Financial Crisis, Monetary Policy and Exports: Evidence from a Matched Firm-Bank Dataset[*]

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September 2018

Abstract

Expecting a significant decline in domestic credit growth, the Central Bank of India (known as the Reserve Bank of India) eased the monetary policy to improve the flow of credit to productive sectors, at viable costs, so as to sustain the growth momentum. Using this as a background, I assess the role of this expansionary monetary policy, undertaken due to the 2008-09 crisis, on a firm's performance. To do so, I exploit a matched firm-bank dataset, utilizing bank-level information for each firm before and after the crisis to show that the ownership of banks significantly matters for a firm's performance, especially an exporter. In particular, I ask whether there is differential impact on the export margins (extensive and intensive) of Indian manufacturing firms when a firm is a client to a public-sector bank (or government-owned bank) vis-à-vis other banks (e.g., domestic private and foreign banks). I find – firms' client to a public-sector bank did not see any drop in their exports as a result of the drop in the credit supply (or through the financial channel), as opposed to firms', which borrow from other sources (private and/or foreign banks). I interpret this finding as the effect of the expansionary monetary policy, which primarily affected the balance-sheets of the public-sector banks and other banks (private and foreign) differentially. To the best of my knowledge, I believe this is the first paper to analyze the effect of a domestic policy response (in this case, an expansionary monetary policy), due to the crisis of 2008-09, on firm-level performance.

JEL classifications: F1, F14, F41, G21, G28

Keywords: 2008-09 Financial crisis, Expansionary Monetary Policy, Public-sector Banks, Exporters

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1 Introduction

The collapse of the Lehman Brothers in September 2008 led to the inception of the much-discussed financial crisis of 2008-09 and consequently a sharp decline in credit availability (even in most of the financially developed countries) and trade flows across the globe. There is now a sizeable amount of studies showing how global financial crisis of 2008-09 have impacted trade flows (due to drop in demand or credit supply or rise in protectionism, etc.).[1]

However, there is a dearth of studies aiming to understand how different types of domestic policy changes (within a country), e.g., fiscal and/or monetary policy, which originated as a result of the financial crisis of 2008-09 have impacted the real economy. For example, if a Central Bank of a country responds to the crisis by adopting an expansionary monetary policy (since there is an imminent fall in credit supply), then does that policy change fully and/or partially mitigates the effects on the performance of the firms arising from the credit supply channel? Does the effect varies according to the banking relationship of a firm?

I investigate the impact of one such policy decision. During the crisis of 2008-09, the Central Bank of India, popularly known as the Reserve Bank of India (RBI, hereafter), expecting a significant decline in domestic credit growth eased the monetary policy to improve the flow of credit to productive sectors, at viable costs, so as to sustain the growth momentum and to restore the economy back to its pre-2008 growth schedule (Acharya and Kulkarni, 2012, 2016). It announced several measures, which includes lowering of provisioning norms and reduction of risk weights on exposures apart from lowering the interest rate structure by significantly reducing both its key policy rates – the repo rate and the reverse repo rate. In addition, the Cash Reserve Ratio (CRR) was also reduced by four times in the post-September 2008 period.

Figure 1 plots yearly repo, reverse-repo rates and CRR (as reported by RBI)[2] from 2006 to 2010. All the three policy rates register a significant decline for the year 2008-09. I use this one-shot decision of an expansionary monetary policy (to increase the flow of credit into the economy) by the RBI to investigate its impact on the real economy–say, firm-level export performance–using firm-level credit information and a novel firm-bank matched dataset from India. In particular, I ask the following question: is there a differential impact on the export margins (extensive and intensive) of Indian manufacturing firms when a firm is borrowing from public-sector bank (or government- or state-owned bank) vis-à-vis other banks (e.g., domestic private and/or foreign banks)?

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[1] The literature on Great Trade Collapse (GTC) after the 2008-09 crisis identifies 4 main channels: (i) decline in demand (Behrens et al., 2013; Eaton et al., 2016; Chakraborty, 2018), (ii) drop in credit supply (Bricongne et al., 2012; Chor and Manova, 2012; Aisen et al., 2013, Parasivini et al., 2014), (iii) rise in trade barriers (Kee et al., 2013); and (iv) imported inventories (Alessandria et al., 2010).

[2] It is an average of the monthly rates as announced by the RBI.

I find – firms' borrowing from state-owned bank did not see any drop in their exports as a result of the drop in the credit supply (or through the financial channel), as opposed to firms', which borrow from other sources (private and/or foreign banks). On the other hand, the firms which have banking relationships with domestic-private and foreign banks experienced a negative effect in both extensive and intensive margin of trade. I interpret this finding as the effect of the expansionary monetary policy (undertaken by the RBI due to 2008-09 crisis), which primarily affected the balance-sheets of the public-sector banks and other banks (private and foreign) differentially. And, this differential health of the banks subsequently got reflected in the performance of the firms, especially the exporting firms, differentially.

India, like Brazil and China was relatively immune to this slowdown of the international credit flows. Primary reason being: Indian banking system did not have any direct exposure to subprime mortgage assets (Sinha, 2010).[3] Although the impact of subprime crisis both on Indian banks and the financial sector was limited, India witnessed a heavy sell-off by Foreign Institutional Investors (FIIs) to provide the much-needed liquidity to their parents in the US or Europe – a net expulsion of around $13.3 billion in 2008 through equity disinvestment (Kumar et al., 2008).[4] In addition, a few more events happened simultaneously (i) reduced access of Indian entities to international market funding, (ii) call money rate breaching the upper bound of the informal Liquidity Adjustment Facility (LAF); overnight call money rates rose by nearly 20% in October and early November 2008, and (iii) decline in the outstanding amount of certificate of deposit (CD) issued by the commercial banks as the global financial market turmoil intensifies. Thus, while the Indian banking sector remained largely unscathed by the global financial crisis, it still could not escape a liquidity crisis and a credit crunch.

Fearing a cascading effect of the drop in credit supply on the activities of the real economy, the RBI immediately announced significant reduction in repo[5] and reverse-repo rates. To temporarily expand the money supply, the central bank decreases repo rate (so that banks can swap their

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[3] Prof. Jayati Ghosh and C. P. Chandrasekhar in an article in The Hindu (Oct 21, 2008) argues that the global financial crisis will certainly have some impact in Indian case, but not of the kind that was experienced in the US due to well-regulated banking system and 'strong fundamentals' of the economy.

[4] This was followed by a massive slowdown in external commercial borrowing by India's companies, trade credit and banking inflows. Short-term trade finance and bank borrowings from abroad swung to outflows of US$9.5 billion and US$11.4 billion respectively in the second half of 2008-09. The Reserve Bank of India intervened heavily to support the rupee by selling dollars, leading to some depletion of the stock of reserves. The drying up of funds in the foreign credit markets led to a virtual cessation of external commercial borrowing for India, including the access to short-term trade finance. The collapse of the stock market ruled out the possibility of companies raising funds from the domestic stock market. Indian banks also lost access to funds from abroad, as inter-bank borrowing seized up in the US and Europe and banks had to send funds to their branches abroad in those countries. All these put heavy pressure on domestic banks, leading to a liquidity crisis.

[5] Repo rate is the rate at which the central bank of a country (RBI, in case of India) lends money to commercial banks in the event of any shortfall of funds.

holdings of government securities for cash) and reverse-repo rate[6] (so that the cost of borrowing by the central bank decreases). Both these rates was reduced by 425 and 225 basis points, respectively. The CRR was also slashed by 400 points during October 2008 and January 2009. All these were done in order to increase the money supply to the productive sectors through commerical banks.[7]

Viswanathan (2010) argues that the expansionary monetary policy was primarily undertaken: (a) to increase the credit supply of the domestic banks; (b) to meet the trade financing requirement of the traders; and (c) to serve the debt service payments by those businesses that had existing foreign debt. Blinder et al. (2017) in a survey paper[8] points out that the global financial crisis had significant impact on the practice of monetary policy across a range of countries. Moreno (2010) and Crowley and Luo (2011) also notes that the crisis influenced the policy makers, especially the central bankers, to respond by increasing foreign and domestic currency liquidity.

Therefore, given such a situation, what could be the first order effects of such a policy? The flow of credit supply to the banks should increase. In case of India, it happened so, but differentially. The flow of credit supply from the RBI increased, but especially for the public-sector banks. Reason: the *Indian Bank Nationalization Act 1969* provides an explicit guarantee that all obligations of public-sector banks will be fulfilled by the Indian Govt. in the event of a failure. **Figure 2** plots the borrowings from RBI by an average public-sector, private and foreign bank for 2006-2010. The plot(s) clearly shows evidence of expansionary monetary policy, but only in case of public-sector banks. Acharya and Kulkarni (2012, 2016) analyzing how the 2008-09 crisis has impacted the publicly-owned and other banks (private and foreign banks) in India also points such differential inpact. Mihaljek (2010) also provides similar evidence by looking across a range of emerging economies.

Additionally, **Figure 3** plots the growth in deposits in case of Indian public-sector, private and foreign banks. An average public-sector bank saw an increase in deposits, whereas for the other two types, it declined sharply. Public-sector bank deposits increased by 26.9% in 2008-09 as compared to 23.1% in the previous year. On the other hand, private banks deposit growth decreased from 22.3% to a meagre 9.1% for the same period. Acharya and Kulkarni (2012) points out that in case of India, the explicit and implicit government guarantees for public-sector banks also helped them to tackle the financial crisis better than other banks.[9] Eichengreen and Gupta (2012) analyzes the

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[6]It is the rate at which the central bank of a country borrows money from commercial banks within the country (it is also a monetary policy instrument which can be used to control the money supply in the country).

[7]See official statement of the Governor of the RBI: https://www.reuters.com/article/idINIndia-37674620090127

[8]The paper surveys 95 central banks with a questionnaire consisting of 13 questions. In all, 55 questionnaires were returned, with a gratifying (these days) response rate of 58%. The authors concentrate on four sub-questions: have there been important and lasting changes in central bank mandates, monetary policy instruments, central bank communications, and the place of the central bank within the government?

[9]Acharya and Kulkarni (2012) also highlights that this is the theme worldwide. For example, the growth of

change in bank deposits in India during the crisis of 2008-09. They show that it is the expectation for the implicit guarantee for the public-sector banks that resulted in a significant growth in deposits during the crisis. All these events (the expansionary monetary policy, shifting of deposits, etc.) may have helped the public-sector banks in improving their reserves or balance sheets as comprared to other banks.

A couple of questions arise immediately: (a) does the effect of the monetary policy also shows up in the pattern of firm-level borrowing? **Figure 4** plots the borrowings by an average Indian manufacturing firm from a public-sector bank as opposed to all other types of financial institutions and banks.[10] The figure clearly highlights the differential pattern in borrowing from different kind of financial institutions – borrowings from all but public-sector banks dropped significantly in the post-2008 period. This shows that firms which are dependent on public-sector banks experience an increase in borrowing than others. And, this rise in credit supply may have led to a rise in investment spending and/or output. This could be particularly true in case of exporters, as they are the ones to be primarily affected due to the financial crisis (due to drop in demand for their products from the US and Europe). **Figures 5** and **6** exploits the borrowing from domestic and foreign sources by an average Indian manufacturing exporter and non-exporter, respectively. The figures clearly points out that the aggregate borrowing pattern by an average manufacturing firm across four different sources (**Figure 4**) is almost completely driven by the exporting firms.

(b) how does borrowing from a public-sector bank or sources can help a firm (when the firm is a client to the public-sector bank) to mitigate the partial effects of the crisis? The first and foremost reason could be due to the very simple fact that the public-sector banks themselves are differentially affected (by the crisis) as compared to other banks. Similar to this case, this differential effect of the crisis on different types of banks is well-documented. As the existing evidence suggests, credit-lending by public-sector banks tend to be less responsive to macroeconomic shocks than by private banks (Micco and Panizza, 2006; Bertray et al., 2012; Cull and Martinez-Peria, 2012; Acharya and Kulkarni, 2012; Coleman and Feler, 2015).

Figure 7 reveals such similar situation in case of India. For public-sector banks, credit expanded during the crisis of 2008-09 by 20.4% as compared to 22.5% in 2007-08, a mere drop of 2 percentage points. On the other hand, for private banks and foreign banks the numbers are 10.9% and 4%,

the government-sponsored enterprises (Fannie Mae and Freddie Mac) and commercial banks in the US (both set of institutions with explicit government support and ready access to central bank emergency lending). These institutions expanded their holdings of mortgage-backed securities while investment banks and hedge-funds de-leveraged and sold these type of securities (He et al., 2009).

[10]Unlike the data on bank-level borrowings, where I could differentiate between a public-sector and private-sector bank, the firm-level borrowing data does not allow me to seggregate the private-sector sources into private banks and other NBFCs. Nonetheless, it still gives a clear idea on the differential effects of the firm-level borrowing between public-sector, private-sector and foreign sources.

respectively (compared to 19.9% and 28.50% in 2007-08, respectively). Ivashina and Scharfstein (2010) points out that banks cut their credit less if they have better access to deposit financing. The Govt. of India also issued a directive to public-sector enterprises (firms and not banks) to deposit their surplus funds in public-sector banks (Economic Times, 2008).[11] These type of events in addition to the direct flow of funds from the Central Bank (as a result of the expansionary monetary policy) may have also helped the public-sector banks to increase credit flows to firms.

Second, differential performance of the public-sector and other banks (private and foreign) could also be due to the differences in investor confidence. For example, consider the credit default swap (CDS)[12] spreads for two big banks in India – SBI and one private bank (Industrial Credit and Investment Corporation of India, ICICI hereafter). The cost of purchasing 1-year protection on SBI and ICICI were within the same range in 2007-08, suggesting that investors regarded both banks as equally risky (Acharya and Kulkarni, 2012). However, the difference between the CDS spreads started to increase in SBI's favour in the beginning of 2008-09, indicating that the market possibly view public-sector bank to be more resilient to the crisis than the private bank. Third, as pointed out by Carvalho (2014) increase in lending by the public-sector banks to firms could also be due to political pressure, which was the case for Brazil (Coleman and Feler, 2015).

The linkages between the financial sector and firms' performance, especially export activities have attracted significant attention in recent years (Berman and Hericourt, 2010; Chor and Manova, 2011; Amiti and Weinstein, 2011, 2017; Minetti and Zhu, 2011; Bricongne et al., 2012; Caggese and Cunat, 2012; Feenstra et al., 2014; Paravisini et al., 2014; Manova et al., 2015; Muuls, 2015; Bronzini and D'Ignazio, 2015; Buono and Formai, 2018). To become an exporter, a firm is dependent on financial resources for several reasons, such as identification of export markets, making their products according to foreign demand, setting up distribution networks, etc (Baldwin and Krugman, 1989; Dixit, 1989). Manova (2013) points out that most of these costs are need to paid at the beginning and in addition they need enough liquidity at hand in order to sustain for the relevant expenses after starting an export activity. For example, expanding for a single market to multiple markets or increasing the volume of export flows. All these activities require substantial liquidity (Chaney, 2016).

During a crisis, demand for liquidity by the exporters goes up significantly as there could be (a) payment for their sales gets delayed; (b) fall in demand for their products in crisis-ridden countries; (c) the need to find new destinations for their products; (d) inventories piling up; and (e) a need

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[11] Following the fall of Lehman Brothers and subsequent credit crisis, many depositors shifted capital out of private and foreign banks and moved to public-sector banks. Infosys, a software MNC, transferred nearly INR 10 billion of deposits from ICICI (the biggest private bank in India) to SBI just after Lehman's collapse in the 3rd quarter of 2008 (Economic Times, 2009).

[12] A CDS spread represents the cost of purchasing insurance against the default of an underlying activity.

to continue their production activities even with a drop in their sales. In these situations, firms resort to banks for additional credit supply. If the banks are also simultaneously hit by the crisis and fails to increase the lending, the real economy output falls. Using data from Peruvian firms, Paravisini et al. (2014) find that a contraction of bank funding during the 2008-09 crisis reduces export flows.

Given this background, I use the expansionary monetary policy, undertaken by the RBI due to the financial crisis of 2008-09, as a quasi-natural experiment in order the investigate the role of finance on Indian manufacturing firms' export activities. Particularly, I explore whether the ownership of the banks has a differential effect on the credit supply and eventually on the export flows of the firms. I carry out the effect of credit shortage, due to the crisis of 2008-09, on firm performance at two different levels: (a) at firm-level, where I use direct information on the sources of borrowing by the firms, such as how much a firm has borrowed from a public-sector bank or other domestic or foreign sources. (b) at firm-bank level. Using information on firm-level borrowing is an important aspect of looking at the impact of financial resources on exports, but it does not say whether increase in credit supply is a demand or a supply side issue. Therefore, to estimate the causal effect of the banks' health (affected as a result of the expansionary monetary policy) during the 2008-09 crisis, on firms' performance, I exploit information on the financial health of the bank(s) to which a firm is client.

For such kind of exercises, I put together information from a well-known dataset on Indian manufacturing firms known as PROWESS (Goldberg et al., 2010; Chakraborty and Raveh, 2018). The dataset is unique in a sense that (a) it contains direct measures of borrowing by the firms from different types of sources, namely borrowings from domestic banks (public-sector), borrowings from domestic private financial institutions (private banks and Non-Bank Financial Comparies (NBFCs)), borrowings from foreign banks, external commercial borrowings (ECBs), etc. (b) the dataset also reveals information on the name and type of banks that each individual firm is client along with the infomation on the balance sheet of the banks, e.g., the health indicators of the banks.

The dataset also reports trade flows, divided into exports and imports, total sales, compensation to employees, expenditure on technology, capital employed, ownership category and other important firm and industry characteristics. All this information, including the borrowing by the firms and the type of banks from which the firms are borrowing, is given for a considerable time period, 2000-2010. This enables us to track how much a firm is borrowing from different sources and type of banks over time, thereby allowing for a dynamic specification in which changes in credit flows from different kinds of sources may influence firm performance.

Using this rich dataset, I perform the analysis at three different levels. First, I exploit infor-

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mation on borrowing by firms from different sources and interact with a crisis-dummy (dummy takes a value 1 if the $year \geq 2009$) and a measure of the expansionary monetary policy (repo rate) on a firm's export margins. I find firms that borrow from public-sector banks are differentially affected compared to firms borrowing from foreign sources. Firms borrowing from foreign sources experience a negative effect on their export flows (intensive margin), whereas firms borrowing from public-sector banks see the opposite. The effect is higher for firms operating in high-financially dependent sectors. On the other hand, I find no effect on extensive margin.

Next, I investigate whether the monetary policy indeed has a differential effect on the lending activities of banks according to their ownership. I use total loans and advances by a bank as the indicator for lending activities. My results show that the expansionary monetary policy has significant positive effect only on the lending activities of the public-sector or state-owned banks. I find no effect of the policy on the lending activities of any other types of banks.

Last, I exploit balance sheet information of the banks to which an individual firm is client to estimate the effect of the expansionary monetary policy on the export margins of the firms). In particular, I use borrowings from RBI, total loans and advances by these banks and a profitability ratio of the banks. I interact these bank-level information with the crisis-dummy and a dummy indicating whether a firm is client to a domestic public-sector bank. To control for endogeneity, I use information on banking relationships and bank health in the pre-crisis years. My triple-interaction term is robust, significant and positive. Firms client to the state-owned banks do not experience any decline in their domestic and international sales due to the disruption in credit supply in the post-2008 period. I do not find such consistent effect for the extensive margin. On other hand, firms client to either domestic-private banks (esepcially the big banks) or foreign banks (especially the banks of the US origin) experience the opposite; they encounter a significant decline in their export flows.

My findings contribute to four different kinds of literature. My primary contribution is to the literature on how financial crisis in general and particularly 2008-09 induced several governments and central banks to undertake monetary expansion as a policy response. There is a lot of qualitative evidence showing the prevalence of such kind of policies in the aftermath of 2008-09 crisis, especially in emerging economies (Moreno, 2010; Crowley and Luo, 2011; Kline et al, 2017). But, there is no study to understand how these policy responses have affected the real economy. I show how the expansionary monetary policy, in case of India, led to significant differential effect on firm-level export earnings (intensive margin). To the best of my knowledge, I believe this is the first paper to analyze the effect of a post-crisis (2008-09) domestic policy response on firm-level performance.

This brings me to my second primary contribution, which is about how different types of banks

affect economic performance and activity. Coleman and Feler (2015) analyzes the role of Brazil's govt-owned banks in mitigating national recession by providing more credit to offset the decline in lending by private banks. Localities in Brazil with a higher share of govt-owned banks experienced a relative increase in lending following the onset of the financial crisis compared to areas with a low share of these banks. I also show that firms which borrow from or connected to state-owned banks did see a relative increase of approximately 2.3–28% in their export earnings.

My paper also contributes to now a seemingly growing literature on trade and finance. Namely, the role of credit supply or shocks on export activities. My paper exploits a policy response which led to differences in the availability of credit across different types of banks, to measure its effect on firms' export performance. The results are closely related to the work that analyzes the effects of credit disruptions on trade during the Great Trade Collapse of 2008-09 (Bricongne et al., 2012; Bolton et al., 2011; Chor and Manova, 2012; Levchenko et al., 2010; and Paravisini et al., 2014) as well as the general literature on credit shocks or banks' health and performance of firms (Amit and Weinstein, 2011, 2017; Bronzini and D'Ignazio, 2015; Berton et al., 2017; Buono and Formai, 2018). My results show that stability or availability of external finance is indeed important for exporters (Rajan and Zingales, 1998).

Finally, the paper is also related to the recent literature that uses the bank lending channel as an instrument for credit shocks (Amiti and Weinstein, 2011; Carvalho et al., 2015; Chodorow-Reich, 2014; Iyer et al., 2014; Jimenez et al., 2011; Kalemli-Ozcan et al., 2010; and Muûls, 2015). This literature compares firm-level outcomes such as total sales, total exports, employment or investment across firms affected differently by a credit shock. I also show that monetary policy affected the lending activities of banks, although differentially, through a bank lending channel.

The rest of the paper is organized as follows. Section 2 describes the background of the policy response undertaken the Central Bank of India as a result of the 2008-09 crisis and how did it impacts the Indian banking sector. The dataset is outlined in Section 3. Section 4 describe the empirical strategies and the corresponding results. Section 5 concludes.

2 Monetary Policy and Bank Lending in India during 2008-09

The 2008-09 global financial crisis initially hit India via the financial channel (Rajan, 2009; Joseph, 2009). However, not through the conventional route – the subprime mortgage assets. The liquidity crisis in the Indian credit market happened as a result of the colossal de-leveraging of the US banks after the financial meltdown – a net disinvestment of US$ 13.3 billion from the Indian equity market. The FIIs withdrew funds from all over the emerging markets to meet the liquidity requirements of their principals in the US (Joseph, 2009). Additionally, capital inflows under external commercial

borrowings, short-term trade credit and external borrowing by banks also started to decline. **Table 1** shows there was a major return flow of capital from India, especially in the second half of the year, with regard to short-term trade finance and bank borrowings to the extent of US\$ 9.5 billion and US\$ 11.4 billion, respectively.

This massive withdrawal of capital led to (i) a fall in Bombay Stock Exchange (BSE) Index, and (ii) a rapid depreciation of the Indian rupee vis-a-vis the US dollar. In addition, banks and corporates that were dependent on global markets for foreign currency suddenly found themselves to be facing a major liquidity crisis as credit dried up (Islam and Rajan, 2011). Indian banks also lost access to funds from abroad, as inter-bank borrowing seized up in the US and Europe. All these put heavy pressure on domestic banks leading to a liquidity crisis in the second half of 2008. This got reflected in the inter-bank call money markets, where the call money rates rose to 20% or so (**Figure 8**). Sengupta (2009) points out that between mid-September to end-October 2008, the daily weighted average call rate and the overnight weighted average money market rate (OWAR) exceeded the upper bound of the LAF corridor twice. All these happened despite the fact that a majority of the Indian banking system is owned by the public-sector.

As the gravity of the financial crisis became apparent, the RBI took several policy measures to ease both the rupee and the liquidity conditions in the financial system. Monetary policy was the principle tool to counter the after effects of the financial meltdown (Sengupta, 2009). With regard to the domestic liquidity, the RBI reduced the key policy rates–the repo and the reverse repo–via the LAF. The repo rate was reduced by 350 basis points to 5.5% in mid-October 2008 to 4.75% 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% in April 2009. The CRR was reduced from 9% in September 2008 to 5% by early January 2009 in order to raise the money multiplier and inject liquidity in the system.

Other measures include (i) reduction in Statutory Liquidity Rates (SLR) (from 25% to 24%); (ii) opening of new refinance windows; (iii) lowering of prudential norms in regard to provisioning and risk weights; and (iv) refinance to Small Industries Development Bank of India (SIDBI) (Subbarao, 2009b).[13] Mohan (2009) highlights that the estimated amount of liquidity that has been injected into the system is about 9% of GDP.[14] In addition, foreign exchange liquidity was also eased by loosening restrictions on 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 (Islam and

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[13] 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).

[14] According to the estimates of the Deputy Governor of the RBI (during the crisis period), the various monetary and liquidity measures, taken together, released actual/potential liquidity amounted to be over INR 5,620,000 Million.

Rajan, 2011). The RBI which allowed the rupee to depreciate until September 2008, intervened to manage the rupee decline by leaning-against-the-wind, hence releasing further foreign exchange into the market.

The infusion of such a significant amount of liquidity by the RBI and other quasi-open market operations helped the credit to grow at a stable and robust rate. **Figure 9** shows that this is partially due to the decline in reserve money and consequent increase in the broad money during the second quarter of 2008-09. The graph also points out that RBI's credit supply to public-sector banks and commercial sector also increased during the crisis. This led to an increase in the money multiplier (**Figure 10**), which is in sharp contrast to the US (RBI, 2009; Islam and Rajan, 2011).

As a result of these monetary measures, banks, especially the public-sector ones, found themselves saddled with surplus liquidity. The RBI requested the public-sector banks, that accounted for over 70% of loan growth in 2008-09, to reduce the Benchmark Prime Lending Rate (BPLR) and increase the credit flows to the private commercial sector. Sengupta (2009) points out that it is because of the expansionary monetary policy that the state-owned banks witnessed a sharp rise in their lending activities, in contrast to the private-sector banks. The domestic private-sector and foreign banks, on the other hand was rather reluctant to respond and eventually reduced their long-term lending and shifted to short-term exposures.

Figure 11 plots the total amount of loans and advances by the major public-sector, private, and foreign banks operating in India (as listed by the RBI) for the period 2006-2010. It shows that for an average public-sector bank, loans and advances registered a significant increase (by a factor of two) after the crisis period, whereas for private banks it slowed down and for foreign banks, it declined. **Table 2** calculates the year-by-year percentage changes in credit flows for all public-sector, private-sector and foreign banks. For public-sector banks, the percentage of credit flow increased to 28.6% in Janurary 2009 as opposed to 22.5% in March 2008; for private and foreign banks, it declined from 19.9% to 11.8% and 28.5% to 16.9% during the same time period, respectively. Looking specifically at export credit by banks also yields similar conclusions. **Figure 12** shows the amount of export credit given out by three different types of banks. Likewise, it increased for public-sector banks and declined for others (especially in case of foreign banks).

Acharya and Kulkarni (2012) investigate the impact of ownership structure on bank vulnerability in India during the crisis of 2008-09 to find that private-sector banks performed worse than public-sector banks. Private-sector banks experienced deposit withdrawals, whereas state-owned banks saw the opposite. Eichengreen and Gupta (2013) also shows that Indian private banks experienced a slowdown in deposit growth during and after the crisis; public-sector banks, in contrast, did not experience any such similar situation. The difference in the performance of the public-sector

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and private-sector banks is similar in other countries as well.

Coleman and Feler (2015) studies the role of Brazil's government-owned banks to reduce the effects of national recession by providing more credit to compensate for the decline in lending by the private banks. **Figure 13** shows the total amount of credit given by the government-owned banks as opposed to private banks in Brazil. The graph points out that although the total credit given out by these two types of banks are somewhat similar before the crisis, it was significantly different after. Localities in Brazil with a high share of government-owned banks experienced a relative increase in lending following the onset of the financial crisis. In a similar context, Ivashina and Scharfstein (2010) by exploiting the syndicated loans for the US banks show that the banks cut their lending less if they had better access to deposit financing. This is exactly what happened in case of the public-sector banks in India. I use this differential impact of the 2008-09 crisis on public-sector, private and foreign banks to understand the differential effects on a firm's export performance.

3   Dataset

The sample of firms is drawn from PROWESS database, constructed by the Centre for Monitoring the Indian Economy (CMIE), a private agency. The database contains information on approximately 27,400 publicly listed companies, all within the organized sector, of which almost 9000+ are in the manufacturing sector. I use data for around 5,500+ firms, for which there is consolidated data on banking relationships. I use data for the years 1999–00 to 2009–10, hence covering the crisis period (2008-09). Unlike other sources, the PROWESS data is in effect a panel of firms, enabling me to study their behaviour and banking relationships over time.

The dataset is classified according to the recent 5-digit 2008 National Industrial Classification (NIC) level. I reclassify it to 4-digit NIC 2004 to facilitate matching with other important industry-level variables; hence, all the categorization made throughout the paper are based on the 2004 NIC classification. The dataset spans across 108 (4-digit 2004 NIC) dis-aggregated manufacturing industries that belong to 22 (2-digit 2004 NIC) larger ones. It presents several features that makes it particularly appealing for the purposes of this study. Below, I outline the three most important features that are primarily needed for the paper.

First, how representative is the sample of firms of the total manufacturing sector export margins? To understand, I calculate a simple proportion of total exports of all the manufacturing firms in PROWESS to all Indian merchandise exports for the year 2006 (couple of years before the crisis); the ratio is around 0.33 or 33%. It ranges from around 30-39% (depending on the year). In terms of the number of exporters in my sample, it is between one-fourth to one-third of the sample

of manufacturing firms analyzed. This seems to be a fairly reasonably picture in terms of the coverage of the exporting manufacturing firms by PROWESS. In terms of export flows, coke, refined petroleum and nuclear fuel sector have the highest exports followed by tobacco products, food products, textiles and beverages.

Figure 14 shows India's total merchandise export flows along with other major destinations, E.U., U.S. and Asia, for the years 2006-2009. In this figure, I plot the aggregate export data from the UN-COMTRADE. As the figure shows, the growth rate of total manufacturing exports of India declined by around 17% for the year 2009, which is almost the same as the drop in global trade during the crisis period. Exports towards major destinations–such as E.U., U.S. and Asia–also declined during 2009, with the drop for Asia being the least. The drop in exports in 2009 is highest for the U.S. (10.65%), followed by the E.U. (7.39%) and Asia (1.31%).[15] The RBI's report (2009) on trade balance also suggests that the export sector is hit quite badly, since a large proportion (nearly 40%) of Indian merchandise exports goes to the OECD countries. Next, I compare how well changes in exports of the sample of firms that I use in my analysis track those of the overall economy.

Figure 15 compares average exports (deflated by the Wholesale Price Index number), divided into four different size quartiles, across all manufacturing sectors for the same time period as before. The decline in export earnings was 23.8% for 1st quartile, 24.3% for 2nd quartile, 17% for 3rd quartile and 1.1% for 4th quartile of firms, respectively. On average, the drop in manufacturing export flows is 16.55% at the firm-level (same as the overall economy). Overall, these diagrams indicate that the export growth computed from our sample of firms follows the macro-level Indian exports quite closely.

Second, to identify how credit supply from different sources affect a firm's export performance, I exploit a unique feature of the dataset. This database provides significant details about a firm's (a) different sources of credit borrowing. It gives detailed information on the different types of borrowings (banks or private financial institutions) classified by sources (domestic or foreign) made by the firms. For example, borrowing from public-sector banks (domestic), borrowings from domestic private financial institutions. However, it does not differentiate between a private bank or NBFC.[16]

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[15] If we consider the drop in the growth rate of Indian exports, it is highest for the E.U. (around 31%) followed by the U.S. (around 17%). However, a closer look would tell you that the drop in exports towards the U.S. is much larger if we take the year 2008 into account; it stagnated from that year on. The increase in exports to the U.S. for the year 2008 was merely 6%, whereas the same was 77% for the year 2007.

[16] The borrowings from the domestic sources are further divided into secured and non-secured borrowing. When a firm borrows money from a bank (public-sector or private) and provides them security in form of some claim over assets in the event of a default, then such borrowings are termed as secured bank borrowings. A company may borrow loans from a single bank or a number of banks or from a syndication of banks; all of these are a part of secured bank borrowings. I use secured borrowings for the analysis. Putting both secured and unsecured borrowings also yeild

Additionally, it also gives data on the amount of loan taken in a currency other than Indian rupees, termed as foreign currency borrowing. It further divides the foreign currency borrowing as if it is borrowed from banks (examples of such borrowings would be like loans taken from foreign banks, foreign currency loans taken from foreign branches of Indian banks, foreign currency loans from Indian banks, etc.) or other types of financial institutions (it includes credit from official export credit agencies and commercial borrowings from the private sector window of multilateral financial institutions such as International Finance Corporation (Washington), ADB, CDC, etc.). **Table 3** calculates the average real credit (deflated by wholesale price index) of all firms (across the manufacturing sector) from different sources, public-sector banks, domestic private financial institutions (banks and NBFCs) and foreign borrowing for the years 2006-2009. The table shows that it is only in case of the public-sector banks that borrowing increased during the crisis, while for others it dropped.

(b) banking relationships. In particular, the names and the type of banks (domestic or foreign and public-sector or private-sector) an individual firm is client to for each individual year. A listed Indian firm often deal with more than one bank. And, there is no way to understand which bank is the main 'reference bank' for a firm. Therefore, I treat all the banks with equal importance. The dataset also rolls out all the important information on the balance sheet of the banks. This gives me the unique advantage of utilizing the health of a bank as an indicator of the extent of credit that a firm has access to (during the crisis) and see the impact of credit supply (due to the monetary policy) on that firm's performance. Specifically, there is information on (i) borrowing done by the banks from the RBI (which is a direct indicator of monetary policy), (ii) loans and advances given by the banks, (iii) other indicators measuring the financial health of a bank, such as return on assets, operating profit to working fund ratio, contingent liabilities as a percentage of net worth, etc., and (iv) the amount of export credit provided by these banks.

Figure 16 uses contingent liabilities as a percentage of net worth as an indicator for financial health of the banks and plots for public-sector, private and foreign banks. The ratio declined for an average bank beloging to either of these three categories. However, the drop was the least for public-sector banks (4.5%), whereas for private-sector and foreign banks, it was 28.5% and 42.2%, respectively. This shows that how the health of the public-sector banks are also differentially affected as compared to other banks in India during the financial crisis of 2008-09. I argue that this is a result of the expansionary monetary policy undertaken by the RBI. And, this differential effect on the banks would culminate in the performance of the firms connected to them.

One potential limitation of the dataset is that it does not give the exact amount of loan that has

same result.

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been received by a firm from a particular bank. However, I believe this is not such great concern in this case, as I would be utilizing a bank's financial health and see its impact on its client firms' exports. The dataset provides information on 31 public-sector banks, 24 private-sector banks, 73 foreign banks. This is according to the list of banks provided by the RBI.[17]

In addition to this, the dataset rolls out provides information on a vast array of firm-level characteristics regarding the total sales, imports, cost, compensation (wages plus incentives), production factors employed, other kinds of expenditures, gross value added, assets and other important firm and industry characteristics. Majority of the firms in the data set are either private Indian firms or affiliated to some private business groups, whereas a small percentage of firms are either government or foreign-owned. The database covers large companies, companies listed on the major stock exchanges and many small enterprises. Data for big companies are worked out from balance sheets while CMIE periodically surveys smaller companies for their data. However, the database does not cover the unorganised sector. The variables are measured in Indian Rupees (INR) million, deflated to 2005 using the industry-specific Wholesale Price Index.

CMIE uses an internal product classification that is based on the HS (Harmonized System) and NIC schedules. There are total of 1,886 products linked to 108 four-digit NIC industries spanning the industrial composition of the Indian economy. The US manufacturing data contain approximately 1,500 products as defined by the Standard Industrial Classification (SIC) codes; therefore, the definition of product in this case is slightly more detailed. Around 20% of the firms in the data set belong to the chemical industries followed by food products and beverages (12.81%), textiles (10.81%) and basic metals (10.46%).

4   Financial Crisis, Monetary Policy and Exports

Before investigating how borrowing from different sources can impact a firm's export, it is imperative to understand a couple of issues: (a) do fluctuations in the money market affect activities of the real sector in India?; and (b) how does monetary policy affects a bank's lending pattern or financial health? I start with the former.

4.1   Money Market and Exports

Did tightening of the credit market, because of the 2008-09 crisis, affected the Indian real economy? Chor and Manova (2012) studies the drop in international trade flows during the global financial crisis using detailed data on monthly US imports. They show that credit conditions were an

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[17] Additionally, it gives information on about 9000 private NBFCs, 250 public-sector NBFCs, 173 foreign NBFCs, and 80 co-operative banks.

important channel through which the crisis affected trade volumes. Countries with higher interbank rates and thus tighter credit markets exported less to the US during the peak of the crisis. To understand if India also experienced a similar kind of decline in exports or not as a result of the money market operations during 2008-09 crisis, I follow Chor and Manova (2012) and interact $IBRate_t$ (inter-bank call money rate as given by the RBI)[18] and D_{crisis} (dummy variable that takes a value 1 if year is $\geq$ 2009) to investigate the effect on both the extensive and intensive margin of an Indian manufacturing firm's export controlling for other simultaneous events and firm characteristics. Results are reported in **Table 4**.

The interaction term ($IBRate_t \times D_{crisis}$) estimates the effect of tightness of the credit market during the 2008-09 financial crisis on real activity. The coefficients show that increase in interbank call money rate as a result of the crisis led to a significant drop in export values as well as participation in export market. My results adhere to the finding of Chor and Manova (2012): tightness of credit market significantly impacts both extensive and intensive margin of real activity. However, the effect for the intensive margin is double that of extensive margin.[19] Drop in exports is caused largely due to drop in export flows and not exporters leaving the market. Having established that disruptions in the capital market impact activities of the Indian real economy, I next explore how a policy change (in this case an expansionary monetary policy) impact intermediaries through which money market affects the real economy, i.e., the banks.

4.2 Monetary Policy and Bank Lending/Health

Unconventional monetary policy (in continuous attempts) has been a key tool used by the central banks to revive their economies during the recent crisis and recession (Chakraborty et al., 2017). The key point in this regard is the transmission mechanism (of the monetary policy to the real economy), where the banks and their lending decisions play the most important part. Since, the monetary policy primarily affects the health of the banks. A key question in academic debates following these events is whether expansionary monetary policy will be successful in its stated goals – primarily, in terms of increasing the bank lending through improvement of the health of the banks and whether this improvement in the banks' health could help partial revival of the economy. I focus on the primary effect (of the monetary policy) in this section and the other effect(s) in the subsequent section(s).

The effect(s) of monetary policy is difficult to identify as the changes that follow the intervention

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[18] It is reported by the RBI every fortnightly. However, I have aggregated it to year-level as the firm-level export data is given on a year-to-year basis.

[19] Current research on 2008–09 crisis also shows that most of the activity happened at the intensive margin (Levchenko et al., 2010).

could also be attributed to other changes around the same point in time. I follow Kashyap and Stein (2000) and exploit the heterogeneity in the ownership of the banks by dividing them into public-sector and other banks as the main identification strategy. The basic idea is that some banks, in my case the public-sector banks, are expected to be more affected by the policy than others, and so their differential actions following the monetary policy shock can demonstrate the causal effect of the monetary policy.

This idea is sharpened in case of the *Indian Bank Nationalization Act 1969*. The Act suggests that in the event of a crisis (such as the one I am curerntly focusing), all obligations of the public-sector banks will be fulfilled by the RBI. This can lead to differential effect(s) of the policy shock on the banks. The stylized facts before confirms such kind of differences in the health of the banks. Now, the firms which are connected to these banks may experience a differential effect in terms of their sales/output. Within the bank lending channel, the mechanism through which this policy can affect bank lending or health is through increase in either bank capital and/or fall in the cost of bank finance. Specifically, the drop in repo and reverse-repo rates by the RBI lowers the cost of borrowing by the banks and increases the valuation of banks' current asset holdings, thereby improving the condition of their balance sheets and leading to more lending. Thus, one can expect that banks that received more of the increased flow of credit and related deposits (as were consisdered to be less riskier) benefitted more from such kind of policy. **Figures 2, 3, 7, 11** and **16** confirms this, but, particularly in case of public-sector banks.

All this can significantly increase bank lending. The lending channel is an important means of monetary transmission which can explain the effect of monetary policy via bank loan supply on the economy. The use of expansionary monetary policy by the RBI by decreasing the policy interest rate will result in a decrease in market interest rates, thereby increasing the money supply. This leads to an improvement in bank deposits and bank loan supply, increasing investment, expenditures and economic growth (Mishkin, 1996). And, this effect of monetary policy through the bank lending channel is relatively high in countries with underdeveloped bond markets, such as India (Bose and Coondoo, 2003).

I now directly investigate the effect of the monetary policy on banks' lending and health. For such an exercise, I use the following equation:

$$\ln(H_{bt}) = \beta_1(RR_t^{Dom} \times D_{crisis}) + \beta_2 RR_t^{Dom} + \beta_3 D_{crisis} + bankcontrols_{t-2} + \theta_b + \gamma_t + \epsilon_{bt} \quad (1)$$

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H_{bt} represents an indicator for a bank b's health at time t. I use total amount of loans and advances and ratio of operating profits to working funds as an indicator for bank health.[20] D_{crisis} is a dummy variable that takes a value 1 if year is ≥ 2009. RR_t^{Dom} is the average of the dominant repo-rate (number of days within the month that the rate is applicable) over a 12-month period as given by the RBI. This is a direct indicator of the expansionary monetary policy (undertaken by the RBI during the crisis of 2008-09). As discussed before, the repo-rate was dropped significantly during the crisis period. So, the lower is the repo-rate (due to the crisis), the higher should be the loans and advances by a bank or may be an increase in bank health. Therefore, the interaction terms measures the effect of the monetary policy as a result of the crisis on bank lending and health; I expect the interaction term to be positive, especially for the public-sector banks on the bank lending. *bankcontrols* includes age and age-squared of a bank, assets (as a size indicator). θ_b, γ_t are bank and year fixed effects. I additionally use interaction of bank fixed effects and a year trend in order to control for other simultaneous policy changes that might affect a bank's health or reserves. **Table 5** reports the results regarding the effect of monetary policy on bank lending and health.

Column (1) puts together all types of banks to check for the aggregate effect of the expansionary monetary policy. I do not find any such effect. I run the same estimations for public-sector, private and foreign banks in columns (2), (3) and (4), respectively. As expected, my main variable of interest, the interaction term, $RR_t^{Dom} \times D_{crisis}$, is positive and significant. But, only in case of the public-sector banks. Drop in the repo rate, as a result of the negative effects of the crisis, had a positive impact on the amount of loans and advances rolled out by an average public-sector bank. However, the individual effects of the crisis and repo rate (drop in repo rate increases bank lending) is negative and significant. On the other hand, expansionary monetary policy did not have any effect on private and/or foreign banks' lending pattern. Moreover, the individual effect of the crisis on the amount of loans and advances in case of private and foreign banks continues to be negative.

Columns (4) - (8) replaces total bank lending by an indicator for bank health. I use the ratio of a bank's operating profits to its average working funds. It is expressed in percentage terms. Working funds refers to the total resources of a bank as on a particular date. It can be construed as being either total liabilities or total assets. Total resources would essentially include capital, reserves and surplus, deposits accepted from customers, borrowings, other liabilities and provisions. It could also be looked at as total assets excluding accumulated losses, if any. It, therefore, denotes a bank's ability to put its resources to profitable use, at the operating level. The regression estimates show that the monetary policy had a positive effect on the health of the public-sector banks, with

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[20]I also use return on assets as a robustness check for the bank health. The results remain the same.

opposite effect for others. Although, the effects are not significant. In addition, the results portray that the crisis had a significant dampening effect of the health of the private (not significant) and foreign banks. It is the opposite in case of the public-sector banks.

Overall, these results manifest two points: (a) the transmission mechanism of the monetary policy works through the *bank lending* channel in case of India. However, only for the public-sector banks; and (b) public-sector banks were differentially impacted as compared to other types of banks (private and foreign banks). Next, I utilize the information on the amount of credit borrowing by the firms from different sources (interacted with the expansionary monetary policy) to explore its effect on firm-level exports.

4.3 Firm Borrowing and Exports

Figures 4, 5 and **6** suggest that firm-level borrowing, especially by the exporters, increased significantly after the crisis particularly from the public-sector banks. I argue this could be due to the effect of the expansionary moentary policy which led to increase in bank capital (during the crisis) for the public-sector banks. To assess whether this increase in credit flow (from the domestic sources) for the exporting firms resulted in differential effect on their trade flows as opposed to borrowing from other sources, I exploit the following reduced form using OLS fixed effects type of estimation:

$$
\begin{aligned}
x_{ijt} \;=\; & \beta_1(RR_t^{Dom} \times D_{crisis}) + \beta_2(RR_t^{Dom} \times D_{crisis} \times Borr_{i,00-01}) + \\
& firmcontrols_{t-2} + \theta_i + \alpha_{jt} + \epsilon_{ijt}
\end{aligned}
\tag{2}
$$

The dependent variable x_{ijt} is either extensive or intensive margin of export activity for firm i belonging to industry j at time t. RR_t^{Dom} is the average of the dominant repo-rate as mentioned before. $Borr_{i,00-01}$ is the average of the type of borrowings done by a firm i for the years 2000 and 2001 from different sources. One of the crucial determinants of the export performance of a manufacturing firm is finance. In this particular case, the source of finance matters much as banks (according to ownership) were differentially affected during the crisis. Therefore, while estimating the above equation I compare the estimates of the effect of borrowings done by firms from the public-sector banks as opposed to foreign banks in order to test for the effect of the expansionary monetary policy.

Now, borrowing is endogenous to the performance of a firm. For example, a firm experiencing a sudden decrease in demand for its goods (as it may happen during the crisis) may want to borrow more in order to keep the production going since the payment from the sale of goods are either low or would be late. And, this may possibly increase the demand for credit. Since there has been an increase in the flow of credit for public-sector banks due to the monetary policy and/or shortage of finance for foreign banks during the financial crisis, a firm would inadvertently go to a domestic public-sector bank to borrow more. A firm borrowing from a foreign bank, therefore, can intensify the effect of the decline in credit supply on its export values. This turn of events can establish a positive correlation between borrowing from domestic sources and exports, but not a causal one. To potentially subvert these problems, I construct a 'Financial Fragility' index using borrowing pattern of the firms in the pre-crisis period. In particular, I use average borrowing by a firm i for the years 1999-00 and 2000-01 by calculating the following index: $AvgBorr_{i,00-01} = Avg(Borr_{i,2000} + Borr_{i,2001})$. These years are significantly before the crisis, so borrowing patterns in those years should not be influenced by a factor related to the 2008-09 financial crisis.[21] Now, $Borr_{i,00-01}$ takes a value 1 or 0 according to the origin of the borrowing. I use only public-sector and foreign banks for my analysis.[22] So, when borrowing from the public-sector banks (for the years 1999-00 and 2000-01) is greater than zero, $Borr_{i,00-01}$ takes a value 1 and 0 otherwise. Similar in case of foreign bank.

The main variables of interest are the triple and double interaction terms. $RR_t^{Dom} \times D_{crisis} \times Borr_{i,00-01}$ estimates the effect of borrowing from different sources, domestic or foreign, during the crisis has a differential effect on a firm's export flows. Therefore, β_2 establishes whether there is any positive effect of the expansionary monetary policy on exports when a firm is borrowing from domestic vis-a-vis foreign sources. When a firm is borrowing from domestic sources, $Borr_{i,00-01}$ represents borrowing by a firm from all domestic public-sector banks.[23] Therefore, the triple interaction term would estimate the effect of the expansionary monetary policy (during the crisis) when a firm is borrowing from public-sector banks. Therefore, β_2 can either be > 0 or < 0. It depends on the source of borrowing. I expect β_2 to be > 0 when a firm is borrowing from public-sector banks (given the effect of expansionary monetary policy) and < 0 when a firm is borrowing from foreign banks.

The effect of the expansionary monetary policy will only bear its fruits when a firm is borrowing only from public-sector banks. Therefore, $RR_t^{Dom} \times D_{crisis}$ would estimate the effect of the monetary

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[21] I have also used borrowings at period $(t-1)$; the results are the same.

[22] I exclude domestic private-sector banks for this part of the analysis as the data does not allow to seggregate the borrowings from private banks or private NBFIs.

[23] Since, borrowing from private banks and NBFIs are combined, it will be difficult to seggregate the effect from the private banks. Therefore, for these estimations I concentrate only on domestic public-sector and foreign banks.

policy on exports when a firm is borrowing from all other sources, but public-sector banks. In other words, the double interaction term serves as a control group in my estimation. I expect that for an average Indian manufacturing firm, the effect of the monetary policy on exports would be negative, namely $\beta_1 < 0$. This is because the transmission mechanism of the monetary policy only works through the bank lending channel of the public-sector banks. I note that both β_1 and β_2 could have been more precisely estimated if I have used monthly/quarterly data of repo rates. Although, the RBI rolls out monthly/quarterly data for repo rates, the export data is given only on a yearly basis.

α_{jt} are interaction of industry-year FEs. These interaction terms control for all other possible industry-level effects that can influence the export flows of a firm. For example, the demand conditions in the export destinations of India. Chakraborty (2018) shows that drop in demand, especially in the US and the EU, led to a significant decline in exports of Indian manufacturing firms. The industry-year fixed effects will specifically control for import competition effects from other countries, such as China. India and China are close competitors in certain products in the international markets, such as textile. Increase in demand for Chinese products may in turn result in drop in demand for Indian products and this may adversely affect export flows. The interaction terms will also control for any another special kind of stimulus awarded for industry-level bodies/associations in order to help them during the crisis. The interacted fixed effects will also control for any fiscal stimulus announced by the Govt. of India towards any sector, other kinds of financial dependence an industry has, etc. θ_i are firm-level fixed effects and I cluster standard errors at firm-level.

Table 6 reports the required result. Columns (1) - (4) use natural logarithm of exports as the dependent variable. Column (1) considers the case when a firm is borrowing from public-sector banks, whereas column (2) does the same but only in case of firms belonging to industries of high financial dependence[24]. In particular, $Borr_{i,00-01}$ takes a value 1 if $AvgBorr_{i,00-01}$ from public-sector banks is positive and 0 otherwise. The triple interaction term, $RR_t^{Dom} \times D_{crisis} \times Borr_{i,00-01}$, is significant and positive in both the cases, albeit a bit higher in case of firms belonging to the industries of higher financial dependence. It shows that the desired effect of the monetary policy is only realized when firms are borrowing from the public-sector banks. My control group of firms in this case are the firms which are borrowing from the foreign banks. In particular, the double interaction term estimates the effect for the firms when borrowing from foreign banks on their export flows. It is negative, but significant only in case of firms located in industries of higher financial

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[24]I classify industries as more financially dependent than others if the average of the total borrowing of those industries are higher than the median of the borrowing for all the manufacturing industries.

dependence. It shows that firms which belong to industries where they are more dependent on external finance suffered more as a result of decline in access to credit flows. Columns (3) and (4) repeat the same exercise, but using firms borrowing from foreign banks as the treated group (and firms borrowing from public-sector banks as the control group). Now, the triple interaction terms turns negative with double interactions positive. Overall, the estimates show that the effectiveness of expansionary monetary policy when firms are borrowing from public-sector banks only.

Columns (5) - (8) substitute the dependent variable with an exporter dummy. It takes a value 1 if export flows of a firm is greater than zero. The results continue to be the same with the magnitude of the coefficients being significantly lower. This re-iterates my earlier findings about the drop in export flows is more due to adjustment in the intensive rather than extensive margin.

4.4   Bank Health and Exports

After establishing that different sources of borrowing can have a differential effect on export flows, I now exploit the uniqueness of the dataset to utilize the firm-bank relations to estimate the causal effect of financial health of different types of banks during the crisis on firm-level exports. However, before utilizing the health of the banks as an instrument to establish the causality of the effect of the monetary policy on firms' exports through differential effect on banks' health/lending, I explore whether being a client to a public-sector bank yields a differential effect on the export flows or not. I use the following simple OLS reduced form equation:

$$x_{ijt} = \gamma_1 D_{crisis} + \gamma_2(D_{crisis} \times PSB_{fb,00}) + bankcontrols_{t-2} + \alpha_{jt} + \delta_b^i + \alpha_{jt} + \epsilon_{bt} \qquad (3)$$

x_{ijt} is either the intensive or extensive margin of trade for an Indian manufacturing firm. $PSB_{fb,00}$ takes a value 1 if a firm has a banking relationship with a public-sector bank. Banking relationships are endogenous. Firms can choose a public-sector bank, especially during the crisis to avoid the risk associated with a private bank or foreign bank. Therefore, I choose banking relationships of a firm in the pre-crisis years. In particular, if a firm is client to a public-sector bank in 1999-00, $PSB_{fb,00}$ takes a value 1 and 0 otherwise. I use 1999-00 as the representative year to control for the fact that during the crisis many firms may switch from a private-sector or foreign bank to a public-sector. Another problem in estimating the above equation is that firms in India do have multiple banking relationships. In order to possibly control for that, I use a combination of extensive firm-bank fixed effects, δ_b^i. I continue to use the interaction of industry-year fixed effects to control for industry characteristics possibly influencing firm-level export flows or participation.

bankcontrols contain age, age squared and size of a bank. I use total assets of a bank as its size indicator. I use the assets in $(t-2)$ period and in real terms.

Estimates are reported in **Table 7**. My results show that a firm being a client to a public-sector bank during the crisis does not experience a drop in their export flows or withdrawal from participation in the export market. Whereas, having banking relationship to any other type(s) of bank(s) has the opposite effect. I argue that this due to the effect of the expansionary monetary policy which affected the public-sector and other types of banks differentially. The effect in case of intensive margin continues to be significantly higher than that of extensive margin of trade.

Next, I utilize a direct indicator of the expansionary monetary policy and interact with the public-sector bank dummy to check for the causal effects of the policy on firm-level export flows using a fixed effects type of OLS estimation:

$$
\begin{aligned}
x_{ijt} \;=\;\; & \gamma_1(D_{crisis} \times RBIBorr_{b,00-01}) + \gamma_2(D_{crisis} \times RBIBorr_{b,00-01} \times PSB_{fb,00}) + \\
& bankcontrols_{t-2} + \alpha_{jt} + \delta_b^i + \alpha_{jt} + \epsilon_{bt}
\end{aligned}
\tag{4}
$$

$RBIBorr_{b,00-01}$ is the amount of borrowing done by the firms from the RBI. **Figure 1** suggests that there has been a significant increase in the credit flows from the RBI especially after the 2008 crisis to the public-sector banks. And, this was not the case for other type of banks. This is due to the implicit guarantee that the Central Bank of India will take care of the public-sector banks in case of any crisis. Since the crisis was an extraordinary situation which forced the RBI to undertake the expansionary monetary policy, increase in credit from RBI can endogenously determine the health of the banks during the crisis and its effect on firm-level exports. In order to potentially subvert this type of problem, I use the average borrowings by a bank from the RBI during 1999-00 and 2000-01. Therefore, $D_{crisis} \times RBIBorr_{b,00-01} \times PSB_{fb,00}$ estimates the effect of the expansionary monetary policy during the crisis when a firm has a banking relationship with a public-sector bank on firm-level export margins. Therefore, my coefficient of interest is γ_2 and I expect $\gamma_2 > 0$. On the other hand, $D_{crisis} \times RBIBorr_{b,00-01}$ estimates the effect of the policy during the crisis when a firm is not a client to a public-sector bank. Therefore, I expect $\gamma_1 < 0$.

Results are reported in **Table 8**. I start by using export flows as the dependent variable in columns (1) and (2). The estimates reveal significant and positive effect of the expansionary monetary policy on firm-level export flows. An Indian manufacturing firm does not experience a drop in exports during the crisis due to fall in credit supply as when it is a client to a public-sector bank. However, this is not case for firms which have banking relationship with other types

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of banks. Columns (3) and (4) show that firms having banking relationships with public-sector banks also did not see any decline in probability of participating in the export market. However, the effects are nearly one-tenth to one-eighth of the effect of the intensive margin. Lastly, I use domestic sales as the dependent variable in columns (5) and (6) in order to see whether there is any differential effect of the bank credit shocks. Column (5) looks at the sample of exporting firms, whereas column (6) does for the rest. The estimated coefficients show that it is only the exporters that see a significant positive effect of the expansionary monetary policy. This result highlights the fact that the expansionary monetary policy was primarily undertaken to increase the credit flow to the exporters through the banks as they are the first to experience the negative effects of the crisis.

Next, I use several indicators for the health of a bank to check for the robustness of my benchmark results using the following equation:

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$$
\begin{aligned}
x_{ijt} \quad = \quad & \gamma_1 (D_{crisis} \times FinHealth_{b,00-01}) + \gamma_2 (D_{crisis} \times FinHealth_{b,00-01} \times PSB_{fb,00}) + \\
& bankcontrols_{t-2} + \alpha_{jt} + \delta_b^i + \alpha_{jt} + \epsilon_{bt}
\end{aligned} \tag{5}
$$

$FinHealth_{b,00-01}$ is the indictor for health of a bank b. Likewise before, I use the average values of these indicators for the years 1999-00 and 2000-01 to control for endogeneity problem during the crisis period. **Table 5** shows that the monetary policy, undertaken as a result of the crisis, did have a significant differential effect on bank lending and health. I use those two indicators, total loans and advances and ratio of operating profits to working funds for my analysis.[25] **Table 9** reports the result from estimating the effect of the change in the health of a bank due to the policy on a firm's exports. The results show that a firm does not see a drop in their export margins when it has banking relationship with a public-sector bank. This is due to the differential effect of the monetary policy on public-sector banks. Increase in credit flow from the RBI and transfer of deposits by firms and individuals from other banks helped the public-sector banks to increase the total amount of loans and advances to the firms, which resulted in a positive effect on the export flows of those firms which are connected to those banks. Expansionary monetary policy also helped the public-sector banks not to experience a significant drop in their health. This helped in the export performance of the firms which have banking relationships with those particular set of banks.

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[25]I additionally use ratio of operating profits to working funds as an indicator for health of the banks. Results are reported in **Table 15** in **Appendix A**.

I now estimate a counterfactual of the monetary policy. To show that the effect of the expansionary monetary policy is restricted only to firms which are client to the public-sector banks, I now substitute the bank dummy from a public-sector bank ($PSB_{fb,00}$) to a domestic bank ($DB_{fb,00}$). In particular, if a firm has a banking relationship with either a public-sector or private bank. In other words, I use $DB_{fb,00}$ as a bank dummy, when a firm is a client to a domestic bank. I hypothesize that the positive effects of the monetary policy will vanish when I include banking relationships with private bank as the effects of the policy is exclusive to public-sector banks. I use borrowings from the RBI, ratio of contingent liabilities to net worth as the possible indicators for financial health of banks.

My estimates in **Table 10** show that such is the case. The estimations in this table compare firms with a single banking relationship to a domestic bank (private or public-sector) to firms with only banking relationships to a foreign bank(s). I find no effect of the monetary policy on the exports of a firm, when a firm is a client to a domestic bank compared to solely a public-sector bank. The coefficients from the double interaction term reveals negative effect on the exports when a firm is a client to a foreign bank. Significant decline in the health of the banks due to the crisis led to drop in credit flows, which has a negative impact of the export margins. I additionally use total loans and advances and ratio of operating profits to working funds in **Table 15** (**Appendix A**). The results remain the same: no effect of the policy when a firm has banking relationship to any domestic bank and significant negative effects in case of banking relationships to a foreign bank.

4.4.1 Public-sector vs. Private Banks

In this section, I compare the effects on exports when a firm in a client to a public-sector bank versus private banks. I use ratio of operating profits to working funds (indicator for health of banks) as the basis for comparison. Results from such kind of estimations are reported in **Table 11**. Acharya and Kulkarni (2012) points out that three of the major private banks in India (HDFC, ICICI and Axis) suffered heavily during the crisis as they were dependent on foreign sources of finance. Additionally, **Figure 16** shows that private banks experience significant drop in their financial health. I use the ratio of contingent liabilities to net worth of a bank as the basis for comparison between the health of the public-sector and private banks, interact with crisis dummy and dummy for private bank to investigate what happens to a firm's export margins when a firm has a banking relationship with a private bank. Banking relationships with public-sector banks is used as a control group in these estimations.

My estimates across columns (1) - (4) show that if an Indian manufacturing firm had a banking relationship with either of the top three private banks in India, it suffered a significant loss from its

export flows due to drop in the health of those banks. However, such is not the case with the firms which are connected to the public-sector banks. Return from export flows for those set of firms is significant positive. My results continue to show that the effect of exports is differential according to banking relationship of a firm. I argue that this is due to the effect of the expansionary monetary policy. Columns (5) - (8) repeat the exercise in case of extensive margin of a firm. Results are similar. Firms client to private banks are more likely to exit the market during the crisis.

4.4.2 Public-sector vs. Foreign Banks

Tables 12 and **13** does the comparison between all foreign and public-sector banks and foreign banks by origin (US and EU) and public-sector banks, respectively. I continue to use the same indicator for health of the banks. The former table shows that there is not much of a difference in the effect on the exports of a firm when it is a client to any foreign bank or some of the major foreign banks. Decline in the health of a foreign bank during the crisis negative affects the export earnings of a firm connected with that respective bank. I find no effect of foreign banks' health on the extensive margin of a firm.

Next, I investigate what happens when a firm is connected to a US and/or EU based bank. My results from **Table 13** demonstrates that the entire negative effect (on exports) being a client to a foreign bank comes when the foreign bank is a US based bank. In other words, the financial crisis had a deep negative impact on the health of those foreign banks (operating in India) which has its parent office in the US. And, this affected the firms connected to them significantly. However, this was not the case for firms connected to the banks which originate from EU. Chakraborty (2018) also show that Indian manufacturing firms are affected more (due to the drop in demand for their products) when their trade destination was US compared to EU. The crisis originated in the US as a result in the failure of some of the banks, therefore it is highly likely that the effect of the crisis on the US banks would be much higher than other foreign banks. Decline in the health of the parent banks significantly affected the credit flows to its subsidiaries operating in India. And, this affected the health of the branches operating in India and consequently the effect translated into the performance of the firms connected to them.

5 Conclusion

While the financial crisis led to a sharp decline in real sector activities due to drop in credit flows around the country, this decline was partially offset in India. In part, the reason for this fairly minimal effect of the credit flows or finance on the real economy of India can be attributed to the country's government-owned or public-sector banks. The onset of the financial crisis caused private-

sector banks to alter their behaviour and operate more conservatively, while public-sector banks increased their lending. This is due to the expansionary monetary policy undertaken by the Central Bank of India as soon as the financial crisis of 2008-09 happened in order to sustain the growth momentum. Using this macro-level policy as a background, I aim to see the role of this policy on a firm's trade performance. I ask whether there is differential impact on the export margins (extensive and intensive) of Indian manufacturing firms when a firm is a client to a public-sector bank (or government-owned bank) vis-à-vis other banks (e.g., domestic private and foreign banks). To do so, I exploit a matched firm-bank dataset, utilizing bank-level information for each firm before and after the crisis to show that the ownership of banks significantly matters for a firm's performance, especially an exporter. My results reveal that firms' client to a publicly-owned bank did not see any drop in their exports as a result of the drop in the credit supply (or through the financial channel), as opposed to firms', which borrow from other sources (private and/or foreign banks). I interpret this finding as the effect of the expansionary monetary policy, which primarily affected the balance-sheets of the public-sector banks and other banks (private and foreign) differentially. To the best of my knowledge, I believe this is the first paper to analyze the effect of a domestic policy response (in this case, an expansionary monetary policy), due to the crisis of 2008-09, on firm-level performance.

Lastly, while the global impact on the financial sectors has been severe, Indian banks, especially the public-sector, have fared much better. Much of this has been credited to the expansionary monetary policy which lent stability during the crisis period (Acharya and Kulkarni, 2012). My analysis shows that while this may be true, public-sector firms benefitted significantly from government guarantees. At the peak of the financial crisis, public-sector banks fared better than private-sector banks. However, interpreting this better performance by the public-sector banks can also be interpreted as lack of a level-playing field as the relative stability and efficiency of public-sector banks relative to private sector banks appears questionable. Similarly, there is no sign of superior stability or returns for public-sector banks in the period following the crisis. The effects on the efficiency of the financial system would not have been positive insofar as other banks were forced to hold more capital and maintain more liquidity to reassure depositors. Moreover, the perception that public-sector banks enjoy an implicit guarantee is a moral hazard that may limit the incentive to enhance efficiency and encourage excessive risk taking. This points to the desirability of scaling back implicit guarantees to the public-sector banks in general, whether by preventing them from becoming too large and connected to fail or by setting up more effective mechanisms for the orderly resolution of insolvent institutions.

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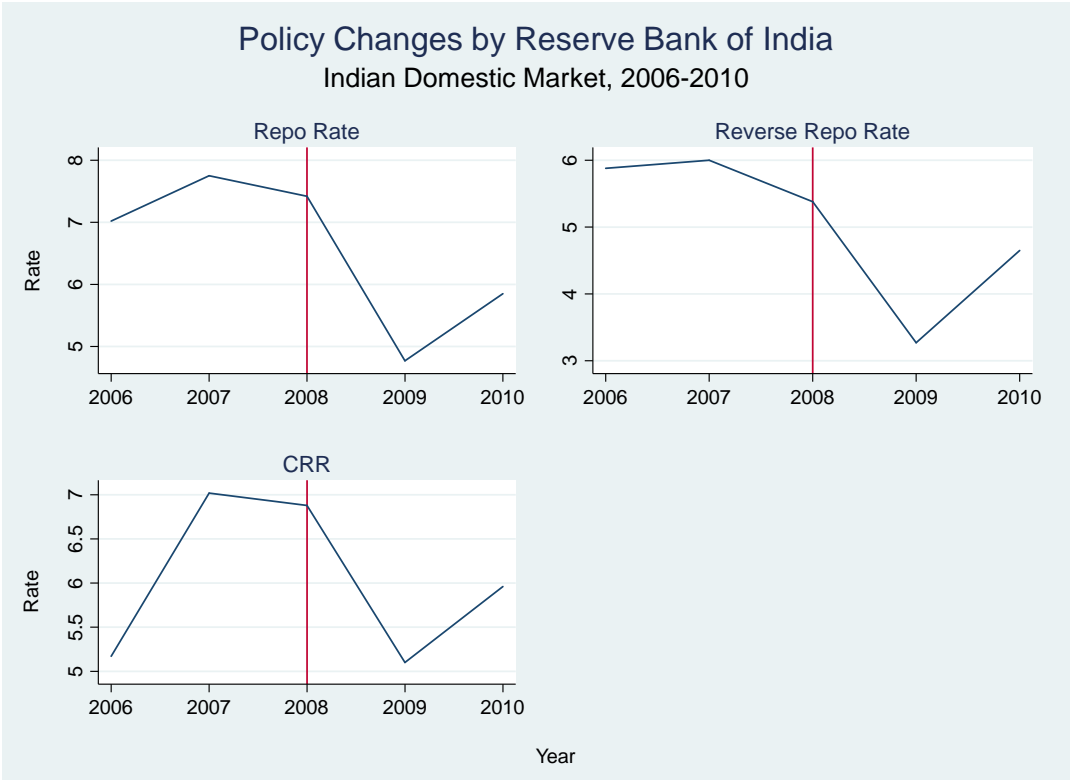
Figure 1: Repo Rate, Reverse-Repo Rate and Cash-to-Credt Ratio
Notes: Figure presents the average rates for a year as announced by RBI, 2006-2010
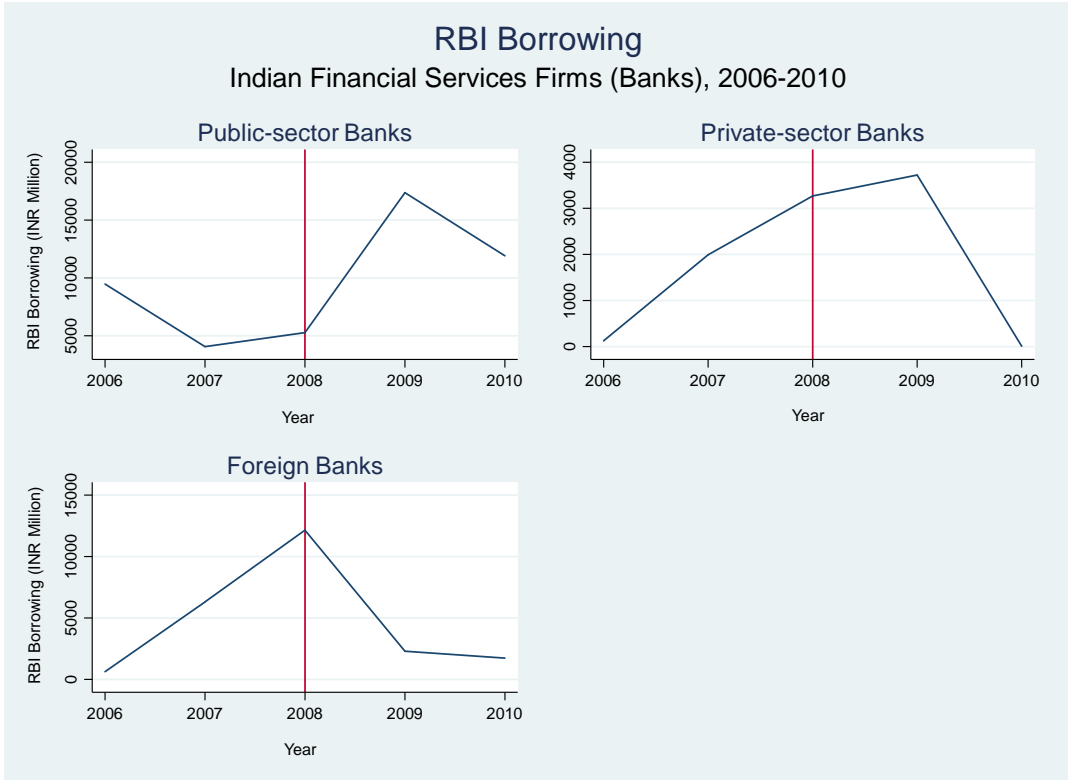
Figure 2: Banks' Borrowing from Reserve Bank of India (RBI), 2006-2010

Notes: Figure represents average borrowing from RBI by different types of banks in India (as listed by the RBI). "Public-sector Banks" include all the state-owned public-sector banks. "Private-sector Banks" are the private banks. It does not include private NBFCs and co-operative banks. "Foreign Banks" are banks of foreign origin.
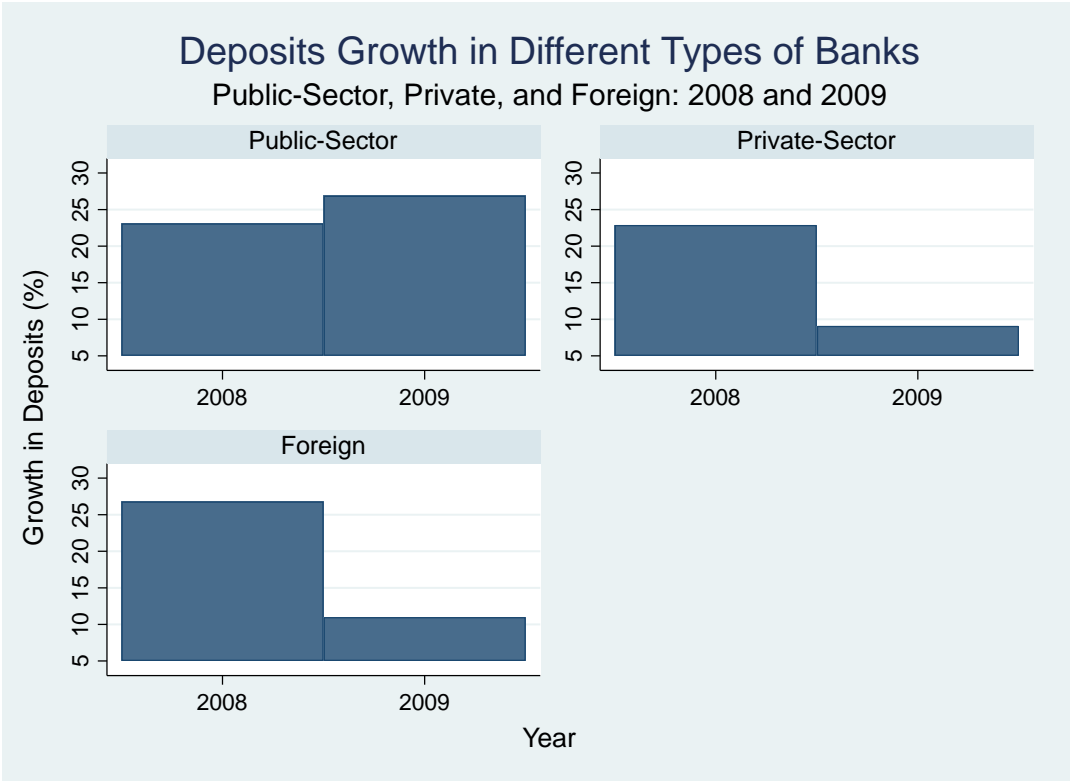
Figure 3: Deposits Growth: Banks in India, 2008-2009

Notes: Figure presents the yearly deposits growth in different types of banks in India, 2008-2009
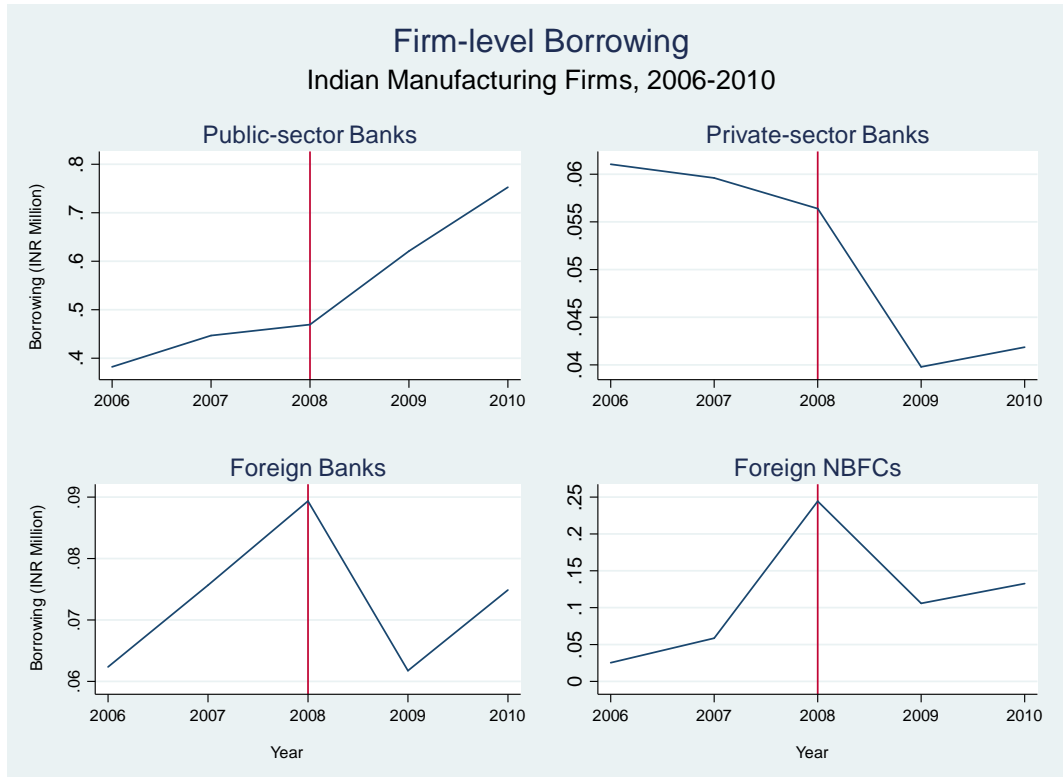
Figure 4: Firm-level Borrowing, Indian Manufacturing Firms, 2006-2010

Notes: Figures represent borrowing by an average manufacturing firm in India. "Public-sector Banks" represents all the public-sector banks in India. "Private-sector Banks" includes borrowing from both private-sector and domestic non-banking financial institutions like SIDBI, HUDCO, NABARD, IFCI, SFCs, etc. "Foreign Banks" is borrowing from foreign banks, foreign branches of Indian banks, Indian branches of foreign banks, foreign financial institutions (including foreign EXIM banks) and international development institutions, such as World Bank. "Foreign NBFCs" represents the kind of borrowing, which is used in India to facilitate access to foreign money by Indian firms. It includes commercial bank loans, suppliers' credit, securitised instruments such as Floating Rate Notes and fixed rate bonds such as euro bonds or FCCBs or FCEBs etc. It also includes credit from official export credit agencies and commercial borrowings from the private-sector window of multilateral financial institutions such as International Finance Corporation (IFC), ADB, AFIC, CDC, etc.
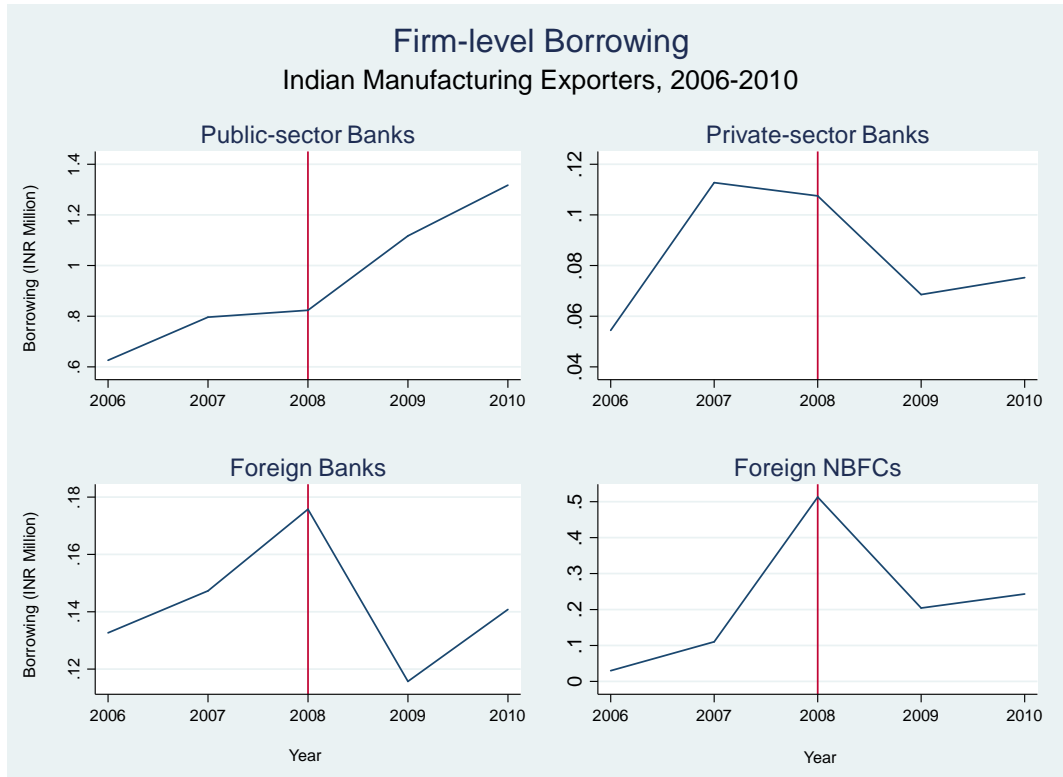
Figure 5: Firm-level Borrowing, Indian Exporting Firms, 2006-2010

Notes: Figures represent borrowing from different sources by an average exporting firm in India. "Public-sector Banks" represents all the public-sector banks in India. "Private-sector Banks" includes borrowing from both private-sector and domestic non-banking financial institutions like SIDBI, HUDCO, NABARD, IFCI, SFCs, etc. "Foreign Banks" is borrowing from foreign banks, foreign branches of Indian banks, Indian branches of foreign banks, foreign financial institutions (including foreign EXIM banks) and international development institutions, such as World Bank. "Foreign NBFCs" represents the kind of borrowing, which is used in India to facilitate access to foreign money by Indian firms. It includes commercial bank loans, suppliers' credit, securitised instruments such as Floating Rate Notes and fixed rate bonds such as euro bonds or FCCBs or FCEBs etc. It also includes credit from official export credit agencies and commercial borrowings from the private-sector window of multilateral financial institutions such as International Finance Corporation (IFC), ADB, AFIC, CDC, etc.
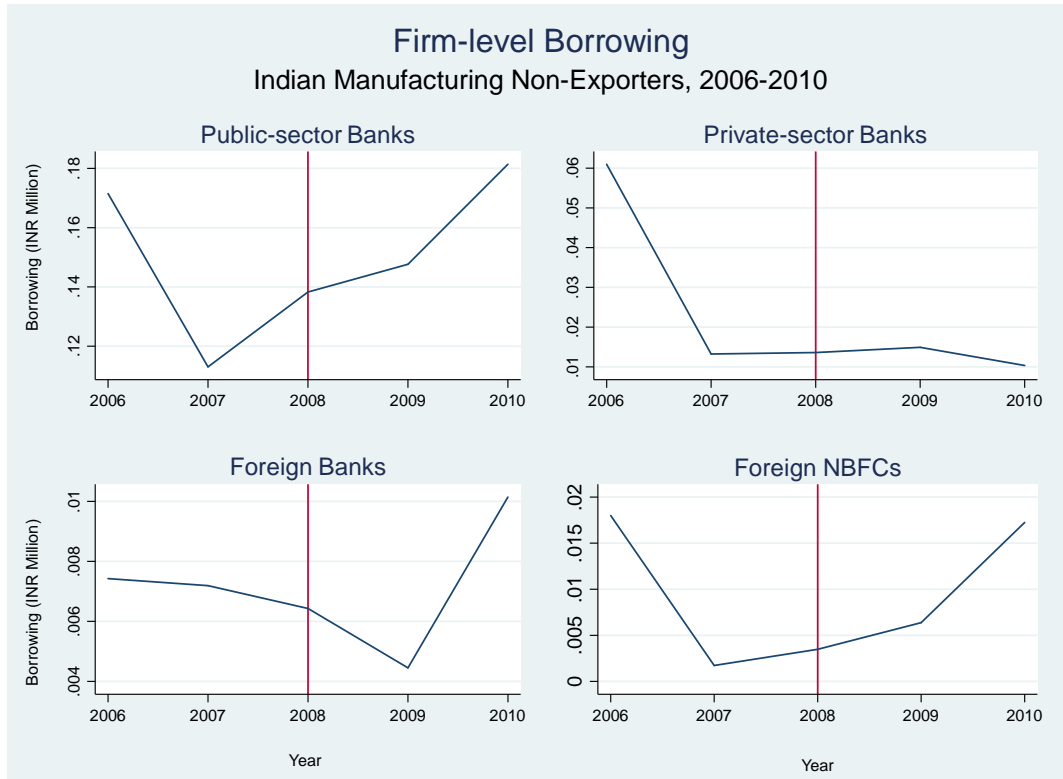
Figure 6: Firm-level Borrowing, Indian Non-Exporting Firms, 2006-2010

Notes: Figures represent borrowing from different sources by an average non-exporter in India. "Public-sector Banks" represents all the public-sector banks in India. "Private-sector Banks" includes borrowing from both private-sector and domestic non-banking financial institutions like SIDBI, HUDCO, NABARD, IFCI, SFCs, etc. "Foreign Banks" is borrowing from foreign banks, foreign branches of Indian banks, Indian branches of foreign banks, foreign financial institutions (including foreign EXIM banks) and international development institutions, such as World Bank. "Foreign NBFCs" represents the kind of borrowing, which is used in India to facilitate access to foreign money by Indian firms. It includes commercial bank loans, suppliers' credit, securitised instruments such as Floating Rate Notes and fixed rate bonds such as euro bonds or FCCBs or FCEBs etc. It also includes credit from official export credit agencies and commercial borrowings from the private-sector window of multilateral financial institutions such as International Finance Corporation (IFC), ADB, AFIC, CDC, etc.

Figure 7: Credit Growth: Banks in India, 2008-2009

Notes: Figure presents the yearly credit growth in different types of banks in India, 2008-2009
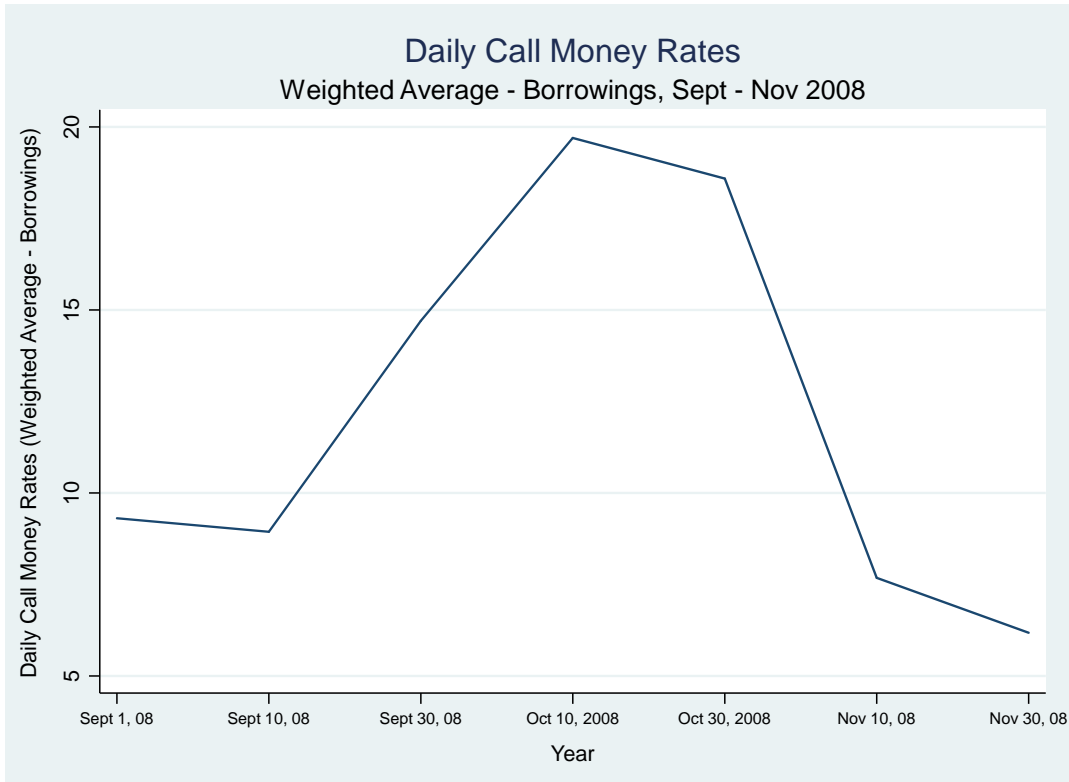
Figure 8: Daily Call Money Rates, Sept. 2008 to Nov 2008
Source: RBI Various Publications.
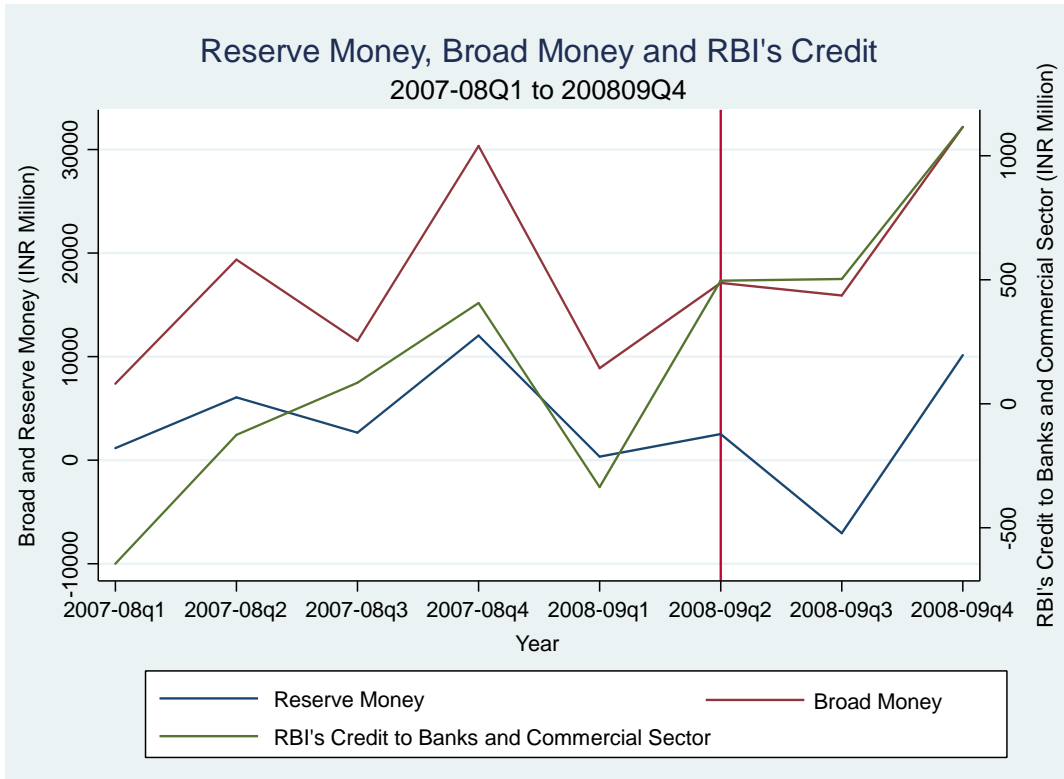
Figure 9: Reserve Money, Broad Money and RBI's Credit to Banks and Commercial Sector, 2007-08Q1 to 2008-09 Q4
Notes: Figures are in INR Million. Source: RBI Various Publications.
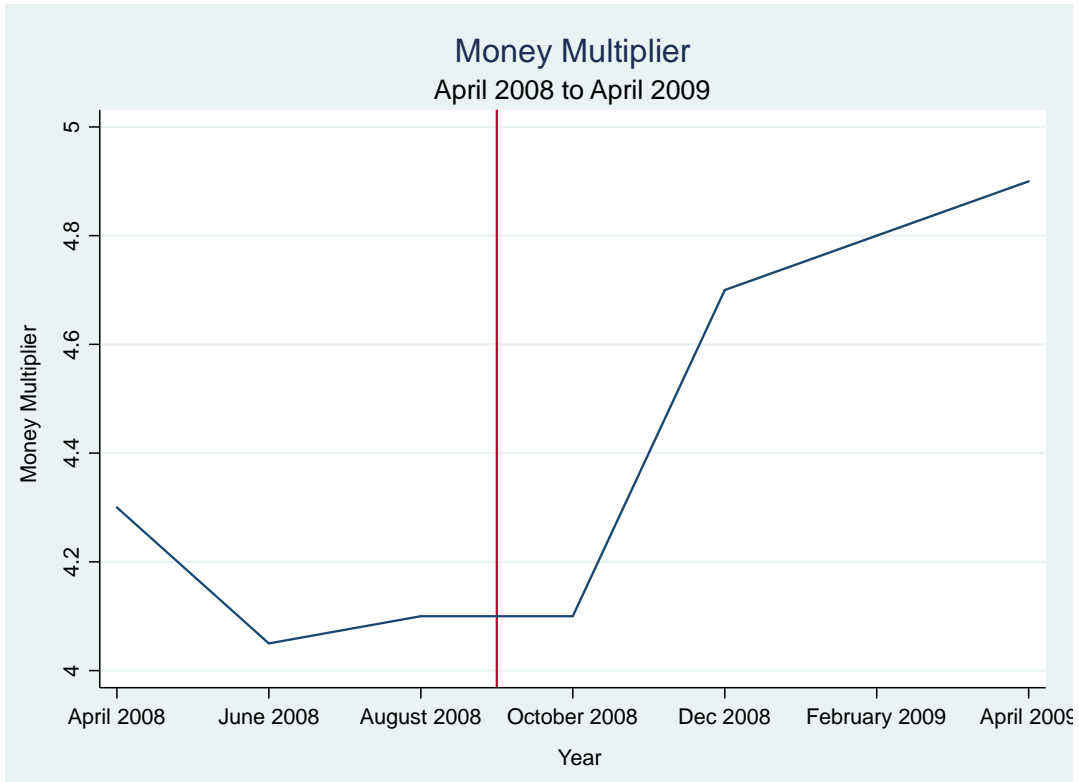
Figure 10: Money Multiplier, April 2008 to April 2009
Source: RBI Various Publications.
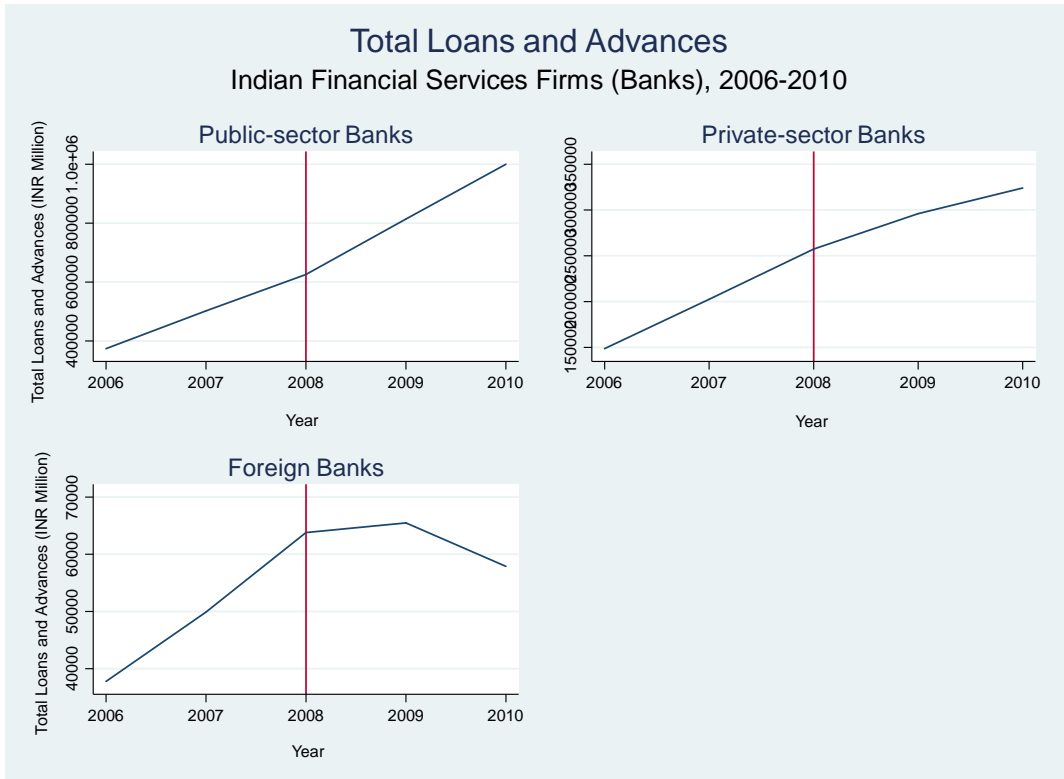
Figure 11: Total Loans and Advances by Banks, 2006-2010

Notes: Figure represents average loans and advances by different types of banks in India (as listed by the RBI). "Public-sector Banks" include all the state-owned public-sector banks. "Private-sector Banks" are the private banks. It does not include private NBFCs and co-operative banks. "Foreign Banks" are banks of foreign origin.
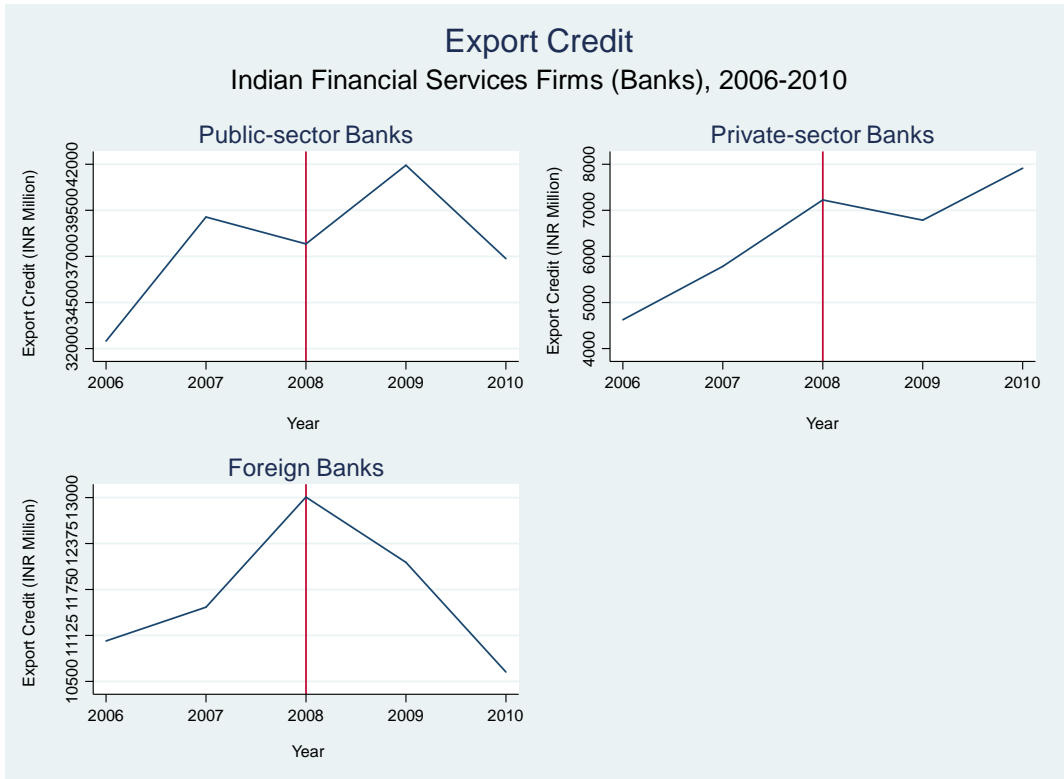
Figure 12: Export Credit by Banks, 2006-2010

Notes: Figure represents average export credit given by different types of banks in India (as listed by the RBI). "Public-sector Banks" include all the state-owned public-sector banks. "Private-sector Banks" are the private banks. It does not include private NBFCs and co-operative banks. "Foreign Banks" are banks of foreign origin.
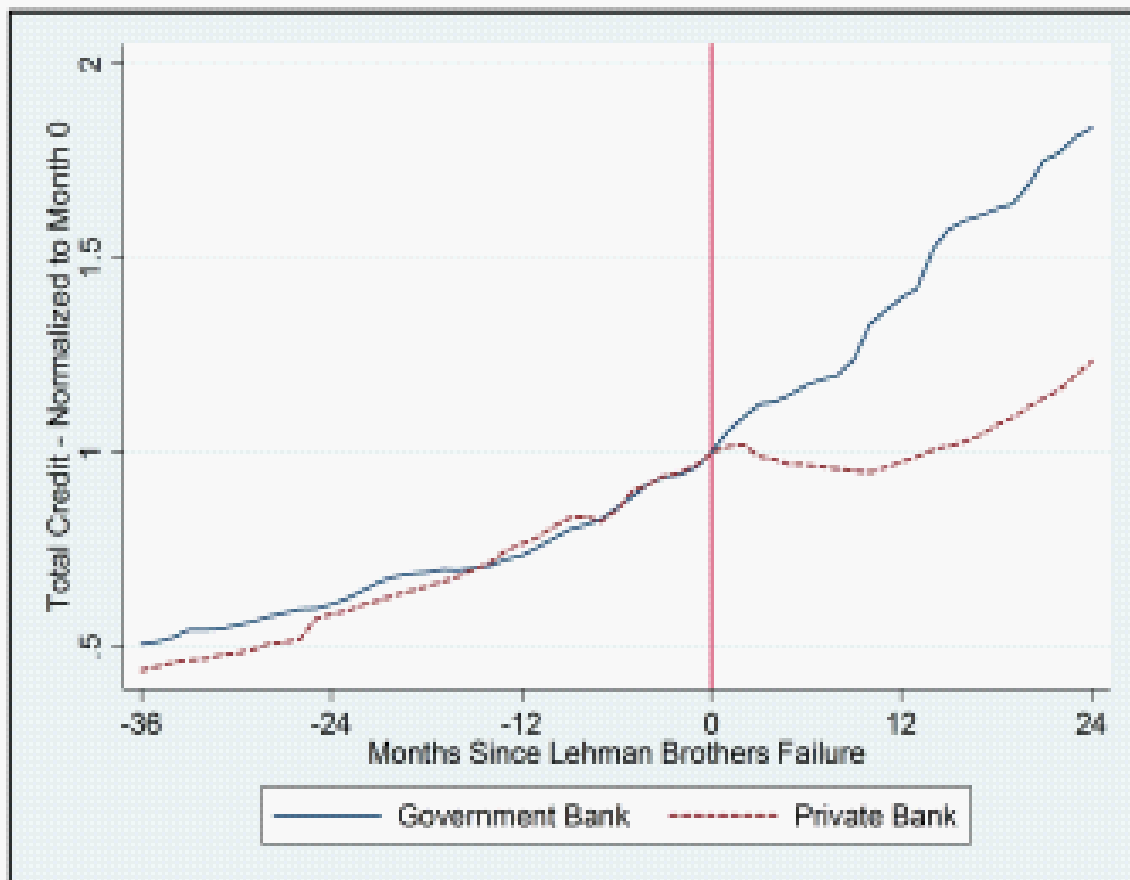
Figure 13: Total Credit Disbursement by Different Types of Banks in Brazil
Notes: Figure represents total credit by government-owned and private banks in Brazil. Source: Coleman and Feler (2015).

Figure 14: Total Manufacturing Exports of India: Major Destinations, 2006-2009
Notes: EU is European Union. US is the United States of America. These are major trade destinations of India. Values are expressed in US $ Million. These are total merchandise exports from India. Compiled from UN-COMTRADE Database.
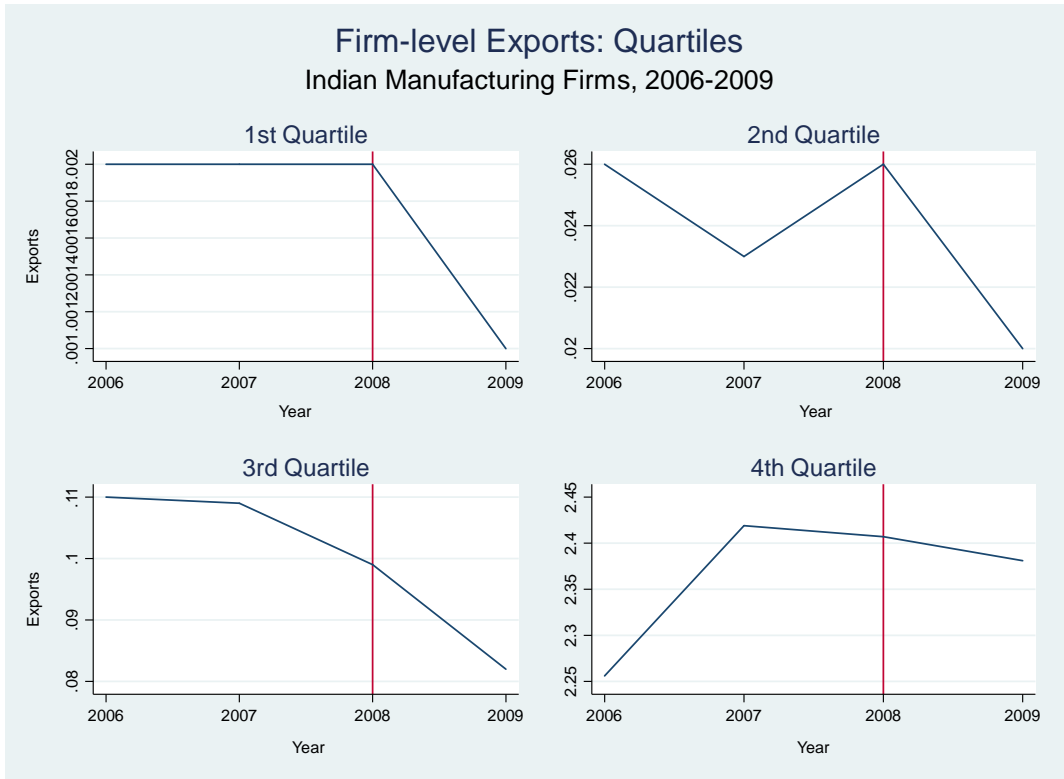
Figure 15: Firm-level Exports (Manufacturing): Quartiles, 2006-2009

Notes: Figures represent average real exports (deflated by the wholesale price index) over all exporters operating in the manufacturing sector in a particular year. Quartiles are defined according to the total assets of a firm. If a firm's total asset falls below the 25th percentile of the total assets of the corresponding industry to which the firm belongs, then the firm belongs to the 1st quartile. Similarly, if a firm's asset is within 25th-50th, 50th-75th and over 75th percentile then it would fall into 2nd, 3rd and 4th quartile respectively.
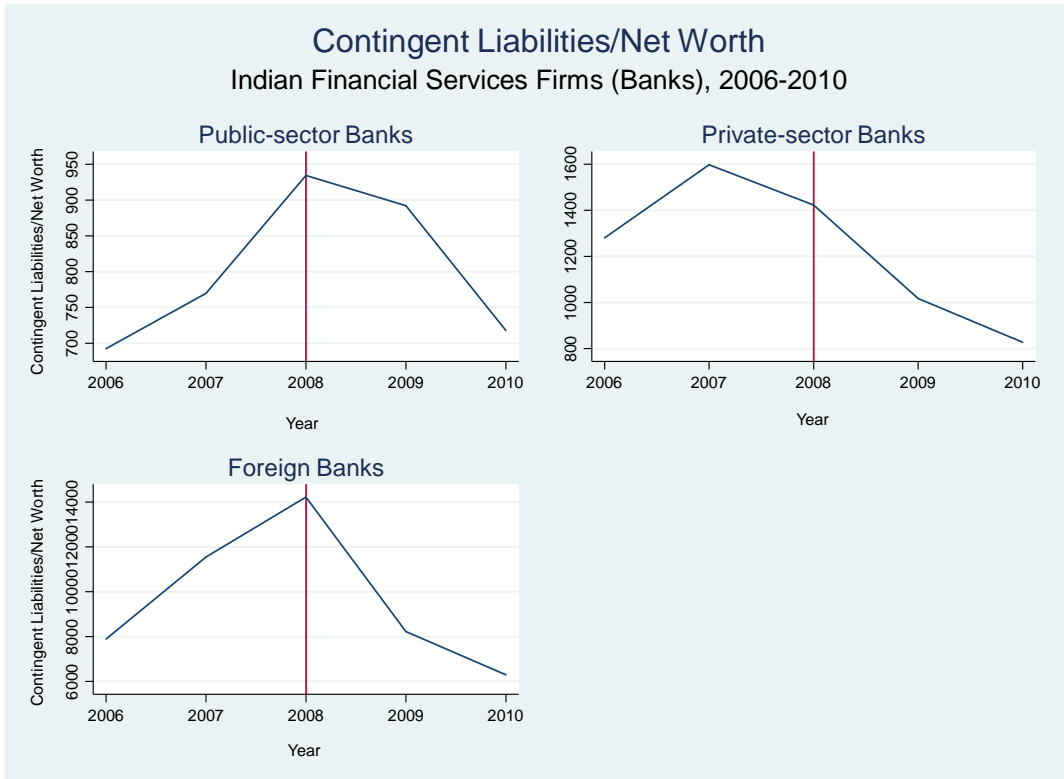
Figure 16: Contingent Liabilities/Net Worth, 2006-2010

Notes: Figure represents average export credit given by different types of banks in India (as listed by the RBI). "Public-sector Banks" include all the state-owned public-sector banks. "Private-sector Banks" are the private banks. It does not include private NBFCs and co-operative banks. "Foreign Banks" are banks of foreign origin.

Table 1: India's Capital Account, 2008-2009

	2007-08	2008-09	H1 2008-09	H2 2008-09
Foreign Direct Investment	15401	17496	13867	3629
Portfolio Investment	29556	-14034	-5521	-8513
External Commercial Borrowings	22633	8158	3157	5001
Short-term Trade Credit	17183	-5795	3689	-9484
Other Banking Capital	11578	-7687	3747	-11434
Other Flows	10554	4671	-1849	6520

Notes: Figures are in INR million. Source: Reserve Bank of India.

Table 2: Credit Flows from Different Banks, 2008-2009

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

Notes: Values are expressed in %, year-on-year changes. Source: Macroeconomic and Monetary Development, Various Issues, Reserve Bank of India.

Table 3: Credit Situation of Firms, 2006-2009

	Sources of Borrowing		
	Public-sector Banks	Private-sector Financial Institutions (Domestic)	Foreign Banks
2006	0.3966	0.0520	0.0668
2007	0.4414	0.0457	0.0776
2008	0.5340	0.0469	0.0772
2009	0.6248	0.0326	0.0754

Notes: Values represent the average real credit (deflated by the wholesale price index) by all firms (in the manufacturing sector) from different sources in a particular year.

Table 4: Money Market and Firm-level Exports

	Ln(Exports)	Exporter = 1
	(1)	(2)
$IBRate_t \times D_{crisis}$	-1.122^{***} (0.408)	-0.567^{***} (0.123)
Firm Controls$_{t-2}$	Yes	Yes
R-Square	0.88	0.24
N	27,199	28,409
Firm FE	Yes	Yes
Year FE	Yes	Yes
Industry FE(2-digit)*Year FE	Yes	Yes

Notes: Column (1) uses natural logarithm of exports of a firm, whereas column (2) uses a dummy which takes a value 1 if a firm's export flows $>$ 0 as the dependent variable, respectively. In case of column (2), I use probit regressions. Marginal effects are reported. '$IBRate_t$' is the interbank rate as given by RBI. I average over monthly interbank rates to use it yearly. 'D_{crisis}' is a dummy variable, which takes a value 1 if the year $\geq$ 2009. Firm controls include age of a firm and its squared term, 'TechAdop/GVA', and firm size. 'TechAdop' measures the level of technology adoption, defined as the sum of R&D expenditure and royalty payments for technical knowhow. 'GVA' is the gross value-added of a firm. 'Firm size' is measured by natural logarithm of sales of a firm. Both technology adoption and sales are used at $(t-2)$ period and in real terms. Numbers in the parenthesis are robust clustered standard errors at the firm-level. Intercepts included but not reported. *** denotes 1% level of significance, respectively.

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Table 5: Monetary Policy and Bank Lending/Health

	Loans and Advances				Operating Profits/ Working Funds			
	All Banks	Public-sector Banks	Private Banks	Foreign Banks	All Banks	Public-sector Banks	Private Banks	Foreign Banks
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$D_{crisis} \times RR_t^{Dom}$	0.536 (2.907)	2.733*** (0.647)	0.557 (1.585)	4.420 (3.999)	−2.036 (1.265)	0.509 (0.837)	−0.420 (1.107)	−5.541* (3.200)
RR_t^{Dom}	−0.357 (0.789)	−0.783*** (0.183)	−0.087 (0.446)	−1.717 (1.188)	1.630 (1.099)	0.495 (0.798)	0.373 (1.108)	4.201 (2.942)
D_{crisis}	−1.135 (4.776)	−4.504*** (1.069)	−2.620** (0.925)	−7.868** (3.705)	−0.318 (0.238)	0.079 (0.133)	−0.017 (0.183)	−1.102* (0.649)
Bank Controls$_{t-2}$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Square	0.98	0.99	0.98	0.94	0.57	0.62	0.58	0.64
N	680	266	170	244	665	263	168	234
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE(5-digit)*Trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Columns (1) - (4) use natural logarithm of total amount of loans and advances by bank, whereas columns (5) - (8) use natural logarithm of the ratio of contingent liabilities to net worth as the dependent variable, respectively. 'D_{crisis}' is a dummy variable, which takes a value 1 if the year $\geq$ 2009. 'RR_{Dom}' is the average of the dominant repo-rates (number of days within the month that the rate is applicable) over a 12-month period as given by the RBI. 'Bank Controls' include age of a bank and its squared term and bank size (assets of a bank). Assets is used at $(t-2)$ period and in real terms. Numbers in the parenthesis are robust clustered standard errors at the bank-level. Intercepts included but not reported. *, **, *** denotes 10%, 5% and 1% level of significance, respectively.

Table 6: Firm Borrowings and Exports

	Ln(Exports)				Exporter $= 1$			
	Domestic Public-sector Banks		Foreign Banks		Domestic Public-sector Banks		Foreign Banks	
		High Fin Dependence		High Fin Dependence		High Fin Dependence		High Fin Dependence
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$D_{crisis} \times RR_t^{Dom}$	−0.207 (0.284)	−0.433* (0.261)	0.427* (0.245)	0.571** (0.238)	−0.187** (0.075)	−0.182** (0.072)	0.447 (0.365)	0.131 (0.090)
$D_{crisis} \times RR_t^{Dom} \times Borr_{i,00-01}$	1.038*** (0.190)	1.105*** (0.206)	−0.285** (0.113)	−0.295** (0.118)	0.253** (0.093)	0.260*** (0.096)	−0.211 (0.200)	−0.200 (0.195)
D_{crisis}	−0.428*** (0.055)	−0.410*** (0.057)	−0.164*** (0.049)	−0.965*** (0.236)	−0.789*** (0.067)	−0.247*** (0.020)	−0.234*** (0.044)	−0.069*** (0.014)
Firm Controls$_{t-2}$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Square	0.89	0.89	0.89	0.89	0.25	0.24	0.23	0.23
N	27,199	24,643	27,199	24,643	27,199	24,643	27,199	24,643
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE(2-digit)*Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Columns (1) - (4) use natural logarithm of exports of a firm as the dependent variable. Columns (5) - (8) use a dummy which takes a value 1 if a firm's export flows $>$ 0 as the dependent variable. In case of columns (5) - (8), I use probit regressions. Marginal effects are reported. 'D_{crisis}' is a dummy variable, which takes a value 1 if the year $\geq$ 2009. 'RR_t^{Dom}' is the average of the dominant repo-rates (number of days within the month that the rate is applicable) over a 12-month period as given by the RBI. '$Borr_{i,00-01}$' is an indicator for borrowing by origin (domestic public-sector or foreign banks). For example, in case of columns (1) and (2), $Borr_{i,00-01}$ takes a value 1 when the average borrowing of a firm (for the years 2000 and 2001) from public-sector banks is positive and 0 otherwise. This is opposite in case of columns (3) and (4). I consider only borrowing from public-sector banks and foreign banks in my analysis. Firm controls include age of a firm and its squared term, 'TechAdop/GVA', and firm size (assets of a firm). 'TechAdop' ('Technology Adoption') = R&D expenditure + Royalty payments for technical knowhow. 'GVA' is the gross value-added of a firm. Both technology adoption and assets are used at $(t-2)$ period and in real terms. All the regressions contain the respective double interactions and individual terms. Numbers in the parenthesis are robust clustered standard errors at the firm-level. Intercepts included but not reported. *, **, *** denotes 10%, 5% and 1% level of significance, respectively.

Table 7: Client to a Public-Sector Bank and Firm-level Exports

	Ln(Exports)		Exporter = 1	
		High Fin Dependence		High Fin Dependence
	(1)	(2)	(3)	(4)
D_{crisis}	−0.916***	−0.910***	−0.129***	−0.129***
	(0.197)	(0.196)	(0.028)	(0.029)
$D_{crisis} \times PSB_{fb,00}$	0.261***	0.280***	0.027**	0.030**
	(0.066)	(0.065)	(0.010)	(0.010)
Bank Controls$_{t-2}$	Yes	Yes	Yes	Yes
R-Square	0.14	0.10	0.08	0.08
N	54,467	51,054	54,467	51,054
Bank-Firm FE	Yes	Yes	Yes	Yes
Industry FE(4-digit)*Year FE	Yes	Yes	Yes	Yes

Notes: Columns (1) − (2) use natural logarithm of exports of a firm as the dependent variable. Columns (3) − (4) use a dummy which takes a value 1 if a firm's export flows $>$ 0 as the dependent variable. In case of columns (3) - (4), I use probit regressions. Marginal effects are reported. 'D_{crisis}' is a dummy variable, which takes a value 1 if the year $\geq$ 2009. '$PSB_{fb,00}$' is a dummy variable representing a public-sector bank (PSB). It takes a value 1 if a firm is a client to public-sector bank either in the year 1999-00. 'Bank Controls' includes age, age squared and size of a bank. I use total assets of a bank as the size indicator in $(t-2)$ period and in real terms. Robust standard errors corrected for clustering at the bank-level are in the parenthesis. Intercepts included but not reported. *, **,*** denotes 10%, 5% and 1% level of significance, respectively.

Table 8: Borrowing from RBI by Banks and Firm-level Exports

	Ln(Exports)		Exporter = 1		Ln(Domestic Sales)	
		High Fin Dependence		High Fin Dependence	Exporters	Non-Exporters
	(1)	(2)	(3)	(4)	(5)	(6)
$D_{crisis} \times RBIBorr_{b,00-01}$	−0.073* (0.041)	−0.078* (0.042)	−0.008 (0.006)	−0.008 (0.006)	−0.054** (0.022)	−0.011 (0.089)
$D_{crisis} \times RBIBorr_{b,00-01} \times PSB_{fb,00}$	0.043*** (0.015)	0.048*** (0.015)	0.005** (0.002)	0.006** (0.002)	0.027*** (0.009)	0.002 (0.029)
Bank Controls$_{t-2}$	Yes	Yes	Yes	Yes	Yes	Yes
R-Square	0.13	0.13	0.08	0.08	0.23	0.10
N	64,797	60,357	64,797	60,357	44,346	20,319
Bank-Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE(4-digit)*Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Columns $(1) - (2)$ use natural logarithm of exports of a firm as the dependent variable. Columns $(3) - (4)$ use a dummy which takes a value 1 if a firm's export flows > 0 as the dependent variable. In case of columns $(3) - (4)$, I use probit regressions. Marginal effects are reported. Columns $(5) - (6)$ use natural logarithm of domestic sales as the dependent variable. 'D_{crisis}' is a dummy variable, which takes a value 1 if the year ≥ 2009. '$PSB_{fb,00}$' is a dummy variable representing a public-sector bank (PSB). It takes a value 1 if a firm is a client to public-sector bank either in the year 1999-00. '$RBIBorr_{b,00-01}$' is the average borrowing by a bank from the RBI for the years 1999-00 and 2000-01. 'Bank Controls' includes age, age squared and size of a bank. I use total assets of a bank as the size indicator in $(t-2)$ period and in real terms. All the regressions contain the respective double interactions and individual terms. Robust standard errors corrected for clustering at the bank level are in the parenthesis. Intercepts included but not reported. *, **,*** denotes 10%, 5% and 1% level of significance, respectively.

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Table 9: Health of Public-sector Banks and Firm-level Exports

	Ln(Exports)				Exporter = 1			
	Loans and Advances		Operating Profits/ Working Funds		Loans and Advances		Operating Profits/ Working Funds	
		High Fin Dependence		High Fin Dependence		High Fin Dependence		High Fin Dependence
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$D_{crisis} \times FH_{b,00-01}$	−0.024 (0.044)	−0.025 (0.045)	−0.022 (0.028)	−0.033* (0.020)	0.002 (0.006)	0.002 (0.006)	−0.007* (0.003)	−0.008** (0.004)
$D_{crisis} \times FH_{b,00-01} \times PSB_{fb,00}$	0.026*** (0.010)	0.030*** (0.010)	0.039*** (0.014)	0.044*** (0.014)	0.003*** (0.001)	0.003*** (0.001)	0.004*** (0.002)	0.005*** (0.002)
Bank Controls$_{t-2}$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Square	0.14	0.13	0.14	0.13	0.08	0.08	0.08	0.08
N	80,096	74,006	77,741	72,603	80,096	74,006	77,741	72,603
Bank-Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE(4-digit)*Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Columns (1) − (4) use natural logarithm of exports of a firm as the dependent variable. Columns (5) − (8) use a dummy which takes a value 1 if a firm's export flows $\rangle$ 0 as the dependent variable. In case of columns (3) - (4), I use probit regressions. Marginal effects are reported. 'D_{crisis}' is a dummy variable, which takes a value 1 if the year $\geq$ 2009. '$PSB_{fb,00}$' is a dummy variable representing a public-sector bank (PSB). It takes a value 1 if a firm is a client to public-sector bank either in the year 1999-00. '$FH_{b,00-01}$' is the financial health of a bank. I use total loans and advances and ratio of operating profits to working funds as indicators for financial health. I use the average values for the years 1999-00 and 2000-01. 'Bank Controls' includes age, age squared and size of a bank. I use total assets of a bank as the size indicator in $(t-2)$ period and in real terms. All the regressions contain the respective double interactions and individual terms. Robust standard errors corrected for clustering at the bank level are in the parenthesis. Intercepts included but not reported. * , ** ,*** denotes 10%, 5% and 1% level of significance, respectively.

Table 10: Domestic vs. Foreign Banks and Firm-level Exports

	Ln(Exports)				Exporter = 1			
	RBI Borrowing		Operating Profits/ Working Funds		RBI Borrowing		Operating Profits/ Working Funds	
		High Fin Dependence		High Fin Dependence		High Fin Dependence		High Fin Dependence
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$D_{crisis} \times FH_{b,00-01}$	−0.002 (0.044)	−0.006 (0.042)	−0.099** (0.043)	−0.099** (0.043)	−0.005 (0.009)	−0.002 (0.008)	−0.012** (0.005)	−0.012** (0.005)
$D_{crisis} \times FH_{b,00-01} \times DB_{fb,00}$	0.003 (0.012)	0.010 (0.012)	−0.002 (0.017)	0.005 (0.018)	0.006 (0.012)	0.004 (0.010)	−0.001 (0.002)	−0.0001 (0.002)
Bank Controls$_{t-2}$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Square	0.14	0.14	0.15	0.14	0.08	0.08	0.08	0.08
N	43,984	41,134	41,902	39,330	43,984	41,134	41,902	39,330
Bank-Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE(4-digit)*Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Columns (1) − (4) use natural logarithm of exports of a firm as the dependent variable. Columns (5) − (8) use a dummy which takes a value 1 if a firm's export flows $>$ 0 as the dependent variable. In case of columns (3) - (4), I use probit regressions. Marginal effects are reported. 'D_{crisis}' is a dummy variable, which takes a value 1 if the year $\geq$ 2009. '$DB_{fb,00}$' is a dummy variable representing a domestic bank. It takes a value 1 if a firm is a client to either public-sector or private-sector bank in the year 1999-00 or 2000-01. '$FH_{b,00-01}$' is the indicator for financial health of a bank. It is either the average (for the years 1999-00 and 2000-01) of the borrowing by a bank from the RBI or ratio of operating profits to working funds . 'Bank Controls' includes age, age squared and size of a bank. I use total assets of a bank as the size indicator in ($t-2$) period and in real terms. All the regressions contain the respective double interactions and individual terms. Intercepts included but not reported. * , ** , *** denotes 10%, 5% and 1% level of significance, respectively. Robust standard errors corrected for clustering at the bank level are in the parenthesis.

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Table 11: Public-Sector vs. Private Bank and Firm-level Exports

	Ln(Exports)				Exporter $= 1$			
	All Pvt. Banks		3 Major Pvt. Banks HDFC, ICICI and AXIS		All Pvt. Banks		3 Major Pvt. Banks HDFC, ICICI and AXIS	
		High Fin Dependence		High Fin Dependence		High Fin Dependence		High Fin Dependence
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$D_{crisis} \times FH_{b,00-01}$	−0.063 (0.041)	−0.053 (0.041)	0.013** (0.005)	0.013** (0.005)	−0.007 (0.005)	−0.006 (0.005)	−0.051 (0.042)	−0.045 (0.042)
$D_{crisis} \times FH_{b,00-01} \times PvtB_{fb,00}$	−0.060*** (0.017)	−0.059*** (0.016)	−0.048*** (0.016)	−0.039*** (0.016)	−0.006*** (0.002)	−0.006*** (0.002)	−0.006*** (0.002)	−0.005*** (0.002)
Bank Controls$_{t-2}$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Square	0.13	0.13	0.13	0.13	0.07	0.07	0.07	0.07
N	57,336	55,080	42,873	40,205	57,336	55,080	42,873	40,205
Bank-Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE(4-digit)*Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Columns $(1) - (4)$ use natural logarithm of exports of a firm as the dependent variable. Columns $(5) - (8)$ use a dummy which takes a value 1 if a firm's export flows > 0 as the dependent variable. In case of columns $(3) - (4)$, I use probit regressions. Marginal effects are reported. 'D_{crisis}' is a dummy variable, which takes a value 1 if the year $\geq$ 2009. '$PvtB_{fb,00}$' is a dummy variable representing a domestic private bank. It takes a value 1 if a firm is a client to a private-sector bank in the year 1999–00.. '$FH_{b,00-01}$' is the indicator for financial health of a bank. I use the ratio of operating profits to working funds of a bank. 'Bank Controls' includes age, age squared and size of a bank. I use total assets of a bank as the size indicator in $(t-2)$ period and in real terms. All the regressions contain the respective double interactions and individual terms. Robust standard errors corrected for clustering at the bank level are in the parenthesis. Intercepts included but not reported. *, **,*** denotes 10%, 5% and 1% level of significance, respectively.

Table 12: Public-sector vs. Foreign Banks and Firm-level Exports

	Ln(Exports)				Exporter = 1			
	All Foreign Banks		Major Foreign Banks		All Foreign Banks		Major Foreign Banks	
		High Fin Dependence		High Fin Dependence		High Fin Dependence		High Fin Dependence
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$D_{crisis} \times FH_{b,00-01}$	0.049***	0.051***	0.049***	0.052***	0.008	0.007	0.009	0.008
	(0.014)	(0.007)	(0.016)	(0.009)	(0.006)	(0.007)	(0.007)	(0.006)
$D_{crisis} \times FH_{b,00-01} \times FB_{fb,00}$	−0.036**	−0.042**	−0.033**	−0.039**	−0.002	−0.002	−0.001	−0.002
	(0.016)	(0.016)	(0.016)	(0.016)	(0.003)	(0.003)	(0.003)	(0.002)
Bank Controls$_{t-2}$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Square	0.15	0.15	0.15	0.15	0.08	0.08	0.08	0.08
N	33,272	31,181	24,145	22,036	33,272	31,181	24,145	22,036
Bank-Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE(4-digit)*Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Columns (1) – (4) use natural logarithm of exports of a firm as the dependent variable. Columns (5) – (8) use a dummy which takes a value 1 if a firm's export flows $>$ 0 as the dependent variable. In case of columns (3) - (4), I use probit regressions. Marginal effects are reported. 'D_{crisis}' is a dummy variable, which takes a value 1 if the year $\geq$ 2009. '$FB_{fb,00}$' is a dummy variable representing a foreign bank. It takes a value 1 if a firm is a client to a foreign bank in the year 1999-00. '$FH_{b,00-01}$' is financial health of a bank. It is the ratio of operating profits to working funds of a bank. I use average values for the years 1999-00 and 2000-01. 'Bank Controls' include age, age squared and size of a bank. I use total assets of a bank as the size indicator in $(t-2)$ period and in real terms. All the regressions contain the respective double interactions and individual terms. Robust standard errors corrected for clustering at the bank level are in the parenthesis. Intercepts included but not reported. *, **, *** denotes 10%, 5% and 1% level of significance, respectively.

Table 13: Public-Sector vs. US and EU Banks and Firm-level Exports

	Ln(Exports)				Exporter = 1			
	US Banks		EU Banks		US Banks		EU Banks	
		High Fin Dependence		High Fin Dependence		High Fin Dependence		High Fin Dependence
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$D_{crisis} \times FH_{b,00-01}$	0.050 (0.041)	0.045 (0.042)	0.067 (0.046)	0.071* (0.038)	0.011 (0.007)	0.009* (0.005)	0.013 (0.009)	0.014* (0.009)
$D_{crisis} \times FH_{b,00-01} \times FB_{fb,00}$	−0.027* (0.016)	−0.037** (0.017)	−0.001 (0.012)	−0.001 (0.011)	−0.001 (0.002)	−0.003 (0.003)	−0.002 (0.002)	−0.002 (0.002)
Bank Controls$_{t-2}$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Square	0.15	0.15	0.15	0.15	0.08	0.08	0.08	0.08
N	24,204	20,083	16,752	12,856	24,204	20,083	16,752	12,856
Bank-Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE(4-digit)*Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Columns (1) − (4) use natural logarithm of exports of a firm as the dependent variable. Columns (5) − (8) use a dummy which takes a value 1 if a firm's export flows $>$ 0 as the dependent variable. In case of columns (3) - (4), I use probit regressions. Marginal effects are reported. 'D_{crisis}' is a dummy variable, which takes a value 1 if the year $\geq$ 2009. '$FB_{fb,00}$' is a dummy variable representing a foreign bank. It takes a value 1 if a firm is a client to a foreign bank. It is the ratio of operating profits to working funds of a bank. I use average values for the years 1999-00 and 2000-01. 'Bank Controls' include age, age squared and size of a bank. I use total assets of a bank as the size indicator in ($t − 2$) period and in real terms. All the regressions contain the respective double interactions and individual terms. Robust standard errors corrected for clustering at the bank level are in the parenthesis. Intercepts included but not reported. *, **, *** denotes 10%, 5% and 1% level of significance, respectively.

Appendix

A   Table

Table 14: Health of Public-sector Banks and Firm-level Exports: Other Indicators of Health of Banks

	Ln(Exports)		Exporter = 1	
		High Fin Dependence		High Fin Dependence
	(1)	(2)	(3)	(4)
$D_{crisis} \times OPWF_{b,00-01}$	−0.203** (0.080)	−0.209** (0.081)	−0.018* (0.010)	−0.020** (0.010)
$D_{crisis} \times OPWF_{b,00-01} \times PSB_{fb,00}$	0.166* (0.105)	0.195* (0.132)	0.008 (0.017)	0.013 (0.019)
Bank Controls$_{t-2}$	Yes	Yes	Yes	Yes
R-Square	0.13	0.13	0.08	0.08
N	77,408	74,006	77,408	74,006
Bank-Firm FE	Yes	Yes	Yes	Yes
Industry FE(4-digit)*Year FE	Yes	Yes	Yes	Yes

Notes: Columns (1) − (2) use natural logarithm of exports of a firm as the dependent variable. Columns (3) − (4) use a dummy which takes a value 1 if a firm's export flows $\rangle$ 0 as the dependent variable. In case of columns (3) - (4), I use probit regressions. Marginal effects are reported. 'D_{crisis}' is a dummy variable, which takes a value 1 if the year $\geq$ 2009. '$PSB_{fb,00}$' is a dummy variable representing a public-sector bank (PSB). It takes a value 1 if a firm is a client to public-sector bank either in the year 1999-00. '$OPWF_{b,00-01}$' is the average (for the years 1999-00 and 2000-01) operating profit to working funds ratio of a bank. 'Bank Controls' includes age, age squared and size of a bank. I use total assets of a bank as the size indicator in $(t − 2)$ period and in real terms. All the regressions contain the respective double interactions and individual terms. Robust standard errors corrected for clustering at the bank-level are in the parenthesis. Intercepts included but not reported. *, **, *** denotes 10%, 5% and 1% level of significance, respectively.

Table 15: Domestic vs. Foreign Banks and Firm-level Exports: Other Indicators of Health of Banks

	Ln(Exports)				Exporter = 1			
	Loans and Advances		Operating Profits/ Working Funds		Loans and Advances		Operating Profits/ Working Funds	
		High Fin Dependence		High Fin Dependence		High Fin Dependence		High Fin Dependence
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$D_{crisis} \times FH_{b,00-01}$	−0.138***	−0.173***	−0.165*	−0.176*	0.009	0.006	−0.018	−0.021*
	(0.027)	(0.048)	(0.092)	(0.102)	(0.015)	(0.012)	(0.014)	(0.012)
$D_{crisis} \times FH_{b,00-01} \times DB_{fb,00}$	−0.014	−0.003	−0.010	0.023	−0.006	−0.007	0.001	0.005
	(0.017)	(0.013)	(0.123)	(0.132)	(0.016)	(0.013)	(0.018)	(0.018)
Bank Controls$_{t-2}$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Square	0.46	0.46	0.14	0.14	0.46	0.46	0.08	0.08
N	68,452	64,409	41,466	38,942	68,452	64,409	41,466	38,942
Bank-Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE(4-digit)*Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Columns (1) − (4) use natural logarithm of exports of a firm as the dependent variable. Columns (5) − (8) use a dummy which takes a value 1 if a firm's export flows $>$ 0 as the dependent variable. In case of columns (3) - (4), I use probit regressions. Marginal effects are reported. 'D_{crisis}' is a dummy variable, which takes a value 1 if the year $\geq$ 2009. '$DB_{fb,00}$' is a dummy variable representing a domestic bank. It takes a value 1 if a firm is a client to either public-sector or private-sector bank in the year 1999-00. '$FH_{b,00-01}$' is the indicator for financial health of a bank. I use total amount of loans and advances and ratio of operating profits to working funds as the indicators for health of a bank. 'Bank Controls' includes age, age squared and size of a bank. I use total assets of a bank as the size indicator in $(t − 2)$ period and in real terms. All the regressions contain the respective double interactions and individual terms. Robust standard errors corrected for clustering at the bank-level are in the parenthesis. Intercepts included but not reported. *, **, *** denotes 10%, 5% and 1% level of significance, respectively.