# Borrowing From Government Owned Banks & Firm's Distress Risk [*]

Ankit Kariya

Indian Institute of Management, Bangalore [†]

December, 2019

**Abstract**

A significant number of firms borrow from Government Owned Banks (GOBs) in emerging markets. GOBs have other implicit objectives apart from profit maximization. In this paper, I study whether this affect the distress risk of firms borrowing from GOBs. I use quasi-natural experiment of securitization reform in India that increased the distress risk of firms using debt financing. Although all firms reduced their use of debt and specially secured debt in response to this shock, I find that the reduction is comparatively smaller for the firms borrowing exclusively from GOBs (GOB Firms). The difference in response of GOB firms is sharper in the subsample of firms with high level tangible assets and so are more likely to be affected by securitization reform. This had a significant spillover effect on the real investments of these firms. The rate of investments for GOB firms increases compared to other firms. These results suggest that borrowing from GOBs is relatively less risky.

---

# 1  Introduction

The static trade-off theory of capital structure implies that firms chose their leverage to balance the benefits and costs of debt financing. The benefits are tax savings and mitigation of agency conflicts.The costs are direct and indirect costs of financial distress. Direct costs, such as litigation fees, appears to be small (Warner [1977], Weiss [1990]). But the indirect costs such as costs due to inefficient liquidation are believed to be quite large (Almeida and Philippon [2007], Molina [2005]).

In emerging markets, government owned banks (henceforth referred to as GOBs) have a very large share in credit markets. A significant number of firms borrow from them. From exiting literature on the cost of distress, we do not know whether borrowing from GOBs has any effect on firms' distress risk. I explore this question in the paper using quasi natural experiment of securitization reform in India that increased distress risk for the firms using debt financing (Vig [2013]). Using difference-in-difference specification, I document that in response to this shock, GOB firms reduce their usage of total debt and secured debt relative less.

In theory, the distress risk arises due to non-linear nature of debt and equity claims. The creditors, because of their concave payoff, have a bias towards liquidation, i.e. they might liquidate firms which have higher continuation value. While the equity holders have continuation bias, arising from the convex nature of their financial claims and the non-contractible private benefits they enjoy. In a creditor friendly bankruptcy system, creditors decide whether to continue or liquidate firm facing financial difficulties. This increases the liquidation bias for the firms that have high liquidation value. Anticipating this, firms use lower debt in creditor friendly countries (Acharya and Subramanian [2009], Acharya, Sundaram, and John [2011b], Vig [2013]).

At the outset, it is not clear whether ownership of the lender would have any effect on the borrower's distress risk. Otherwise, in equilibrium, all the borrowers will borrow from the lender, which poses the least distress risk unless there is some counteracting force. However,

government or quasi-government agency as a lender is different in one crucial aspect from other lenders. That is their objective. And this could affect the distress risk of firms borrowing from them. The primary objective of privately owned enterprise is profit maximization. But the government, through government owned enterprise, do not participate in the market solely to make profits.

There are three theories of government ownership of enterprises. First, the social view suggests that government owned enterprises, like any other intervention in the markets, are created to address the market failure whenever the social benefits of government ownership are more than the costs (Stiglitz [1993]). According to this view, the GOBs facilitate economic development and improves the general welfare. Second is the agency view. It agrees with the social view that government owned enterprises are created to maximize the social welfare, but may give rise to corruption and misallocation of funds (Banerjee [1997]). They maximize multiple non-measurable objectives. This might lead to agency problems and weak managerial incentives. Lastly, the political view postulates that government owned enterprises are a medium for pursuing goals of politicians such as funding the favoured enterprises and maximizing the employment (Shleifer [1998]).

The empirical literature on bank efficiency suggests that GOBs are comparatively less efficient (Micco, Panizza, and Yañez [2007]). They have a relatively lower return on assets and interest margin, and higher overhead costs. The inefficiency of GOBs in itself cannot distinguish between the theories of state ownership of enterprises: it is not obvious whether GOBs are less efficient because they maximize broader social objectives, or because of internal agency problems, or because they serve political interests. There is some evidence that GOBs' lending is less cyclic (Coleman and Feler [2015], Bertay, Demirgüç-Kunt, and Huizinga [2015], Micco and Panizza [2006]) and so they play some role in reducing the severity of recessions which is consistent with the social view. But several single country studies examining detailed bank lending behaviour while dealing with politically connected firms or during elections supports the political view (Sapienza [2004], Carvalho [2014], Dinç [2005], Khwaja and Mian

[2005], Cole [2009], Kumar [2015], Cull, Li, Sun, and Xu [2015]).

However, all the three theories agree that the GOBs are unlikely to have only profit maximization objective. They might have a social objective such as facilitating economic growth by providing credit to financially constrained firms and maximizing employment, or they could be serving the personal goals of their managers or politicians. Given these other objectives, it is intuitive that GOBs are relatively less likely to push for liquidation in response to borrowers' financial difficulties even if it's optimal from profit maximization point of view. For example, under social view, GOBs care about social welfare so they will not force inefficient liquidations. Under the agency view, the managers of GOB might not liquidate the firm even though it's optimal for the bank because of manager's other benefits such as future job prospects in the private sector. Concerning the political view, GOBs would not liquidate firms for political reasons such as employment preservation or firms are politically connected. Anecdotal evidence does suggest that GOBs are less stringent in debt recovery compared to private banks. For example, former governor of Reserve Bank of India Raghuram Rajan notes following in his speech titled "Resolving Stress in the Banking System" in June, 2016[1]:

> "Moreover, as a project went into distress, private banks were sometimes more agile in securing their positions with additional collateral from the promoter, or getting repaid, even while public sector banks continued supporting projects with fresh loans. Promoters astutely stopped infusing equity, and sometimes even stopped putting in effort, knowing the project was unlikely to repay given the debt overhang"

Since the distress risk in large part arises due to the possibility of inefficient liquidations driven by the lender's profit maximization objective, it naturally raises the question whether firms perceive borrowing from GOBs relatively less risky or not.

Above discussion and a common empirical observation that GOBs have a higher level

---

[1]Reserve Bank of India website: m.rbi.org.in

of non performing assets (NPAs) relative to private banks suggest that firms borrowing exclusively from GOBs will have lower distress risk. But this is not obvious. Comparatively lower NPAs of private banks could be due to cherry picking of good quality borrowers by them. There is some evidence of foreign banks doing that in India (Gormley [2010], Berger, Klapper, Martinez Peria, and Zaidi [2008]). Similarly, "other objectives" of GOBs need not translate into lax credit recovery practices. It could just mean that they help the government in various developmental and administrative activities[2]. And they lend to different set of borrowers. The social view might translate into lending to credit rationed small industries, agency and political view might mean giving priority to "friends". But do recoveries just as the private banker does.

GOBs in India have one more incentive to make strict recoveries. In India, GOB employees are considered as a public servant and, so they can be investigated for corruption. In the past, some GOB officers have been investigated for corruption in lending[3]. It has been argued that this has created fear in the mind of bankers and affected genuine lending. This increases the likelihood of GOB manager choosing liquidation rather reorganization in the event the borrower's distress. This could increase the possibility of inefficient liquidation for GOB firms. Given these competing arguments, the effect of borrowing from GOBs on firms' distress risk is not apparent. It is an empirical question.

An obvious way to answer this question would be to compare the debt usage of firms borrowing from GOBs to that of firms borrowing from other banks. But this depends on multiple factors and due to non-random assignment of firms to banks, the comparison will be biased. Therefore, we need exogenous variation in distress risk to study the behaviour of comparable firms borrowing from GOBs and other banks. This paper uses securitization reform in India as a source of exogenous variation in distress risk. India provides an ideal set up for studying this question due to two reasons. First, the Indian economy has a

---

[2]Indian government owned banks do serve as administrative agent of the government for various developmental and administrative activities. Demonetisation of high value currency in November 2016 is recent example were GOBs did the collection of old currency notes and issuing new currency.

[3]"Banks plan to back staff against inquiry agencies", Economic Times, 6th August, 2018

large involvement of GOBs in the banking industry. In 2016-17, the share of GOBs in total credit was 68.5%. The board and CEO of GOBs are appointed by the government. GOB CEOs periodically reports to the finance minister and takes instructions on the priorities of the government. Second, India has done important changes in its legal structure that has improved creditor rights. In this paper, I exploit one of these changes, the enactment of the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interests Act of 2002 (henceforth referred to as SARFAESI Act).

SARFAESI Act substantially increased the powers of secured lenders. It allowed them speed up the process of seizing and liquidating the collateral of defaulting borrowers. NPAs of the banking sector fell significantly after it (Figure 4 and 5), which shows that the act was effective in increasing the debt recovery. But this exposed the firms with high liquidation value to the threat of inefficient liquidation and hence increased the distress risk of debt financing. Vig [2013] documents that in response to this shock, firms with a high level of tangible assets significantly reduced the usage of debt and specifically secured debt.

I study the difference in response of firms borrowing exclusively from GOBs using difference-in-difference methodology. Since the reform applies to the secured debt only and generally tangible assets are kept as security which lender can seize in the event of default, it will impact the most to the firms with higher level of tangible assets. Therefore, my baseline sample consists of the firms with tangible assets above the median. Intuitively if distress risk is lower for firms borrowing exclusively from GOBs, they will do relatively less reduction in secured debt and total debt in response to the shock. I find that the reduction in both total debt and secured debt usage is around 3 percentage points less for GOB firms. These results suggest that firms perceive borrowing from GOBs to be relatively less risky. Next, I study whether this has any spillover effects on real investments of the firms. It depends on whether firms are able to substitute funding from other sources such as retained earnings, dividend cuts, or raising equity. I find that investments rate of GOB firms increases by 3 percentage points relative to other firms. This is economically very significant given mean

investments rate of 3.7% in post reform period.

I subsequently examine competing explanation for my results and perform different falsification tests. As noted earlier, SARFASESI Act is likely to affect the firms with a higher level of tangible assets. Instead of perception of lower distress risk of borrowing from GOBs, the pattern I document could also be observed if either only firms with low level of tangible assets borrow exclusively from GOBs or these results are driven by subsample of firms with low level of tangible assets. There are three reasons why this is unlikely to be the case. First, the asset tangibility level for GOB firms is not significantly different from non-GOB firms (Table 3). In fact, the average asset tangibility level for GOB firms is slightly higher. And second, the regression results for all dependent variables in the subsample of firms that have above the median of tangible assets suggest that differential response of GOB firms is even higher for firms with a high level of tangible assets. Third, for the subsample of firms with tangible assets below the median level of tangible assets, the response of GOB firms is not significantly different from that of non-GOB firms.

A second explanation for observed differential response of GOB firms from non-GOB firms could be that other structural changes were happening in the operation of GOBs around reform. Anecdotal evidence suggests that GOBs were providing only short term funding till the late 1990s. And they started providing long term funding after that. Long term funding in India is by nature secured so this could have led to an increase in secured debt for firms borrowing from GOBs. And this effect is independent of distress risk. However, the following three observations rule out this possibility to a great extent. First, this effect is not related to asset tangibility, and so it should be present in subsample of low tangible firms as well. But the results for the sample of firms below the median tangible assets suggest otherwise. Second, many non-GOB firms are borrowing from government owned bank along with private and/or foreign bank. So this effect should not drive the difference. Third, under this explanation ratio of secured debt to asset for GOB firms should not just relatively increase but should also increase in the absolute terms after the reform. But it

falls in absolute terms after the act.

The results discussed so far would imply that continuation incentive coming from other objectives of GOBs seems to dominate the difficulties that GOB managers face in debt restructuring due to fear of investigation for corruption. However, the results are consistent with both incentives. The apparent inconsistency of these results with the second incentive comes from the fact that we typically think that there are only two options while dealing with borrower's default. That is either to liquidate or to reorganize. But there is a third option. Wait and pray that borrower's prospects improve, and it repays the debt in full. There is some evidence that this is the option that GOBs in India seem to have adopted.

This paper is related to the literature on distress costs of debt. My main contribution is to show that ownership of the lender affects the borrowers' distress risk. Specifically, the firms borrowing exclusively from GOBs have less distress risk. This is likely to driven by GOBs focus on broader objectives beyond profit maximization. The casual effect is estimated using quasi natural experiment of securitization reform.

My results also have implications for the literature on effect of state intervention in financial markets. It points to spillover effects of these interventions on the private sector dealing with the state owned enterprises. It also contributes to literature on likely differences between GOBs and privately owned banks in the dealing with borrower's financial difficulties.

The rest of the paper is organized as follows. In Section 2, I discuss the role of GOBs in India and institutional background of the SARFAESI Act. In Section 3, I summarize the data and present the results in Section 4. I address alternate explanations and present results of falsification tests in Section 5. I conclude in Section 6.

# 2 Government Ownership of Banks in India & Background of SARFAESI Act

## 2.1 Government Ownership of Banks in India

The Indian financial system is bank based. The following data on the mobilization of savings through the different channels in the financial year 2016-17 tells us the importance of the banking sector vis-a-vis capital markets in India. Total credit by commercial banks in 2016-17 is INR 81162 Billion[4], which is significantly higher than funds raised through all other sources combined.

| Source | Amount (Billion INR) |
|---|---|
| Commercial Bank Credit | 81162 |
| Public Debt Issue | 295.6 |
| Private Placement of Debt | 6407 |
| Equity Issue | 325.2 |

Government owned banks already existed in India at the time of independence. However, it's proportion was significantly increased by the government by nationalizing the big private banks. First, in 1955, the government nationalized the Imperial Bank of India. It was the largest bank at that time as well as today. But now it's known as the State Bank of India. Further, in 1969, the Government of India nationalized 14 of the largest private banks with assets in excess of INR 500 million (about $ 7.5 million). The last wave of bank nationalization came in 1980. This time the government nationalized six large banks, and the cutoff was INR 2 Billions (about $ 25 million). The nationalization was carried out to

---

[4]Reserve Bank of India, 2016-17, Report on trend and progress in banking

with the objective that the credit is equitably available to all the sections of society and thus would lead to inclusive growth of the country. The government argued that private banks were not providing credit to farmers and small enterprises. These banks are controlled by the government through appointing its board and CEO. These banks are called public sector banks. Following Srinivasan and Thampy [2017], I refer to them as government owned banks (GOBs) in this study.

Apart from bank nationalizations, the government put in place the other two policies to direct the flow of credit to socially valuable and credit constrained sectors of society. The first policy is to require banks to lend 40% of their credit to sectors that are designated as priority sector. These sectors include farming, small scale enterprises and certain retail borrowers. Second, till 1991, banks were required to start four branches in areas without a bank to get a licence to open one new branch in an area with a pre-existing bank branch. These two policies gave a significant payoff in terms of the availability of credit to unbanked areas. The number of bank branches increased by more than three times during 1972 and 1990. Burgess and Pande [2005] argued that this expansion of banking services reduced poverty in previously unbanked areas. But these policies have also made GOBs more susceptible to political capture (Cole [2009]).

As part of a comprehensive reform agenda, deregulation and opening of the banking sector in India were started at the beginning of the 1990 decade. This comprised permission to establish new banks and allowing the entry of foreign banks, removing the above branch expansion policy, reducing government shareholding in GOBs, and allowing banks to set interest rates independently. As a result, many new private and foreign banks started operating in India within a few years. [5]Currently, there are 20 government banks, 42 private banks (including payment banks), and 46 foreign banks operating in India. Among these 42 private banks, some old private banks that were present before liberalization. It also includes some government established development finance institutions (DFIs) which were

---

[5]Reserve Bank of India website: m.rbi.org.in

later on privatized.

As a consequence of bank nationalizations, the banking sector in India is historically dominated by the government owned banks. Although over the years, private sector banks have increased their market share to some extent, the picture hasn't changed significantly- government owned banks still have the highest market share in the banking sector. [6]Government owned banks' share in the total credit in 2016-17 is 68.5% while that of private and foreign banks is 25.5% and 4% respectively. Consistent with the literature on the efficiency of government owned banks, GOBs in India have lower profitability, and higher non-performing loans (NPAs) compared to private sector banks. Although the government is the majority stakeholder in GOBs, they are managed by professionals. Government exercises control on them through appointment of management and the board. The finance minister routinely holds meetings with GOB CEOs. It has been reported in the popular press that in these meetings, directions are given on various aspects of bank activities such as lending policies, interest rates etc. There is some evidence of politically motivated lending by GOBs in India. For example, Cole [2009] finds that agriculture lending by GOBs increases around the state elections.

## 2.2    Background of SARFAESI Act

By the early 1980s, many industrial units in India were in financial distress. There was no bankruptcy code in place. The companies act 1956 dealt with liquidation. However, it's process was slow and tedious due to bureaucracy associated with the selling of the assets.

First attempt to remedy this situation was Sick Industrial Companies Act 1982 under which Board of Industrial and Financial Reconstruction (BIFR) was created. Companies' board or lenders can register under BIFR if the company has a negative book net worth or is unable to pay the debt instalments. For companies filling under BIFR, management was kept in charge, and there was automatic stay on debt payments. Over time, BIFR developed

---

[6]Reserve Bank of India, 2018, Report on trend and progress in banking

rehabilitation bias. In some cases when BIFR issued winding-up orders, they were reopened by the high courts and many a time even reversed. This led to long delays in the judicial process and the associated loss in the firm value. Management exploited these delays to seek protection from lenders. As a result, banks' and development financial institutions' NPAs increased significantly. And this impacted their lending capacity.

To speed up the legal process of debt recovery, the government of India took a series of steps. Two of them were significant. First is the establishment of debt recovery tribunals (DRTs). The law was enacted in 1993. They were meant to be specialized tribunals for recovery of a debt due to banks and financial institutions. And they need not adhere to the civil procedure code of civil courts and were given freedom to design their rules and processes. Second is the enactment of the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act in 2002. Under the SARFAESI act bank and financial institutions were provided sweeping powers to recover the secured loans. Before this reform, secured lenders could not take over the collateral of defaulting borrower in order to collect their debt. Now under the SARFAESI Act, the banks and financial institutions can directly seize the collateral without a court proceeding. The act requires only two conditions to be met for it. The loan should have been in default for more than six months, and the lender should give 60 days notice after the default. Moreover, the borrowers were required to deposit 75% of claim (and later reduced to 25%) amount borrowed in order to appeal against the court orders. If 60% of the creditors in value agreed, the enforcement actions under the SARFAESI Act would take precedence over BIFR proceedings in the High Courts.

There is plenty of evidence that it significantly increased the rights of creditors. The law was termed as "draconian", and its constitutional validity was challenged by the corporate lobbies. They expressed serious concerns about excessive powers given to the creditors. It was perceived that this could lead to excessive liquidations. Borrowers argued that law doesn't have any scope for appeal as a condition for appeal is to deposit 75% of the total amount. They argued that they have defaulted on the repayment because they do not have

the liquidity in the first place. After the enactment of SARFAESI, the number of cases in DRT fall by 40%[7]. Recovery under SARFAESI till 2008 were 61%[8]. The trend of non performing assets (NPAs) around the reform also suggests that it had a positive effect on the debt recovery. I plot gross NPA as a fraction of gross advances, and net NPA as a fraction of net advances between 1999 to 2008 in Figure 4 and 5 respectively. We can see that both falls significantly after enactment of SARFAESI (i.e. after 2001).

Vig [2013] studies the effect of SARFAESI on the debt structure of the firm. He uses the SARFAESI Act as a natural experiment that increased the power of creditors. As noted earlier, the act allowed secured lenders speed up the process of seizing and liquidating the collateral of defaulting borrowers. This exposed the firms with high liquidation value (i.e. a high degree of tangible assets) to the threat of inefficient liquidation and hence increased the distress risk of debt financing. Using difference-in-difference methodology, he compares the response of firms in top tercile of tangible assets with firms in bottom tercile of tangible assets. He finds that in response to this shock, firms in top tercile of tangible assets significantly reduced usage of debt and specifically secured debt.

Overall evidence suggests that firms perceived that SARFAESI dramatically increased powers of creditors. And this increased distress risk for the firms with a high level of tangible assets. In response to this increase distress, risk firms reduced their secured debt usage. It is this shock to distress risk that is used as a source of exogenous variation in this paper.

# 3   Data and Summary Statistics

I obtain the data for this study from CMIE-Prowess. It has been used in many papers studying Indian firms, including Vig [2013], Siegel and Choudhury [2012] and Gopalan, Mukherjee, and Singh [2016]. It has yearly information of balance sheet and income statement items along with other useful information such as firm's industry category, year of

---

[7]Rajan Committee Report, 2008

[8]But has fallen to 21.9% in 2013 (Sengupta, Sharma, and Thomas [2016])

incorporation, and group affiliation. The balance sheet data has the detailed breakup of the firm's borrowings, which helps in identifying the proportion of secured and unsecured debt. Prowess database contains information for both listed and not listed companies. It is unique in one respect that it provides details of all the bankers that the firm has a relationship within a financial year. Following Srinivasan and Thampy [2017], I categorize all the banks that a given firm has a relationship with into three groups: government owned banks (GOBs), private banks, and foreign banks. This provides me with data on the firms' financial information and bankers by the bank ownership group. Using this, I classify firms into GOB firms and non-GOB firms. GOB firms are the firms that have an exclusive relationship with GOBs, and while non-GOB firms are the rest. In this categorization, non-GOB firms are firms that have an exclusive relationship with private or foreign banks, firms that have a relationship with both private and foreign banks and firms that have a relationship with GOBs along with private and/or foreign banks.

I restrict the sample to only non-financial firms. My sample period is 1999 to 2008. Further, in the baseline sample, I exclude firms which switches GOB categorization during the sample period. My full sample contains financial information on over 6332 firm-years. Since the SARFAESI act is more likely to impact firms with high level tangible assets, the baseline sample consists of firms with tangible assets above the median in the year of act, i.e. 2002. This sample consists of 3500 firm years. Due to missing data on some of the variables, sample size differs in different analysis. The details of the variables used in the analysis are provided in Table 1. The data on banking variables are taken from the publicly available web database of Reserve Bank of India (RBI).

Vig [2013] studies sample from the financial year 1997 to 2004 and considers period starting from the financial year 2002 as post reform period. My sample selection differs from this. My sample period consists of the financial year 1999 to 2008 and I also code year starting from 2002 as post reform period. The SARFAESI act was came into effect in June 2002. But the discussion on the bill in the parliament was already started by June 2001. Since

under my hypothesis, ex-ante effects are more important, I code first financial year ending following June 2001 as first year after the act. I start sample from the financial year 1999 rather than the financial year 1997 since the years preceding the financial year 1999 were time surrounding the establishment of Debt Recovery Tribunals (DRTs) and the last DRT was established in the beginning of financial year 2000. As Gopalan et al. [2016] document DRTs reduced the contract enforcement costs and thus had an effect on the financing structure of the firms. I want to keep the period preceding SARFAESI Act separate from that of the period surrounding DRTs establishment. I end the sample in the financial year 2008 since the global financial crisis significantly affected the Indian financial sector starting from 2008. And these effects were different for GOBs and other banks (Acharya and Kulkarni [2012]). I have extended sample until six years after the reform. It is done for two reasons. First, it takes time for firms to learn that GOBs are not using their powers as stringently as other banks do. And thus to change their debt structure accordingly. Second is the pure statistical reason for increasing the sample size.

In Table 2, I present summary statistics of the variables used in the analysis. All variables are winsorized at the 1% and 99% to reduce the influence of outliers. There is considerable variation in all the variables of interest. The mean of secured debt as a proportion of total assets is 26% in the full sample while the same is 29.3% in the above median tangible assets sample. The standard deviation is quite similar in both sample. The average debt to total assets ratio is 33.1% for the full sample, and it's 36.7% for the above median tangible asset sample. Again the standard deviations are of similar magnitude in both the samples. This shows that debt is higher in above median tangible assets, and almost 80% of debt is secured debt. So a very high proportion of debt will be affected by the reform, and this effect is likely to be higher for the above median tangible assets sample. Finally, profitability, as measured by PBITDA/Total Assets, averages around 12% for both samples.

# 4 Empirical Analysis

SARFAESI Act significantly increased the powers of secured lenders. This increased probability of inefficient liquidations for firms with high liquidation value. I consider this as an event that increased distress risk. To learn whether firms borrowing from GOBs have less distress risk, I compare the response of GOB firms with that of non-GOB firms using difference-in-difference methodology. This methodology is motivated by the following argument: if distress risk is lower for firms borrowing exclusively from GOBs, they will do relatively less reduction in secured debt and total debt in response to the shock. But, this is not standard difference-in-difference set up. Since the SARFAESI Act applies to all the firms, I cannot categorize firms strictly into the treatment and control groups. However, based on the above economic argument, firms are categorized into effective treatment and control groups.

As mentioned earlier, non-GOB firms include firms that have an exclusive relationship with private or foreign banks, or with both private and foreign banks or have a relationship with with GOBs along with private and/or foreign banks. Ideally, we would like to compare firms that borrow exclusively from GOBs with the firms that borrow exclusively from private banks, domestic or foreign. But the firms that borrow exclusively from private and/or foreign banks are less than 5% in the sample. However, all non-GOB firms are borrowing from at least one privately owned bank, and therefore, the incentive that drive inefficient liquidations will be present. This is because the private banker can always push for liquidation even if GOBs lending to the same borrower might be ready for debt restructuring and other arrangements in the event of borrower's financial difficulties.

My tests will correctly identify the effect of exclusive relationship with GOBs if GOB firms are not significantly different from the non-GOB firms on the aspects that affect distress risk. Table 3 presents mean and standard deviation of various firm characteristics for sample divided by firms that had exclusive relationship with GOBs in the year of reform (i.e. financial year 2002) and firms that did not. We can see that GOB firms are on average

much smaller and have lower valuations compared to the other firms in the sample. But their financing structure and investment rates are not significantly different from other firms.

Before going into the regression results, I report the results of changes in variables from the pre-reform period to the post-reform period by taking difference of time average before and after the act. This is given in Table 4. We can see that on average debt to total assets ratio fell by 2.2% for the full sample and 3.2% for the above median tangible asset sample. While average secure debt total assets ratio fell by 2.2% for the full sample and 3.1% for the above median tangible asset sample. This is consistent with the findings by Vig [2013] that firms reduced their debt usage and secured debt usage in response to the strengthening of the creditors rights'.

## 4.1   Univariate Analysis

I begin my empirical analysis by univariate evidence of differential response of GOB firms to the reform. My main dependent variables are the ratio of debt to total assets, the ratio of secured debt to total assets, and investments. Figure 1, 2, and 3 present the mean values of these three variables of interest for the period of 1999 to 2008 (three years before the act and seven years after the act). The blue line indicates the average value for GOB firms and the red line indicates the average for non-GOB firms. We expect to see two patterns in our graph to reflect the differential response to the shock: first, roughly parallel trends for variables in both group before the reform that is before 2002. Second, since non-GOB firms have higher debt ratios and investment rate in the pre-reform period, we expect the difference between the two lines to decrease after the reform. All three figures are consistent with our expectations. In the pre-reform period for all three variables, there is a roughly parallel trend in both groups. And the differences between the group decreases after the reform for all them. The ratio of debt to total assets and secured debt to total assets fall comparatively more for the non-GOB firms. And this affects their investments as well. Investment rate for the non-GOB firms was significantly higher compared GOB firms in the pre-reform period.

16

Post reform average investment rate is roughly the same in both groups.

The main results are best captured by Table 5. It presents difference-in-difference of averages of outcome variables of interest. Since the act is more likely to affect firms with high level of tangible assets, I restrict this analysis to sample of firms with above median level of tangible assets in the year of shock. To implement this analysis first, I divide the firms in the two groups. GOB firms belong to the first group. These are the firms borrowing exclusively from GOBs in the year of the reform that is in the financial year 2002. And rest of the firms belong to the non-GOB group. Then, in each group, I divide all the financial years into two periods: before and after. Before period refers to 1999 to 2001 and after period refers to 2002 to 2008. Next, I take group wise average of variables of interest for all firm-years separately for pre-SARFAESI regime and post-SARFAESI regime. In Panel A, I report the before-after results for the ratio of debt to total assets. We can see that ratio of debt to total assets declined for both GOB and non-GOB firms. But it has reduced relatively less for GOB firms compared to non-GOB firms. For non-GOB firms, it has reduced by 5.2%, and for GOB firms the reduction is only 2%. The difference-in-difference is 3.2%. In Panel B, the denominator is total assets as before but the numerator is the secured debt. This panel illustrates that the reduction in ratio of debt to total assets is driven by reduction in secured debt. The ratio of secured debt to total assets falls by 5.1% for non-GOB firms, but for GOB firms it falls by only 1.8%. The difference-in-difference of the mean is 3.3%. This is consistent with the fact that the reform applies only to the secured debt and so total debt effect is driven by secured debt. Lastly, in Panel C the variable of interest is the investment rate. It shows that the investment rate has increased for GOB firms while it decreased for non-GOB firms. The investment rate before the reform for non-GOB firms was 5.5%, and it has fallen to 4.5% in post reform period. On the other hand for GOB firms it was 2% before the reform and increased to 3.2% after the reform. The difference-in-difference estimate is 2.2%. This is economically significant given the mean investment rate of 3.7% in post reform period.

## 4.2 Multivariate Analysis

To further evaluate the differential response to the shock, I estimate the following regression equation using the firm level data:

$$Y_{ijt} = \alpha_i + \delta_{jt} + \gamma Post_t + \eta GOB_i + \theta Post_t * GOB_i + \omega X_{ijt} + u_{ijt} \tag{1}$$

where $y_{ijt}$ is the dependent variable of interest for firm $i$, in industry $j$ at time $t$. $\alpha_i$ and $\delta_{jt}$ are firm and industry-year fixed effects respectively; $Post_t$ indicates whether firm year belongs to before act (i.e. years 1999 to 2001) or after act (i.e. years 2002 to 2008) period; $GOB_i$ indicates whether the firms has exclusive relationship with GOB in financial year 2002 or not; $X_{ijt}$ are control variables; and the error of regression is given by $u_{ijt}$. The firm fixed effects control for time-invariant firm specific factors affecting the dependent variable while the industry year fixed effects is a non-parametric way of accounting for time varying industry-specific shocks. It controls for both economy wide factors and specific industry shocks in a given year that affect both GOB and non-GOB firms. I focus on the coefficient $\theta$. It captures the differential response of GOB firms compared to other firms to the shock. Since I have controlled for the industry-year fixed effects, the regression effectively compares the GOB firms with non-GOB firms within the same industry. To address within firms correlation in errors, I have clustered the standard errors at the firm level (Bertrand, Duflo, and Mullainathan [2004]).

In Table 6, I investigate the differential response to total debt usage using the regression framework described above. I control for standard capital structure control variables (Rajan and Zingales [1995]) except for TobinQ. I exclude TobinQ due to measurement error concerns (Erickson and Whited [2000]). In all three Columns, I use firm fixed effects and industry-year fixed effects. In Column 1, I report the results for the full sample. We can see that debt to total assets ratio goes up by 2.8 percentage points for GOB firms compared to other firms in the sample. In Column 2, I restrict the sample to firms with more than the median

level of tangible assets. We can see that effect increases to 3.8 percentage points in this sample. Further, in Column 3, I restrict the sample to firms in the top tercile of tangible assets. For this sample differential effect is 2.9 percentage points. The reduction in the effect in this sample compared to above median tangibility sample could be due to the fact that a firm with a very high level of tangible assets has less probability to be in default. Since in the event of financial distress, such firms can sell off some of its high recovery assets and use the proceeds for debt service. This is consistent with the finding of Acharya et al. [2011b] that in countries with stronger creditors rights the probability of low recovery asset firm acquiring high recovery target is greater. Overall, these results suggest that GOB firms reduced their leverage by about 3% less compared to other firms in response to the shock. This is significant since the average difference in the ratio of debt to total assets for the full sample and above median tangibility sample is around 3.5% (see Table 3).

A problem in analysing differential response is that serial correlation in errors can lead to bias in estimated standard errors. This could lead to overestimation of statistical significance (Bertrand et al. [2004]). To alleviate this concern, I perform a non-parametric Fisher's exact test for $\theta = 0$. To get a "placebo effect", first I randomly assign firms to GOB and non-GOB category such that the proportion of GOB firms is the same as actual in my sample. I then estimate equation (1) to calculate $\theta$, assuming that this placebo assignment is the actual assignment. For this, I use my baseline sample of firms with tangible assets above the median. Fisher's exact test requires that I should repeat this procedure for all possible permutation of GOB and non-GOB firm groupings. But due to computational difficulties, I repeat it for 10000 times. This will cover most of the possible permutations. Next, I calculate the empirical cumulative distribution function (CDF), $\hat{F}_n(x)$, for these effects. This empirical CDF, $\hat{F}_n(x)$, gives a p-value for the null hypothesis that $\theta = 0$. Intuitively, if there was a differential response to the shock, we would expect the estimated coefficient to be in the right tail of calculated placebo effects. This test does not suffer from the overestimation of statistical significance problem of the t-test because it does not assume a particular error

structure.

In Figure 6, I present the results of Fisher's exact test. The figure shows the empirical CDF of calculated placebo effects $\hat{F}_n(x)$ for the ratio of debt to total assets. The vertical line in the figure represents the differential effect documented in Table 6 for the above median sample. The value of empirical distribution function is $\hat{F}_n(0.038) = 0.9987$. This p-value is close to that obtained for the t-test.

In Table 7, I investigate the difference in response using the ratio of secured debt to total assets as the dependent variable. Here also I use firm fixed effects and industry-year fixed effects. Regression results for the full sample are reported in Column 1. We can see that secured debt to total assets ratio of GOB firms increases by 2.5% compared to the other firms. In Column 2, I restrict the sample to firms with tangible assets greater than the median. As one would expect, the effect is stronger for this sample. Lastly in Column 3, I restrict the sample to firms in the top tercile of tangible assets. As observed in Table 6 for the ratio of debt to total assets effect is weaker for this sample. All the evidence suggests that the relative increase in usage of debt for GOB firms documented earlier has mostly come through the secured debt channel. And relative increase in usage of secured debt is around 3%. This consistent with the fact that the SARFAESI Act applies only to secured borrowings.

As noted earlier, in DID analysis, standard error can be biased by the serial correlation in errors. To alleviate this concern, I perform permutation test for the ratio of secured debt to total assets as well. I use 10000 random allocations for this. The results of the permutation test are presented in Figure 7. The plot shows the empirical distribution function for placebo effects $\hat{F}_n(x)$ for the ratio of secured debt to total assets. The vertical line here denotes the effect reported in Table 7 for the above median sample. The value of empirical distribution function is $\hat{F}_n(0.035) = 0.9993$. The p-value is again close to that obtained for the t-test.

In the introduction, we noted that GOBs in India have potentially two opposing incentives when it comes to dealing with the default of borrowers. First is the fact that GOBs,

due to their objectives beyond profit maximization, are likely to choose continuation over liquidation when dealing with borrower's financial difficulties. However, the continuation of the firm in temporary financial problems might involve debt resurrecting and some debt forgiveness. This gives rise to an opposing force. In India, GOB mangers are considered as a public servant. And their baking decisions such as debt restructuring can be investigated for corruption by law enforcement agencies. The fear of investigation could make reorganization difficult.

The results presented so far would imply that the former incentive seems to dominate the latter. However, the results are consistent with both incentives .The apparent inconsistency of these results with the second incentive comes from the fact that we typically see that there are only two options while dealing with borrower's default. That is either to liquidate or to reorganize. But there is a third option. Wait and pray that borrower's prospects improve, and it repays the debt in full. There is some evidence that this is the option that GOBs in India seem to have adopted. For example, Papia Sengupta, Executive Director of Bank of Baroda, third largest bank in India[9] commented in a recent interview[10]

> "After these issues(the investigations), bankers have been super cautions. Decisions will not be taken, and this is worse than taking a wrong decision"

> They [one or two banks in a bankers consortium] will try to delay the matter by either seeking revaluation, asking for a higher amount in case it's sale, or just raising more questions. Unfortunately, today there is no penalty for not taking a decision, but you could be punished for taking one"

Although these observations are recent and my sample period ends in 2008, these incentives are likely to be present during my sample period. It is during the economic slowdown

---

[9] "Bank of Baroda becomes second-largest PSU, third-largest bank in India" Business Today, April 1, 2019. Accessed November 11, 2019. https://www.businesstoday.in/top-story/bank-of-baroda-becomes-second-largest-psu-third-largest-bank-in-india/story/332888.html

[10] Rebello, Joel. "No penalty for not taking decisions, but sword for taking one: why files don't move in banks" Economic Times, July 18, 2019. Accessed November 11, 2019. https://prime.economictimes.indiatimes.com/news/70269488/fintech-and-bfsi/no-penalty-for-not-taking-decision-but-sword-for-taking-one-why-files-dont-move-in-banks.

that when a high proportion of borrowers faces financial difficulties, problems created by these incentives come to light.

## 4.3 Spillover effects to the investments

In emerging markets like India, capital markets are not well developed. Thus, cut in debt usage could affect the investments of firms. In this subsection, I further analyse whether the differential effects on the debt structure of GOB firms compared to other firms spillover to real investments. I compare the changes in investment rates of GOB firms to non-GOB firms following the reform. I estimate the above equation using the standard determinant of investments as controls. This includes lag of TobinQ, lag cashflow from operation scaled by total assets, log of total assets, and leverage (Srinivasan and Thampy [2017]). Results for the full sample are reported in Table 8, Column 1. We can see that investments of GOB firms increase by 2.4% compared to the other firms after controlling for firm fixed effects and industry-year fixed effects. In Column 2, I strict the sample to firms with above median level of tangible assets. Consistent with the findings for secured debt and total debt, the effect is stronger (i.e. 3.5%) in this sample. This effect is economically significant. The average investments rate after the act is 3.7% for this subsample (see Table 4). This shows that firms reducing the use of debt is not able to substitute it with funding from other sources. In Column 3, I further restrict the sample to firms in the top tercile of tangible assets. The differential effect in even stronger in this subsample (i.e. 4.1%).

To address the concern related to serial correlation in error biasing the standard errors in DID t-test. I perform Fisher's exact test described earlier using 10000 random allocations. I present the results in Figure 8. The plot shows the empirical distribution function for placebo effects $\hat{F}_n(x)$ for the ratio of investments. The vertical line here denotes the effect reported in Table 8 for the above median sample. The value of empirical distribution function is $\hat{F}_n(0.035) = 0.9998$. The p-value is once again close to that obtained for the t-test.

# 5  Alternative Explanations & Falsification Tests

In this section first I discuss results of falsification tests and then address certain alternative explanations for my results.

## 5.1  Alternative Explanations

Now I examine some competing explanation for my results. As noted earlier, SARFASESI Act affects the firms with a higher level of tangible assets. Instead of lower distress risk of borrowing from GOB, the pattern I document could also be observed if either only firms with the low level of tangible assets borrow exclusively from GOBs or these results are driven by subsample of firms with the low level of tangible assets. There are three reasons why this is unlikely to be the case. First, the asset tangibility level for GOB firms is not significantly different from non-GOB firms (Table 3). In fact, the average asset tangibility level for GOB firms are slightly higher both in full sample and above median tangibility sample. And second, the regression results for all dependent variables get stronger in the subsample of firms that have above the median of tangible assets. This suggests that differential response of GOB firms is even higher for firms with a high level of tangible assets. Third, as discussed above for the subsample of firms with tangible assets below the median, the response of GOB firms is not significantly different from that of non-GOB firms.

A second explanation for observed differential response of GOB firms from non-GOB firms could be that there were other structural changes happening in the operation of GOBs around that time. Anecdotal evidence suggests that GOBs were providing only working capital financing till the late 1990s. And they started providing long term funding after that. Long term funding in India is by nature secured so secured debt could have increased for firms borrowing from GOBs. And this effect is independent of distress risk. However, I argue that this can not be the reason for the relative increase in secured debt for GOB firms compared to non-GOB firms. There are three reasons for it. First, this effect is not

related to asset tangibility, and so it should be present in the subsample of firms with below median tangible assets as well. But as discussed earlier, the effect is not significant for that sample. Second, many non-GOB firms are borrowing from government owned bank along with private or foreign bank. So this effect should not drive the difference between the two groups. Third, under this explanation ratio of secured debt to asset for GOB firms should not just relatively increase but also increase in the absolute terms after the reform. But as documented in Table 5, it falls in absolute terms after the reform.

The reform was carried out to tackle the problem of rising NPAs of banks and financial institutions. As discussed earlier, after the act debt and specially secured debt usage have reduced. The third explanation is as follows. Reduction in leverage after the passage of act could be due to the recovery of NPAs by banks using the power vested to them under the act. And therefore GOB firms' relatively lower reduction in debt could be explained by the fact that NPAs of GOBs were comparatively lower before the reform and so their borrowers have to make relatively less repayment compared to the borrowers of other banks. But the aggregate NPA data does not support this explanation. In Figure 4 and 5, I plot the ratio gross NPAs to gross advances and the ratio of net NPAs to net advances respectively for the period 1999 to 2008. The four lines represent four groups: all scheduled commercial banks (SCB), government owned banks (GOB), privately owned banks (POB), foreign owned banks (FOB). The line with square points is for GOBs. We can see in the figure that for GOB the ratio of gross NPAs to gross advances and the ratio of net NPAs to net advances were highest before the reform. It reduces more significantly after the reform and converges with that of other banking groups. This suggests that if anything GOBs have recovered more money using the powers given by the act.

## 5.2 Falsification Tests

It is possible to imagine that GOB and non-GOB firms randomly diverge in their usage of secured and total debt. And I am capturing that effect. In other words, the difference-in-

difference effect I have documented is not due to lower distress risk of borrowing from GOBs. To rule out this possibility, I perform three falsification tests. First, I falsely assign 2000 as the year of the act. And study sample from the year 1997 to 2002. Consider the period from 1997 to 1999 is pre-act period and the period of 2000 to 2002 as the post-act period. The baseline sample I use for this is that of firms above median tangible assets. I estimate equation (1) for this sample. The results are presented in Table 9 for all three dependent variables: ratio of debt to total assets, ratio of secured debt to total assets, and investments. We can see that the interaction term is not significant for any of the dependent variables. This rules out the possibility that GOB and non-GOB firms randomly diverge in their usage of secured and total debt.

Second, I analyse the subsample of firms with below median level of tangible assets. SARFAESI act gives the power for seizing assets to the lender for recovering the debt. This increases the possibility of inefficient liquidation for firms with high liquidation value. Under this hypothesis, the shock will significantly affect firms with a high level of tangible assets but unlikely to affect firms with a lower level of effect. The results for this sample are presented in Table 10 for all three dependent variables of interest. We can see that effect are small in magnitude and not statistically significant for any of the dependent variables. This gives one more piece of evidence against the argument that my results are the outcome of random divergence in trend between GOB and non-GOB firms.

Lastly, I analyse the effect on the use of unsecured debt. The SARFAESI act is applicable only to secured debt. So under my hypothesis, use of unsecured debt should not be affected. I estimate equation (1) for the ratio of unsecured debt to total assets. I do it for three samples: full sample, above median tangible assets sample and top tercile of tangible assets sample. The results are presented in Table 11. We can see that effect for unsecured debt is not significant in any of the samples. Overall these falsification tests suggest that my results are unlikely to be the outcome of random divergence in trend between GOB and non-GOB firms.

## 5.3 Robustness Tests

SARFAESI Act was passed in June, 2002 and 2003 is the first financial year after the enactment of the law. But as mentioned earlier following Vig [2013], I have taken the year 2002 as the first financial year after the event. It was done due to the fact that discussion on the law was started back in 2001, and for my hypothesis, ex-ante effects are more important. For the robustness, I redo the analysis taking 2003 as first year following the act. In Table 12, I present the results for it using the subsample of firms with above median tangible assets. All three dependent variables of interest are considered. The results are very similar.

As mentioned in the methodology section I have excluded TobinQ among the standard leverage control in my regression for the ratio of debt to total assets and secured debt to total assets due to measurement error concerns in it. For the robustness, I re-estimate equation (1) for the subsample of firms with above median tangibility of assets including TobinQ as a control. Results are presented in Table 13. The dependent variables are the ratios of secured debt plus unsecured debt to total assets, debt to total assets, and secured debt to total assets. The number of observation falls due to unavailability to data on TobinQ for some firm years. But results are not significantly different. Here, I have used ratio of secured debt plus unsecured debt as an additional measure of total debt for the robustness.

Next, I check whether my results are robust to switching of GOB categories by firms. My benchmark sample is that of the firms that do not change their GOB category in the entire sample period of ten years, i.e. between 1999 to 2008. Now in that sample, I include firms who have changed their GOB status between 1999 to 2008 and estimate equation (1) for the subsample of firms with above median level of tangible assets. The results are presented in Table 14. The results for all three dependent variables are similar to that in the benchmark sample.

SARFAESI Act was passed in June 2002 while my sample extends till 2008. As argued earlier, the sample covers post act data for seven years due to two reasons. First, it takes time for firms to learn that GOBs are not using their powers as stringently as other banks.

And second is the pure statistical reason of increasing the sample size. But it raises natural concern that my results might be picking up effect that occurs far after enactment of SARFAESI and are not driven by SARFAESI Act. To address this concern, I restrict the sample to 2005. In Table 15, I present the results for it using the subsample of firms with above median tangible assets. We can see that effect is still present, although it gets weaker both economically and statistically. Reduction in statistical significance is likely to be driven by a decrease in sample size.

# 6   Conclusion

I have studied the effect of borrowing from government owned banks on the firm's distress risk using the quasi-natural experiment of securitization reform in India. The reform increased the probability of inefficient liquidation for firms with high liquidation value and thus led to an increase in the distress risk. In response to this firms with a high degree of tangible assets reduced their usage of secured debt and total debt.

I find that in response to this distress shock firms borrowing exclusively from GOBs reduce their secured debt and total debt usage relatively less compared to other firms. Since the distress risk increases more for the firms with high liquidation value, the differential effect is higher in subsample of firms with high level of tangible assets. This has a significant spillover effects on their real investments. Investment rate for GOB firms relative to non-GOB firms increases significantly.

Overall, these results are consistent with anecdotal evidence that GOBs as lenders are comparatively less stringent in debt recovery and suggest that firms borrowing exclusively from GOBs could have less distress risk.
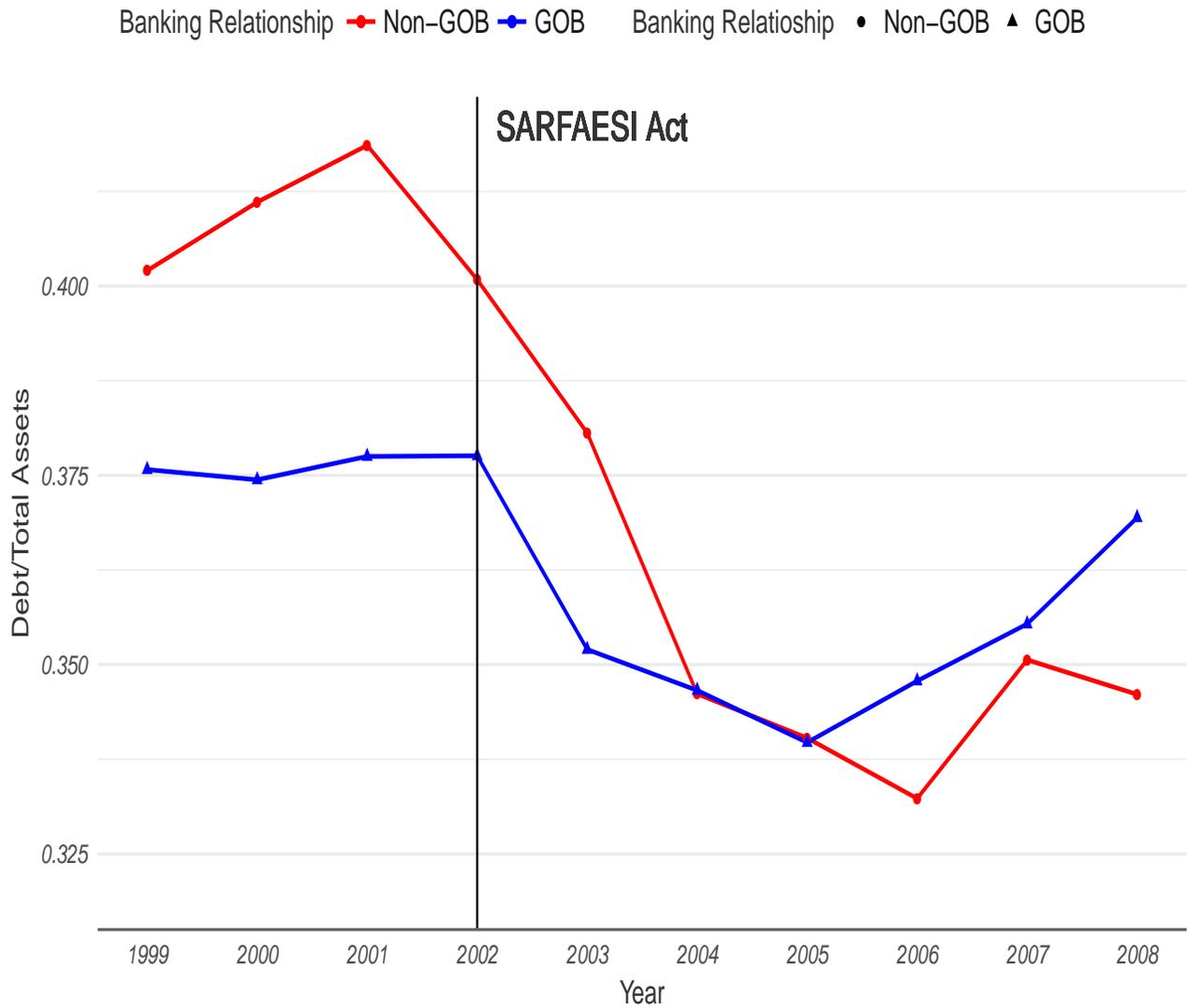
Figure 1: Debt as a proportion of Total Assets

This figure shows the plot of group wise yearly average of ratio of debt to total assets for GOB and non-GOB firms in subsample of firms with above median level of tangible assets. GOB firms are firms having exclusive relationship with GOB in the year of reform. That is in financial year 2002. The rest of the firms belong to other group. Sample Period is 1999 to 2008. Source: CMIE-Prowess Database.
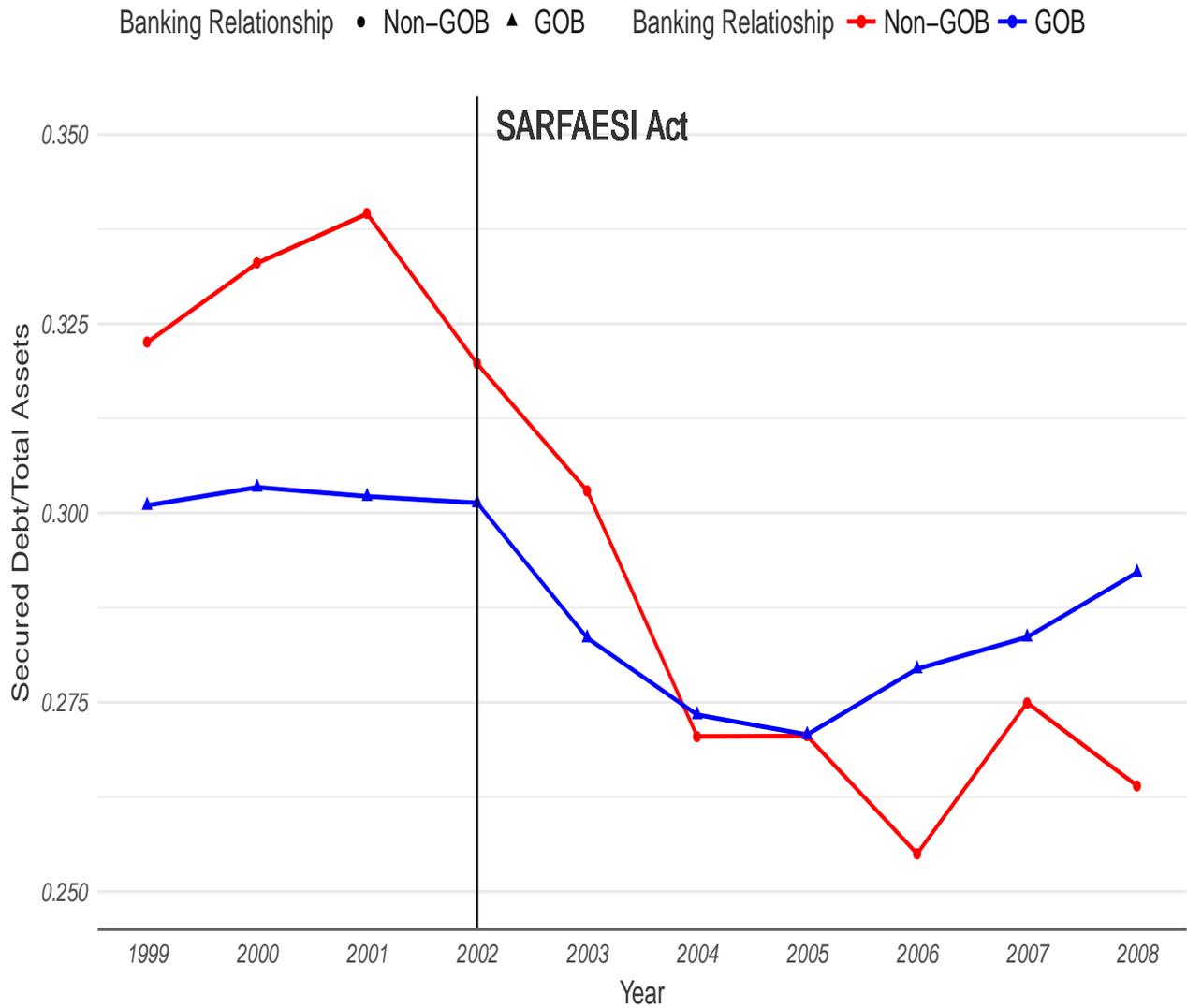
Figure 2: Secured Debt as a proportion of Total Assets

This figure shows the plot of group wise yearly average of ratio of secured debt to total assets for GOB and non-GOB firms in subsample of firms with above median level of tangible assets. GOB firms are firms having exclusive relationship with GOB in the year of reform. That is in financial year 2002. The rest of the firms belong to other group. Sample Period is 1999 to 2008. Source: CMIE-Prowess Database.
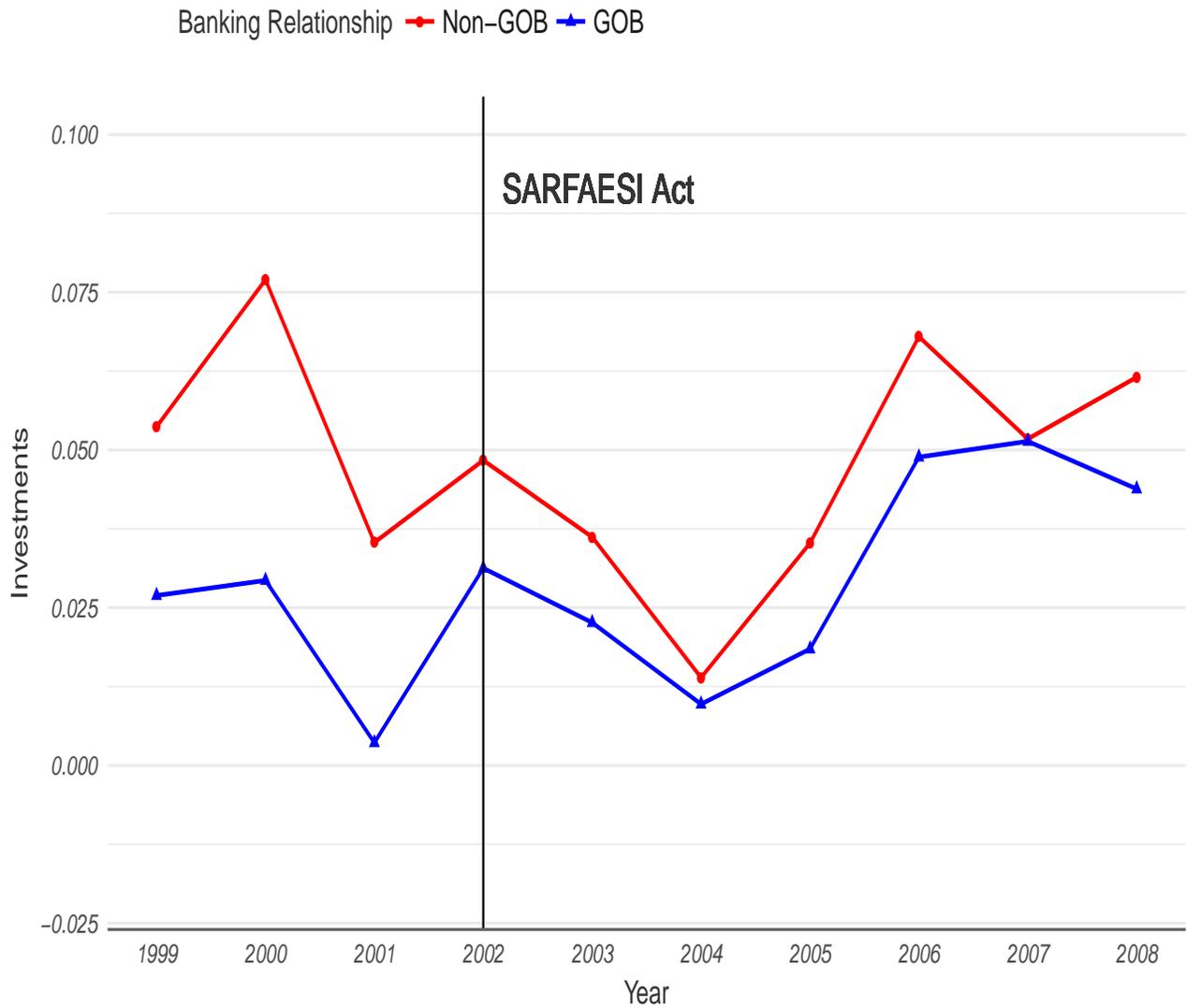
Figure 3: Investments as a proportion of Total Assets In Previous Year

This figure shows the plot of group wise yearly average of investments for GOB and non-GOB firms in subsample of firms with above median level of tangible assets. GOB firms are firms having exclusive relationship with GOB in the year of reform. That is in financial year 2002. The rest of the firms belong to other group. Sample Period is 1999 to 2008. Source: CMIE-Prowess Database.
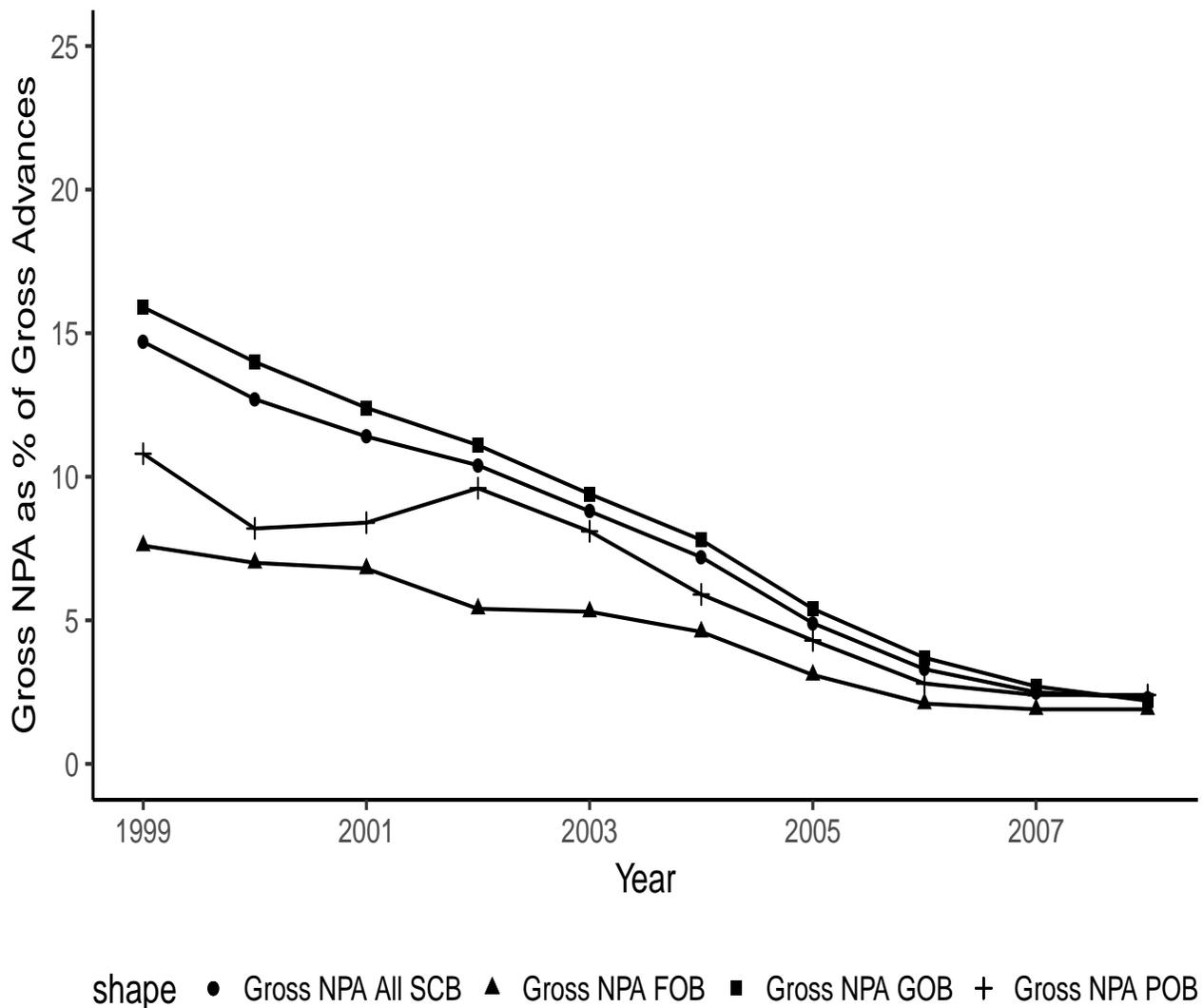
Figure 4: Goss NPA as % of Gross Advances Bank Group Wise

This figure shows the plot of gross NPAs as percentage of gross advances for the period 1999 to 2008 for all the scheduled commercial banks operating in India and also by their ownership group. The four lines represents four groups: all scheduled commercial banks (SCB), government owned banks (GOB), privately owned banks (POB), foreign owned banks (FOB). The line with square points is for GOBs. The data is taken from Reserve Bank of India's publicly available web database.
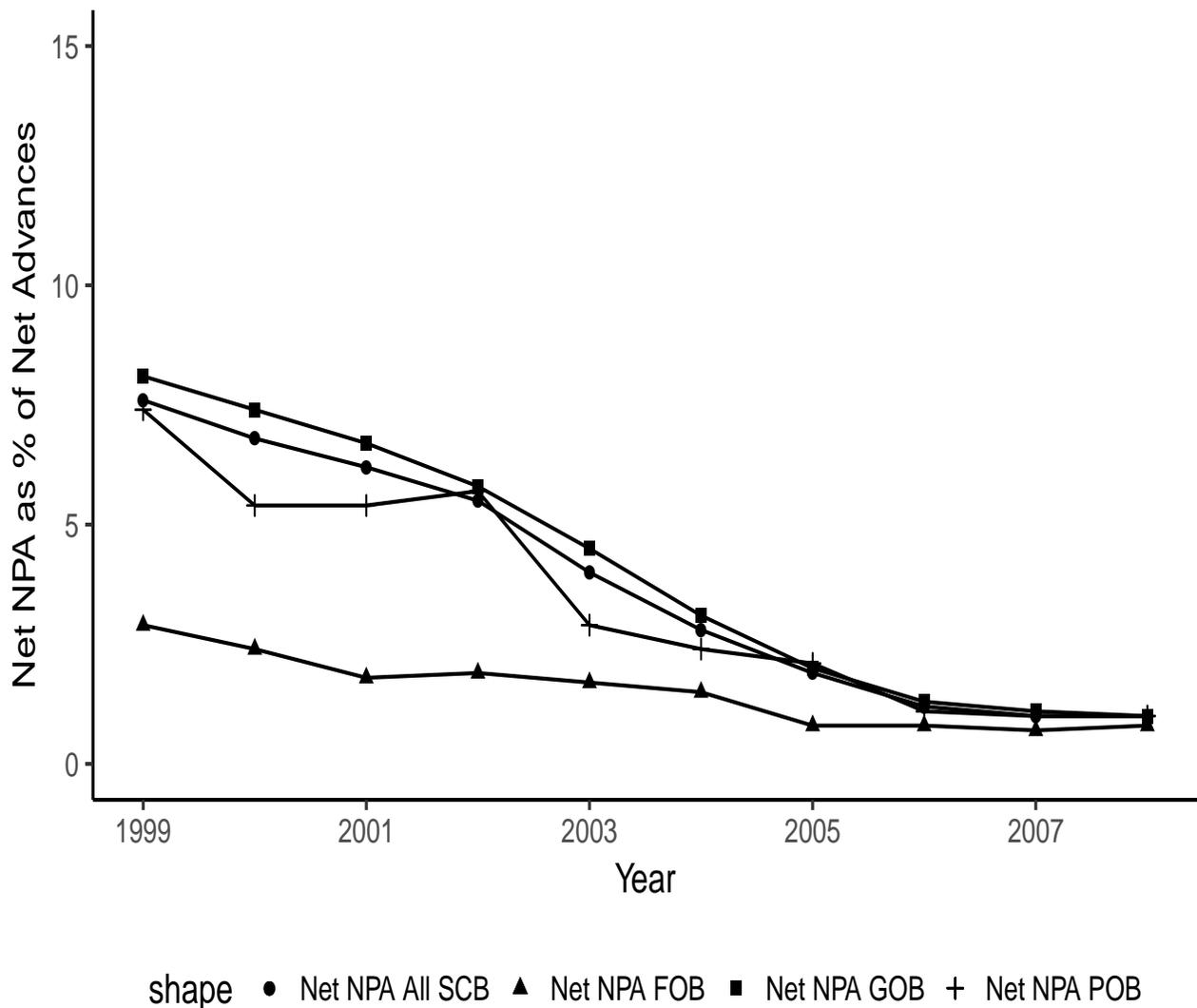
Figure 5: Net NPA as % of Net Advances Bank Group Wise

This figure shows the plot of net NPAs as percentage of net advances for the period 1999 to 2008 for all the scheduled commercial banks operating in India and also by their ownership group. The four lines represents four groups: all scheduled commercial banks (SCB), government owned banks (GOB), privately owned banks (POB), foreign owned banks (FOB). The line with square points is for GOBs. The data is taken from Reserve Bank of India's publicly available web database.

# Empirical CDF of Placebo Effect for Debt/Total Assets
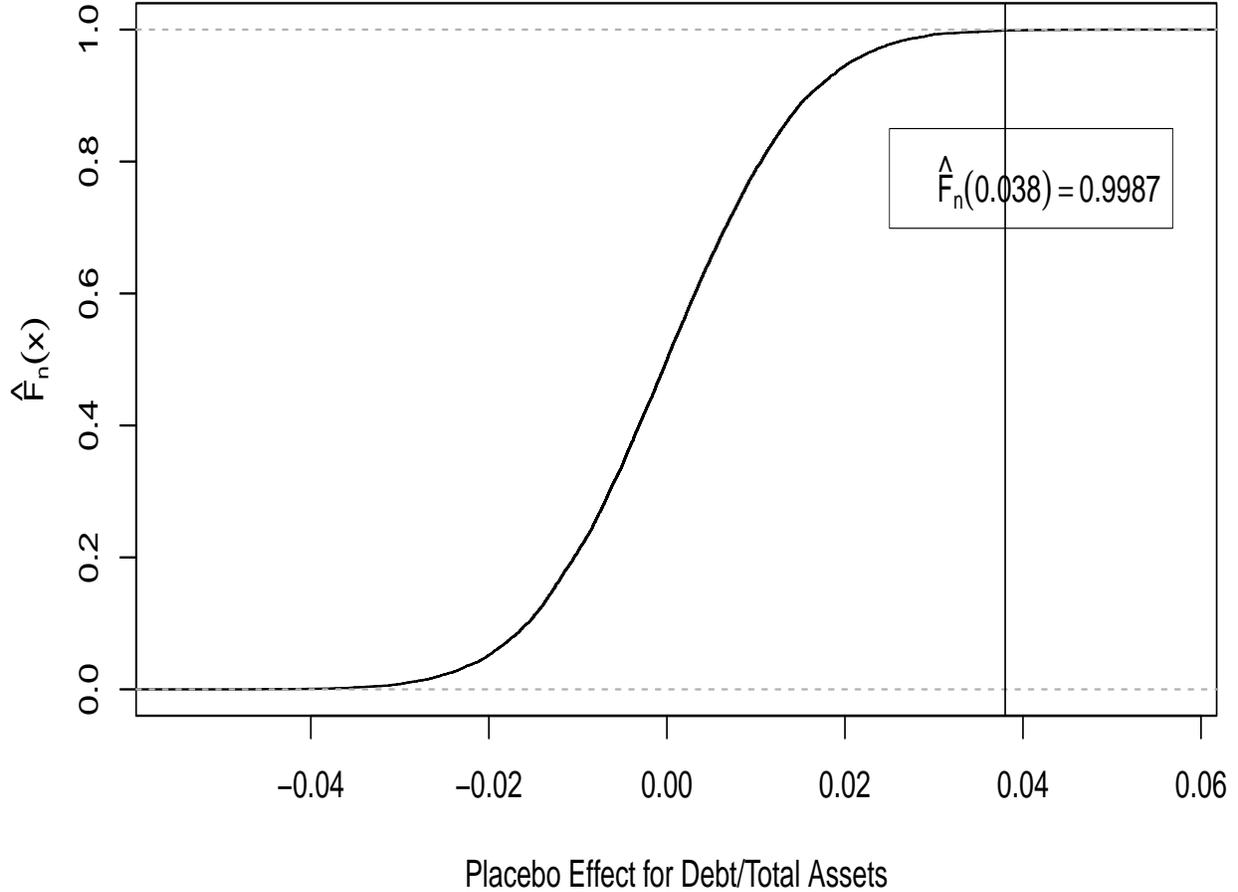


Figure 6: Empirical CDF of Placebo Effect for Debt/Total Assets

This figure shows the empirical CDF of placebo effects calculated for the ratio of debt to total assets. The CDF is constructed from 10000 estimates of differential effect i.e. interaction term using following equation for above median tangible assets sample: $Y_{ijt} = \alpha_i + \gamma_{jt} + \delta Post_t + \theta GOB_i + \eta Post_t GOB_i + \omega X_{ijt} + \epsilon_{ijt}$. No parametric smoothing is used: the empirical CDF appears smooth due to the 10000 data points used to construct it. The vertical line denotes the estimated effect presented in column (2) of Table 6.

**Empirical CDF of Placebo Effect for Secured Debt/Total Assets**



$$\hat{F}_n(0.035) = 0.9993$$
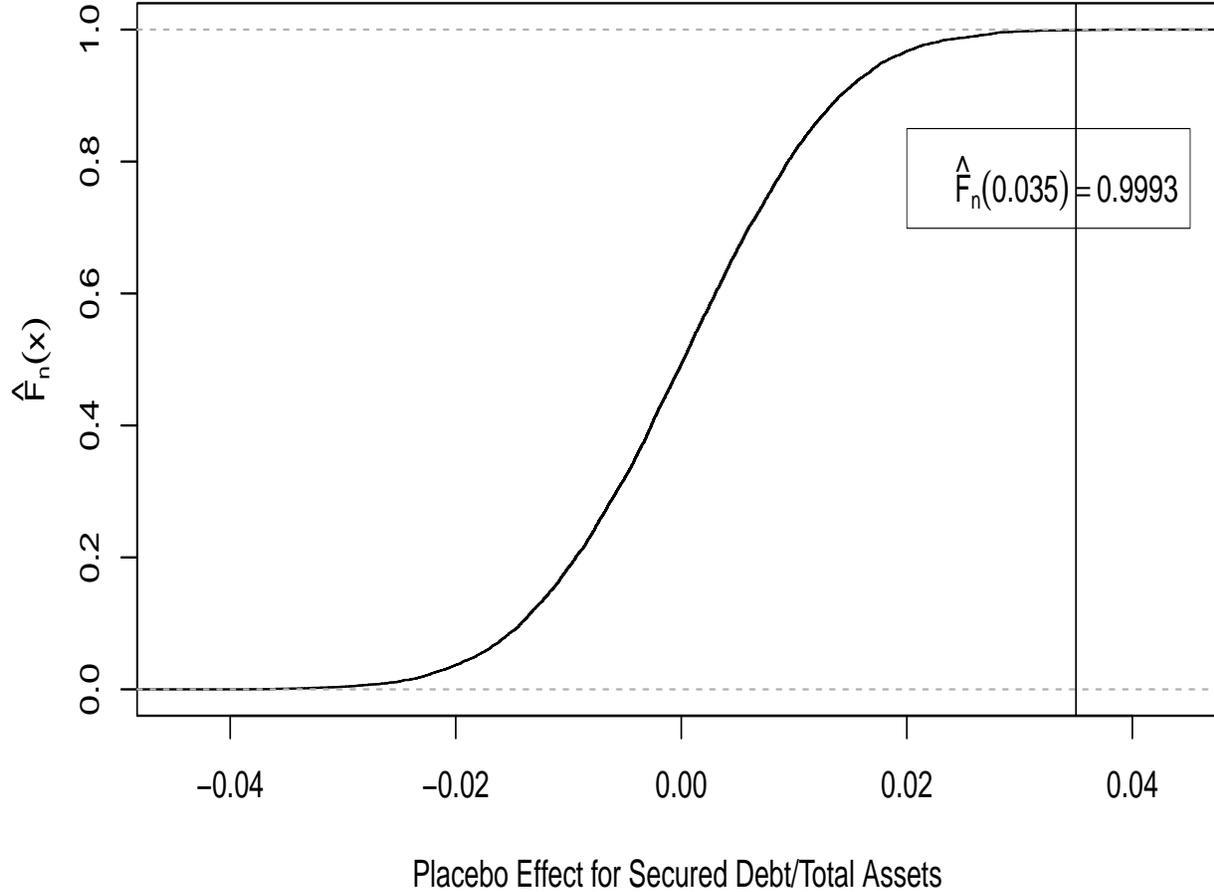
Figure 7: Empirical CDF of Placebo Effect for Secured Debt/Total Assets

This figure shows the empirical CDF of placebo effects calculated for the ratio of secured debt to total assets. The CDF is constructed from 10000 estimates of differential effect i.e. interaction term using following equation for above median tangible assets sample: $Y_{ijt} = \alpha_i + \gamma_{jt} + \delta Post_t + \theta GOB_i + \eta Post_t GOB_i + \omega X_{ijt} + \epsilon_{ijt}$. No parametric smoothing is used: the empirical CDF appears smooth due to the 10000 data points used to construct it. The vertical line denotes the estimated effect presented in column (2) of Table 7.

## Empirical CDF of Placebo Effect for Investments



$$\hat{F}_n(0.035) = 0.9998$$
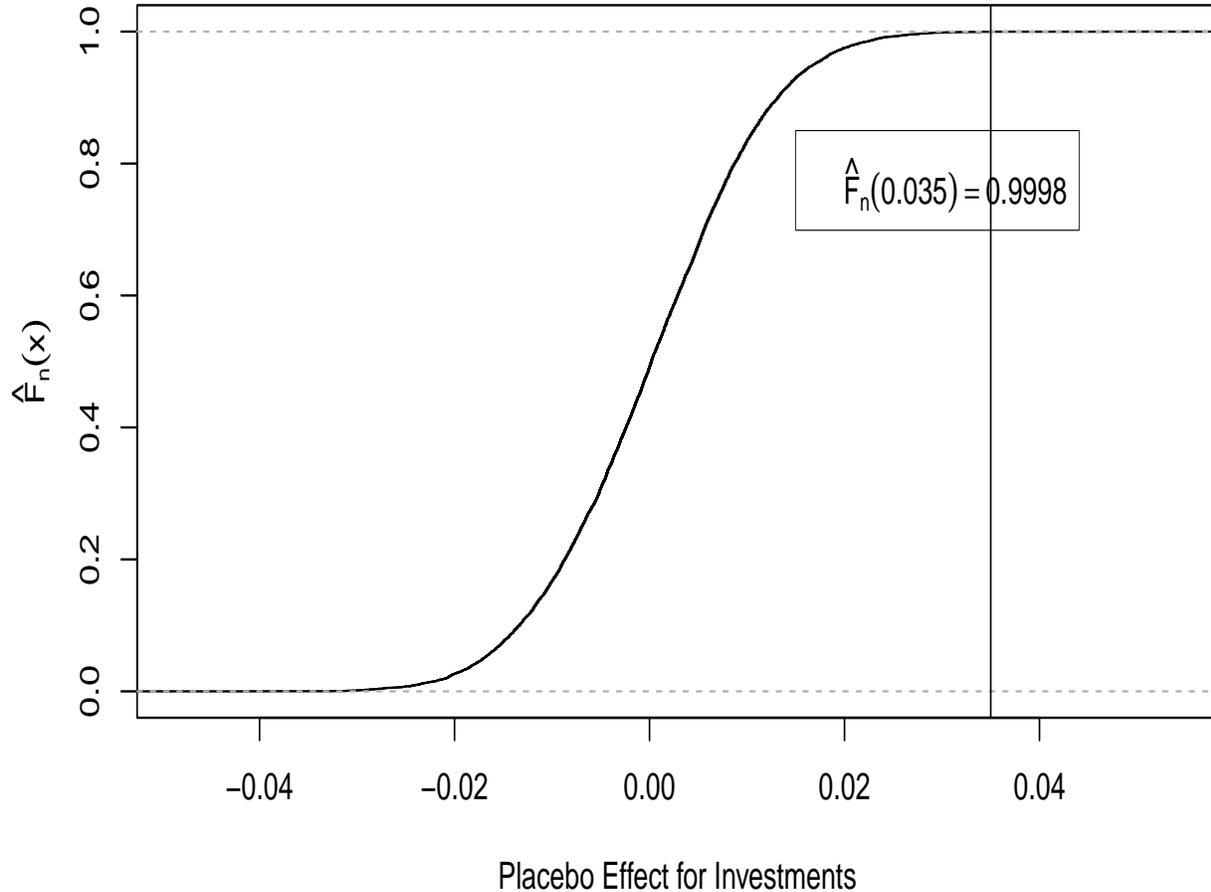
Figure 8: Empirical CDF of Placebo Effect for Investments

This figure shows the empirical CDF of placebo effects calculated for the investments. The CDF is constructed from 10000 estimates of differential effect i.e. interaction term using following equation for above median tangible assets sample: $Y_{ijt} = \alpha_i + \gamma_{jt} + \delta Post_t + \theta GOB_i + \eta Post_t GOB_i + \omega X_{ijt} + \epsilon_{ijt}$. No parametric smoothing is used: the empirical CDF appears smooth due to the 10000 data points used to construct it. The vertical line denotes the estimated effect presented in column (2) of Table 8.

Table 1: Variable Description

| Varaible Name | Description |
| --- | --- |
| Total Assets | Book value of total assets adjusted for inflation using WPI (in units of Rs. 10 million at year 2000 prices). |
| Debt | Taken from CMIE. It includes all borrowings plus preference share outstanding. |
| Log Total Assets | Natural logarithm of book value of total assets (in units of Rs. 10 million). |
| Log Sales | Natural logarithm of net sales (in units of Rs. 10 million at year 2000 prices). |
| Tangibility | Tangibility Ratio of the book value of land, buildings, plant and machinery to total assets. |
| Debt/Total Assets | Ratio of Total Debt to Total Assets. Both variables are taken from the prowess. |
| Secured Debt/Total Assets | Ratio of Total Secured Borrowings to Total Assets. |
| Investments | Change in gross fixed assets, scaled by total assets in the previous year. |
| Cashflow | Net cash flow from operating activities scaled by total assets in the previous year. |
| Tobin-Q | (Total Assets-Networth+ Market Value of Equity) / Total Assets |
| GOB | A dummy variable that takes a value of 1 if firm borrows exclusively from government owned banks in financial year 2002 and 0 otherwise. |
| Post | A dummy variable that takes a value of 1 for financial year 2002 and later, and 0 otherwise. |

Table 2: Summary Statistics

| | count | mean | sd | min | max |
|---|---|---|---|---|---|
| Panel A-Full Sample | | | | | |
| Debt/Total Assets | 6332 | 0.331 | 0.185 | 0.001 | 0.904 |
| Secured Debt/Total Assets | 6332 | 0.260 | 0.166 | 0.000 | 0.741 |
| Investments | 6332 | 0.034 | 0.123 | -0.292 | 1.490 |
| Log Total Assets | 6332 | 6.522 | 1.633 | 2.284 | 11.477 |
| Tangibility | 6332 | 0.629 | 0.311 | 0.005 | 2.018 |
| PBITDA/Total Assets | 6332 | 0.118 | 0.076 | -0.158 | 0.491 |
| TobinQ | 5672 | 1.072 | 0.859 | 0.115 | 14.299 |
| Cashflow | 6169 | 0.068 | 0.114 | -1.915 | 0.707 |
| Observations | 6332 | | | | |
| Panel B-Above Median Tangibility | | | | | |
| Debt/Total Assets | 3500 | 0.367 | 0.182 | 0.001 | 0.904 |
| Secured Debt/Total Assets | 3500 | 0.293 | 0.168 | 0.000 | 0.741 |
| Investments | 3500 | 0.036 | 0.132 | -0.292 | 1.490 |
| Log Total Assets | 3500 | 6.488 | 1.676 | 2.284 | 11.477 |
| Tangibility | 3500 | 0.799 | 0.246 | 0.007 | 2.018 |
| PBITDA/Total Assets | 3500 | 0.123 | 0.074 | -0.158 | 0.484 |
| TobinQ | 3123 | 1.008 | 0.622 | 0.158 | 8.857 |
| Cashflow | 3432 | 0.084 | 0.097 | -0.902 | 0.686 |
| Observations | 3500 | | | | |

This table reports descriptive statistics. Panel A reports results for full sample while panel B reports it for firms with above median level of tangible assets. All variables are defined in the Table 1. This excludes observations for financial firms. Sample Period is 1999 to 2008. Source:CMIE-Prowess Database.

## Table 3: Summary Statistics By GOB Relationship

| | GOB | | Non-GOB | | Difference | |
|---|---|---|---|---|---|---|
| | mean | sd | mean | sd | Diff | t |
| **Panel A-Full Sample** | | | | | | |
| Debt/Total Assets | 0.331 | 0.179 | 0.332 | 0.191 | -0.001 | (-0.111) |
| Secured Debt/Total Assets | 0.266 | 0.159 | 0.251 | 0.174 | 0.015*** | (3.458) |
| Log Total Assets | 5.858 | 1.264 | 7.405 | 1.651 | -1.546*** | (-40.685) |
| Tangibility | 0.658 | 0.306 | 0.590 | 0.313 | 0.068*** | (8.669) |
| Investments | 0.027 | 0.117 | 0.044 | 0.129 | -0.017*** | (-5.484) |
| PBITDA/Total Assets | 0.109 | 0.074 | 0.131 | 0.076 | -0.022*** | (-11.522) |
| TobinQ | 0.919 | 0.542 | 1.257 | 1.100 | -0.338*** | (-14.209) |
| Cashflow | 0.063 | 0.113 | 0.076 | 0.115 | -0.013*** | (-4.410) |
| Observations | 3613 | | 2719 | | 6332 | |
| **Panel B-Above Median Tangibility** | | | | | | |
| Debt/Total Assets | 0.363 | 0.183 | 0.375 | 0.180 | -0.012 | (-1.894) |
| Secured Debt/Total Assets | 0.290 | 0.164 | 0.297 | 0.173 | -0.007 | (-1.165) |
| Log Total Assets | 5.852 | 1.308 | 7.441 | 1.714 | -1.589*** | (-29.450) |
| Tangibility | 0.817 | 0.252 | 0.772 | 0.234 | 0.045*** | (5.390) |
| Investments | 0.028 | 0.129 | 0.048 | 0.135 | -0.020*** | (-4.360) |
| PBITDA/Total Assets | 0.115 | 0.074 | 0.135 | 0.071 | -0.021*** | (-8.342) |
| TobinQ | 0.908 | 0.438 | 1.143 | 0.787 | -0.234*** | (-9.776) |
| Cashflow | 0.077 | 0.096 | 0.095 | 0.098 | -0.018*** | (-5.191) |
| Observations | 2099 | | 1401 | | 3500 | |

This table reports summary statistics by GOB relationship of firms. Firms are divided into two groups. First group is GOB firms. These are firms having exclusive GOB relationship in the year of reform. That is in financial year 2002. The rest of the firms belong to other group. Sample Period is 1999 to 2008. Difference between the average value of variable during the sample period is given in the column 6 and it's t-statistics is given in the column 7. Panel A reports results for full sample while panel B reports it for firms with above median level of tangible assets. Source: CMIE-Prowess Database.

## Table 4: Summary Statistics For Before & After SARFAESI Period

| | After | | Before | | Difference | |
|---|---|---|---|---|---|---|
| | mean | sd | mean | sd | Diff | t |
| Panel A-Full Sample | | | | | | |
| Debt/Total Assets | 0.324 | 0.185 | 0.346 | 0.184 | -0.022*** | (-4.581) |
| Secured Debt/Total Assets | 0.252 | 0.165 | 0.273 | 0.166 | -0.022*** | (-4.975) |
| Log Total Assets | 6.532 | 1.675 | 6.504 | 1.556 | 0.028 | (0.679) |
| Tangibility | 0.635 | 0.330 | 0.617 | 0.272 | 0.018* | (2.320) |
| Investments | 0.034 | 0.122 | 0.035 | 0.125 | -0.001 | (-0.237) |
| PBITDA/Total Assets | 0.116 | 0.076 | 0.123 | 0.074 | -0.007*** | (-3.427) |
| TobinQ | 1.092 | 0.704 | 1.038 | 1.080 | 0.054* | (2.036) |
| Cashflow | 0.065 | 0.122 | 0.074 | 0.099 | -0.009** | (-3.161) |
| Observations | 4084 | | 2248 | | 6332 | |
| Panel B-Above Median Tangibility | | | | | | |
| Debt/Total Assets | 0.357 | 0.181 | 0.389 | 0.182 | -0.032*** | (-4.921) |
| Secured Debt/Total Assets | 0.283 | 0.167 | 0.314 | 0.168 | -0.031*** | (-5.076) |
| Log Total Assets | 6.521 | 1.718 | 6.421 | 1.582 | 0.099 | (1.692) |
| Tangibility | 0.813 | 0.264 | 0.769 | 0.198 | 0.044*** | (5.512) |
| Investments | 0.037 | 0.133 | 0.033 | 0.130 | 0.004 | (0.760) |
| PBITDA/Total Assets | 0.124 | 0.076 | 0.120 | 0.069 | 0.004 | (1.425) |
| TobinQ | 1.077 | 0.669 | 0.868 | 0.486 | 0.210*** | (9.969) |
| Cashflow | 0.084 | 0.104 | 0.084 | 0.081 | 0.000 | (0.063) |
| Observations | 2362 | | 1138 | | 3500 | |

This table reports summary statistics for before and after SARFAESI Act period. Sample Period is 1999 to 2008. Firms years are divided into two categories. First is before-act period. Firm years till 2001 belong to this category. And firm years post 2001, belongs to after-act category. Difference between the average value of variable between the two periods is given in the column 6 and it's t-statistics is given in the column 7. Panel A reports results for full sample while panel B reports it for firms with above median level of tangible assets. Source: CMIE-Prowess Database.

Table 5: Average Difference in Difference

Panel A-Debt to Assets

| Firm Type | After_mean | Before_mean | diff | se_diff | No.Obs |
|---|---|---|---|---|---|
| Non-GOB | 0.358 | 0.410 | -0.052 | 0.010 | 1400 |
| GOB | 0.356 | 0.376 | -0.020 | 0.009 | 2093 |
| Difference-in-Difference | | | 0.032 | 0.013 | 3493 |

Panel B-Secured Debt to Assets

| Firm Type | After_mean | Before_mean | diff | se_diff | No.Obs |
|---|---|---|---|---|---|
| Non-GOB | 0.281 | 0.332 | -0.051 | 0.010 | 1390 |
| GOB | 0.284 | 0.302 | -0.018 | 0.008 | 2076 |
| Difference-in-Difference | | | 0.033 | 0.013 | 3466 |

Panel C-Investments to Assets

| Firm Type | After_mean | Before_mean | diff | se_diff | No.Obs |
|---|---|---|---|---|---|
| Non-GOB | 0.045 | 0.055 | -0.010 | 0.009 | 1395 |
| GOB | 0.032 | 0.020 | 0.012 | 0.005 | 2092 |
| Difference-in-Difference | | | 0.022 | 0.010 | 3487 |

This table reports difference in difference results for subsample of firms with above median level of tangible assets. First, I divide the firms in the two groups: GOB firms and non-GOB firms. Firms borrowing exclusively from GOBs in the year of reform that is in financial year 2002 are GOB firms and rest are non-GOB firms. Then, in each group I divide all the financial years into two periods: before and after. Before refers to 1999 to 2001 period and after refers to 2002 to 2008 period. Next, I take group wise average of variables of interest for all firm-years separately for before-SARFAESI and after-SARFAESI regime. In Panel A, I report the before-after results for the variable $Debt/TotalAssets$. And results for $SecuredDebt/TotalAssets$ and $Investments$ are reported in panel B and C respectively. Sample period is 1999 to 2008. Source:CMIE-Prowess Database.

Table 6: Differential Effect on Debt Usage

| | Dependent variable: Debt/Total Assets | | |
|---|---|---|---|
| | Full Sample | Above Median | Top Tercile |
| Tangibility | 0.112*** | 0.141*** | 0.171*** |
| | (0.022) | (0.029) | (0.034) |
| Log Total Assets | 0.044*** | 0.070*** | 0.095*** |
| | (0.010) | (0.016) | (0.022) |
| PBITDA/Total Assets | −0.396*** | −0.451*** | −0.494*** |
| | (0.043) | (0.055) | (0.072) |
| Post*GOB | 0.028*** | 0.038*** | 0.029* |
| | (0.010) | (0.013) | (0.015) |
| Observations | 6,332 | 3,500 | 2,465 |
| $R^2$ | 0.818 | 0.812 | 0.825 |
| Adjusted $R^2$ | 0.763 | 0.759 | 0.768 |
| *Note:* | | *p<0.1; **p<0.05; ***p<0.01 | |

This table reports results for the regression: $Y_{ijt} = \alpha_i + \delta_{jt} + \gamma Post_t + \eta GOB_i + \theta Post_t * GOB_i + \omega X_{ijt} + u_{ijt}$. The dependent variable is $Debt/Total Assets$. Here, $y_{ijt}$ denotes the dependent variable of interest for firm $i$, in industry $j$ at time $t$. $\alpha_i$ and $\delta_{jt}$ are firm and industry-year fixed effects respectively; $Post_t$ indicates whether firm year belongs to before act (i.e. years 1999 to 2001) or after act (i.e. years 2002 to 2008) period; $GOB_i$ indicates whether the firms has exclusive relationship with GOB in financial year 2002 or not; $X_{ijt}$ are control variables; and The error of regression is given by $u_{ijt}$. The coefficient of interest is $\theta$. It gives the differential response of GOB firms compared to other firms to the shock. The standard errors are clustered at firm level and reported in the brackets. Column 1 reports results for full sample while column 2 and 3 shows results for firms in above median and top tercile group of tangibility.

Table 7: Differential Effect on Secured Debt Usage

| | Dependent variable: Secured Debt/Total Assets | | |
| --- | --- | --- | --- |
| | Full Sample | Above Median | Top Tercile |
| Tangibility | 0.089*** | 0.101*** | 0.139*** |
| | (0.020) | (0.027) | (0.034) |
| Log Total Assets | 0.039*** | 0.061*** | 0.093*** |
| | (0.010) | (0.017) | (0.023) |
| PBITDA/Total Assets | −0.291*** | −0.341*** | −0.375*** |
| | (0.037) | (0.049) | (0.061) |
| Post*GOB | 0.025*** | 0.035*** | 0.023* |
| | (0.009) | (0.012) | (0.013) |
| Observations | 6,332 | 3,500 | 2,465 |
| $R^2$ | 0.806 | 0.800 | 0.810 |
| Adjusted $R^2$ | 0.747 | 0.744 | 0.747 |
| Note: | | *p<0.1; **p<0.05; ***p<0.01 | |

This table reports results for the regression: $Y_{ijt} = \alpha_i + \delta_{jt} + \gamma Post_t + \eta GOB_i + \theta Post_t * GOB_i + \omega X_{ijt} + u_{ijt}$. The dependent variable is $Secured Debt/Total Assets$. Here, $y_{ijt}$ denotes the dependent variable of interest for firm $i$, in industry $j$ at time $t$. $\alpha_i$ and $\delta_{jt}$ are firm and industry-year fixed effects respectively; $Post_t$ indicates whether firm year belongs to before act (i.e. years 1999 to 2001) or after act (i.e. years 2002 to 2008) period; $GOB_i$ indicates whether the firms has exclusive relationship with GOB in financial year 2002 or not; $X_{ijt}$ are control variables; and The error of regression is given by $u_{ijt}$. The coefficient of interest is $\theta$. It gives the differential response of GOB firms compared to other firms to the shock. The standard errors are clustered at firm level and reported in the brackets. Column 1 reports results for full sample while column 2 and 3 shows results for firms in above median and top tercile group of tangibility.

Table 8: Differential Effect on Investment Rate

| | Dependent variable: Investments | | |
|---|---|---|---|
| | Full Sample | Above Median | Top Tercile |
| TobinQ | 0.008 | 0.005 | −0.004 |
| | (0.005) | (0.011) | (0.016) |
| Cashflow | 0.143*** | 0.195*** | 0.218*** |
| | (0.036) | (0.057) | (0.077) |
| Log Total Assets | 0.079*** | 0.112*** | 0.129*** |
| | (0.010) | (0.012) | (0.014) |
| Debt/Total Assets | −0.102*** | −0.127*** | −0.148*** |
| | (0.026) | (0.032) | (0.039) |
| Post*GOB | 0.024** | 0.035*** | 0.041*** |
| | (0.010) | (0.013) | (0.015) |
| Observations | 5,482 | 3,069 | 2,189 |
| $R^2$ | 0.409 | 0.455 | 0.464 |
| Adjusted $R^2$ | 0.206 | 0.284 | 0.268 |

*Note:* $^*$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01

This table reports results for the regression: $Y_{ijt} = \alpha_i + \delta_{jt} + \gamma Post_t + \eta GOB_i + \theta Post_t * GOB_i + \omega X_{ijt} + u_{ijt}$. The dependent variable in this table is investments. Here, $y_{ijt}$ denotes the dependent variable of interest for firm $i$, in industry $j$ at time $t$. $\alpha_i$ and $\delta_{jt}$ are firm and industry-year fixed effects respectively; $Post_t$ indicates whether firm year belongs to before act (i.e. years 1999 to 2001) or after act (i.e. years 2002 to 2008) period; $GOB_i$ indicates whether the firms has exclusive relationship with GOB in financial year 2002 or not; $X_{ijt}$ are control variables; and The error of regression is given by $u_{ijt}$. The coefficient of interest is $\theta$. It gives the differential response of GOB firms compared to other firms to the shock. The standard errors are clustered at firm level and reported in the brackets. Column 1 reports results for full sample while column 2 and 3 shows results for firms in above median and top tercile group of tangibility.

Table 9: Falsification Test 1-Assigning 2000 as Year of Act

|  | Debt/Total Assets | Secured Debt/Total Assets | Investments |
|---|---|---|---|
| Tangibility | 0.135*** | 0.132*** | |
|  | (0.033) | (0.030) | |
| TobinQ | | | 0.037 |
|  | | | (0.024) |
| Cashflow | | | 0.240** |
|  | | | (0.104) |
| Log Total Assets | 0.107*** | 0.114*** | 0.243*** |
|  | (0.021) | (0.022) | (0.034) |
| PBITDA/Total Assets | $-0.359$*** | $-0.261$*** | |
|  | (0.064) | (0.060) | |
| Debt/Total Assets | | | $-0.223$*** |
|  | | | (0.073) |
| Post*GOB | 0.010 | 0.014 | 0.014 |
|  | (0.012) | (0.012) | (0.016) |
| Observations | 2,289 | 2,260 | 1,690 |
| $R^2$ | 0.877 | 0.868 | 0.500 |
| Adjusted $R^2$ | 0.833 | 0.820 | 0.261 |

*Note:*      *p<0.1; **p<0.05; ***p<0.01

This table reports results for regression: $Y_{ijt} = \alpha_i + \delta_{jt} + \gamma Post_t + \eta GOB_i + \theta Post_t * GOB_i + \omega X_{ijt} + u_{ijt}$ for the subsample of firms with above median tangible assets. The dependent variables are ratio of debt to total assets, ratio of secured debt to total assets and investments. Here, $y_{ijt}$ denotes the dependent variable of interest for firm $i$, in industry $j$ at time $t$. $\alpha_i$ and $\delta_{jt}$ are firm and industry-year fixed effects respectively; $Post_t$ indicates whether firm year belongs to before act (i.e. years 1999 to 2001) or after act (i.e. years 2002 to 2008) period; $GOB_i$ indicates whether the firms has exclusive relationship with GOB in financial year 2002 or not; $X_{ijt}$ are control variables; and The error of regression is given by $u_{ijt}$. The coefficient of interest is $\theta$. It gives the differential response of GOB firms compared to other firms to the shock. The standard errors are clustered at firm level and reported in the brackets.

### Table 10: Falsification Test 2- Below Median Tangibility Sample

|  | Debt/Total Assets | Secured Debt/Total Assets | Investments |
|---|---|---|---|
| Tangibility | 0.106** | 0.127*** |  |
|  | (0.052) | (0.037) |  |
|  |  |  |  |
| TobinQ |  |  | 0.008 |
|  |  |  | (0.005) |
|  |  |  |  |
| Cashflow |  |  | 0.049* |
|  |  |  | (0.026) |
|  |  |  |  |
| Log Total Assets | 0.011 | 0.009 | 0.034*** |
|  | (0.013) | (0.012) | (0.010) |
|  |  |  |  |
| PBITDA/Assets | −0.234*** | −0.152*** |  |
|  | (0.065) | (0.056) |  |
|  |  |  |  |
| Debt/Total Assets |  |  | −0.043 |
|  |  |  | (0.037) |
|  |  |  |  |
| Post*GOB | 0.014 | 0.011 | −0.006 |
|  | (0.016) | (0.013) | (0.014) |
|  |  |  |  |
| Observations | 2,174 | 2,174 | 1,835 |
| $R^2$ | 0.822 | 0.800 | 0.400 |
| Adjusted $R^2$ | 0.752 | 0.721 | 0.128 |

*Note:*      $^*$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01

This table reports results for regression: $Y_{ijt} = \alpha_i + \delta_{jt} + \gamma Post_t + \eta GOB_i + \theta Post_t * GOB_i + \omega X_{ijt} + u_{ijt}$ for sample of firms with below median level of tangible assets The dependent variables are ratio of debt to total assets, ratio of secured debt to total assets and investments. Here, $y_{ijt}$ denotes the dependent variable of interest for firm $i$, in industry $j$ at time $t$. $\alpha_i$ and $\delta_{jt}$ are firm and industry-year fixed effects respectively; $Post_t$ indicates whether firm year belongs to before act (i.e. years 1999 to 2001) or after act (i.e. years 2002 to 2008) period; $GOB_i$ indicates whether the firms has exclusive relationship with GOB in financial year 2002 or not; $X_{ijt}$ are control variables; and The error of regression is given by $u_{ijt}$. The coefficient of interest is $\theta$. It gives the differential response of GOB firms compared to other firms to the shock. The standard errors are clustered at firm level and reported in the brackets.

Table 11: Falsification Test 3-Unsecured Debt/Total Assets

| | Dependent variable: Unsecured Debt/Total Assets | | |
|---|---|---|---|
| | Full Sample | Above Median | Top Tercile |
| Tangibility | 0.001 | 0.022 | 0.014 |
| | (0.019) | (0.021) | (0.024) |
| Log Total Assets | 0.001 | 0.003 | −0.002 |
| | (0.008) | (0.010) | (0.010) |
| PBITDA/Total Assets | −0.128*** | −0.134*** | −0.133*** |
| | (0.032) | (0.039) | (0.050) |
| Post*GOB | 0.0001 | 0.003 | 0.005 |
| | (0.006) | (0.008) | (0.010) |
| Observations | 5,007 | 2,822 | 1,994 |
| $R^2$ | 0.687 | 0.666 | 0.711 |
| Adjusted $R^2$ | 0.571 | 0.555 | 0.597 |

| Note: | *p<0.1; **p<0.05; ***p<0.01 |
|---|---|

This table reports results for regression: $Y_{ijt} = \alpha_i + \delta_{jt} + \gamma Post_t + \eta GOB_i + \theta Post_t * GOB_i + \omega X_{ijt} + u_{ijt}$. The dependent variable is ratio of unsecured debt to total assets. Here, $y_{ijt}$ denotes the dependent variable of interest for firm $i$, in industry $j$ at time $t$. $\alpha_i$ and $\delta_{jt}$ are firm and industry-year fixed effects respectively; $Post_t$ indicates whether firm year belongs to before act (i.e. years 1999 to 2001) or after act (i.e. years 2002 to 2008) period; $GOB_i$ indicates whether the firms has exclusive relationship with GOB in financial year 2002 or not; $X_{ijt}$ are control variables; and The error of regression is given by $u_{ijt}$. The coefficient of interest is $\theta$. It gives the differential response of GOB firms compared to other firms to the shock. The standard errors are clustered at firm level and reported in the brackets. Column 1 reports results for full sample while column 2 and 3 shows results for firms in above median and top tercile group of tangibility.

Table 12: Robustness Test 1-Taking 2003 as Year of Act

| | Dependent variable: | | |
| --- | --- | --- | --- |
| | Debt/Total Assets | Secured Debt/Total Assets | Investments |
| Tangibility | 0.140*** | 0.100*** | |
| | (0.029) | (0.027) | |
| | | | |
| TobinQ | | | 0.005 |
| | | | (0.012) |
| | | | |
| Cashflow | | | 0.197*** |
| | | | (0.057) |
| | | | |
| Log Total Assets | 0.071*** | 0.062*** | 0.112*** |
| | (0.016) | (0.017) | (0.012) |
| | | | |
| PBITDA/Total Assets | −0.454*** | −0.344*** | |
| | (0.055) | (0.050) | |
| | | | |
| Debt/Total Assets | | | −0.126*** |
| | | | (0.032) |
| | | | |
| Post*GOB | 0.042*** | 0.037*** | 0.027** |
| | (0.013) | (0.012) | (0.011) |
| | | | |
| Observations | 3,500 | 3,500 | 3,069 |
| R$^2$ | 0.812 | 0.801 | 0.454 |
| Adjusted R$^2$ | 0.760 | 0.745 | 0.282 |

| Note: | *p<0.1; **p<0.05; ***p<0.01 |
| --- | --- |

This table reports results for regression: $Y_{ijt} = \alpha_i + \delta_{jt} + \gamma Post_t + \eta GOB_i + \theta Post_t * GOB_i + \omega X_{ijt} + u_{ijt}$. The dependent variables are ratio of debt to total assets, ratio of secured debt to total assets and investments. Here, $y_{ijt}$ denotes the dependent variable of interest for firm $i$, in industry $j$ at time $t$. $\alpha_i$ and $\delta_{jt}$ are firm and industry-year fixed effects respectively; $Post_t$ indicates whether firm year belongs to before act (i.e. years 1999 to 2001) or after act (i.e. years 2002 to 2008) period; $GOB_i$ indicates whether the firms has exclusive relationship with GOB in financial year 2002 or not; $X_{ijt}$ are control variables; and The error of regression is given by $u_{ijt}$. The coefficient of interest is $\theta$. It gives the differential response of GOB firms compared to other firms to the shock. The standard errors are clustered at firm level and reported in the brackets.

## Table 13: Robustness Test 2-Including TobinQ as a Control

| | Dependent variable: | | |
|---|---|---|---|
| | Sec. Plus Unsec. Debt/ | Debt/ | Secured Debt/ |
| | Total Assets | Total Assets | Total Assets |
| Tangibility | 0.085** | 0.117*** | 0.087*** |
| | (0.040) | (0.031) | (0.029) |
| Log Total Assets | 0.056*** | 0.070*** | 0.054*** |
| | (0.019) | (0.017) | (0.018) |
| PBITDA/Total Assets | −0.526*** | −0.466*** | −0.367*** |
| | (0.064) | (0.059) | (0.050) |
| TobinQ | 0.004 | 0.001 | 0.003 |
| | (0.010) | (0.009) | (0.009) |
| Post*GOB | 0.033** | 0.028** | 0.029** |
| | (0.015) | (0.014) | (0.012) |
| Observations | 2,522 | 3,123 | 3,123 |
| R$^2$ | 0.816 | 0.822 | 0.809 |
| Adjusted R$^2$ | 0.750 | 0.767 | 0.751 |
| Note: | | | $^*$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |

This table reports results for regression: $Y_{ijt} = \alpha_i + \delta_{jt} + \gamma Post_t + \eta GOB_i + \theta Post_t * GOB_i + \omega X_{ijt} + u_{ijt}$ for the subsample of firms with above median tangible assets. The dependent variables are ratio of sec. plus unsec. debt to total assets, ratio of debt to total assets and ratio of secured debt to total assets . Here, $y_{ijt}$ denotes the dependent variable of interest for firm $i$, in industry $j$ at time $t$. $\alpha_i$ and $\delta_{jt}$ are firm and industry-year fixed effects respectively; $Post_t$ indicates whether firm year belongs to before act (i.e. years 1999 to 2001) or after act (i.e. years 2002 to 2008) period; $GOB_i$ indicates whether the firms has exclusive relationship with GOB in financial year 2002 or not; $X_{ijt}$ are control variables; and The error of regression is given by $u_{ijt}$. The coefficient of interest is $\theta$. It gives the differential response of GOB firms compared to other firms to the shock. The standard errors are clustered at firm level and reported in the brackets.

## Table 14: Robustness Test 3-Including Firms Switching GOB Categories

|  | Debt/Total Assets | Secured Debt/Total Assets | Investments |
|---|---|---|---|
| Tangibility | 0.144*** | 0.098*** | |
|  | (0.023) | (0.022) | |
| TobinQ | | | 0.008 |
|  | | | (0.009) |
| Cashflow | | | 0.238*** |
|  | | | (0.051) |
| Log Total Assets | 0.092*** | 0.073*** | 0.122*** |
|  | (0.011) | (0.012) | (0.011) |
| PBITDA/Total Assets | −0.434*** | −0.325*** | |
|  | (0.045) | (0.041) | |
| Debt/Total Assets | | | −0.163*** |
|  | | | (0.030) |
| Post*GOB | 0.033*** | 0.033*** | 0.032*** |
|  | (0.011) | (0.010) | (0.011) |
| Observations | 5,130 | 5,130 | 4,548 |
| $R^2$ | 0.795 | 0.779 | 0.422 |
| Adjusted $R^2$ | 0.746 | 0.726 | 0.271 |

*Note:*        *p<0.1; **p<0.05; ***p<0.01

This table reports results for regression: $Y_{ijt} = \alpha_i + \delta_{jt} + \gamma Post_t + \eta GOB_i + \theta Post_t * GOB_i + \omega X_{ijt} + u_{ijt}$ for the subsample of firms with above median tangible assets. The dependent variables are ratio of debt to total assets, ratio of secured debt to total assets and investments. Here, $y_{ijt}$ denotes the dependent variable of interest for firm $i$, in industry $j$ at time $t$. $\alpha_i$ and $\delta_{jt}$ are firm and industry-year fixed effects respectively; $Post_t$ indicates whether firm year belongs to before act (i.e. years 1999 to 2001) or after act (i.e. years 2002 to 2008) period; $GOB_i$ indicates whether the firms has exclusive relationship with GOB in financial year 2002 or not; $X_{ijt}$ are control variables; and The error of regression is given by $u_{ijt}$. The coefficient of interest is $\theta$. It gives the differential response of GOB firms compared to other firms to the shock. The standard errors are clustered at firm level and reported in the brackets.

Table 15: Robustness Test 4-Restricting Sample Till 2005

| | Debt/Total Assets | Secured Debt/Total Assets | Investments |
|---|---|---|---|
| Tangibility | 0.150*** | 0.119*** | |
| | (0.033) | (0.033) | |
| TobinQ | | | 0.021 |
| | | | (0.020) |
| Cashflow | | | 0.203** |
| | | | (0.081) |
| Log Total Assets | 0.075*** | 0.071*** | 0.162*** |
| | (0.021) | (0.025) | (0.025) |
| PBITDA/Total Assets | −0.439*** | −0.342*** | |
| | (0.064) | (0.056) | |
| Debt/Total Assets | | | −0.174*** |
| | | | (0.049) |
| Post*GOB | 0.022* | 0.020* | 0.031** |
| | (0.013) | (0.011) | (0.014) |
| Observations | 2,561 | 2,561 | 2,249 |
| $R^2$ | 0.871 | 0.863 | 0.482 |
| Adjusted $R^2$ | 0.826 | 0.816 | 0.278 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

This table reports results for regression: $Y_{ijt} = \alpha_i + \delta_{jt} + \gamma Post_t + \eta GOB_i + \theta Post_t * GOB_i + \omega X_{ijt} + u_{ijt}$ for the subsample of firms with above median tangible assets. The dependent variables are ratio of debt to total assets, ratio of secured debt to total assets and investments. Here, $y_{ijt}$ denotes the dependent variable of interest for firm $i$, in industry $j$ at time $t$. $\alpha_i$ and $\delta_{jt}$ are firm and industry-year fixed effects respectively; $Post_t$ indicates whether firm year belongs to before act (i.e. years 1999 to 2001) or after act (i.e. years 2002 to 2008) period; $GOB_i$ indicates whether the firms has exclusive relationship with GOB in financial year 2002 or not; $X_{ijt}$ are control variables; and The error of regression is given by $u_{ijt}$. The coefficient of interest is $\theta$. It gives the differential response of GOB firms compared to other firms to the shock. The standard errors are clustered at firm level and reported in the brackets.

# References

Viral V. Acharya and Nirupama Kulkarni. What Saved the Indian Banking System: State Ownership or State Guarantees? *World Economy*, 2012. ISSN 03785920. doi: 10.1111/j. 1467-9701.2011.01382.x.

Viral V. Acharya and Krishnamurthy V. Subramanian. Bankruptcy codes and innovation. *Review of Financial Studies*, 2009. ISSN 08939454. doi: 10.1093/rfs/hhp019.

Viral V. Acharya, Yakov Amihud, and Lubomir Litov. Creditor rights and corporate risk-taking. *Journal of Financial Economics*, 2011a. ISSN 0304405X. doi: 10.1016/j.jfineco. 2011.04.001.

Viral V. Acharya, Rangarajan K. Sundaram, and Kose John. Cross-country variations in capital structures: The role of bankruptcy codes. *Journal of Financial Intermediation*, 2011b. ISSN 10429573. doi: 10.1016/j.jfi.2010.02.001.

Heitor Almeida and Thomas Philippon. The risk-adjusted cost of financial distress. *Journal of Finance*, 2007. ISSN 00221082. doi: 10.1111/j.1540-6261.2007.01286.x.

Abhijit V. Banerjee. A theory of misgovernance. *Quarterly Journal of Economics*, 1997. ISSN 00335533. doi: 10.1162/003355300555484.

Allen N. Berger, Leora F. Klapper, Maria Soledad Martinez Peria, and Rida Zaidi. Bank ownership type and banking relationships. *Journal of Financial Intermediation*, 2008. ISSN 10429573. doi: 10.1016/j.jfi.2006.11.001.

Ata Can Bertay, Asli Demirgüç-Kunt, and Harry Huizinga. Bank ownership and credit over the business cycle: Is lending by state banks less procyclical? *Journal of Banking and Finance*, 2015. ISSN 03784266. doi: 10.1016/j.jbankfin.2014.03.012.

Marianne Bertrand, Esther Duflo, and Sendhil Mullainathan. How much should we trust

differences-in-differences estimates? *Quarterly Journal of Economics*, 2004. ISSN 00335533. doi: 10.1162/003355304772839588.

Robin Burgess and Rohini Pande. Do Rural Banks Matter? Evidence from the Indian Social Banking Experiment. *American Economic Review*, 2005. ISSN 0002-8282. doi: 10.1257/0002828054201242.

Daniel Carvalho. The real effects of government-owned banks: Evidence from an emerging market. *Journal of Finance*, 2014. ISSN 00221082. doi: 10.1111/jofi.12130.

Shawn Cole. Fixing market failures or fixing elections? Agricultural credit in India. *American Economic Journal: Applied Economics*, 2009. ISSN 19457782. doi: 10.1257/app.1.1.219.

Nicholas Coleman and Leo Feler. Bank ownership, lending, and local economic performance during the 2008-2009 financial crisis. *Journal of Monetary Economics*, 2015. ISSN 03043932. doi: 10.1016/j.jmoneco.2014.11.001.

Robert Cull, Wei Li, Bo Sun, and Lixin Colin Xu. Government connections and financial constraints: Evidence from a large representative sample of Chinese firms. *Journal of Corporate Finance*, 2015. ISSN 09291199. doi: 10.1016/j.jcorpfin.2014.10.012.

I. Serdar Dinç. Politicians and banks: Political influences on government-owned banks in emerging markets. *Journal of Financial Economics*, 2005. ISSN 0304405X. doi: 10.1016/j.jfineco.2004.06.011.

Simeon Djankov, Oliver Hart, Caralee McLiesh, and Andrei Shleifer. Debt Enforcement around the World. *Journal of Political Economy*, 2008. ISSN 0022-3808. doi: 10.1086/595015.

Timothy Erickson and Toni M. Whited. Measurement Error and the Relationship between Investment and q. *Journal of Political Economy*, 108(5):1027—-1057, 2000. doi: 10.1086/317670.

Radhakrishnan Gopalan, Abhiroop Mukherjee, and Manpreet Singh. Do Debt Contract Enforcement Costs Affect Financing and Asset Structure? In *Review of Financial Studies*, 2016. ISBN 3130253246. doi: 10.1093/rfs/hhw042.

Todd A. Gormley. The impact of foreign bank entry in emerging markets: Evidence from India. *Journal of Financial Intermediation*, 2010. ISSN 10429573. doi: 10.1016/j.jfi.2009. 01.003.

Asim Khwaja and Atif Mian. Do Lenders Favor Politically Connected. *The Quarterly Journal of Economics*, 2005. ISSN 0033-5533. doi: 10.1162/003355305775097524.

Nitish Kumar. Political Interference and Crowding Out in Bank Lending. 2015.

Rafael La Porta, Florencio Lopez-De-Silanes, Andrei Shleifer, and Robert W. Vishny. Legal determinants of external finance. *Journal of Finance*, 1997. ISSN 00221082. doi: 10.1111/ j.1540-6261.1997.tb02727.x.

Rafael La Porta, Florencio Lopez-de SIlanes, Andrei Shleifer, and Robert W Vishny. Law and Finance Rafael La Porta , Florencio Lopez-de-Silanes ,. *Journal of Political Economy*, 106(6):11131–55, 1998. ISSN 00223808. doi: 10.1086/250042.

Alejandro Micco and Ugo Panizza. Bank ownership and lending behavior. *Economics Letters*, 2006. ISSN 01651765. doi: 10.1016/j.econlet.2006.05.009.

Alejandro Micco, Ugo Panizza, and Monica Yañez. Bank ownership and performance. Does politics matter? *Journal of Banking and Finance*, 2007. ISSN 03784266. doi: 10.1016/j. jbankfin.2006.02.007.

Carlos A. Molina. Are firms underleveraged? An examination of the effect of leverage on default probabilities. *Journal of Finance*, 2005. ISSN 00221082. doi: 10.1111/j.1540-6261. 2005.00766.x.

Raghuram G. Rajan and Luigi Zingales. What Do We Know about Capital Structure? Some Evidence from International Data. *The Journal of Finance*, 50(5):1421–1460, dec 1995. ISSN 00221082. doi: 10.1111/j.1540-6261.1995.tb05184.x. URL http://doi.wiley.com/10.1111/j.1540-6261.1995.tb05184.x.

Paola Sapienza. The effects of government ownership on bank lending. *Journal of Financial Economics*, 72(2):357–384, may 2004. ISSN 0304-405X. doi: 10.1016/J.JFINECO.2002.10.002. URL https://www.sciencedirect.com/science/article/pii/S0304405X03002459.

Rajeswari Sengupta, Anjali Sharma, and Susan Thomas. Evolution of the insolvency framework for non-financial firms in India. (June), 2016.

Andrei Shleifer. State versus Private Ownership. *Journal of Economic Perspectives*, 1998. ISSN 0895-3309. doi: 10.1257/jep.12.4.133.

Jordan Siegel and Prithwiraj Choudhury. A reexamination of tunneling and business groups: New data and new methods, 2012. ISSN 08939454.

Anand Srinivasan and Ashok Thampy. The effect of relationships with government-owned banks on cash flow constraints: Evidence from India. *Journal of Corporate Finance*, 2017. ISSN 09291199. doi: 10.1016/j.jcorpfin.2017.07.007.

Joseph E. Stiglitz. The Role of the State in Financial Markets. *The World Bank Economic Review*, 1993. ISSN 0258-6770. doi: 10.1093/wber/7.suppl_1.19.

Vikrant Vig. Access to Collateral and Corporate Debt Structure: Evidence from a Natural Experiment. *Journal of Finance*, 2013. ISSN 00221082. doi: 10.1111/jofi.12020.

Jerold B. Warner. Bankruptcy Costs: Some Evidence. *The Journal of Finance*, 1977. ISSN 00221082. doi: 10.2307/2326766.

Lawrence A. Weiss. Bankruptcy resolution. Direct costs and violation of priority of claims. *Journal of Financial Economics*, 1990. ISSN 0304405X. doi: 10.1016/0304-405X(90) 90058-8.