columns show that 52.5 percent of the incremental non-food credit was absorbed by industry as compared with 45.2 percent in the corresponding period previous year. However, personal loans that accounted for 10.7 percent of the incremental NFC witnessed some moderation owing to a deceleration in personal loans and housing loans growth which, arguably, were more than the domain of private bank lending. Of course, a cursory examination of NFC growth figures might not suffice to draw a conclusion that bank lending has been channelled towards productive sectors. The monthly growth of industrial production index data can somewhat address the above concern. As depicted in Figure A1, petroleum, coal products and nuclear fuels, iron and steel, and infrastructure have maintained a steady growth after September-October 2008, although they declined in the last two months of the fiscal year 2008-09. Textile production was the hardest hit but bounced back sharply, perhaps as credit stresses eased with the RBI actions.

**Table A1: Sectoral Allocation of Non-food Bank Credit: Year-on-Year Variations (in %)**

Sector/Industry	December 2007	December 2008	February 2008	February 2009
<b>Non-food Bank Credit</b>	<b>21.8</b>	<b>24.8</b>	<b>22.0</b>	<b>19.5</b>
<b>Agriculture and Allied Activities</b>	<b>19.3</b>	<b>22.7</b>	<b>16.4</b>	<b>21.5</b>
<b>Industry (small, medium and large)</b>	<b>24.9</b>	<b>30.2</b>	<b>25.9</b>	<b>25.8</b>
<i>Small industries</i>	35.6	7.4	NA	NA
<b>Personal Loan</b>	<b>15.9</b>	<b>14.6</b>	<b>13.2</b>	<b>8.5</b>
<i>Housing</i>	14.6	8.8	12.0	7.5
<i>Advances against fixed deposit</i>	12.8	23.6	15.6	6.7
<i>Credit Cards</i>	45.3	69.6	51.3	8.8
<i>Consumer durables</i>	5.9	0.6	5.9	-14.5
<b>Services</b>	<b>24.8</b>	<b>27.6</b>	<b>28.4</b>	<b>19.2</b>
<i>Transport</i>	29.9	30.6	43.3	17.6
<i>Trade</i>	17.8	19.7	17.5	14.9
<i>Real Estate Loans</i>	35.8	48.1	26.7	61.4
<b>Priority Sector</b>	<b>19.6</b>	<b>13.0</b>	<b>16.9</b>	<b>19.2</b>
Micro & Small Enterprises (Manufacturing & Services)	NA	NA	67.4	35.4
<b>Industry (small, medium and large)</b>	<b>24.9</b>	<b>30.2</b>	<b>25.9</b>	<b>25.8</b>
<i>Textiles</i>	24.0	18.4	23.0	12.5
<i>Petroleum, Coal Products &amp; Nuclear Fuels</i>	18.6	114.5	23.3	78.2
<i>Chemicals and Chemical Products</i>	13.7	28.0	13.9	19.4
<i>Rubber, Plastic &amp; their Products</i>	18.8	34.0	16.1	34.0
<i>Iron and Steel</i>	31.8	24.7	19.2	37.0
<i>Engineering</i>	29.0	28.3	26.2	31.2
<i>Construction</i>	37.3	57.0	33.3	58.8
<i>Infrastructure</i>	37.1	38.5	42.1	35.1

Source: Macroeconomic and Monetary Development, Various Issues, Reserve Bank of India.

**Figure A1: Industrial Production Index for Mining, Manufacturing, and Electricity, April 2007- April 2009**



Source: Ministry of Statistics and Programme Implementation, Government of India.

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