Political Influence and Incentive:

The Lending Behavior of a State-owned Bank in the Global Financial Crisis[1]

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Abstract

Using a loan-level dataset from a state-owned bank (SOB) in an economically developed city in China, we examine the bank lending behavior when mandated to extend credit despite this global financial crisis. Accompanying a fiscal stimulus plan in November 2008, the Chinese government directs banks to increase loan supply, especially toward small- and medium-sized enterprises (SMEs) and several preferential industries (PIs). After the policy announcement, loan supply increases and the loans to state-owned enterprises (SOEs), relative to those to private firms, become larger in size and lower in interest rate despite the higher default risk. This finding suggests that, even in a highly commercialized city, the credit made by the SOB is still misallocated. Ironically, the bank increasingly prefers lending to large firms, especially large SOEs, and reduces the share of loans to PIs. Our qualitative evidence indicates that the bank's non-compliance with government policy results from the career concern and incentive of bank managers.

Keywords: Loan, State-owned Banks, China, Financial Crisis

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1. Introduction

When an economy is hit by a financial crisis, its banks tend to cut lending, which may have consequences with the real economy. Ivashina and Scharfstein (2010) find that banks in U.S. reduce their lending during the subprime crisis, especially, for those banks which rely more on short-term debt and have higher exposure to credit-line drawdown. And banks which incurred larger subprime losses charge higher interest rate to their corporate borrowers (Santos, 2010). Due to the growing trend in globalization in financial market, the U.S. subprime crisis extends to impacting bank lending in other countries. Puri et al. (2011) find that German saving banks with a larger exposure to the U.S. subprime market reduce the lending to retail customers relative to their non-affected counterparts.

How the lending of banks in emerging economies responds to the recent financial crisis is much less studied. In particular, state-ownership of banks is more pervasive in emerging economies than in developed economies (La Porta et al., 2002) and the impact of state ownership on bank operations may differ in emerging and developed economies given their different economic development stages, legal and financial institutions and government goals for holding these banks. Thus, state-owned banks (SOBs) in emerging economies may behave differently from private banks in developed economies when encountering a financial crisis. For instance, the IMF (2010) shows that SOBs in several Latin American and Caribbean countries increase lending after the financial crisis.

The question on credit allocation efficiency of SOBs naturally follows if comparing them to private banks. Although the macroeconomic impact of banks' state ownership on economic growth is not yet clear,[2] bank-level evidence studies indicate that state ownership impairs credit allocation efficiency. Based on a bank-level sample in emerging economies, Dinc (2005) find SOBs increase their lending in election years relative to private banks. Khwaja and Mian (2005) show that politically connected firms in Pakistan borrow more with higher default rates from SOBs, but no such phenomenon occurs with private banks. In China, listed state-owned enterprises (SOEs) with poor financial performance and higher managerial costs tend to have a higher chance to obtain loans from SOBs (Bailey et al., 2011). Even regarding developed economies, Sapienza (2004) finds that the lending of SOBs in Italy appears to be affected by elections. These papers look into normal times. Whether credit allocation of SOBs changes during a financial crisis when the government believes it is urgent to direct bank loans to stabilize the economy such as avert unemployment. If so, will the

[2] La Porta et al. (2002) argue that SOBs allocate credit with political objective that may deter growth. Recent studies oppose their results by showing a mixed effect or even a positive effect of state ownership of banks on growth (Beck and Levine, 2002; Körner and Schnabel, 2011; Andrianova et al. 2012).

credit allocation of SOBs become more or less distorted during a financial crisis compared to normal times?

Another related issue is that we are aware that state ownership does not necessarily imply that government certainly impacts on a SOB's credit allocation. A SOB can behave just like a private bank if its goal is merely profit seeking. If we regard the lending contraction of private banks in U.S. or other developed economies as a commercially rational response to the subprime crisis due to their reduced financial resources and increasing market risks following the crisis, any different lending behaviors of SOBs are believed to be conducted based on non-commercial considerations but political goals. However, how political goals are incorporated in banking practice is a question rarely addressed.

The state-ownership in the banking industry in China is far more prominent than that in most other countries, as over 95% of approximately all 170 domestic banks are owned by either central or local government. Due to the global financial crisis, GDP growth in China decreased from 10.6% in the first quarter to 6.8% in the fourth quarter of 2008. To handle the economic slowdown, the government announced a fiscal stimulus plan in November 2008. The complementary monetary policies recommended that SOBs increase the loan supply, especially toward SMEs and several industries targeted by the fiscal stimulus plan (hereafter preferential industries (PIs)).

Our paper studies the lending behavior of a SOB in an emerging economy in the recent financial crisis when it faces the dilemma of seeking profit and serving political goals by using a proprietary corporate loan data from a branch of one of the largest SOBs in China, which suffered a huge U.S. subprime loss.[3] Our data represents the universe of corporate lending in an economically developed prefectural-level city of the studied bank between August 2006 and July 2010, which covers the sub-periods before and after the policy announcement (hereafter, PA) in November 2008. For each loan, we have information on the loan size, interest rate, collateral requirement, maturity and default risk. We can thus assess whether the adjustments in loan size, interest rate, collateral requirement and maturity are associated with the changes in default risk. Furthermore, we know the borrowing firm's ownership classification, the industry sector where the firm operates, the sub-branch from which the firm borrows, firm size and internal credit rating, which allows us to assess whether the branch treats firms differently depending on their characteristics.

A difference-in-difference (DID) methodology is employed for our empirical analysis, which has controlled for a set of firm characteristics and time fixed effect. Our results show that before the PA, the bank does not treat SOEs preferentially compared to their equally good private counterparts, who can access bank

[3] But much less compared to the loss of Citigroup.

credit.[4] After the PA, the bank issues more loans at a lower interest rate on average (Figures 1 and 2). However, the loans to SOEs, compared to those to private firms, are larger in size, lower in interest rate despite the higher default rate. It shows that, even in an economic developed city with a large private sector, there is credit misallocation from the studied SOB toward SOEs and such misallocation was aggravated after the fiscal stimulus plan started.

The associated monetary policies encourage SOBs to allocate more credit to SMEs and PIs. Ironically, the gap in the loan terms between large firms and SMEs widens after the PA as the bank's large-firm preference becomes stronger, especially for large SOEs. Moreover, the share of loans to preferential industries over all loans decreases from 12.57% to 9.92% after the PA (Table 1). Among PIs, the branch reduces favorable treatment toward SOEs, which comprise most loans to preferential industries, and discriminatory treatments toward private firms.

To explain why the bank's non-compliance with government policy emerges, we conduct in-depth interviews with approximately 10 bank managers and loan officers (both are at sub-branch level) and carefully study the internal documents provided by some interviewees. We suggest that the increase in loan supply is an evidence of direct political influence on lending at the studied bank, but the increasing loans to SOEs relative to private firms and the noncompliance with the policy in loan allocation result from the rational lending decisions made by bank managers whose career concern and incentive do not completely align with the policy objective. To explain the increasing loan supply to SOEs relative to private firms, we propose that on the one hand, bank managers are interested in pleasing local governments by funding local SOEs, which may, in turn, help their promotion; on the other hand, the expectation of possible future government bailouts to non-performing loans to SOEs leads to a high willingness of bank mangers to lending SOEs, which is further amplified by the clawback system adopted by the bank since 1998. Interestingly, the bank managers' struggle to balance fulfilling commercial rule-based evaluation and "soft" criteria, which are based on meeting the needs of central and local governments to serve the wider economic agenda, explains our empirical findings on the bank's non-compliance with the policy objective for the loans to SMEs and PIs. Our qualitative analysis sheds light on how political goals are incorporated and distorted in banking practice.

The rest of the paper is organized as follows. Section 2 provides the institutional background. Section 3 explains the empirical strategy. Section 4 describes the data. Section 5 presents the comparative results on

[4] Unfortunately, the bank does not keep information on loan applications, therefore we do not know the acceptance ratios for loan applications from state and private firms.

loans to SOEs and private firms. Section 6 provides empirical results on loans to SMEs and preferential industries. Section 7 discusses the possible reasons behind the bank's non-compliance with government policy based on interviews and other qualitative evidence. Robustness checks are provided in Section 8. The last section concludes the paper.

2. Institutional Background

China has a bank-based financial system where banks intermediate approximately 75% of the capital, more than double the percentage in the U.S. and 1.5 times more than that in other Asian countries (Farrell et al., 2006). The four biggest commercial banks, i.e., Agricultural Bank of China (ABC), Bank of China (BOC), China Construction Bank (CCB) and Industrial and Commercial Bank of China (ICBC), are all state-owned, taking 32.5% of the loan market shares in 2010 (Almanac of China's Finance and Banking 2011). There are also joint-stock banks (JSBs), city commercial banks, and non-bank financial institutions.[5]

The central bank, the People's Bank of China, operates under the guidance of the State Council. It is thus not surprising that China's monetary policy is heavily politicized. The most powerful monetary policy tools are not the traditional monetary levers but what it calls "other policy instruments", which include directly influencing loan volumes of the biggest four SOBs, regardless of the prevailing interest rate, as well as suggesting where the loans should go. Therefore, the state-owned commercial banking system serves as the major instrument for monetary policy, which is subsumed into the government's wider economic agenda.

The global financial crisis in 2008 tightened credit constraints for firms in the U.S., Europe and Asia, which in turn reduced their spending on employment, capital and technology (Campello et al., 2010). The financial crisis not only reduced firm input, but it also decreased trade volume worldwide (Chor and Manova, 2012). As an export-oriented country, the growth rate of China's total export value dropped from 20.4% in 2007 to 7.4% in 2008. Consequently, its annual GDP growth rate reduced from 11.9% in 2007 to 9.0% in 2008 and, more strikingly, it decreased from 10.6% in the first quarter to 6.8% in the fourth quarter of 2008. Moreover, massive SMEs bankrupted, especially those in export sector.

In response to the sharp economic slowdown, Premier Jiabao Wen hosted an executive meeting of the State Council on November 5th, 2008. After the meeting, a four trillion RMB fiscal stimulus plan, equivalent to 14% of the GDP in 2008, would be implemented in the following two years. The plan targeted improving the safety net by increasing health and pension system coverage, providing low-income housing, enhancing

[5] For detailed description of Chinese banking industry, see Allen et al. (2012), Naughton (2007, p 451-481) and Lardy (1998).

investments in education and environmental protection. Several industries were given developmental priority, including Agriculture, forestry, animal husbandry & fishery (A); Electricity, gas & water production & supply (D); Construction (E, not targeted, but benefited from the infrastructure projects which attracted a large portion of state investment); Transportation, storage & postal services (G); Water, environment & public facilities management industry (N); Education (P) and Culture, Sports & Entertainment (R) (www.xinhuanet.com).[6]

Accompanying the fiscal stimulus plan, expansionary monetary policies were adopted, such as lowering interest rate and reservation ratio, canceling the loan volume ceiling for commercial banks and gradually increasing overall lending in the following two years. Consequently, bank loans increased from 3.18 and 3.63 in 2006 and 2007 to 4.91, 9.59 and 7.95 trillion RMB in the following three years, respectively (Almanac of China's Finance and Banking from 2007 to 20011). Moreover, the government encouraged (or directed) commercial banks to increase lending to SMEs and PIs.[7]

3. Empirical Strategy

We examine the effect of the fiscal stimulus plan on lending at the sample branch. We use a DID methodology to answer the following question: Do the bank lending behaviors change after the PA? We use two sources to identify variation: the times before and after announcing the fiscal stimulus plan as well as the cross-section of firms with various ownership types. The following regression is estimated:

$$Y_{it} = A_j + B_t + X_{it}\gamma + \beta_1 State + \beta_2 Foreign + \beta_3(StatexPA) + \beta_4(ForeignxPA) + \varepsilon_{it} \quad . \qquad (1)$$

The dependent variables in Y_{it} include logarithm of loan amount, interest rate, secured status, maturity and loan quality. A represents the fixed effects for 17 sectors, B indicates the fixed effects for 58 time periods and X_{it} shows borrower characteristics, including firm size, internal credit score and the sub-branch from which the firm borrows. State and Foreign take a value of one if a borrower is a SOE or foreign firm, respectively. The control group is private firms. PA is a dummy variable that takes a value of one if a loan is made in and after November 2008. The key variables of interest are the interaction terms *StatexPA* and *ForeignxPA*, which capture the differential effects of the fiscal stimulus plan on loan contracts provided by the bank to SOEs and

[6] The website of Xinhua News Agency owned by the central government, through which new government policies are released officially.

[7] For example, the Instructions on Establishing a Unit of Financial Services to SMEs in Commercial Banks, by China Banking Regulatory Commission on Dec 6, 2008. See the Quarterly Report on the Implementation of Monetary Policy in China (the 4th Quarter of year 2008 and all issues of years 2009 and 2010) published by the People's Bank of China, in which it clearly states that the monetary policy aims to complement the fiscal stimulus plan including encouraging lending to SMEs and PIs.

foreign firms versus private firms, respectively. Correspondingly, the DID estimates for state and foreign firms are β_3 and β_4.

However, our DID estimates cannot capture the pure effect of the fiscal stimulus plan on the bank lending to state (foreign) firms, as the fiscal stimulus plan also affects our control group, e.g., private firms. Our DID estimates only capture changes in the bank's relative treatment toward state (foreign) and private firms before and after the PA.

4. Data and Descriptive Statistics

We obtain a proprietary corporate loan dataset from a branch of one of the four nationwide SOBs in China. This bank is highly internationalized and diversified, providing financial services not only in China but also in many other countries. Consequently, it is one of Chinese banks most seriously hit by subprime crisis. In mainland China, it has a nationwide network with more than 10,000 branches, organized using the following five levels from highest to lowest: one headquarter in Beijing, provincial-level branches, prefectural-level branches, county-level sub-branches and street-level sub-branches.[8] The lower-level branch reports to and is monitored by its nearest higher branch. Branch levels are set according to not only the administrative structure (e.g., the bank establishes a provincial-level branch in the capital city of each province) but also the business needs (e.g., the bank establishes a provincial-level branch in a highly developed city in addition to the capital city of a province).

Our dataset is from a provincial-level branch in a prefecture-level city (an economically developed but not the capital city) of a province, which is a leading province in economic development, located in the south-east coastal area. The city has a population around six million and a GDP per capita more than triple the nationwide average. Our sample provincial-level branch manages over 100 prefecture-level, county-level and street-level sub-branches across the city (including the urban area, subordinated counties and rural areas). Our data represent the universe of corporate lending in the city of the studied bank between August 2006 and July 2010, which covers the sub-periods before and after the PA in November 2008.

For each outstanding loan, the data contain information on principal amount, interest rate, secured status (i.e., whether a collateral or third-party guarantee is provided), maturity date, loan quality, firm size (denoted

[8] According to the literal translation, the five different levels from highest to lowest are one headquarter, the first-level branches, the second-level branches, the first-level sub-branches and the second-level sub-branches.

large, medium or small),[9] the firm's internal credit rating in the bank, the borrowing firm's ownership classification, the industry sector where the firm operates and the branch from which the firm borrows. The loan quality refers to a quarterly evaluation of default risk of loans by employing the Bank of International Settlements' five-category classification scheme, namely healthy, special mention, substandard, doubtful and unrecoverable. The evaluation is used by the headquarter to prepare the loan loss provision. Loans belonging to or below the category of special mention are very likely to become non-performing according to several bank managers interviewed by us.[10] In our empirical analysis, we thus simplify loan quality to a dichotomy dummy variable: healthy (assigned a value of 1) and risky (assigned a value of 0). The internal credit rating scores from 1 (best) to 10 (worst), where the rating process follows a rigorous procedure, based solely on objective information according to internal bank documents.[11] As newly established firms do not receive a credit score, we assign a score of 11 to these firms.

According to the ownership, we categorize the borrowers into three groups: state firms (state owned/controlled), foreign firms (foreign owned or Sino-foreign joint ventures) and private firms (privately owned, joint stock companies and proprietorship). We remove 468 firms due to their ambiguous ownership nature. Inter-branch loans are excluded to avoid double counting a loan. To make our results robust to outliers, we delete observations of the loan size, interest rate and maturity above the top 0.1% and below the bottom 0.1% in the distribution. The final dataset has 32,728 observations on loans issued to 2,591 firms.

Table 1 reports the industry distribution of loans before (Panel A) and after (Panel B) the PA and across the three firm ownership types.[12] First, the manufacturing sector (C) attracts the largest portion of the loans, followed by the wholesale & retail sector (F). Second, overall lending in the 21 months after the PA is 79,301 million RMB versus 76,857 million RMB in the 27 months before the PA. Among the loans, the loans to the following four sectors: Agriculture, forestry, animal husbandry & fishery (A), Mining industry (B), Leasing & business services (L) and Culture, sports & entertainment (R) increase by 80% to 210% after the PA.

[9] The standard adopted by the bank for categorizing the firm size varies across industries. For example, for the manufacturing industry (C), a firm with more than 2,000 employees is regarded as large, a firm with between 300 and 2,000 is regarded medium, and a firm with less than 300 employees is considered small. Regarding to the construction industry (E), a firm with more than 3,000 employees is categorized as large, a firm with between 600 and 3,000 employees is classified as medium, and a firm with less than 600 employees is considered small. Besides the number of employees, annual sales and assets are also used as benchmarks to divide firms into different size categories.

[10] Dobson and Kashyap (2006) cites a report in which a senior advisor at CCB alleged that many loans which were classified as in the special mention category were in fact non-performing, not to mention the other lower categories.

[11] Included are the borrowers' size, turnover of CEOs in the two years before the credit evaluation is conducted, financial information, credibility of the auditing company who audits and provides the borrower's financial statements, credit record (whether the borrower has ever defaulted or loans overdue) and relationship with the bank (the number of years the firm has been doing business with the bank and the year when the bank granted the first loan to the firm).

[12] At the beginning of every year, the bank headquarters will provide a guideline on loan allocation across industrial sectors to branches. In most cases, the branches will follow this guideline to allocate their loans across sectors.

Conversely, the four sectors of electricity, Gas & water production & supply (D), Information transmission, computer services & software industry (I), Scientific research, technical services & geological prospecting (M) and Water, environment & public facilities management industry (N) drops by 25% to 75% in lending, despite the growth of overall lending. Finally, SOEs capture a greater share of the overall lending (15.25% vs. 13.89%) after the PA.

[Table 1 about here]

Table 2 provides variable definitions (Panel A) and descriptive statistics (Panel B) for the loan characteristics. For all loans issued, the average amount is 4.77 million RMB and the average annual interest rate is 5.68%. 93.1% are required to provide collateral or a third party guarantee and most are short-term loans with an average maturity of 252.5 days. On average, at least 96.2% loans are healthy. Of the total 32,728 loans issued, 53% are made to private firms, 7.1% to SOEs, 39.9% to foreign firms and 41.3% are made after the PA, among which 21.8% are made to private firms, 2.9% to SOEs and 16.6% to foreign firms.

[Table 2 about here]

Figures 1 and 2 illustrate the total loan amount and interest rate charged to the three firm types over time. They illustrate that the increasing loan volume is associated with declining interest rates after November 2008. Moreover, there is a surge of lending to SOEs over the first half of 2009 and a reduction in interest rate charged to SOEs relative to foreign and private firms. The apparent differences in loan amount and interest rate among firms with different ownership types suggest using the DID methodology as the empirical model in this study.

[Figures 1 and 2 about here]

Of all loans issued, 85.3% and 4.3% (un-weighted) are made to SMEs and PIs (A, D, E, G, N. P, and R), respectively. The primary measure of borrower's credit risk is the internal credit rating score, the average of which is 5.27 in our sample. Appendix Table 1 shows the changes in the internal credit rating over four periods: 2006-07, 2007-08, 2008-09 and 2009-10. The downgrading occurs most for 2007-08, which shows that the branch has recognized the risks faced by its borrowers after the U.S. subprime crisis. For 2008-09, 22% of the loans to SOEs are downgraded compared to only 13% and 14% for private and foreign firms, respectively.

5. Empirical Results on Loans to SOEs vs. Private Firms

This section describes the relative effect of the fiscal stimulus plan on the contract terms and quality of loans

to state and private firms after the PA. In the conventional literature on Chinese industrial categorization, foreign firms are categorized as a different group from private firms, though both are privately owned. This may be due to the governments' different treatments, where foreign firms often face better investment environments than their private counterparts (e.g., favorable land or tax policies). Following the literature (Guariglia et al., 2011; Cull et al., 2009; Chang et. al, 2010),[13] we also examine the relative effect of the fiscal stimulus plan on the contract terms and quality of loans to foreign and private firms after the PA. For completeness, we discuss the comparative results on the loans to foreign and private firms in the appendix.[14]

5.1 Bivariate Results

Table 3 presents bivariate results for the mean DID estimates of loan characteristics for firms with different ownership types. Panels A, B, C, D and E report the results for the logarithm of loan amount, interest rate, secured status, maturity and loan quality, respectively. We report the mean loan characteristic for each ownership type before and after November 2008. The last row of each panel reports the difference of mean characteristics and quality of loans within each ownership type and the DID estimates (in bold). The number of observations is 32,728.

[Table 3 about here]

Panel A indicates that all firm types obtain larger loan than before after the PA, which is consistent with Figure 1. Before the PA, SOEs receive a 30% smaller loan than private firms, while the reverse occurs after the PA, with SOEs obtaining a 5% larger loan than private firms. The DID estimate thus suggests that SOEs obtain 35% more loans than private firms after the PA. The interest rate charged to SOEs is 0.84% lower than that to private firms after the PA (Panel B). All estimates are statistically significant at the 1% level. The dramatic difference in size and interest rate for loans to SOEs relative to private firms after the PA can be interpreted as the preferential effect of the fiscal stimulus plan on the loan supply for SOEs.

Panel C shows no change in the secured status for SOEs, while 3% fewer loans to private firms are backed by collateral after the PA. Hence, the DID estimate suggests 3% more loans to SOEs are required to provide collateral after the PA than those to private firms. Panel D shows that SOEs have 53-day longer in maturity than private firms before the PA; the difference extends to 94 days after the PA. The DID estimate thus implies that the branch increases the maturity of loans to SOEs by 40 days over that to private firms after the PA. In

[13] We only list a few related banking and finance studies that categorize Chinese firms into three types. For studies in other fields that follow the similar categorization, there are too many to make a proper list.

[14] As a robustness check, we categorize the firms into two groups, SOEs and private-owned firms (both foreign and private firms). The empirical results for the branch's relative treatment toward SOEs and private-owned firms are consistent with our findings in this paper.

Panel E, the DID estimate reports no disparity in default risk between state and private firms before and after the PA.

Overall, the bivariate DID estimates suggest that SOEs obtain a larger loan with a lower interest rate, a higher probability of being asked for collateral and a longer maturity than private firms do after the PA. Nonetheless, no change is found for the difference in default risk between these firm types after the PA.

5.2 Multivariate Results

To control for the possibility that the differences in loan terms and default risk reported in Table 3 are due to changes in firm and other characteristics, Table 4 estimates the empirical model of Equation (1) for the four contract terms and quality of loans while controlling for a set of variables. Our main control variables are firm size, borrower's internal credit rating at the time when the loan is made, time fixed effects, sector-specific fixed effect and branch-specific fixed effect.

[Table 4 about here]

Columns 1 and 2 in Table 4 report regression results for the model, using the logarithm of loan amount and interest rate as dependent variables. After controlling for borrower characteristics and other factors, the coefficient β_1 for the state dummy shows that SOEs receives a 75.4% smaller loans with a 0.121% higher interest rates than its private counterpart. The results are in line with the bivariate difference between state and private firms before November 2008 in Panels A and B in Table 3. We show that the branch does not treat SOEs preferentially over their equally good private borrowers who can access bank credit.

Our results suggest that the branch's loan decisions may have recently become more commercially driven.[15] As the studied prefecture-level city thrives with a large group of private firms, these private firm managers may have stronger incentives to approach bank managers to negotiate better loan terms than their SOEs' counterparts. However, our results do not necessarily imply that SOEs do not receive any preferential treatment from the branch during normal times, as shown by many other studies (Brandt and Zhu, 2000; Lu et al., 2005; Park and Sehrt, 2001; Brandt and Li, 2003; Cull and Xu, 2003; Ayyagari et al., 2010; Berger et al., 2009). SOEs in the studied prefecture-level city account for less than 1% of local employment and industrial output, while they take over 10% of the branch's loans. This finding is consistent with the words from a sub-branch manager interviewed in Yeung (2009): "I shall lend to a SOE first should there be two equally good applications for loans, one from the SOE and the other from a non-SOE…After all, we still have to rely

[15] Firth et al. (2009) find that the SOBs use commercial judgment in loan decisions to private firms. Jia (2009) shows that the SOBs have became more prudent in lending over the years.

on the [central] government for support and funding".[16] Allen et al. (2005) also documents that SOEs receive a disproportionately large share of the credit extended by large state banks in China.

The DID estimates β_3 for SOEs (the interaction term of StatexPA) indicate that the branch used to lend much less to SOEs with a higher interest rate than to private firms before the PA, but the branch has increased the loan size by 68.7% and reduced the interest rate by 0.62% more to SOEs compared to private firms after the PA. Not only does the difference in loan size between SOEs and private firms converge, but SOEs also receive cheaper loans than private firms after the PA.

Political influence on the lending behavior of the SOB is evident during this crisis. It not only make banks to raise the overall lending despite a financial crisis, but it also impacts loan allocation, which benefits SOEs more than their private counterparts. However, political influence on the lending behavior of the SOB is not unique for China. As mentioned before, SOBs in several Latin American and Caribbean countries increase lending to partially offset private bank lending contraction after the global financial crisis (IMF, 2010) and SOBs in Italy charge lower interest rates than their private counterparts to similar firms and prefer lending to large firms and firms located in depressed areas (Sapienza, 2004).

Columns 3 and 4 report regression results for the model with indicator of secured status and maturity as dependent variables, respectively. After controlling for borrower characteristics and other factors, we find that loans to SOEs (β_1) are 3.7% less likely to be backed by collateral and are not significantly different in maturity compared to loans issued to private firms. After the PA, SOEs are 1.6% less likely to pledge collateral (β_1+ β_3). Hence, SOEs are required to increase their collateral by 2.1% more than private firms (β_3) after the PA. The results are consistent with the bivariate analysis in Table 3, which shows that SOEs are less likely to back up loans with collateral than private firms do before the PA, and the difference remains but at a smaller magnitude after the PA. The maturity of loans to SOEs is extended by 18 days relative to that to private firms after the PA, which is also consistent with the results in Table 3 but at a smaller magnitude.

As shown in Column 5 shows, the default risk of SOEs does not differ from that of private firms before the PA, but it increases by 2.2% compared to their private counterparts after the PA. However, the bivariate DID estimates do not capture this difference. The relative increase in default risk coincides with the relative

[16] Yueng (2009) argues that the bank branches sometimes divide a big loan to a SOE into several smaller loans by-pass the monitoring mechanisms established by the headquarter because each branch at different levels imposes different ceilings of loans that can be approved within their authority. If this is the case, it may explain why we find that the loans to SOEs are smaller than those to private firms. However, we checked with the managers of our studied branches regarding whether similar situations also appear in our data. They replied that this situation is rare because in their case, the lower-level sub-branches in the city do not have any authority to approve a loan and the loan approvals are centralized in the provincial-level branch, which has a very high ceiling on the loan size that can be approved (the ceilings vary across industries and according to other characteristics); the loans usually do not exceed the ceiling.

increase in size and decrease in the interest rates of loans to SOEs compared to private firms after the PA, which further proves the preferential effect of the fiscal stimulus plan on the loan supply for SOEs.

The coefficient estimates of internal credit rating on loan quality (Column 5) are generally reasonable. Relying on a proprietary loan-level dataset from 2003 to 2006 from a SOB, Chang et al. (2010) show that internal credit ratings predict loan defaults, especially when a bank has a long-term relationship with borrowers. Qian et al. (2010) use data from 1999 to 2006 and find that internal credit ratings become more important in affecting loan contract terms and predicting loan default after Chinese banks delegated more responsibility to loan officer in 2002-2003. Our results on loan quality largely agree with their results, and we show that the remaining lower credit rating groups generally have a lower payment probability than the highest credit score group rating 1 (the base group). Similarly, the impacts of internal rating on other loan contract terms are reasonable. Firms in the rating group 10 (the lowest group) receive a 47.4% smaller loan with a 3.9% higher interest rate, a 67-day shorter maturity and a 4.8% higher chance of being asked for collateral than firms in the base group. However, the coefficient estimates are not strictly monotonically decreasing or increasing as the internal rating goes from the highest to lowest credibility.[17]

Overall, the DID estimates indicate there is a disproportionally increasing fraction of loan supply allocated to SOEs from the branch after the PA. The bank also reduces interest rates and provides other favorable loan contract terms to SOEs compared to private firms. However, such credit allocation is inefficient because the loans made to SOEs are less likely to be repaid after the PA.

5.3 Time-varying Effects

Our results so far suggest that the branch becomes to allocate more credit at a lower interest rate to SOEs than to private firms on average after the PA. In practice, the fiscal stimulus plan was planned to be implemented over two years since November 2008. Figure 1 shows that increasing loans to SOEs concentrate in the first year. It is natural to ask whether the strength of the fiscal stimulus plan on loan supply varies over time. To answer this question, we compare the loans made to firms with different ownership types for two time periods, i.e., the first and second years after the PA, allowing the DID estimates to change over time.

The estimating equation is specified as follows:

$$Y_{it} = A_j + B_t + X_{it}\gamma + \beta_1 State + \beta_2 Foreign + \beta_3(StatexPA1) + \beta_4(ForeignxPA1) + \beta_5(StatexPA2)$$

[17] We suspect there are three reasons for this non-monotonicity: first, the process for producing internal credit ratings might not strictly follow the written guidelines that are based on a rigorous and objective procedure; second, some borrowers may provide forged financial statements to the loan officer, which reduces the quality of the internal credit rating; and finally some missing information that the internal credit rating process does not capture might affect the loan contract terms.

$+\beta_6(\text{ForeignxPA2}) + \varepsilon_{it}$ (2)

The variables State and Foreign are defined as above. PA1 is a dummy variable that takes a value of one if the loan is issued from November 2008 to October 2009. PA2 is a dummy variable that takes a value of one if the loan is issued after October 2009. The key variables of interest are the interaction terms *StatexPA1* and *StatexPA2* for SOEs and *ForiegnxPA1* and *ForiegnxPA2* for foreign firms. These variables measure the change in whether SOEs (or foreign firms) obtain loans with different characteristics compared to private firms in the first and second years after the PA. Our inferences for SOEs are based on the coefficients β_3 and β_5, and those for foreign firms are β_4 and β_6. Table 5 contains the empirical results.

[Table 5 about here]

Columns 1 and 2 indicate that the larger loan supply for SOEs than for private firms persists throughout the post-PA period (β_3 and β_5). However, Column 3 shows that SOEs increase their collateral more than private firms in the first year after the PA compared to the pre-PA period, while the difference disappears in the second year after the PA. Furthermore, we find that the loans to SOEs have a 44-day longer maturity than those to private firms in the first period, while the difference disappears in the second year after the PA (Column 4). Compared to the significant estimates (β_3) for collateral requirement and maturity in Table 4, this finding indicates that the policy's impacts on the secured status and maturity of loans to SOEs are temporary.

Column 5 shows that the quality of loans to SOEs is worse than that to private firms throughout the post-PA period. Moreover, the quality of loans to SOEs made after October 2009 deteriorate more than those made between November 2008 and October 2009 compared to loans to private firms (-2.65% vs. -1.83%). As a result, the estimate for the whole post-PA period is -2.2% as shown in Table 4. This increasing default risk associated with SOEs over time supports the argument that, in the years after completing the plan, the Chinese banking industry would suffer from another surge of non-performing loans due to the loans to SOEs made under the fiscal stimulus plan (Allen et al., 2012).

6. Empirical Results on Loans to SMEs and PIs

On the one hand, still-independent local branches are considered to dominate China's banking system and are affected by their respective local governments (Dobson and Kashyap, 2006; Lardy 1998, p.90). The monetary policies associated with the fiscal stimulus plan may not be fully implemented by SOBs at the local level if the objective of the local government differs from that of the central government. On the other hand, one aim of the recent banking reform attempts to exclude local political influence on local branches (e.g., senior bank

management now evaluates the performance of local bank staff instead of local government officials). If the banking reform succeeds, the local branches will synchronize lending decisions with their Beijing headquarters to serve the wider economic agenda.

In this section, we examine whether our studied local branch implements the other loan policies associate with the fiscal stimulus plan besides the increasing loan supply. Our assumption is that the bank's headquarters in Beijing fully follows the instructions from the central government, as the central government appoints the high-ranking bank officials and possesses majority ownership in the bank. Specifically, our tests check whether SMEs and firms in PIs gain favorable treatment from the branch after the PA because the central government urges increasing the loan supply to them.

6.1 Loans to SMEs

It is well documented that the recent financial crisis has affected SMEs in China more than large firms because of their export-oriented business (Liu, 2009; Schüller and Yun, 2009). Since SMEs absorb more than 75% of urban workers, their massive bankruptcies after the financial crisis (Ding, 2009; Cao and Huang 2012) raise the central government's concern about social stability. The monetary policies associated with the fiscal stimulus plan thus emphasize increasing the loan supply to SMEs. It is interesting to explore whether the required increasing loan supply alleviates SMEs' credit constraints.

In addition to the time before and after November 2008 as well as the cross-section of ownership types, we consider whether the firm is a SME as a third source to identify variation. The difference-in-difference-in-difference (DIDID) approach eliminates any effect due to unobserved ownership type features. The estimating equation is specified as follows:

$$Y_{it} = A_j + B_t + X_{it}\gamma + \beta_1 State + \beta_2 Foreign + \beta_3(StatexPA) + \beta_4(ForeignxPA) + \beta_5(SME) + \beta_6(SMExPA) + \beta_7(StatexSME) + \beta_8(ForeignxSME) + \beta_9(StatexSMExPA) + \beta_{10}(ForeignxSMExPA) + \varepsilon_{it} \quad (3)$$

The variables State, Foreign, PA and SME are defined as above. The key variables of interest are the triple interaction terms *StatexPAxSME* and *ForeignxPAxSME*. These variables measure whether state SMEs (or foreign SMEs) obtain loans with different characteristics than large state (or foreign) firms after the PA.

Table 6 reports the regression results. Coefficient estimates for other control variables are not shown. Before the PA, the coefficient estimates (β_5) show that private SMEs receive a 59.1% smaller loan with a 0.56% higher interest rate and a 3.65% greater probability to be asked for collateral, though they are 1.77% more likely to repay the loan than their large counterparts. After the PA, the loan terms for private SMEs get worse

than those for their large counterparts. Private SMEs receive a 76% smaller loan with a 0.97% higher interest rate, a 0.74% larger probability to be asked for collateral and a 34-day longer maturity than their larger counterparts (β_5+β_6). Overall, private SMEs receive inferior loan terms compared to private large firms, though private SMEs have a higher payment probability. The fiscal stimulus plan does not relieve the credit constraint of private SMEs compared to that of large private firms.

[Table 6 about here]

Next, we want to know whether state SMEs receive better treatment than private SMEs do. Before the PA, state SMEs (β_1+β_7) receive a 12% smaller loan with a 0.41% lower interest rate, an 11.7% lower probability to be asked for collateral and a 32-day shorter maturity compared to private SMEs do. After the PA, the loan terms of loans to state SMEs (β_3+β_9) deteriorate relative to those to private SMEs, which have already gotten worse than before, while the opposite occurs to large SOEs relative to private large firms (β_3).

Next, we want to know whether state SMEs receive better treatment than private SMEs do. Before the PA, state SMEs (β_1+β_7) receive a 12% smaller loan with a 0.41% lower interest rate, an 11.7% lower probability to be asked for collateral and a 32-day shorter maturity compared to private SMEs do. After the PA, the loans to state SMEs (β_3+β_9) declines by 8.7% with a 14.7% higher probability to be asked for collateral compared to those to private SMEs, which have already gotten worse than before. In contrast, the opposite occurs to large SOEs relative to private large firms (β_3), as large SOEs obtain a 155.8% larger loan with a 23.2% less likely to be asked for collateral and a 256-day longer maturity.

Overall, the DIDID estimates indicate that, the loan supply to SMEs, both state and private, becomes weaker than that to large firms, though SMEs are more likely to repay loans after the PA. It shows that the bank prefers lending to large firms increasingly despite the government's urge to increase the loan supply to SMEs during this financial crisis. Our results further suggest that the increasing loan supply to state sector only concentrate on large SOEs.

6.2 Loans to Preferential Industries

Monetary policies associated with the fiscal stimulus plan call for SOBs to increase the loan supply to the PIs. The PIs include, as we mentioned before, industries A, D, E, G, N, P and R according to the first-digit level of the Chinese Standardized Industrial Classification (CSIC) (sectors highlighted in bold in Table 1). In this section, we seek to determine whether firms in the PIs indeed receive favorable treatment from the branch.

In addition to the time before and after November 2008 as well as the cross-section of ownership types, we consider whether the firm operates in the PIs as the third source to identify variation. The estimating equation

is specified as follows:

$$Y_{it} = A_j + B_t + X_{it}\gamma + \beta_1 State + \beta_2 Foreign + \beta_3(StatexPA) + \beta_4(ForeignxPA) + \beta_5(PIxPA) + \beta_6 (StatexPI) + \beta_7 (ForeignxPI) + \beta_8 (StatexPIxPA) + \beta_9(ForeignxPIxPA) + \varepsilon_{it} \quad (4)$$

The variables State, Foreign, and PA are defined as above. PI takes a value of one if a firm operates in the PIs. For simplicity, we call SOEs operating in the PIs state PIs, their private counterparts are private PIs and their foreign counterparts are foreign PIs. The interaction term *StatexPI* (β_6) captures the disparity between the difference in the loan characteristics between the loans to state PIs and private PIs and that between the loans to state non-PIs and private non-PIs. Or put it simply, parameter β_6 measures whether a state firm receives better treatment than a private firm from the branch if the state firm operates in the PIs. The key variable of interest is the triple interaction term *StatexPIxPA* (β_8), which measures whether state PIs receive better treatment after the fiscal stimulus plan was announced. Parameters β_7 and β_9 capture the corresponding differences for foreign PIs. Table 7 provides the empirical results for Equation (4).

[Table 7 about here]

Before the PA, the coefficient estimates (β_1+β_6) show that state PIs receive a 76.7% larger loan with an 18.53% lower probability of being asked for collateral and a 176-day longer maturity than private PIs. However, state non-PIs (β_1) receive a 92.1% smaller loan with a 2.4% lower probability of being asked for collateral and the same maturity as private non-PIs. Both state PIs and state non-PIs pay a 0.143% higher interest rate than their private counterparts. The most striking difference between the loans to state PIs and state non-PIs relative to their respective private counterparts lies in loan quality. The default risk of state PIs is 7% higher than private PIs, while there is no difference in default risk between state and private non-PIs. The economic magnitude of this result is large. A relative decrease in the payment probability of 7% is equivalent to saying that the estimated default probability of state PIs is 10.8%, if we assume that the default risk of private PIs equals the mean default probability of 3.8% in Table 2 (Panel B), i.e., more than one of every ten loans to state PIs will be not likely to get repaid. These results provide clear evidence for the so-called "policy lending" to state PIs. The discussion on the effectiveness of these policy loans according to their social benefit is beyond the scope of this paper.[18] Nonetheless, from the bank's perspective, these loans are clearly not allocated according to commercial principles and are highly likely to be non-performing. These loans

[18] There is a growing discussion on state firms is less productive than private firms in China, such as Hsieh and Klenow (2009) in which they also argue that if China could have an efficient resource allocation to equalize marginal product to the extent as in U.S., its manufacturing TFP gains could reach 30-50%.

comprise 6.88% of the total lending before the PA (Table 1, Panel A).

After the PA, the loan term differences between loans to state and private PIs shrink ($\beta_3+\beta_8$) as the size of loans to state PIs relative to private PIs declines by 71.3% despite an improvement in payment probability by 2.07%. In contrast, the size of loans to state non-PIs relative to private non-PIs (β_3) increase by 87.5% while the relative default risk goes up by 2.6%. Regarding to the other loan terms, compared to their respective private counterparts, state PIs receives worse treatment than state non-PIs. Interestingly, private PIs (β_5) receive better treatment, as they receive a 38.3% larger loan with a 0.198% lower interest rate despite a 2.3% higher default risk after the PA. These results indicate that private PIs not only receive better treatment in relative terms but also in absolute terms after the PA while their state counterparts experience the opposite.

Overall, even though the fiscal stimulus plan encourages more loans to PIs, the share of loans to PIs over all loans drops from 12.57% to 9.92% after the PA (Table 1). Our results show that state PIs receive preferential treatment before the PA, but the branch reduces the favorable treatment toward state PIs and discriminating treatments toward private PIs after the PA, though state PIs still take most loans to the PIs.

7. Discussion

The increasing loan supply obviously results from the expansionary monetary policy associated with the fiscal stimulus plan, which cancels the loan volume ceiling and directs banks to increase loan supply. However, we remain unsure why the branch increases loans to SOEs more than to private firms. Is it because the central or local government directly provides a guideline to the branch to increase the loan supply to SOEs? The loan officials interviewed denied this conjecture. Or as described in an interview of a loan officer in Dobson and Kashyap (2006), the loan officer is not blamed for a loan defaulted by a SOE, but he is blamed for a loan defaulted by a private firm. According to the branch's internal documents on the bonus system for loan officers and managers, there is no different penalty for them if a loan they granted is defaulted either by a state or private firm. Yet, we are fully aware that the degree of compliance with written rules is far from perfect in China. However, the mangers interviewed confirm us that they will be punished equally no matter a loan is defaulted by SOEs or private firms.

Alternatively, we propose several explanations for such loan allocation based on the career concern and incentive of bank managers. One reason for increasing loans to SOEs after the PA is that the branch wants to build a good relationship (Guanxi) with the local government. The branch lends to newly established SOEs owned by the local government, which invest in infrastructure projects initiated by the local government in

accord with the fiscal stimulus plan. Supporting the local government not only attracts its deposit but also indirectly helps branch managers receive a promotion. Though senior bank management now evaluates bank managers' performance instead of local government, one sub-branch manager explains why he tries to please the local government officials: "When my superior is thinking of promoting someone out of several equally good candidates from sub-branches, he might consult his friends in the local branch of the People's Bank of China, the local branch of the China Bank Regulatory Commission and the local government. Therefore, we have to deal with the relationship with these government departments very carefully and skillfully. Otherwise, it will ruin our career since the senior will not promote a bank manager who is unwelcomed by his friends in the related fields, which in turn might endanger his career…"

Another possible reason is, as suggested by Brandt and Li (2003), that soft budget constraints and expected government bailouts for troubled SOEs induce the banks to increase loan supply to them. If bank managers expect a future government bailout for non-performing loans only to SOEs due to the fiscal stimulus plan, then loan applications from SOEs are more likely to be approved than those from private firms. This tendency is intensified by the clawback system adopted by Chinese SOBs since the banking reform in 1998, which requires bank lending agents to personally bear responsibility for any delinquencies in the loans they granted. The bank manager's compensation can be clawed back if a loan defaults, though he has been assigned to another branch or promoted.[19] If such a loan default leads to a performance evaluation indicating that the bank manager is imprudent in lending, this will damages his career within the bank (he may even be dismissed in some rare cases).[20] The possible future bailout of non-performing loans to SOEs thus keeps bank managers safe from any future clawback as far as the loans to SOEs can be renewed or extended until the bailout occurs. We suggest that the relative increasing loan supply to SOEs is a combined result of the expansionary bank loan supply and bank managers' discretion.

If a branch does not follow the monetary policy on extending the loan supply to SMEs, bank managers often claim that it is due to the high risk associated with loans to SMEs, especially during the financial crisis.[21] However, another important reason for discriminating SMEs in the loan supply is that bank managers do not have sufficient confidence in the government policy for supporting SMEs. As one sub-branch manager

[19] The clawback system is called the "lifetime responsibility system", which means that as far as you work for the same SOB, you have to take personal responsibility for the loans that you granted for the whole life.
[20] For more information on the clawback system, see Allen and Li (2011).
[21] Allen et al. (2005) suggest that weak legal environment in China biases bank financing away from SMEs. They show that state and listed firms acquire 20-30% of their funding from bank loans, whereas private firms acquire approximately 10% of their funding from bank loans.

suggests, “If the government really wants to help SMEs, why does it not cut the corporate tax rate for SMEs during the crisis? Since the government does not want to help, what can we do?” Another sub-branch manger adds, “If we could read any sign of the government’s willingness to bailout (or even partially bailout) the non-performing loans to SMEs like those to SOEs during the crisis, we would love to lend more to SMEs. Anyway, our city’s economy is built on SMEs rather than SOEs….” Similarly, if bank managers expect that the government is less likely to bail out loans to small SOEs because Chinese government usually follows the rule “grasp the big SOEs and leave the small SOEs alone” (Zhua Da Fang Xiao), then this expectation explains why the branch shrinks the loans to state SMEs while increasing loans to large SOEs after the PA.

With respect to the loans to preferential industries, we find that the branch has had substantial loans outstanding to state PIs before the PA, which have a high default risk. If bank managers expect that the loans to firms in PIs, especially state PIs, are more likely to be bailed out in case of default, the preferential treatment towards them is rational. However, it cannot explain why the branch decreases the share of loans to PIs over all lending (Table 1) regardless of that the government encourages more loans to these industries and why it improves the treatment to private PIs relative to state PIs after the PA. We conjecture that, in order to control risk, the branch not only reduces the PIs’ share of loans but also diversifies the portfolio by increasing lending to private PIs, which have a lower default rate. However, risk control cannot explain the whole story because it would be better to eliminate all loans to state PIs as the default rate of state PIs is more than triple that of private PIs. Our results on loans to PIs reflect the uncertainty of bank managers on whether a bailout of loans to state PIs may occur. If the managers are sure that a bailout will occur, they would only lend to state PIs regardless of their default risk; otherwise, they must control risk by constraining loans to state PIs.[22, 23]

If bank managers intend to be promoted, they must fulfill both the hard and soft criteria. The hard criteria are based on explicit commercial rules and preset targets, but the soft criteria are based on many ambiguous

[22] When we propose this conjecture to some sub-branch managers, they admit that we remind them about the dilemma that they face, even though they do not consciously think about it.

[23] In March 2010, the China Banking Regulatory Commission required the SOBs to re-evaluate the loans to newly-established SOEs owned by local governments from the PA to the end of 2009 when the central government realized that the local government debts amounted to six trillion RMB as a consequence of the four trillion fiscal stimulus plan in which an estimated 97% of the debts were from the banking system. The question here is whether this regulation, as opposed to the management incentive proposed in our paper, explains the reduced share of loans to PIs and the worse treatment to state PIs relative to private PIs after the PA. Our answer is no because no newly established local government-owned firms in our dataset claims themselves as firms operating in PIs, even though the local government relies on them to raise funding to invest in infrastructure projects. Moreover, total loans to the newly-established local government-owned firms after the PA was 0.56 billion RMB, most of which were concentrated in 2009 (85% before the end of 2009; 91.8% before the regulation was declared in March 2010). Hence, loans after the regulation started only comprise a small portion of the total loans, which will not have a significant impact on our results even if the newly established local government-owned firms were operating in PIs.

and hidden rules. Moreover, it is unclear to bank managers to what extent their promotion depends on soft criteria, which are affected by both the central and local governments. They must balance between fulfilling hard and soft criteria if there is conflict between them. Their strategy to cope with the soft criteria is to fulfill them conditional on not endangering the fulfillment of hard criteria. For example, they choose to take a detour on or bypass ambiguous and unclearly-stated edicts such as government policies on encouraging loans to SMEs and PIs because following these policies will lower their probability to meet the hard criteria.

8. Robustness Check

8.1 Linear Probability Model versus Binary Choice Models

To check whether our results on the two binary dependent variables, namely secured status and loan quality, are sensitive to the choice of econometric method, we use probit and logit models to redo our analysis. Table Appendix 2 reports the results from linear probability model (LPM), probit and logit models based on Equation (1). Coefficient estimates on other control variables are not shown. The LPM coefficients are taken from Columns 3 and 5 in Table 4. The coefficient estimates from probit and logit models are consistent with those from LPM except that they do not detect any significant increase in the collateral requirement for SOEs relative to private firms (β_3) after the PA while the LPM model does. This difference does not challenge our previous result, but instead, it lends support to our argument that SOEs receive better treatment relative to private firms after the PA. Specifically, SOEs receive a larger loan with a lower interest rate, the same collateral requirement and a longer maturity despite they have a higher default risk after the PA. To save space, we do not report the empirical results for Equations (2)-(4), which are also robust to the two alternative econometric methods and are available upon request.

8.2 Outliers

In order to make our results robust to outliers, we delete observations of the loan size, interest rate and maturity above the top 0.1% and below the bottom 0.1% in the distribution. The dataset for the previous analysis has 32,728 observations on loans issued to 2,591 firms. As a robustness check, we redo the analysis by trimming the 0.5% tails of the loan size, interest rate and maturity in the distribution, which leads to a drop of 615 loans issued to 40 firms. Appendix Tables 3 and 4 present summary statistics and the results for Equation (1) for the smaller sample, respectively.

The average maturity of loans reported in Appendix Table 3 is 10-day shorter than that in the Panel B of Table 2, while the 75th percentile, median and 25th percentile are almost same for the two samples. Further,

we find most of the loans with maturity longer than the 99.5% percentile in the distribution are loans to SOEs after the PA. In contrast, the loans with maturity shorter than the 0.5% percentile in the distribution are loans to private and foreign firms.[24] Compare Appendix Table 4 with Table 4, we find that, after excluding the outliers, all results do not change significantly except those for maturity. The maturity of loans to SOEs relative to private firms is reduced by 22 days in Appendix Table 4 rather than increased by 18 days in Table 4. It indicates that the results on maturity in Table 4 are likely to be driven by the outliers belonging to the 0.5% tails in the distribution. Finally, as we redo the analysis for Equations (2)-(4), all results are similar to the main results reported in previous sections except for maturity.[25]

9. Conclusion

Accompanying a fiscal stimulus plan in November 2008 to handle the economic slowdown, the Chinese monetary policies required SOBs to increase loan supply, especially toward SMEs and the PIs. Given this background, we examine the lending behavior of a provincial-level branch of a nationwide SOB. We find that the bank issues more loans at a lower interest rate, as required by the government after the PA. Although there is no evidence that SOEs received any preferential treatment over their private counterparts who have access to bank credit before the PA, almost all terms of loans made to SOEs become better than those to private firms despite a relative higher default risk of loans to SOEs after the PA. However, the branch does not strictly follow the government policies in extending more loans to SMEs and the PIs. Our empirical findings are robust and include firm size, the borrower's internal credit rating at the time the loan is made, time fixed effects, sector fixed effects and branch fixed effects. Finally, based on the qualitative evidence, we suggest that the bank's non-compliance with government policy stems from the rational decisions of bank managers relating to their career concerns and incentives under political influence.

The bank’s non-compliance with government policy undermines the effectiveness of the fiscal stimulus plan. Moreover, the bank’s non-compliance may produce some unintended consequences that the government does not expect. The bank’s large-firm preference found in this study amid the contractionary monetary policy after the fiscal stimulus plan ended in 2010 leads to a surge in informal banking (including illegal fundraising

[24] There are loans with zero maturity in the lower end of the distribution. These loans are generated because the bank pays for an acceptance payable from a collecting bank for its customers because its customer does not have enough deposit in their account to pay for it. Usually, after the bank pays, its customer will be notified to pay back the loan immediately.

[25] We further redo the analysis for a sub-sample by trimming the observations of the loan size, interest rate and maturity above the top 1% and below the bottom 1% in the distribution. The results are consistent with those obtained from the subsample of trimming the upper and lower 0.5% tails in the distribution. The results are available upon request.

and usury) in the following years, which provides costly credit to fulfill the loan demand from SMEs. The credit line breakdowns of these informal financial institutions cause financial and social instability in some coastal cities. Another example is the surging local government debts (estimated at six trillion RMB at the end of 2009), due to the bank loans to their SOEs as a consequence of the four trillion RMB fiscal stimulus plan, which drive some local governments to the edge of bankruptcy. More in-depth analyses at the micro level of SOBs' behaviors will not only provide policy makers with a clear picture on the degree of their policy implementation at the local level but also inform them about the possible outcomes if their policy is not fully implemented. Our results suggest that policy makers must provide the right incentives to the managers of SOBs to direct them to follow their policies.

As with most case studies, it is difficult to assert to what extent one can generalize the results from a branch of a SOB. In the context of China's banking system, the studied bank is important, and the studied branch is representative of the bank's branches in developed coastal regions. The present study serves as a first step in a detailed investigation of political influence on bank lending practices in China during a financial crisis. Pronounced regional variations in banking policy and structure may still exist even within a bank, as "the banking system remains fragmented and often dominated by still-independent local branches and decision makers" (Dobson and Kashyap, 2006). In general, we believe that our studied branch is more conservative in increasing loan supply, especially to SOEs, than those in inland China because the city where the branch is located does not have many infrastructure projects and only have a limited number of SOEs.[26]

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[26] A caveat of our study is that we may underestimate the lending to local government because the SOB purchases the bonds issued by local government-owned firms. For example, there are new firms formed for infrastructure construction according to the fiscal stimulus plan, and their debts are guaranteed by local government. Our loan-level data do not account for those bonds purchased by the bank. However, branch managers interviewed by us assured us that this is not a problem for our case because they did not purchase any bonds since the local financial vehicles did not issue bonds during our sample period.

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Figure 1

This figure displays the amount of loan issued from the branch to private, state-owned and foreign firms over the period of August 2006-July 2010. The unit of loan size is RMB 1,000,000.

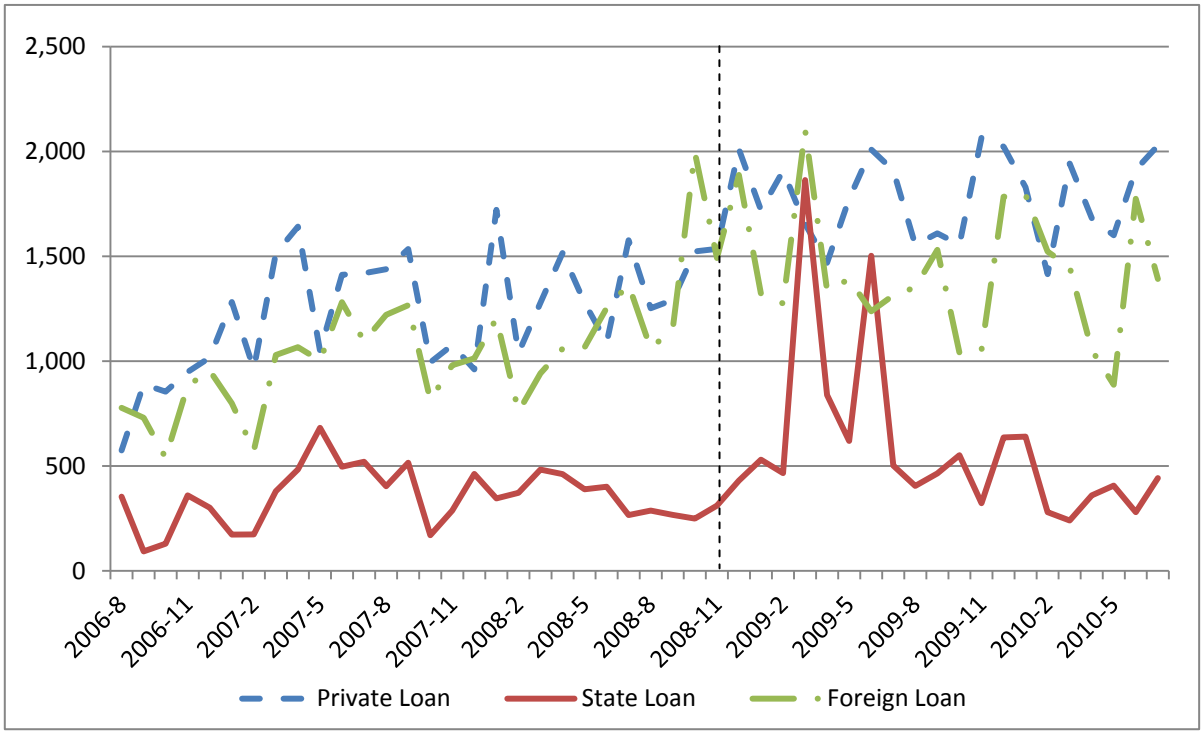

Figure 2

This figure displays the corporate loan prices from the branch to private, state-owned and foreign firms over the period of August 2006-July 2010. The interest rate is in % per annum.

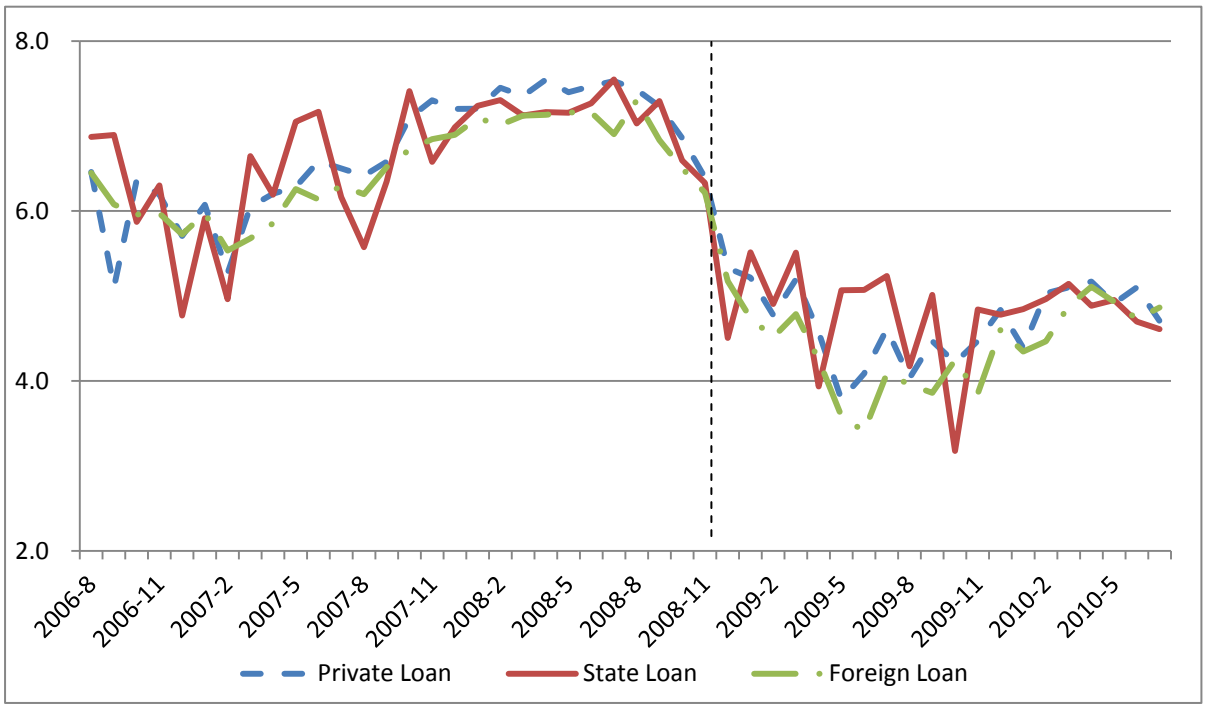

Table 1

This table presents the industry distribution of the loans from August 2006 through July 2010. The unit of loan size is RMB1,000,000. Percentage refers to the percentage share of loans to that sector of total loans.

Panel A : Aug 2006 - Oct 2008 (before the Policy Announcement, 27 months)

		All firms		State		Foreign		Private	
CSIC Code	Sector	Loan Amount	Percentage	Loan Amount	Percentage	Loan Amount	Percentage	Loan Amount	Percentage
A	**Agriculture, forestry, animal husbandry, fishery**	35	0.05%	8	0.01%	4	0.01%	23	0.03%
B	Mining industry	11	0.01%			11	0.01%	0.5	0.00%
C	Manufacturing	50,470	65.67%	889	1.16%	27,402	35.65%	22,180	28.86%
D	**Electricity, gas & water production & supply**	3,328	4.33%	2,849	3.71%	366	0.48%	112	0.15%
E	**Construction**	971	1.26%	3	0.00%	0.5	0.00%	967	1.26%
F	Wholesale & retail trade	10,009	13.02%	1,372	1.79%	751	0.98%	7,886	10.26%
G	**Transportation, storage & postal services**	2,711	3.53%	451	0.59%	643	0.84%	1,617	2.10%
H	Accommodation & catering industry	298	0.39%			260	0.34%	38	0.05%
I	Information transmission, computer services & software industry	79	0.10%	8	0.01%			71	0.09%
K	Real Estate	3,128	4.07%	455	0.59%	300	0.39%	2,373	3.09%
L	Leasing & Business Services	3,013	3.92%	2,535	3.30%	35	0.05%	443	0.58%
M	Scientific research, technical services & geological prospecting	11	0.01%	3	0.00%			7.5	0.01%
N	**Water, environment & public facilities management industry**	2,435	3.17%	1,926	2.51%			508	0.66%
O	Resident services & other services	60	0.08%	5	0.01%			55	0.07%
P	**Education**	122	0.16%	7	0.01%			115	0.15%
Q	Health, social security & social welfare	119	0.15%	119	0.15%				
R	**Culture, Sports & Entertainment**	59	0.08%	46	0.06%			13	0.02%
	Total	76,857	100%	10,676	13.89%	29,771	38.74%	36,409	47.37%

Panel B: Nov 2008 - Jul 2010 (after the Policy Announcement,21 months)

		All firms		State		Foreign		Private	
CSIC Code	Sector	Loan Amount	Percentage	Loan Amount	Percentage	Loan Amount	Percentage	Loan Amount	Percentage
A	**Agriculture, forestry, animal husbandry, fishery**	87	0.11%					87	0.11%
B	Mining industry	34	0.04%			32	0.04%	2.6	0.00%
C	Manufacturing	50,150	63.24%	1,029	1.30%	26,897	33.92%	22,225	28.03%
D	**Electricity, gas & water production & supply**	2,071	2.61%	1,892	2.39%	162	0.20%	17	0.02%
E	**Construction**	840	1.06%	40	0.05%			800	1.01%
F	Wholesale & retail trade	10,709	13.50%	1,326	1.67%	729	0.92%	8,654	10.91%
G	**Transportation, storage & postal services**	3,579	4.51%	1,075	1.36%	714	0.90%	1,790	2.26%
H	Accommodation & catering industry	349	0.44%			110	0.14%	239	0.30%
I	Information transmission, computer services & software industry	21	0.03%					21	0.03%
K	Real Estate	4,250	5.36%	360	0.45%	1,303	1.64%	2,587	3.26%
L	Leasing & Business Services	5,660	7.14%	5,021	6.33%	47	0.06%	592	0.75%
M	Scientific research, technical services & geological prospecting	7	0.01%					7	0.01%
N	**Water, environment & public facilities management industry**	999	1.26%	989	1.25%			10	0.01%
O	Resident services & other services	59	0.07%	5	0.01%			54	0.07%
P	**Education**	136	0.17%	16	0.02%			120	0.15%
Q	Health, social security & social welfare	196	0.25%	196	0.25%				
R	**Culture, Sports & Entertainment**	156	0.20%	148	0.19%			8	0.01%
	Total	79,301	100%	12,096	15.25%	29,992	37.82%	37,212	46.93%

Table 2

Panel A: Variable definitions.

	Definition
Dependent variables	
Loan	The loan amount made to borrowers in RMB 1,000,000.
Interest	Interest rate charged to a loan in % p.a.
Secured	Dummy variable equal to one if a borrower provides collaterals or a third-party guarantee for a loan
Maturity	Maturity of a loan in days
Loan quality	Dummy variable equal to one if a loan is healthy
Inference variables	
State	Dummy variable equal to one if the borrower is a state firm
Foreign	Dummy variable equal to one if the borrower is a foreign or joint-venture firm
PA	Dummy variable equal to one if a loan is made in and after the policy announcement in Nov 2008 to deal with the financial crisis
Private x PA	Interaction term: dummy variable equal to one if a loan is made in and after Nov 2008 to a private firm
State x PA	Interaction term: dummy variable equal to one if a loan is made in and after Nov 2008 to a state firm
Foreign x PA	Interaction term: dummy variable equal to one if a loan is made in and after Nov 2008 to a foreign or joint-venture firm
Borrower Characteristics	
SME	Dummy variable equal to one if the borrower is a small and medium sized enterprise
PI	Dummy variable equal to one if the borrower operates in preferential industries
Internal Rating Scores	Based on quantitative score that uses at the loan application to facilitate the loan decision process from 1 highest credit to 11 lowest credit

Table 2 (Continued)

Panel B: Summary statistics. The number of observations corresponds to the number of loans made by the branch to its corporate borrowers and is equal to 32,728 after extracting a sub-sample of loan data based on certain filtering criteria described in the data section.

	Mean	Standard Deviation	P(25)	Median	P(75)	Min	Max
Dependent variables							
Loan (RMB1,000,000)	4.771	11.63	5	15	45	0.017	200
Interest (% Annual)	5.682	1.850	4.800	5.841	6.903	0	18
Secured=1, nonsecured=0	0.931	0.253	1	1	1	0	1
Maturity (days)	252.5	241.8	156	182	364	0	3640
Healthy=1, risky=0	0.962	0.191	1	1	1	0	1
Inference variables (dummy variables)							
Private	0.530	0.499	0	1	1	0	1
State	0.071	0.258	0	0	0	0	1
Foreign	0.399	0.490	0	0	1	0	1
PA	0.413	0.492	0	0	1	0	1
Private x PA	0.218	0.413	0	0	0	0	1
State x PA	0.029	0.168	0	0	0	0	1
Foreign x PA	0.166	0.372	0	0	0	0	1
Borrower Characteristics							
SME =1, Non-SME=0	0.853	0.354	1	1	1	0	1
PI =1, Non-PI=0	0.043	0.202	0	0	0	0	1
Internal Rating: 1 Highest, 11 Lowest	5.269	2.427	5	6	6	1	11

Table 3: Characteristics of Loans to State, Foreign and Private Firms before and after the Policy Announcement (Bivariate)

This table presents mean DID estimates of loan characteristics. Borrowers are classified into three groups: State, Foreign and Private. Panel A through E report the results on logarithm of loan amount, interest rate, secured status, maturity and loan quality, respectively. All variables are defined in Table 2, Panel A. The DID estimates are printed in bold. For brevity, we report only p-values of the difference and DID estimates. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. Number of observations is 32,728.

	State	Foreign	Private	State-Private	Foreign-Private
Panel A: ln(Loan)					
Before Nov-2008	-0.07	0.39	0.22	-0.30***	0.17***
After Nov-2008	0.69	0.67	0.64	0.05***	0.03
Difference	0.77***	0.28***	0.42***	**0.35*** **	**-0.14*** **
Panel B: Interest rate					
Before Nov-2008	6.11	6.45	6.45	-0.35***	-0.01
After Nov-2008	3.61	4.56	4.79	-1.18***	-0.23***
Difference	-2.50***	-1.89***	-1.66***	**-0.84*** **	**-0.22*** **
Panel C: Secured					
Before Nov-2008	0.84	0.94	0.95	-0.11***	-0.01***
After Nov-2008	0.84	0.92	0.92	-0.08***	0.00
Difference	0.00	-0.02***	-0.03***	**0.03** **	**0.01** **
Panel D: Maturity					
Before Nov-2008	286	252	233	53***	20***
After Nov-2008	355	252	261	94***	-9**
Difference	69***	0	29***	**40*** **	**-29*** **
Panel E:Loan quality					
Before Nov-2008	0.97	0.94	0.97	0.00	-0.03***
After Nov-2008	0.97	0.95	0.98	-0.01	-0.03***
Difference	0.00	0.01***	0.01***	**-0.01**	**0.00**

Table 4: Loan Characteristics before and after the Policy Announcement (Multivariate)

We use the DID to estimate the dependent variables listed in the first row on a set of explanatory variables. Columns 1 through 5 use logarithm of loan amount, interest rate, secured status, maturity and loan quality as dependent variables, respectively. All variables are defined in Table 2, Panel A. The models are estimated with OLS including time fixed effect, sector fixed effect and branch fixed effects. We perform the Wald Test under the null hypothesis that all coefficients equal to 0 and show that the null hypotheses in all cases are rejected with p-value<0.0001. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. Number of observations is 32,728.

	(1)	(2)	(3)	(4)	(5)
Variable	ln(loan)	Interest	Secured	Maturity	Quality
State (β_1)	-0.754***	0.121***	-0.0367***	5.956	-0.00264
	[0.0429]	[0.0365]	[0.00652]	[6.907]	[0.00576]
Foreign (β_2)	0.0728***	0.0127	-0.00116	11.18***	-0.0332***
	[0.0216]	[0.0184]	[0.00329]	[3.486]	[0.00291]
StatexPA (β_3)	0.687***	-0.615***	0.0212**	17.65*	-0.0220***
	[0.0621]	[0.0529]	[0.00945]	[10.01]	[0.00834]
ForeignxPA (β_4)	-0.121***	-0.108***	0.00106	-21.67***	0.00151
	[0.0314]	[0.0267]	[0.00477]	[5.052]	[0.00421]
Rating 2	-0.0437	-0.400***	-0.00738	10.72*	-0.00925**
	[0.0348]	[0.0296]	[0.00529]	[5.604]	[0.00467]
Rating 3	-0.0211	-0.764***	0.00344	-18.73**	0.0165***
	[0.0470]	[0.0401]	[0.00715]	[7.575]	[0.00632]
Rating 4	0.0453	0.405***	0.0193*	20.90*	-0.105***
	[0.0709]	[0.0604]	[0.0108]	[11.42]	[0.00953]
Rating 5	-0.228***	0.374***	0.0103**	13.43***	-0.0496***
	[0.0320]	[0.0273]	[0.00487]	[5.155]	[0.00430]
Rating 6	-0.0706***	0.188***	0.0374***	43.59***	-0.0294***
	[0.0249]	[0.0212]	[0.00378]	[4.005]	[0.00334]
Rating 7	0.782***	0.361	0.114***	168.5***	-0.166***
	[0.278]	[0.237]	[0.0423]	[44.81]	[0.0374]
Rating 8	0.411*	0.883***	-0.109***	87.70**	-0.167***
	[0.220]	[0.187]	[0.0334]	[35.42]	[0.0295]
Rating 9	-0.00541	0.523***	0.0555***	34.65***	-0.224***
	[0.0820]	[0.0699]	[0.0125]	[13.21]	[0.0110]
Rating 10	-0.474***	3.922***	0.0479***	-66.79***	-0.654***
	[0.0849]	[0.0724]	[0.0129]	[13.69]	[0.0114]
Rating 11	-1.231***	-1.158***	0.0145**	-60.33***	-0.0120**
	[0.0379]	[0.0323]	[0.00576]	[6.098]	[0.00508]
SME	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Sector fixed effects	Yes	Yes	Yes	Yes	Yes
Branch fixed effects	Yes	Yes	Yes	Yes	Yes
R-squared	0.247	0.630	0.369	0.225	0.137

Table 5: Time-Varying Effects of the Fiscal Stimulus Plan (Multivariate)

We use the DID to estimate the dependent variables listed in the first row on a set of explanatory variables. Columns 1 through 5 use logarithm of loan amount, interest rate, secured status, maturity and loan quality as dependent variables, respectively. All variables are defined in Table 2, Panel A. Dummy variable, PA1, indicates the first period after the policy announcement, namely, Nov-2008 - Oct-2009. PA2 represents the period of Nov 2009 - Jul 2010.The models are estimated with OLS including dummy for SME, internal rating fixed effect, time fixed effect, sector fixed effect and branch fixed effects. We perform the Wald Test under the null hypothesis that all coefficients equal to 0 and show that the null hypotheses in all cases are rejected with p-value<0.0001. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. Number of observations is 32,728.

	(1)	(2)	(3)	(4)	(5)
Variable	ln(loan)	Interest	Secured	Maturity	Quality
State (β_1)	-0.757***	0.120***	-0.0365***	6.713	-0.00261
	[0.0429]	[0.0365]	[0.00652]	[6.908]	[0.00576]
Foreign (β_2)	0.0726***	0.0125	-0.00115	11.18***	-0.0332***
	[0.0216]	[0.0184]	[0.00329]	[3.485]	[0.00291]
StatexPA1 (β_3)	0.486***	-0.732***	0.0366***	44.00***	-0.0183*
	[0.0746]	[0.0636]	[0.0114]	[12.03]	[0.0100]
ForeignxPA1 (β_4)	-0.240***	-0.206***	0.0103*	-23.41***	0.00435
	[0.0373]	[0.0318]	[0.00567]	[6.011]	[0.00501]
StatexPA2 (β_5)	0.936***	-0.471***	0.00211	-15.74	-0.0265**
	[0.0811]	[0.0691]	[0.0123]	[13.07]	[0.0109]
ForeignxPA2 (β_6)	0.0443	0.0278	-0.0118*	-18.70***	-0.00243
	[0.0423]	[0.0360]	[0.00643]	[6.817]	[0.00569]
SME	Yes	Yes	Yes	Yes	Yes
Rating fixed effects	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Sector fixed effects	Yes	Yes	Yes	Yes	Yes
Branch fixed effects	Yes	Yes	Yes	Yes	Yes
R-squared	0.248	0.630	0.369	0.226	0.138

Table 6: Characteristics of Loans to State, Foreign and Private SMEs before and after the Policy Announcement (Multivariate)

We use the DIDID to estimate the dependent variables listed in the first row on a set of explanatory variables. Columns 1 through 5 use logarithm of loan amount, interest rate, secured status, maturity and loan quality as dependent variables, respectively. All variables are defined in Table 2, Panel A. The models are estimated with OLS including dummy for internal rating fixed effect, time fixed effect, sector fixed effect and branch fixed effects. We perform the Wald Test under the null hypothesis that all coefficients equal to 0 and show that the null hypotheses in all cases are rejected with p-value<0.0001. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. Number of observations is 32,728.

	(1)	(2)	(3)	(4)	(5)
Variable	ln(loan)	Interest	Secured	Maturity	Quality
State (β_1)	-1.138***	0.515***	0.00129	43.60***	-0.0133
	[0.0616]	[0.0524]	[0.00933]	[9.926]	[0.00831]
Foreign (β_2)	0.709***	0.218***	-0.127***	14.98	-0.0324***
	[0.0608]	[0.0518]	[0.00922]	[9.804]	[0.00821]
StatexPA (β_3)	1.558***	0.0305	-0.232***	256.0***	1.75e-05
	[0.125]	[0.106]	[0.0189]	[20.08]	[0.0168]
ForeignxPA (β_4)	-0.838***	-0.273***	0.0504***	-14.67	-0.0594***
	[0.0920]	[0.0783]	[0.0139]	[14.83]	[0.0124]
SME (β_5)	-0.591***	0.564***	0.0365***	7.355	0.0177***
	[0.0383]	[0.0326]	[0.00580]	[6.169]	[0.00517]
PAxSME (β_6)	-0.169***	0.405***	-0.0291***	26.58***	-0.00156
	[0.0603]	[0.0513]	[0.00914]	[9.723]	[0.00814]
StatexSME (β_7)	1.018***	-0.921***	-0.117***	-75.36***	0.0140
	[0.0853]	[0.0726]	[0.0129]	[13.74]	[0.0115]
ForeignxSME (β_8)	-0.695***	-0.238***	0.138***	-6.123	-0.000701
	[0.0636]	[0.0541]	[0.00963]	[10.25]	[0.00858]
StatexPAxSME (β_9)	-1.645***	-0.330***	0.379***	-263.8***	-0.0316
	[0.149]	[0.127]	[0.0226]	[24.02]	[0.0201]
ForeignxPAxSME (β_{10})	0.798***	0.179**	-0.0533***	-7.798	0.0680***
	[0.0977]	[0.0831]	[0.0148]	[15.75]	[0.0132]
Rating fixed effects	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Sector fixed effects	Yes	Yes	Yes	Yes	Yes
Branch fixed effects	Yes	Yes	Yes	Yes	Yes
R-squared	0.256	0.635	0.380	0.233	0.139

Table 7: Characteristics of Loans to State, Foreign and Private Firms Operating in the Preferential Industries before and after the Policy Announcement (Multivariate)

We use the DIDID to estimate the dependent variables listed in the first row on a set of explanatory variables. Columns 1 through 5 use logarithm of loan amount, interest rate, secured status, maturity and loan quality as dependent variables, respectively. All variables are defined in Table 2, Panel A. The models are estimated with OLS including dummy for internal rating fixed effect, time fixed effect, sector fixed effect and branch fixed effects. We perform the Wald Test under the null hypothesis that all coefficients equal to 0 and show that the null hypotheses in all cases are rejected with p-value<0.0001. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. Number of observations is 32,728.

	(1)	(2)	(3)	(4)	(5)
Variable	ln(loan)	Interest	Secured	Maturity	Quality
State (β_1)	-0.921***	0.143***	-0.0243***	-8.283	0.00135
	[0.0452]	[0.0386]	[0.00687]	[7.285]	[0.00608]
Foreign (β_2)	0.0670***	0.0112	0.00306	9.914***	-0.0296***
	[0.0219]	[0.0187]	[0.00333]	[3.527]	[0.00294]
StatexPA (β_3)	0.875***	-0.686***	0.00904	18.87*	-0.0261***
	[0.0678]	[0.0579]	[0.0103]	[10.94]	[0.00912]
ForeignxPA (β_4)	-0.111***	-0.109***	-0.00148	-23.06***	-0.00182
	[0.0317]	[0.0271]	[0.00483]	[5.115]	[0.00427]
PAxPI (β_5)	0.383***	-0.198**	-0.0228	-8.937	-0.0233*
	[0.0972]	[0.0830]	[0.0148]	[15.68]	[0.0131]
StatexPI (β_6)	1.688***	-0.160	-0.161***	176.4***	-0.0695***
	[0.146]	[0.124]	[0.0222]	[23.48]	[0.0196]
ForeignxPI (β_7)	0.0890	0.205*	-0.179***	54.98**	-0.160***
	[0.140]	[0.119]	[0.0213]	[22.54]	[0.0188]
StatexPAxPI (β_8)	-1.588***	0.538***	0.105***	-34.09	0.0468*
	[0.183]	[0.156]	[0.0279]	[29.55]	[0.0246]
ForeignxPAxPI (β_9)	0.239	-0.465**	0.0888**	109.9***	0.166***
	[0.233]	[0.199]	[0.0355]	[37.62]	[0.0314]
SME	Yes	Yes	Yes	Yes	Yes
Rating fixed effects	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Sector fixed effects	Yes	Yes	Yes	Yes	Yes
Branch fixed effects	Yes	Yes	Yes	Yes	Yes
R-squared	0.250	0.630	0.371	0.227	0.140

Appendix: Loans to Foreign Firms

In this section, we briefly describe the branch's treatment of foreign firms compared to private firms before and after the PA. In general, our empirical results indicate that the differences in the loan characteristics between foreign and private firms are not as different as those between state and private firms. The bivariate DID estimates in Table 3 suggest that loans to foreign firms are 17% larger in size, equal in interest rate, 1% less likely to be asked for collateral, 20-day longer in maturity and 3% lower in payment probability compared to loans to private firms before the PA. After the PA, loans to foreign firms relative to those to private firms are equal in size and lower in interest rate (0.23%), though there is no change in payment probability. The difference in secured status disappears, and the maturity of loans to foreign firms becomes 9-day shorter than those to private firms. The multivariate analysis in Table 4 confirms the bivariate results.

Turning to the time-varying effects in Table 5, the coefficient estimate β_2 shows that a foreign firm obtains a 7.3% larger loan with the same interest rate compared to its private counterpart before the PA. The DID estimate β_4 shows that the loan size for foreign firms decreases by 24% compared to that for private firms, while the interest rate charged to foreign firms decreases by 0.21% compared to that charged to private firms in the first period after the PA. This trend disappears in the second year after the PA (β_6). The corresponding estimates for the post-PA period in Table 4 indicate that loans to foreign firms are 12.1% smaller and charged a 0.108% lower interest rate than those to private firms. The depressed loan demand for foreign firms compared to that for private firms is only a temporary phenomenon. The loan demand for foreign firms gradually recovers in the second year after the PA. Moreover, foreign firms are slightly more likely to be asked for collateral and receive a 12-day shorter maturity in the first year after the PA; the differences disappear in the second year after the PA. It suggests that the branch may perceive that the risks associated with foreign firms is greater than those associated with private firms immediately following the crisis.

Table 6 reports that before the PA, the coefficient estimates (β_5+β_8) show that foreign SMEs receive a 129% smaller loan with a 0.326% higher interest rate and a 17.5% larger probability of being asked for collateral, though they are 1.7% more likely to repay a loan than their large counterparts. After the PA, the loan terms for foreign SMEs get worse than those for their large counterparts. Foreign SMEs receive a 65.7% smaller loan with a 0.91% higher interest rate, a 9.21% larger probability to be asked for collateral and a 20-day longer maturity than their larger counterparts (β_5+β_6+β_8+β_{10}). Overall, foreign SMEs receive inferior loan terms compared to foreign large firms, though foreign SMEs have a dramatically 8.57% higher payment probability than foreign large firms. The fiscal stimulus plan does not improve the credit access of foreign SMEs

compared to that of large foreign firms.

Table 7 shows that the loan term differences of loans to foreign PIs and foreign non-PIs relative to their private counterparts (β_7) is that foreign PIs obtain the same amount of loan with a 0.205% higher interest rate, a 17.9% less likely to be asked for collateral and a 55-day longer maturity compared to foreign non-PIs, while the default risk of loans to foreign PIs is 16% higher than that to foreign non-PIs before the PA. After the PA, the corresponding figures (β_7+β_9) shows that foreign PIs obtain the same amount of loan with a 0.26% lower interest rate, a 9.02% lower likelihood of being asked for collateral, a 165-day longer maturity than that to foreign non-PIs, while the default risk of loans to foreign PIs becomes 0.6% lower than that to foreign non-PIs. These results indicate that the branch improves the treatment toward foreign PIs relative to foreign non-PIs due to their improved payment probability after the PA. However, there are few loans to foreign PIs, comprising only 1.32% and 1.08% of the total loans (and concentrates on Electricity, gas & water production and supply (D) and Transportation, storage & postal services (G) (Table 1)) before and after the PA, respectively, thus this difference is not economically significant even though they are statistically significant.

Appendix Table 1: Changes in the Internal Credit Scores of Private, State and Foreign Firms over the Four years.

Percentage of the firms in a certain credit status over all firms is in the parenthesis.

	State			Foreign			Private		
	Same	Upgrade	Downgrade	Same	Upgrade	Downgrade	Same	Upgrade	Downgrade
2006-2007	28	10	4	210	87	40	296	141	55
	(67%)	(24%)	(10%)	(62%)	(26%)	(12%)	(60%)	(29%)	(11%)
2007-2008	31	7	**12**	228	69	**112**	364	87	**170**
	(62%)	(14%	**(24%)**	(56%)	(17%)	**(27%)**	(59%)	(14%)	**(27%)**
2008-2009	33	12	**13**	263	79	53	401	109	85
	(57%)	(21%)	**(22%)**	(67%)	(20%)	(13%)	(67%)	(18%)	(14%)
2009-2010	29	6	7	246	70	34	415	94	50
	(69%)	(14%)	(17%)	(70%)	(20%)	(10%)	(74%)	(17%)	(9%)
Total	121	35	36	947	305	239	1476	431	360
	(63%)	(18%)	(19%)	(64%)	(20%)	(16%)	(65%)	(19%)	(16%)

Appendix Table 2: Compare Models for Binary Loan Characteristics (loan's secured status and loan quality)

We estimate the dependent variables listed in the first row on a set of explanatory variables. Columns 1 and 2 use linear probability model; Columns 3 and 4 use probit model; Columns 5 and 6 use logit model. All variables are defined in Table 2. The LPM coefficients are taken from Columns 3 and 5 in Table 4. All models include dummy for SME, internal rating fixed effect, time fixed effect, sector fixed effect and branch fixed effects. We perform the Wald Test under the null hypothesis that all coefficients equal to 0 and show that the null hypotheses in all cases are rejected with p-value<0.0001. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively.

Variable	(1:LPM) Secured	(2:LPM) Quality	(3:Probit) Secured	(4:Probit) Quality	(5:Logit) Secured	(6:Logit) Quality
State (β_1)	-0.0367***	-0.00264	-0.241***	0.00754	-0.519***	0.157
	[0.00652]	[0.00576]	[0.0606]	[0.100]	[0.116]	[0.230]
Foreign (β_2)	-0.00116	-0.0332***	0.00921	-0.390***	0.00995	-0.879***
	[0.00329]	[0.00291]	[0.0396]	[0.0413]	[0.0818]	[0.0897]
StatexPA (β_3)	0.0212**	-0.0220***	-0.0178	-0.370**	-0.0518	-0.971***
	[0.00945]	[0.00834]	[0.0980]	[0.153]	[0.195]	[0.322]
ForeignxPA (β_4)	0.00106	0.00151	-0.0685	-0.149**	-0.121	-0.279**
	[0.00477]	[0.00421]	[0.0632]	[0.0657]	[0.136]	[0.142]
SME	Yes	Yes	Yes	Yes	Yes	Yes
Rating fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Sector fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Branch fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.369	0.137	0.204	0.219	0.203	0.218
Observations	32,728	32,728	31,895	32,133	31,895	32,133

Appendix Table 3: Summary Statistics for a Smaller Sample as a Robustness Check

As a robustness check, we redo the analysis for Equation 1 by dropping observations of the amount of loan issued, charged interest rate and maturity above the top 0.5% and below the bottom 0.5% in the distribution, which leads to a drop of 615 loans to 40 firms compared to the previous sample. Number of observations is 32,113.

	Mean	Standard Deviation	P(25)	Median	P(75)	Min	Max
Dependent variables							
Loan (RMB1,000,000)	4.205	8.079	0.5	1.5	4.376	0.04	93
Interest (% Annual)	5.651	1.759	4.800	5.841	6.900	0	10.1
Secured=1, nonsecured=0	0.933	0.249	1	1	1	0	1
Maturity (days)	242.7	177.7	158	182	364	17	2009
Payment=1, default=0	0.966	0.180	1	1	1	0	1
Inference variables (dummy variables)							
Private	0.530	0.499	0	1	1	0	1
State	0.069	0.254	0	0	0	0	1
Foreign	0.401	0.490	0	0	1	0	1
PA	0.411	0.492	0	0	1	0	1
Private x PA	0.217	0.412	0	0	0	0	1
State x PA	0.027	0.163	0	0	0	0	1
Foreign x PA	0.167	0.373	0	0	0	0	1
Borrower Characteristics							
SME =1, Non-SME=0	0.855	0.352	1	1	1	0	1
PI =1, Non-PI=0	0.040	0.197	0	0	0	0	1
Internal Rating: 1 Highest, 11 Lowest	5.242	2.401	5	6	6	1	11

Appendix Table 4: Robustness Check: Loan Characteristics before and after the Policy Announcement (Multivariate)

We use the DID to estimate the dependent variables listed in the first row on a set of explanatory variables. Columns 1 through 5 use logarithm of loan amount, interest rate, secured status, maturity and loan quality as dependent variables, respectively. All variables are defined in Table 2, Panel A. The models are estimated with OLS including time fixed effect, sector fixed effect and branch fixed effect. We perform the Wald Test under the null hypothesis that all coefficients equal to 0 and show that the null hypotheses in all cases are rejected with p-value<0.0001. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. As a robustness check, we redo the analysis for Equation 1 by dropping observations of the loan size, interest rate and maturity above the top 0.5% and below the bottom 0.5% in the distribution. Number of observations is 32,113.

	(1)	(2)	(3)	(4)	(5)
Variable	ln(loan)	Interest	Secured	Maturity	Quality
State (β1)	-0.750***	0.152***	-0.0288***	-6.489	-0.00516
	[0.0426]	[0.0343]	[0.00652]	[5.144]	[0.00569]
Foreign (β2)	0.0918***	0.0287*	-0.000481	16.95***	-0.0346***
	[0.0214]	[0.0172]	[0.00327]	[2.577]	[0.00285]
StatexPA (β3)	0.614***	-0.714***	0.0203**	-21.78***	-0.0210**
	[0.0628]	[0.0506]	[0.00962]	[7.585]	[0.00839]
ForeignxPA (β4)	-0.141***	-0.120***	0.000587	-24.00***	0.00128
	[0.0310]	[0.0249]	[0.00474]	[3.738]	[0.00414]
SME	Yes	Yes	Yes	Yes	Yes
Rating fixed effect	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Sector fixed effects	Yes	Yes	Yes	Yes	Yes
Branch fixed effects	Yes	Yes	Yes	Yes	Yes
R-squared	0.232	0.649	0.370	0.228	0.079
Observations	32,110	32,110	32,110	32,110	32,110