Anti-corruption and Bank Lending *

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ABSTRACT

We study how Anti-corruption measures affect banks' lending decisions to state-owned enterprises (SOEs) and non-state-owned enterprises (non-SOEs). We develop a model where an SOE and a non-SOE both seek borrowings from a bank who obtains a positive private benefit due to corruption if it lends to the SOE. We use micro-level lending data from one of the largest state-owned banks in China and the Anti-corruption Campaign enacted by President Xi as a quasi experiment to identify the causal effect of anti-corruption measures on bank lending to SOEs and non-SOEs. We find that SOEs received much more favorable borrowing terms than non-SOEs before the Anti-corruption Campaign, but this difference shrunk greatly since the Campaign was enacted, with non-SOEs receiving borrowing contracts with larger credit amounts, lower interest rates and longer durations.

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1 Introduction

The state-owned enterprises (SOEs) in developing countries have long been criticized for dominating the credit market and obtaining distorted loan contracts, as they receive favorable terms including a larger credit line, a lower interest rate and a longer duration. There are various reasons behind the scene, including market-oriented reasons as well as corruption-driven reasons. The SOEs naturally have comparative advantages in obtaining government contracts and licenses, which would generate greater profits and cash flows correspondingly. Moreover, SOEs have an easier access to capital market according to their close connection to the government or the regulator, both of which help secure their cash flow position. Therefore, the preference on SOEs could be justified as business decisions. On the other hand, in order to fulfill their political agendas or their promise after briberies, the government officials may directly ask banks or loan officers to issue loans to specific SOEs as an exchange of political favors. We consider such actions related to corruptions.

The key questions would be as following: First, are borrowers treated differently due to ownership; Second, what is the driven force of this connection if the ownership alone would affect loan contracts. Naturally, the loan contract also depends on the borrower's size, industry sector, geographic location and other firm characteristics. The SOE borrowers are relatively larger, enjoying monopoly power in certain high profit industries, and located densely in fast-growing or well-developed regions. These factors can lead to a favorable loan contract as well. So we need to show whether the SOE borrowers are still preferred in the credit market, after controlling for firm characteristics and other fixed effects. If this is true, there are institutional concerns as well as corruption concerns. In this paper, we use private benefit of commercial loans to denote the corruption related concerns. We study how the bank's decision would be alternated by the private benefit on the loan contracts with the state-owned enterprises, and how a cut on the private benefit would affect the bank's decision.

We construct a two-period model with the bank and two types of borrowers: state-owned

enterprise (SOE), and non-state-owned enterprise (Non-SOE). The basic assumptions come from Merton (1974) and Holmström and Tirole (1997). Both type of borrowers seek funds from the bank to finance their projects. In the first period, the bank may offer a loan contract to a borrower and specify the corresponding credit amount and interest rate. In the second period, firms repay the principle and the interest according to the contract. The firm may default, and the probability of default depends on the quality of the firm. The local government will offer subsidy to SOE borrowers in general and bail out SOE borrowers if they are on the edge of bankruptcy. We denote this as the private benefit for the bank to lend to SOE, which is different from the standard economic profit. We find that the SOE borrowers will get loan contracts with a lower interest rate and a larger credit. When the private benefit drops, the gap on interest rate and credit will shrink.

The theoretical prediction above leads to our main hypotheses, and data from one of the five major state-owned banks in China is used to test the results. China's banking sector has been historically dominated by five leading state-owned banks (commonly referred as "The Big Five"), and they have been criticized heavily for their close connection to state-owned enterprises as well as local governments. Some of their loan contracts are even considered as policy loans instead of commercial loans, and reports on related corruption are commonly seen on the news reports. In October 2012, President Xi took office and started the Anti-corruption Campaign. The Anti-corruption Campaign is targeting direct briberies, gift givings, expensive business dinners and other standard channels associated to political favor exchanges with government officials. Therefore, it effectively decreased the private benefit of any economic activities, and was not limited to the banking sector. We use this event as a quasi experiment to examine our prediction, as it is an unexpected cut on private benefit. It is exogenous to both the bank and the borrowers, since it came from the highest level immediately after assumed office.

We exploit loan-level data from one of the Big Five that provides information on credit amount, interest rate, duration, basic firm characteristics and loan outcomes. We focus on three

dimensions of loan contracts, including the credit amount, the interest rate and the duration. We test how the loan contracts are affected by the firm characteristics, specifically the ownership of the firm. Then we examine how the enactment of Anti-corruption Campaign intersects with the borrower's ownership, and how the loan contracts are affected correspondingly. Our sample covers loans from 2012 to 2016, from branches located in more than 300 cities. We treat the time before the Anti-corruption inspection as the before Anti-corruption period, and later as the post Anti-corruption period, according to the schedule of the Campaign. Our key measurements on firm characteristics consist of firm size, whether it is listed in a stock exchange, its internal rating by the bank, its deposit balance, industry sector, physical location as well as the local economic development where the firm locates. The bank controls risk by taking collateral proportional to the credit line or demanding a minimum balance on its deposit account. Therefore, our information is sufficient to determine the loan contract.

In the first part of our empirical analysis, we test how the firm characteristics will affect the loan contract. The bank offers more credits to SOE borrowers with lower interest rate spreads and longer duration, which is consistent with our theoretical prediction. Borrowers of larger size, more deposits, or from a better developed district are also preferred by the bank and get contracts with higher credit lines, lower interest rate spreads and longer duration. We use the total employment and capital amount to measure the firm size, both of which intensify the borrower's ability to repay. A higher deposit balance means a higher cash flow for repayment and also a larger collateral. The local economy condition reveals the potential economic risk or opportunity for the borrower. The internal rating implies the riskiness of the project, and the rating grows with the risk. Consequently, projects with higher ratings will end up receiving contracts with less credits, higher interest rate spreads and shorter duration.

In the second part of our empirical analysis, we discuss the effect of the intersection between the borrower's ownership and the Anti-corruption Campaign. We apply a difference-in-difference test to investigate how the contracts from borrowers of different ownership would alternate after

the Anti-corruption Campaign. We start with the basic test without any firm controls. The SOE firms on average obtain contract with larger credit amounts, lower interest rate spreads and longer duration. After the Anti-corruption Campaign started, the SOE firms' advantage diminished, as their contracts are with relatively smaller credit amount, lower interest rate spreads and longer duration. On the other hand, the Non-SOE borrowers' term-conditions significantly improved, with larger credit amounts, lower interest rate spreads and longer duration. The inequality between two types of ownership are effectively shrinking. The result is statistically significant and consistent with our theoretical model. We repeat the test with firm controls. The coefficients remain almost the same and are still statistically significant. The coefficients on the firms controls also have the same sign as the first part of our empirical tests.

Our main contribution is to use the Anti-corruption Campaign as a quasi-experiment on the reduction of private benefit, and it successfully connects our theoretical model to the empirical test. Quasi-experiments have been commonly used in the finance literature to examine the capital market, asset pricing system and corporate management. Policy shocks, market-oriented shocks and natural events are among the top three kinds of shocks largely adopted as identification strategy. Our study falls into the category of political event shock. Power attenuation in the leadership associated with exogenous reason (like deteriorating health) is a common identification strategy, as Leuz and Oberholzer-Gee (2006) and Amore and Bennedsen (2013) have shown. In China's financial market, loan management decentralization reform and employee incentive scheme reform have been discussed extensively in Qian, Strahan, and Yang (2015) and Meng, Ning, Zhou, and Zhu (2011), respectively. Xiong and Yu (2011) also applies China's policy event as a natural experiment to study asset bubble theories. There is also a growing literature concerning the Anti-Corruption Campaign, such as Li, Wang, and Zhou (2017), Ding, Fang, Lin, and Shi (2017), Liu, Shu, and Wei (2017), Ang, Bai, and Zhou (2016), Giannetti, Liao, You, and Yu (2017), and Lin, Morck, Yeung, and Zhao (2016). We devote section 2 to further discussion on these work. In developed economy, Doidge and Dyck (2015) and Edwards

and Shevlin (2011) used corporate taxes reform in Canada as an exogenous policy shock, and Giannetti and Laeven (2009) studied pension reform in Sweden. Market-oriented shocks are also commonly observed, especially the ones that affect the stock analysts and their coverage. Balakrishnan, Billings, Kelly, and Ljungqvist (2014) and Kelly and Ljungqvist (2012) observe that over 43 brokers closed their research operations between 2000 and 2008, and estimate its effects on liquidity and prices. Hong and Kacperczyk (2010) and Irani and Oesch (2013) exploit exogenous reduction in coverage resulting from brokerage house mergers to study the increase in optimism bias and deterioration in reporting quality. True natural events have been utilized as an exogenous shock, such as descendant's gender and leadership's physical health status. The readers are referred to Bennedsen, Nielsen, Perez-Gonzalez, and Wolfenzon (2007) and Fisman (2001) for more details.

Our second contribution is to use a novel data set to analyze the interaction between ownership and corruption. We are not the first paper using loan-level data in China to study the domestic credit market, but our data set is the most suitable and unique to address our question to the best of our knowledge. First, following definitions in a classic paper Merton (1974), we use three main variables to measure loan contracts, its credit amount, interest rate and duration, and our data set is from 2012 to 2016. Qian, Strahan, and Yang (2015) and Chang, Liao, Yu, and Zheng (2014) also use loan level data to discuss various dimensions of China's credit market. However, their data sets are dated back before 2007. At that time, the interest rates were not liberalized and were closely regulated by the central bank. Moreover, four of the five largest state-owned banks launched their IPO around 2007. Their operation and regulation requirement changed dramatically afterward. Second, our data set is the most representative one to examine how ownership and corruption would interact and affect the credit market as we use all loans issued by one of the largest state-owned banks. Gao, Ru, and Tang (2016) uses the data from China Banking Regulatory Commission (CRBC) with loans of over 50 million RMB, while over 80% of our sample and over 90% of our Non-SOE loans are below 50 million. Jiménez,

Ongena, Peydró, and Saurina (2014) use all loan-level data across Spain without considering ownership effect.

Our paper also contributes to the literature on political corruption and resource misallocation in the credit market. The connection between political corruption and credit market have been heavily discussed in the literature, and it is not limited to developing countries like China. A large body of literature document that corruption harm the economy in general (see Fisman and Svensson (2007) and Qian, Strahan, and Yang (2015)). However, plenty of works have suggested that corruption could be helpful to select more efficient firms in developing economies, since only these firms can afford the additional bribery cost while remaining in the market. For example, Fungáčová, Kochanova, and Weill (2015) documents a positive link between bribery and firms' total bank debt ratios, which suggests that bribing bank officials facilitates firms' access to bank loans using data from 14 European countries. Chen, Liu, and Su (2013) presents empirical evidence that better-performing firms tend to pay more bribes using data only containing non-SOE firms in China. Our study focuses on effects on financial market, or more specifically loan contracts in credit market. Shleifer and Vishny (1994) first provides theory foundation for our model and points out that subsidies to SOE and bribes from managers to politicians will emerge naturally. Afterward, more empirical evidence has been provided in the literature by Faccio (2006), Faccio, Masulis, and McConnell (2006) and Carvalho (2014), to confirm that political connections will lead corruption and favorable loans as we suggest. Qi, Roth, and Wald (2010) and Djankov, Hart, Mcliesh, and Shleifer (2008) specify how the loan contract would be affected by corruption directly or indirectly. The literature is not limited to credit market. Butler, Fauver, and Mortal (2009) and Borisova, Fotak, Holland, and Megginson (2015) discuss bond spread. Dewenter and Malatesta (2001), Goldman, Rocholl, and So (2009) and Claessens, Feijen, and Laeven (2008) focus on asset price on stock market.

The actual damage of corruption is to allocate credit to firms with lower productivity, and consequently hurt the macro economy. The existing literature has discussed this issue both from

a macroeconomic view and a micro firm-level view. Gertler and Gilchrist (1994) first documents how the credit market has imperfect allocation to borrowers through firm size, which is similar to our concern in credit allocation between SOE and Non-SOE borrowers. Rajan and Zingales (2003) points out that political institutions can affect micro firm-level decisions. This issue is commonly seen in both developing and developed countries. Faccio and Lang (2002) and Sapienza (2004) use western European data to show that ownership will affect firm's business and operation, especially in bank lending. Johnson and Mitton (2003), Dinc (2005), Khwaja and Mian (2005) and Petersen and Rajan (1994) all use data from emerging market to confirm that politically connected firms received financial support and favorable loan contracts from the government or state-owned banks. There are also papers using Chinese data to prove that SOE firms have easy access to credit regardless to productivity and profitability, such as Sun and Tong (2003), Cull and Xu (2005), Allen, Qian, and Qian (2005), Fan, Wong, and Zhang (2007), Song, Storesletten, and Zilibotti (2011), and Liao, Liu, and Wang (2014).

The rest of the paper is organized as follows. In Section 2, we describe the overview of China's banking industry and the nationwide Anti-corruption Campaign. In Section 3, we introduce a theoretical model to illustrate how the ownership would affect the credit amount and interest rate on a loan contract, and also how the private benefit is connecting to the loan contracts of borrowers in different ownership. In Section 4, we provide the basic information and summary statistics of the data, and present our test to connect the loan contracts with firm characteristics. In Section 5, we apply a difference-in-difference model to examine how the Anti-corruption Campaign intersects with the borrower's ownership to affect the corresponding loan contracts. We conclude in Section 6.

2 China's Banking Sector and Anti-corruption Campaign

2.1 Overview of China's Banking Sector

In this section, we present some facts on the overall banking sector. It has been documented that commercial banks have been the primary external funding source for enterprises in China and many developing markets, as Brown and Dinc (2011), Allen, Qian, and Qian (2005), Qian, Strahan, and Yang (2015), and Allen, Qian, Zhang, Zhao, et al. (2012) have discussed. In previous literature, Dang, Gorton, Holmström, and Ordonez (2017), De Fiore and Uhlig (2011) and Chang, Liao, Yu, and Zheng (2014) have suggested that it is due to informational advantage over individual investors.

By the end of 2016, there are 4399 banking institutions, including five major state-owned national banks ("The Big Five"), 12 joint-stock national banks, and over 4000 regional banking institutions according to the annual report by the China Banking Regulatory Commission (CBRC). Below we first document some trends on the loan base rate from 2012 to 2016.

Unlike in the US, the People's Bank of China(PBC) uses the loan/ deposit base rate as one of the main monetary policy tools instead of the interbank market interest rate, as Chen, Higgins, Waggoner, and Zha (2016) pointed out. The monetary policy in China follows a stable expansionary trend during the period of study. From 2012 to 2016, the loan rate dropped 8 times by around 2%. The base rate system specifies the interest rates for loans and deposits of different duration. There were five categories of the interest rate according to loan duration: 6 months or under, 6 months to 1 year, 1 year to 3 years, 3 years to 5 years, 5 years or over. The system later was simplified to 3 groups: 1 year and under, 1 year to 5 years and 5 years and over in December 2014. We compute interest rate spread by subtracting the loan base rate of corresponding duration announced by PBC from the interest rate observed in the loan contract.

Market rate had long been state-guided until our sample period. Historically, the PBC required commercial banks to choose market rate within a 30% band around the guided interest

rates. Since October 2004, both the ceiling of loan rates and the floor of deposit rates were no longer regulated, and the loan rates were bounded below by 90% of the base loan rate. The lower bound of loan rate dropped to 80% of corresponding base rate since June 2012 and again to 70% one month later. The rates have been fully liberalized since November 2013.

During our sample period, key statistics Campaigns of the Big Five largely reflected the Campaign of the overall banking sector. We provide evidence from three dimensions: asset and liability, loan and deposit, as well as default rate. These channels are suggested to be important aspects for banks' introspection when assessing borrowers' risk by Norden and Weber (2010).

Both total asset and total liability of the overall banking sector and the Big Five experienced a steady growth from 2007 to 2016. After 2012, the growth rate of the banking sector stabilized at around 15%, and the growth rate for the Big Five was approximately 10%. Both total asset and total liability of banking institutions in China increased tremendously from 2007 to 2016. The total asset and liability managed grew from around 45 trillion RMB to around 220 trillion RMB with an average annual growth rate of 18%. The average annual growth rate for the Big Five is around 13%. Small regional banks expanded more aggressively since 2004, primarily because they faced less regulatory pressure and had more freedom adopting market-oriented strategy. As a result, the share of Big Five decreased from 54% in 2007 to 37% in 2016. However, the Big Five still benefited from some major comparative advantages over smaller banks. Moreover, our sample period between 2012 and 2016 was under a stabilized economy instead of an overheated one. The expansion reached its peak 2009, as a consequence of the Four Trillion Investment Plan, then slowed down after 2012.

The Big Five exhibited a highly consistent growth trend in loan and deposit compared to the overall banking sector. The growth of loan outstanding and deposit shared a similar trend as the growth of asset and liability. The average growth rate for both the loan and deposit is 16%. After 2012, the average annual growth rate was below 14% from 2012 to 2016. The peak of deposit growth in 2015 was a consequence of credit easing from the government after the

collapse of the stock market in June 2015. As major state-owned national commercial banks closely supervised by the CBRC and Administration Commission of the State Council (SASAC), the Big Five had to adopt a relatively conservative strategy on their loan and deposit decisions.

The trend of Non-Performing Loan Rate (NPL) of the Big Five is consistent with the overall trend, since they have dominant market shares and face regulations from both CBRC and SASAC. After 2008, the NPL is stable between 1% and 2% , and the default rate is well-managed under 2% as well. The dramatic decline in both NPL and default rate around 2007Q3 were primarily due to the event of Big Fives' IPO filing. Four of them launched IPO in both Hong Kong Stock Exchange and Shanghai Stock Exchange by the end of 2007, and the last one with a smaller size finished the process in 2010. Scrutiny from regulators and investors called for effective controls on risk and removal of assets with higher default risks. As a consequence, the Big five sell their NPLs to the state-owned management corporations established by the PBC on a regular basis, and no longer renew risky loans.

2.2 Anti-corruption Campaign under President Xi Jinping

The Anti-corruption Campaign was an unprecedented organized anti-graft effort in terms of both the scale and level. Unanticipated by the majority, it took place after President Xi Jinping officially took office in the conclusion of the 18th National Congress of the Communist Party of China (CPC) on November 14, 2012. The new leadership shows an immediate determination to fight against corruption in the coming years. The Central Commission for Discipline Inspection (CCDI), the highest internal control institution combating corruption and malfeasance in the party, issued a warning that punishing and preventing corruption was a "serious political struggle for the sake of the party and the nation's future" on November 20, 2012. On December 4, 2012, the CPC Politburo of the Central Committee issued the Eight-point Regulation. The regulation provides detailed guidelines on the expectation of government cadres behaviors, including reduction and restriction on business dinners, travel expenses, excessive involvement

with businessmen and luxury expenditure with or without government budget. On May 17, 2013, CCDI made an announcement on upcoming rounds of inspection. The first round was initiated 14 days later. We consider this as the starting point of the Anti-corruption Campaign.

The main organizations being inspected include provinces, central government organs, military, as well as centrally-administered state-owned enterprises. The inspection teams typically 'stationed' for a few months at the organization conducting thorough audits into misconducts of officials and collecting questionable organizational practices. Results were then independently sent back to the CCDI to enact formal investigation procedures. The prompt action leaves officials with past misconducts little time to react and hide their record.

By the end of 2014, the CCDI completed the inspections to all provinces. As of 2016, at least one provincial-level official from each province faced investigation for corruption, and over 120 high-ranking officials were removed. Moreover, more than 100,000 people were charged of bribery, abuse of power, lobbying for promotion, and collusion with businessmen, including many government officials, military officers, and executives of state-owned enterprises.

The Anti-corruption Campaign served as a quasi-experiment for our study, as it is unexpected to the whole country ex-ante and comes directly from the top. Commercial loans, government contracts and transactions on state-owned asset, either in national level or local level, have been carefully investigated by the inspection teams. Moreover, the Eight-point Regulation effectively cut down channels that chief executives previously used to connect with government officials and loan officers such as extravagant convention and business dinner in exchange of government procurement contracts and loan contracts. The state-owned enterprises are required to cut expenses on public relation, corporate dinners, and other entertainment, which have been linked to corruption. Astonished by the prosecution of high-profile government officials and exposed to much more thorough inspections, the government officials, executives of state-owned enterprises and loan officers from state-owned national banks steered away from being personally involved in any business decision. As Qian, Strahan, and Yang (2015), Qi, Roth, and Wald (2010), and

Faccio, Masulis, and McConnell (2006) have documented that political corruption can result in resource misallocation, this event effectively cut the private benefit received by the state-owned banks from connecting to commercial loans, hence altered state-owned banks' lending behavior.

Our paper shares a common thread with the earlier body of work identifying variations associated with the Anti-corruption Campaign. One stream of literature, such as Giannetti, Liao, You, and Yu (2017), documents the fluctuation of the entertainment and transportation cost (ETC) before and after the Campaign. Another stream of literature focuses on the direct reduction on political connection due to investigation on governors, though the choice of measures on political connection varies. Both **?** and Li, Wang, and Zhou (2017) define the political connection using public record on social network. Board member's current or previous affiliation to provincial government or above, and military are considered as political connection by Ding, Fang, Lin, and Shi (2017) and Liu, Shu, and Wei (2017). Ang, Bai, and Zhou (2016) constructed novel provincial-level indices based on the number of investigated government officials as proxies of corruption.

Our identification strategy is a dif-in-dif framework using June 2013 as the cutoff, which is the first month after the start of the CCDI nationwide inspections. We focus on sub-provincial ministerial level for the following two reasons. First, this is the lowest ranking that CCDI oversees; lower ranking officials are subject to investigation within provinces. Moreover, only governors above the sub-provincial ministerial level are considered as senior officials, commonly referred as "tiger" in the Campaign. In the current literature, there is no consensus on the timing when the public realizes that the Anti-Corruption Campaign is far from political purge or routine action often enacted by new leaderships. Lin, Morck, Yeung, and Zhao (2016) uses December 4, 2012, the date when the Eight-point Regulation is announced, as the starting day of the Anti-corruption Campaign. Similarly, Giannetti, Liao, You, and Yu (2017) considers observations after 2012 as the treatment group. Other studies use the actual inspection date instead. For example, Ding, Fang, Lin, and Shi (2017) argues that the announcement of inspections of

provincial governments on May 17, 2013 represents a shock to the public on Anti-corruption Campaign. Li, Wang, and Zhou (2017) uses dates of investigation announcement on connected government officials. To address this issue, we plot the search intensity for news and media coverage on "Central Inspection Group" and "Inspection Group" in Baidu, the most commonly used search engine accessible in China. Figure 1 2 and Figure 3 4 show a significant increase on search volume of the keywords around mid May in 2013, respectively.

3 The Baseline Model

In this section, we present a simple model to illustrate that bank's lending decision is contingent on firm's ownership through the private benefit provided by local government. We consider a two-period game with a risk-neutral bank and two types of risk-neutral borrowers: state-owned enterprises (SOE) and non-state-owned enterprises (non-SOE). Each type of firms has a project and looks for fund from the bank since it is cashless. In the first period, the bank may offer a loan contract to a firm according to its ownership and the characteristics of its project. In the second period, the firm pays back the principle and interest rate based on the contract using the return on the project.

A project is characterized by its performance and its ownership, both of which are public information at the first period. Let $p_{s,i} \in [0,1]$ denote the performance of project i from an SOE, and $p_{n,j} \in [0,1]$ denote the performance of project j from a non-SOE. Each project requires one unit of investment. A project will yield return of R if its performance is flawless. The return from a SOE project $p_{s,i}$ is $p_{s,i}R$, and from a Non-SOE project $p_{n,i}$ is $p_{n,i}R$.

The bank will specify the interest rate on a project. To simplify our discussion, there is a uniform interest rate for each ownership. let r_s denote the interest rate charged to projects of SOE, and r_n for non-SOE. In the second period, the total payment of the contract is one unit of principle plus interest. If the project return is enough to pay back the contract, bank will

collect the payment and we consider the project successful. If the return is less than requested, bank will liquidate the project to extract all the benefit and we call it a default project. Bank can still benefit from funding a default project as long as its return is larger than one, given that the interest rate is non-negative.

The objective of the bank is to maximize its profit, which includes both financial profit from project and extra benefits or losses corresponding to the ownership of the firms. The Bank has to decide on which projects to offer loan contracts and specify the interest rates. The bank will set different standard for projects with different ownership due to the presence of private benefit. We focus on the threshold strategy, where the bank offers loans to SOE project with performance greater than p_s, to non-SOE project with performance greater than p_n.

The asymmetric effect of private benefit results in

$$\begin{aligned}\max_{p_s,p_n,r_s,r_n} \quad & b(1-p_s) + (r_s+b)\int_{\frac{1+r_s-b}{R}}^{1} dp_{s,i} + \int_{p_s}^{\frac{1+r_s-b}{R}} (Rp_{s,i}-1)dp_{s,i} \\ & + (r_n-b)\int_{\frac{1+r_n}{R}}^{1} dp_{n,j} + \int_{p_n}^{\frac{1+r_n}{R}} (Rp_{n,j}-1)dp_{n,j} \end{aligned} \tag{3.1}$$

The total payoff of the bank depends on both the project return and the corresponding private benefit from the local government. The private benefit b offered by the local government alters the bank's decision through four channels. First, the local government provides the bank a direct private benefit for each unit of loan offered to an SOE project. Second, the local government effectively lowers the liquidation rate by offering bank an additional private benefit b to SOE projects and saving some projects on the edge of bankruptcy. Third, bank bears opportunity forgone b from the local government for funding a successful non-SOE project. For simplicity, we model the amount of private benefit uniformly in the above four channels. Fourth, the default rate of the Non-SOE will not be affect by the private benefit. However, the private benefit can appear in different form in reality. Moreover, in practice it is very unlikely for local government to offer the exact amount to bank on projects at risk.

It should be noted that a SOE could have a default project that didn't end up being liquidated due to the presence of private benefit. In reality, when the SOE borrower is behind its payment and marked as default, the government would step in with cash support to reconstruct or renegotiate the Non-performing Loan with the bank. Such project doesn't decrease the default risk but yields the same return as other successful project to bank.

3.1 Assumptions and Preferences

In this subsection, we specify several assumptions to model constraints bank faces from the People's Bank of China(PBC) and other regulatory institutions. Though not comprehensive, we believe that our assumptions highlight the main channels that the central bank and institutions take on for the purpose of monitoring. We focus on the bank side since firms are cashless and they would like to apply for as much loan as possible. To simplify the discussion, we assume projects of both types will follow the uniform distribution $U[0,1]$, with a measure of one. The objective for the bank is to maximize its profit from the loans without breaking the regulation on its operation. Banks is regulated through two channels: one is on the total credit available, and the other is on the default rate.

Assumption 1. *The total credit available to the bank is Q, or $1-p_s+1-p_n \leq Q$.*

Our assumption on total credit constraint is intended to accentuate the importance of monetary policy imposed by the central bank through reservation deposit. The reserve requirement is one of the main tools used by PBC for monetary policy purpose.

Assumption 2. *The default rate is bounded by D, or $\frac{\frac{1+r_s}{R}-p_s+\frac{1+r_n}{R}-p_n}{1-p_s+1-p_n} \leq D$. And, the limit on default rate is small, or $D << 1$.*

Our motivation for setting an upper bound on the default rate is to capture both the internal and external inspection on bank's risk. In reality, bank has to generate a sufficient cash flow to meet the daily operation requirements since the source of most capital used to lend to firms are

from saving accounts. Therefore, the internal risk management department will closely monitor the default rate. Externally, regulators require the bank to keep default rate in a reasonable level and have implemented some effective method for better enforcement as suggested in Section 2, in the hope to minimize the chance of systematic risk. Both assumptions jointly prevent bank from overly favoring SOEs and increasing the chance of systematic risk if the private benefit b is too large.

The final assumption imposes natural boundary on interest rates and performance controls. The bank is a market-oriented organization, so it would not intentionally lose money by setting a negative interest rate. It is unnecessary to set a interest rate beyond the maximum debt-paying ability, as the extra rate will not be honored by debtors or legislators. Default rate is also bounded by zero, as negative default rates have no economic meaning at all.

Assumption 3. *Boundary conditions:*

(1) The interest rate is non-negative and cannot exceed the maximum debt-paying ability, or $0 \leq r_s, r_n \leq R - 1$.

(2) Default rates cannot be negative, or $\frac{\frac{1+r_s}{R} - p_s}{1-p_s}, \frac{\frac{1+r_n}{R} - p_n}{1-p_n} \geq 0$.

The three assumptions above summarize the main restriction on the bank's choice of interest rates and quality controls. The objective of the bank is to maximize its profit, and there are two kinds of profit in our model. One is the financial profit from projects directly, and the other is the extra benefits or losses associated with the ownership of the firms. The SOEs and the non-SOEs are treated differently in our model, since the bank can get extra benefit from the government by issuing loans to state-owned enterprises. For example, when state-owned enterprises are on the edge of default, the government always steps in and intervenes with financial supports and restructuring proposals. On the other hand, the non-SOE firm cannot get any of such benefits, and the bank may even generate loss for offering loans to them. The loss could be in the form of losing tax benefit or government deposit contracts. We use b to measure the benefits or losses associated with ownership.

3.2 The Optimal Contracts and Quality Standards

There are four variables in the objective function: p_s, p_n, r_s, r_n. The profit goes down with p_s, p_n, as far as the the projects can generate positive net benefit to the bank, but sum of p_s and p_n is bounded below by the total credit line. The profit goes up with r_s, r_n, but the default rate goes up with the interest rates as well. Consequently, the solution depends on projects of which ownership contribute more to the total profit, and what is the optimal allocation of credit and default rate.

Proposition 1. *The solution of the game $\{p_s, p_n, r_s, r_n\}$ depends on the value of private benefit b and total credit Q.*

1. $p_s < p_r$ and $r_s < r_n$, so the SOE borrowers will get more credit at a lower interest rate.

2. $p_n - p_s$ and $r_n - r_s$ grow with b, so the SOE borrowers' advantage is larger under a larger private benefit.

The brief analysis is explained as below, and the exact analytical solution depends on value of Q and b.

Case 1: When $Q \leq 1$, the equilibrium of the game is

1. If $b \leq DQR$, it is easier for state-owned enterprises to get loans as $p_s = 1 - \frac{Q}{2} - \frac{b}{2R}$ and $p_n = 1 - \frac{Q}{2} + \frac{b}{2R}$. state-owned enterprises are also facing a lower interest rate, as $r_s = R(1 + \frac{DQ}{2} - \frac{Q}{2}) - b - 1$ and $r_n = R(1 + \frac{DQ}{2} - \frac{Q}{2}) + b - 1$.

2. If $DQR < b \leq QR - DQR$, the quality cutoffs still depends on b, as $p_s = 1 - \frac{Q}{2} - \frac{b}{2R}$ and $p_n = 1 - \frac{Q}{2} + \frac{b}{2R}$. state-owned enterprises are facing a lower interest rate of $r_s = R(1 + DQ - Q)$, and private firms are facing the highest possible interest rate $R - 1$.

3. If $b > QR - DQR$, the quality cutoffs would be fixed, as $p_s = 1 - Q + QD$ and $p_n = 1 - QD$. Interest rates are also fixed as above at $r_s = R(1 + DQ - Q)$ and $R - 1$.

Case 2: When $Q > 1$, the equilibrium of the game is

1. If $b \leq DQR$, the equilibrium are the same as $Q \leq 1$. It is easier for state-owned enterprises

to get loans as $p_s = 1 - \frac{Q}{2} - \frac{b}{2R}$ and $p_n = 1 - \frac{Q}{2} + \frac{b}{2R}$. state-owned enterprises are also facing a lower interest rate, as $r_s = R(1 + \frac{DQ}{2} - \frac{Q}{2}) - b - 1$ and $r_n = R(1 + \frac{DQ}{2} - \frac{Q}{2}) + b - 1$.

2. If $DQR < b \leq \frac{4}{3}(1 - \frac{Q}{2} - \frac{DQ}{4})$, the quality cutoffs still depends on b, as $p_s = 1 - \frac{Q}{2} + \frac{DQ}{4} - \frac{3b}{4R}$ and $p_n = 1 - \frac{Q}{2} - \frac{DQ}{4} + \frac{3b}{4R}$. state-owned enterprises are facing a lower interest rate of $r_s = R(1 + \frac{DQ}{4} - \frac{Q}{2} - \frac{3b}{4R})$, and private firms are facing the highest possible interest rate $r_n = R(1 - \frac{DQ}{4} - \frac{Q}{2} + \frac{3b}{4R})$.

3. If $b > \frac{4}{3}(1 - \frac{Q}{2} - \frac{DQ}{4})$, the state-owned enterprises will get any loan they want with $p_s = 0$ at the lowest possible rate $r_s = 0$. The rest of the credit goes to the private firms with $p_n = 2 - Q$ and $r_n = R(2 + DQ - Q)$.

The solution depends on values of Q and value of b. When $b \leq DQR$, the equilibrium has the same functional form regardless to value of Q. The main reason is that the solution for the optimization problem is interior without hitting any boundary conditions from the assumptions. The cutoff for state-owned enterprises and their interest rate go down with private benefit b. When the private benefit is higher, projects with lower quality could get loans at a lower interest rate. All such loans are compensated by the government through private benefit, and the bank relies on the benefit more than their normal commercial return. As the total credit and average default rate are constraint, the private projects will get less credit with higher interest rate. Moreover, the default rate is lower for SOE, and the gap will grow with the private benefit.

When b goes up further, the equilibrium varies with value of Q. The solutions will be corner solution instead of interior solution, and which boundary is hit first depends on value of Q . When Q is small than half of the total credit, the restriction on the upper limit of the interest rate will be reached first. Therefore, the interest rate will be boundary solution, while the cutoffs on quality are still interior solutions. The private firms are charged the highest possible rate $R - 1$, and all of the loans to private firms are defaulted. Then, when b keeps growing, the equilibrium on interest rates and quality cutoffs are will corner solutions. All the loans to state-owned enterprises would not default, and all the loans to private firms will default.

Consequently, as b grows, the default rate for SOE keeps dropping, the the default rate for Non-SOE keeps rising, and the gap keeps expanding. The interest rate to state-owned enterprises are nonnegative is guaranteed by $Q \leq 1$, and this is why equilibrium of the game depends on Q.

When $Q > 1$, Assumption 1 and Assumption 3 together can guarantee Assumption 2, and we can focus on boundaries on the cutoffs and the default rates. The assumption of non negative default rates on both types will be reached first with a growing b value. Consequently, all the loans to state-owned enterprises will not default, and all loans to private firms will default, once b is big enough as $b > DQR$. When b is big enough, every project from state-owned enterprises will be financed at the minimum possible interest rate $r_s = 0$. Any credit left goes to the private firms, and only loans from private firms default.

We can summarize the relationship between private benefit and corresponding equilibrium as below. The higher the private benefit is, the more credit will be offered to state-owned enterprises or the less credit will be offered to private firms. Moreover, the gap between the credit to state-owned enterprises and to private firms will grow with private benefit. The higher the private benefit is, the lower the interest rate to state-owned enterprises is, and the higher the interest rate to private firm is. The gap between the interest rate to state-owned enterprises and to private firms also increases with private benefit.

3.3 Hypotheses Development

In the past thirty years, Chinese local government officials have been working very hard to accelerate their local GDP growth rate, which is called GDP competition by economists. One way to take a lead in the GDP competition is to encourage state-owned enterprises to invest more. To finance such investment, the state-owned banks are involved to offer commercial loans to state-owned enterprises. The local government promised to support the loans with valuable collateral or direct transfers. Moreover, the local government can offer various compensation to either the

executives, the state-owned enterprises or the state-owned bank involved directly. It could be in the form of political favor, direct transfer, tax benefits or government contracts. However, none of such benefits are market-oriented, and they are always connecting to corruptions or abuse of power.

In 2012, After President Xi took office, Chinese government started the Anti-corruption Campaign. Numerous local political leaders, executives from state-owned enterprises, and bank officials are charged for corruption or under table collusion. In order to minimize political risk or legal trouble, local governments stop offering private benefit to either state-owned enterprises or state-owned banks. We use Anti-corruption Campaign as a natural experiment, and the main treatment is the drop of private benefit b in our theory model. Before Anti-corruption Campaign, loan applications from state-owned enterprises and private firms are treated differently, and the gaps on interest rate and credit between these two type are significant. Anticipating private benefits on project from state-owned enterprises being eliminated, we are expecting a major drop on the gap after Anti-corruption Campaign starts. We write our hypotheses on total credit and interest rate as the following:

Hypothesis 1. Projects from state-owned enterprises obtain more credit than the ones from private firms, and the gap shrinks after Anti-corruption Campaign starts.

The first hypothesis is on credit approved. In the theory model, we simplify the setup to focus on the effect of private benefit on ownership. Taking into account the characteristics of borrowers with different ownership, we can still derive hypotheses on the effect of Anti-corruption Campaign. According to our model, the cutoff on projects from state-owned enterprises is lower, or it is easier for those projects to get a loan. The advantage grows with private benefit, and would disappear after Anti-corruption Campaign starts. In the data set, we use credit approved to the firm as measure of credit allowance.

Hypothesis 2. Interest rates on projects from state-owned enterprises are lower than the ones on projects from private firms, and the gap is shrinking after Anti-corruption Campaign starts.

The second hypothesis is on interest rates. The state-owned enterprises are favored both on quantities and prices available to them. Anti-corruption Campaign would cause any unequal treatment to be removed gradually. As a result, gaps on interest rates will diminish considering the characteristics of borrowers.

4 Data

The data set we use is from one of the five largest state-owned national banks in China, with branches in more than 300 cities nationwide. By the end of 2016, their total loans represented 9% of the whole banking sector, while their deposit, asset and liability all represented 8% of the overall banking sector. Our sample period covers from 2012 to 2016. During this time, their loan deposit ratio stayed above the national level, at around 80%, as their credit quality and risk management were beyond the average. At the same time, their ratio of Non-Performing Loans rose all the way from 1% to 1.5%, whereas the national level also grew from 1% to 1.7%. By the end of 2016, 37% of the total asset and liability in the banking sector belonged to the Big Five, and thus they played a significant role in the banking industry. Among them, our sample bank is the most representative one in all dimensions.

4.1 Loan Application and Approval Procedure

A loan application is first handled by the front desk staff in the local branch and then send to the back office for material review. The application would be rejected by the front desk if the quality fails to meet the bank's standard, in which case the application is not recorded in the bank's system and unobserved in our data set. Afterward, the finance office collects necessary information and materials for the loan committee to make a decision. There is a cutoff of credit lines in our sample bank. If the applied loan amount does not exceed the cutoff, the provincial level branch will make a decision. Otherwise, the material is sent to a special committee at

the headquarter. The loan committee then asks for internal credit rating and other financial information. There are two forms of guaranty commonly used for risk management by the bank: collaterals in proportion to the credit line, and deposit account for the corresponding business transaction. The ratio for guaranty depends on the borrower's industry sector, geographic location and the firm size. In the event of bankruptcy, the bank can either freeze the deposit account or liquidate the collateral. If the loan is approved, the credit office determines the interest rate, exact starting date, duration and other details of the contract. Then, the bank creates a record of the loan record, along with firm characteristics. The bank marks the loan outcome for Non-performing Loan based on PBC's standard.

4.2 Summary Statistics

We trimmed our data to keep the loans with no missing information on loan contracts and firm characteristics. The final sample data set comprises 817,639 loans from this bank to corporate borrowers between 2012 and 2016. The nationwide Anti-corruption inspection started in May 2013, and Anti-corruption Campaign has been expanding through the nation since June 2013. Therefore, loans before 2013 June are treated as the before-shock observations, and loans afterward are the after-shock observations.

The summary statistics of the loan contracts and borrowers' characteristics is reported in Table 1. For the loan contracts, we can observe the approval date, the approval amount, the interest rate spread, and the loan term. The interest rate spread is the difference between the specified contract interest rate and the base rate of its duration. Additionally, some of the firms' characteristics are available in the system as well, including firm ownership, the size of employment, the amount of registered capital, the balance of corresponding saving account, whether it is listed on stock market, its shareholding of the sample bank, its internal credit rating from the bank and its industry sector. We can also observe information on the physical address of the corresponding branch and the borrower, which we use to back out the physical

distance between borrower and the branch as well as local economic development.

The median approved credit is 4.5 million RMB, median loan term is 18 months, and median interest rate spread is 0.62 percent. We notice that the loan contracts are significantly different according to ownership. There are five categories of ownership in the original data set, which include state-owned Enterprises (SOE), Public Firms (Public), Private Firms (Private), firms with main investment from Hong Kong, Macau or Taiwan (HMT) and firms with foreign direct investment (Foreign). To simplify our discussion, we divide the ownership into two categories, the state-owned enterprises (SOE), and everyone else (Non-SOE). 10% of the loans goes to the SOE with 44% of the total credit and the rest 90% goes to Non-SOE with 56% of total credit. A typical loan to a SOE firm is much larger than to a Non-SOE counterpart. The median contract to a SOE firm is 30 million RMB with a zero spread of 18 months. However, the median contract for Non-SOE is only 4 million with spread of 0.75 percent of 15 months.

The summary statistics shows that SOEs could obtain more credit at a lower cost with longer terms. However, it is not sufficient to prove that they are favored according to their ownership. Other characteristics are different between firms of different ownerships. We use the size of employment and registered capital amount to measure the size of the borrowing firms. The size of employment range from 1 to 1.36 million, with a median of 105 employees. The median employment for SOE borrowers is 500, and for Non-SOE borrowers is 100. The SOE firms are larger with respect to the labor size. Similar trends can be observed on the borrowers' registered capital. The median of registered capital is 10 million. The median level for SOE borrowers is 296 million, and for Non-SOE borrowers is 10 million. The SOE borrowers are relatively larger in capital comparing to their Non-SOE counterpart. The SOE's sizes can partially explain their advantage in obtaining credits.

There are two more variables in the model to measure the risk of the loan. One is the internal credit rating of the loan, and the other is the balance of the borrower's saving account. The bank offers an integer between 0 and 17 as its internal credit rating for each loan with a

median of 4, and the rating increases with the potential risk of the loan. The median credit rating for SOE borrowers is 3, and for Non-SOE borrowers is 4. The balance of the borrower's saving account can be used for repayment directly or as a collateral of the loan. Therefore, the balance could partially absorb the risk. The balance of the borrower's saving account range from 0 to 20.4 billion, with a median of 248, 199. The median balance for SOE borrowers is 7.53 million, and for Non-SOE borrowers is 170, 388. Comparing to the credit line, the Non-SOE put a smaller proportion of the credit on the saving account.

The data set also offers a dummy variable to denote whether the borrower is listed on the stock market. This fact matters for three reasons. First, it shows that the borrower can obtain credit from the equity market as an alternative. Second, the borrower can use its equity shares as a collateral to the bank. Third, the borrowers financial conditions are transparent to the public and borrower follow corresponding requirements set by regulators. All three reasons help reduce the risk of the loan, and this dummy can be interpreted as a positive sign to the bank. 3% of the borrowers are public listed companies. 3% of the SOE borrowers are listed and 2% of the Non-SOE borrowers are listed. This is also consistant with the fact that SOE are relatively larger and have an easier access to capital market.

The industry sectors and physical location of the borrowing firm as well as the physical location of bank branches are presented in the data set. We use both as control variables for the loans. According to physical location, the branches in better developed region obtained more credits, since the total size of economy is larger and the future economic risk is smaller. Among all 19 industries, around 60% of the total credit goes to the manufacture. They are capital intense and normally have a more stable cash flow, and consequently, the corresponding risk is smaller. The next industry is wholesale and retail, which represents 20% of the total credit. The mean and median loans are largest in Mining, Public Administration and Real Estate, as their projects are relatively more capital intense. The median loan terms are shortest in Wholesale and Retail, Manufacture and Residents Services, repairs and other services, as

they are mainly used for meeting needs of short term free cash flow. The median durations are longest for Education, Water resources, environment and public facilities and Real Estate, as projects in these projects are longer by nature.

4.3 Empirical Analysis

There are two questions remained. First, whether the SOE firms are favored with respect to credit, borrowing cost and duration. Second, if inequality did exist, whether Anti-Corruption Campaign deteriorated it or improved it. Our empirical test in this part will first show that how the Credit Amount, Spread and Durations are affected by the main firm characteristics. We use the dummy SOE to measure the firm's ownership. We use capital amount and employment size to identify the firm's size. Whether the firm is listed as a public company could affect its other credit channel. The deposit can be modeled as collateral or cash flow, and internal rating implies its risk rating to the bank. Additionally, we use the local GDP and whether the borrower is from a richer city to control for the potential economic risk. Other than the main controls, we include three fixed effects, namely the monthly effect, the industry effect and the location effect.

As a preliminary test of the relationship between the loan contract and the borrower's ownership, the baseline model is specified as below. The test on credit amount would be

$$\ln(\text{Credit Amount}_{i,t}) = \alpha + \beta_1 * \text{SOE}_{i,t} + \beta_2 * \ln(\text{Employees}_{i,t}) + \beta_3 * \ln(\text{Capital}_{i,t}) +$$
$$\beta_4 * \text{Listed Firm}_{i,t} + \beta_5 * \ln(\text{Deposit}_{i,t}) + \beta_6 * \text{Internal Rating}_{i,t} + \beta_7 * \text{Other Controls} +$$
$$\gamma_1 * \ln(\text{Local GDP}) + \gamma_2 * \text{Applied Month}_{i,t} + \gamma_3 * \text{Industry}_{i,t} + \gamma_4 * \text{Location}_{i,t} + \epsilon_{i,t}$$

The test on interest rate spread would be

$$\text{Spread}_{i,t} = \alpha + \beta_1 * \text{SOE}_{i,t} + \beta_2 * \ln(\text{Employees}_{i,t}) + \beta_3 * \ln(\text{Capital}_{i,t}) +$$
$$\beta_4 * \text{Listed Firm}_{i,t} + \beta_5 * \ln(\text{Deposit}_{i,t}) + \beta_6 * ln(\text{Internal Rating}_{i,t}) + \beta_7 * \text{Other Controls} +$$
$$\gamma_1 * \ln(\text{Local GDP}) + \gamma_2 * \text{Applied Month}_{i,t} + \gamma_3 * \text{Industry}_{i,t} + \gamma_4 * \text{Location}_{i,t} + \epsilon_{i,t}$$

The test on duration would be

$$\ln(\text{Duration}_{i,t}) = \alpha + \beta_1 * \text{SOE}_{i,t} + \beta_2 * \ln(\text{Employees}_{i,t}) + \beta_3 * \ln(\text{Capital}_{i,t}) +$$
$$\beta_4 * \text{Listed Firm}_{i,t} + \beta_5 * \ln(\text{Deposit}_{i,t}) + \beta_6 * \ln(\text{Internal Rating}_{i,t}) + \beta_7 * \text{Other Controls} +$$
$$\gamma_1 * \ln(\text{Local GDP}) + \gamma_2 * \text{Applied Month}_{i,t} + \gamma_3 * \text{Industry}_{i,t} + \gamma_4 * \text{Location}_{i,t} + \epsilon_{i,t}$$

In the models above, index i denotes borrowers and index t denotes months. Our daily loan data does offer us the exact date of issuing credit. However, we only use it to calculate the interest rate spread, since all other information are available at monthly base or even annual base. The structure is not a true panel, as many of the borrowers appeared only once and the firm characteristics might be significantly different across time. However, we do include month, province and industry fixed effects in all of the models, and we cluster standard errors by months. The physical location of the branches and the borrowers are included. However, as the bank may redistribute the credit to different branched within the same province, we use the province instead of cities as the fixed effect.

4.4 Baseline Results

Column 1, 2, and 3 of Table 2 report the main results for credit amount, interest rate spread and duration respectively. Our theoretical model predicted that the SOE firms will obtain more credit at a lower cost. Therefore, the key variable that we will check is the dummy of ownership.

The main controls are listed in the equations above. The other alternative controls including whether the borrower is from a city richer than the branch, which leads to lower local economic risk and higher development potential for the borrower.

The first control of Table 2 reports OLS results on how the ownership would affect the loan contract, using the approved loan amount, intereat rate spread and duration recorded by the bank. The results suggested that SOE firms on average will significantly get 43.7% more credit at spread of 0.31 percent lower with duration of 17.0% longer. This result implies that the SOE borrowers do have an significant advantage in credit allowance.

If a borrower locates in a more developed city than the branch, then the borrower will get significantly 11.5% more credit at spread of 0.107 percent lower with duration of 14.3% longer. The physical location of the firm is associated to the local economic development or risk. Therefore, the bank favors borrowers from a richer neighborhood, which means a better economic potential and lower project risk.

We use two variables, the employment size and the capital amount, to estimate how the firm size affect the corresponding loan contract. The coefficients of capital are significantly positive for both the credit amount and duration, while significantly negative for the interest rate spread. The results shows that the capital intense firms will get more credit at lower interest rate spread with longer duration. The capital can be used as collaterals, and consequently will lower the bank's risk under delinquency. Therefore the bank would favor borrowers with larger capital amount. More specifically, when capital amount increase by 1%, credit amount will increase by 0.23%, interest rate spread will decrease by 0.08 basis point, and duration will increase by 0.034%. The coefficients of employment are significantly positive for the credit amount, while significantly negative for the interest rate spread and duration. When the size of employment increase by 1%, credit amount will increase by 0.27%, interest rate spread will decrease by 0.09 basis point, and duration will decrease by 0.027%. The borrower with larger employment will obtain more favorable contract, as labor is a measurement of productivity and prosperity for

the borrower. The loan term is shorter for borrowers with larger employment, as the labor cost will lead to short term cash outflow or demand in cash.

Other controls include the dummy of whether the firm is publicly listed, the balance of deposit account, its Internal Rating and the corresponding branch's local GDP. The public listed companies on average will get 11.2% more credit with interet spread 0.026 percent lower from the bank, which implied that the bank prefer public listed companies. This result is consistent with our prediction since the public listed companies can provide audited financial statement and their shares do have market value or collateral values. However, their duration are 11.5% shorter. The long-term corporate bonds and other financing option on capital market may have more competitive rate, and, therefore, the public listed companies may not restrict themselves to commercial loans. The coefficients of the balance of Deposit account and the corresponding branch's local GDP are also significant and have the same sign as capital amount. The balance of its deposit account can be used to evaluate the cash flow or frozen as collateral directly, and will positively affect the credit amount. The local GDP measures the overall economic risk and credit allowance of the branch, which could affect branches systematic risk. Moreover, the internal rating is directly linked to the loan contract as it measures the risk level.

In summary, the SOE borrower gets a more favored contract, which is consistent with our theoretical prediction. Moreover, borrowers located at a more developed city or with a lower credit rating are also favored by the bank, as their locations indicate a lower economic risk. When the firm has a larger capital amount, deposit balance or borrows from a branch with a higher local GDP, the bank also offers a more generous contract.

5 Anti-corruption Campaign

There are three main hypotheses we discussed in our theoretical model. First, the SOE borrower could obtain more credit comparing to the Non-SOE borrower, but the gap shrinks after Anti-

corruption starts. Second, interest rate spread is lower for SOE firms, and the gap also shrinks after Anti-corruption Campaign. Third, the default rate is lower for SOE firms, and it will grow for SOE borrowers after the Anti-corruption Campaign while drop for Non-SOE borrowers after. As discussed earlier, the Anti-corruption Campaign started after President Xi took office, and this change is an exogenous shock to all government officials and state-owned enterprises or our sample bank. The eight point regulation was announced in December 2012, while the first round national anti-corruption inspection was started after May 2013. In this section, we will use June 1, 2013 as the starting date, as people did not realize how the Anti-corruption Campaign will actually operate until the national inspection started. An alternative cutoff would be January 1, 2013, since the eight point policy was announced on December 2012 and President Xi also have a series of public speeches on Anti-corruption Campaign in the end of the year, after he took office on November 2012. We will also repeat the main tests with our alternative starting date.

We keep all the controls from the basic test, and will focus on how Anti-corruption Campaign will interact with all those variables. Our key variable is ownership of the firm, and its interaction with the Anti-corruption indicator.

5.1 Difference-in-difference Tests on Loan Contracts

We are using a difference-in-difference test to study how the ownership and the Anti-corruption Campaign would affect the loan contracts. The two key variables are the borrower's ownership and the Anti-corruption. There are two types of borrowers, the SOE borrowers and the non-SOE borrowers. And there is one event shock, which is the Anti-corruption Campaign. We are interested to see how each group of borrowers are affected by the event shock. We begin with a very simple test with these two variables and their interaction only, regardless to any firm controls. The baseline model is as below.

$$\ln(\text{Credit Amount}_{i,t}) = \alpha + \beta_1 \text{SOE}_{i,t} + \beta_2 \text{Anti-corruption}_{i,t} + \beta_3 \text{SOE}_{i,t} * \text{Anti-corruption}_{i,t} + \epsilon_{i,t}$$

$$\text{Spread}_{i,t} = \alpha + \beta_1 \text{SOE}_{i,t} + \beta_2 \text{Anti-corruption}_{i,t} + \beta_3 \text{SOE}_{i,t} * \text{Anti-corruption}_{i,t} + \epsilon_{i,t}$$

$$\ln(\text{Duration}_{i,t}) = \alpha + \beta_1 \text{SOE}_{i,t} + \beta_2 \text{Anti-corruption}_{i,t} + \beta_3 \text{SOE}_{i,t} * \text{Anti-corruption}_{i,t} + \epsilon_{i,t}$$

As before, i denotes borrowers and t denotes months. The coefficient β_1 indicates how the SOE borrowers are treated differently before the Anti-corruption Campaign. The coefficient β_2 measures how the borrowers from either type on average will be affected by the Anti-corruption Campaign. The coefficient β_3 explains how the SOE borrowers' contract will alternate after the Anti-corruption Campaign. We do not consider any firm characteristics here, but we still control fixed effects on approved month, industry and physical location of province.

The first column of Table 3 reports the main results for credit amount, the third column of Table 3 reports the main results for interest rate spread, and the fifth column of Table 3 reports the main result for duration. We define a dummy to denote the Anti-corruption Campaign, which is 1 since June 2013. The results on the difference-in-difference tests provide intuitive estimates on how the Anti-corruption Campaign would affect loan contracts.

After the Anti-corruption Campaign, the loan contract on average will have 13.8% more credit, at 0.78 percent lower spread with 9.0% longer duration, all the numbers are significant at 1% level. The test implies that the borrowers are all better off after the Anti-corruption Campaign. Before the campaign, the SOE borrowers on average will still get a better contract, which means 176% more credit, at 0.92 percent lower interest rate spread with 27% longer duration, and each number is significant at 1% level. Therefore, the SOEs are on average favored

in borrowing process. After the Anti-corruption Campaign, the credit gap between SOE and Non-SOE borrowers drops by 18.2%, and it is significant at 1% level. The gap on other aspects of loan contract also shrinks. On average, the spread shrinks 0.23 percent, and the loan term shrinks 6.6%. Both are significant at 1% level. The basic result on the difference-in-difference test is consistent with our theory prediction.

5.2 Tests on Loan Contracts

We will test three models on loan contracts with firm characteristics.

$$\begin{aligned}\ln(\text{Credit Amount}_{i,t}) =&\alpha + \beta_1 \text{SOE}_{i,t} + \beta_2 \text{Anti-corruption}_{i,t} + \beta_3 \text{SOE}_{i,t} * \text{Anti-corruption}_{i,t} + \\ &\gamma \text{Firm Controls}_{i,t} + \text{Fixed Effects} + \epsilon_{i,t}\end{aligned}$$

$$\begin{aligned}\text{Spread}_{i,t} =&\alpha + \beta_1 \text{SOE}_{i,t} + \beta_2 \text{Anti-corruption}_{i,t} + \beta_3 \text{SOE}_{i,t} * \text{Anti-corruption}_{i,t} + \\ &\gamma \text{Firm Controls}_{i,t} + \text{Fixed Effects} + \epsilon_{i,t}\end{aligned}$$

$$\begin{aligned}\ln(\text{Duration}_{i,t}) =&\alpha + \beta_1 \text{SOE}_{i,t} + \beta_2 \text{Anti-corruption}_{i,t} + \beta_3 \text{SOE}_{i,t} * \text{Anti-corruption}_{i,t} + \\ &\gamma \text{Firm Controls}_{i,t} + \text{Fixed Effects} + \epsilon_{i,t}\end{aligned}$$

Similarly, i denotes borrowers and t denotes months. The structure is not a true panel, as many of the borrowers appeared only once. We still include month, province and industry fixed effects in all of the models. We cluster standard errors by months, as the firm characteristics may change across time. As the bank may redistribute the credit to different branched within the same province, according to the credit line and industries. Therefore, we use the province instead of cities as the fixed effect.

The second column of Table 3 reports the main results for credit amount, the fourth column of Table 3 reports the main results for interest rate spread, and the sixth column of Table 3 reports the main result for duration. We define a dummy to denote the Anti-corruption Campaign, which is 1 since June 2013. The main difference between these three tests and the basic ones are the Anti-corruption dummy as well as the intersection between the Anti-corruption and the ownership dummy. Comparing the results to the previous section, the coefficients on the firm controls are almost the same, with changes of less than 1%. The coefficients of the ownership dummy change a lot in all three models, and we will discuss them one by one.

The second column of Table 3 reports OLS results for credit amount. Before the Anti-corruption Campaign started, SOE will get 52% more credit. After the Anti-corruption Campaign, SOE will get 41% more credit, which means the gap is 11% less. Moreover, after the Anti-corruption Campaign, the borrower can get 7.8% more credit on average. The result is consistent with our prediction, that the misallocation in credit allowance have diminished and everyone can benefit after the Anti-corruption Campaign.

The fourth column of Table 3 reports OLS results for spread. Before the Anti-corruption Campaign started, the spread on SOE loans is on average 0.45 percent lower. After the Anti-corruption Campaign started, the gap between two kinds of ownership drop to 0.26 percent. Moreover, after the Anti-corruption Campaign, the borrower can on average get credit at 0.73 percent cheaper. As our predicted in the theory model, the inequality in spread are smaller and everyone faces a lower cost.

The sixth column of Table 3 reports the OLS results for duration. Before the Anti-corruption Campaign started, the duration for SOE borrowers was on average 22% longer. After the Anti-corruption Campaign started, the SOE will get a duration 15% longer, which means the gap is 7% smaller. Moreover, after the Anti-corruption Campaign, all types of borrowers can have 6% extension on their duration. Our theory model does not specify the effects on duration. However, the loan contract is improved for the Non-SOE type and everyone in general, which

is consistent with our expectation on the Anti-corruption Campaign.

5.3 The Role of Credit Rating

In our primary test, we use credit rating as one of the firm-level controls. However, because credit rating is an internal rating system by the bank, according to the firm characteristics, it is unknown whether the effect of Anti-corruption Campaign is driven through internal rating or not. In this part, we run the following regression of internal rating on ownership and firm controls:

$$\ln(\text{Internal Rating}_{i,t}) = \alpha + \beta_1 * \text{SOE}_{i,t} + \beta_2 * \ln(\text{Employees}_{i,t}) + \beta_3 * \ln(\text{Capital}_{i,t}) +$$
$$\beta_4 * \text{Listed Firm}_{i,t} + \beta_5 * \ln(\text{Deposit}_{i,t}) + \beta_6 * \text{Other Controls} +$$
$$\gamma_1 * \ln(\text{Local GDP}) + \gamma_2 * \text{Applied Month}_{i,t} + \gamma_3 * \text{Industry}_{i,t} + \gamma_4 * \text{Location}_{i,t} + \epsilon_{i,t}$$

We repeat the regression with a subsample of 12 months and the coefficient on the SOE ownership is reported in Figure 5. For each month t, the coefficient is for the subsample starting from month $t-6$ to month $t+6$. We report the coefficient from July 2012 to June 2014, and the Anti-corruption Campaign started in June 2013. The graph shows that the coefficient has been decreasing steadily over time, which means that SOE firms are enjoying more favorable internal rating even after the Anti-corruption Campaign has started. This result contradicts with our finding of SOE firms obtaining less favorable borrowing terms after the start of the Anti-corruption Campaign. Therefore, the internal rating is not an explanation to the less favorable borrowing terms after the Anti-corruption Campaign.

Moreover, we re-run the baseline tests and the difference-in-different tests without controlling on internal rating in Table 4. The first two columns report the OLS results for credit amount, the third and fourth columns report those results for interest rate spread, and the last two columns for duration. Similar to our primary results, the SOE firms get more favorable borrowing terms

but the gap shrinks after the Anti-corruption Campaign has started. Therefore, we find little support that the internal rating is a main driving force for the preference on ownership.

5.4 Robustness Check

We will run two groups of robustness tests. The first group of tests reconsiders the controls that we use for loan contracts and firm characteristics. The second group of tests discusses the effects on loan outcomes.

5.4.1 Daily Effect instead of Monthly Effect

In our primary test, we only control the approved month of the corresponding loan and the exact proved date is used for calculate the interest rate spread. We use the monthly control, since all other data are available on monthly base. However, it is possible that the loan official's decision depends on the day of a week as well as the week of a month. More specifically, the operation mechanism within the bank may differ from Monday to Friday. The regulator provides guidelines on credit amount, spread and other aspects on individual loan contracts or overall risk management. By the end of each month, the bank has to submit summary statistics to the regulator. To comply with the regulator's requirement, the bank may select the loans to manipulate the summary statistics. Consequently, the approved day of a week and the approved week of a month could affect the individual loan contract.

Table 5, Table 6 and Table 7 compare the results on credit amount, spread and loan term with or without controls on the approved day of a week and the approved week of month. The first two columns list the result from our primary tests and other two columns provide the result with controls on the exact date. We include two controls on the approved date, which are the approved day and the approved week of the month. The result implies that the coefficients on the main controls remain almost the same. The value of each coefficient remains almost the same and so is the significance.

5.4.2 Alternative Control on Spread

In our primary test, we use the same controls for all three variables. However, the duration may affect the interest rate spread, as both the regulator and the bank managed loan contracts according to their duration. The base rate increases with duration. However, the bank prefers to offer long-term credit to borrowers with high quality, and may offer a very low interest rate to compete for such loan contracts. Therefore, we add duration to the controls of the interest rate spread.

Table 8 reports the OLS results on interest rate spread. The first two columns list the result from our primary tests and other two columns provide the result with controls on the natural log of duration. The coefficient of duration is negative at 1% significant level, which shows the long-term contracts are on average favored. For each loan contract, the cost on information and operation are almost fixed regardless to duration and credit line. As a result, the longer the loan term is and the lower the marginal cost is. Therefore, the bank can charge less interest payment to achieve their profit margin. The regression results on the other control variables are not changed by much after the duration is included.

6 Conclusion

In this paper, we study how loan contracts are affected by borrower's ownership, and how the Anti-corruption Campaign would intersect with the ownership effect. We begin with a two-period theoretical model containing two types of borrowers, the state-owned Enterprises and Non-state-owned Enterprises. We introduce a private benefit for the bank when they issue credit to SOE borrowers. It illustrates how the government subsidizes SOE firms. We find that the SOE borrowers will get loan contracts with a lower interest rate and a larger credit, and they are less likely to default. When the private benefit drops, the gap on interest rate and credit shrinks. Moreover, the default rate on SOE loans will increase. Next, we use the Anti-corruption

Campaign in China as an exogenous shock to private benefit and apply it to domestic loan-level data from 2012 to 2016. The Anti-corruption Campaign started from the highest level, and was an exogenous shock to the economy. The empirical test examines how a drop in private benefit would affect loan contracts, and how this event would intersect with the borrower's ownership. The result suggests that the inequality between two types of ownership are effectively shrinking. It is consistent with our theoretical model and statistically significant. In general, the SOE firms obtain contract with larger credit amounts, lower interest rates and longer duration. After the Anti-corruption Campaign started, the SOE firms' advantage diminished. The gap of credit amount, interest rate spread and loan duration between SOE and nonSOE shrunk. On the other hand, the Non-SOE borrowers' borrowing conditions are improved, with larger credit amount, lower interest rate and longer duration. The credit market for the non-state-owned enterprises has been improved greatly.

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Table 1: Summary Statistics

This table reports the summary statistics for the main variables used in the paper. Interest Rate Spread is the difference between the nominal interest rate and the base rate of corresponding duration in percentage. Duration is the number of month in the loan term. Borrower from A Richer City is a dummy variable that equals to one if the local GDP of the borrower is higher than the local GDP of the branch. SOE is a dummy variable that equals to one if the borrower is a state-owned Enterprise. Listed Firm is a dummy variable that equals to one if the borrower is listed in a stock exchange. Internal Rating is an integer by the bank to denote how risky the borrower is. ln(Credit Amount) is the log of Credit Amount in RMB issued to the borrower. ln(Duration) is the log of the duration in month. ln(Employees) is the log of the number of employees in the borrower's firm. ln(Capital) is the log of the borrower's capital amount in RMB. ln(Deposit) is the log of the borrower's deposit account balance in RMB. ln(Local GDP) is the log of the local GDP of the city where the borrower is located. Anticorrupion is a dummy variable what equals to one after the Anti-corruption Campaign started. The sample period is from 2012 to 2016.

	Mean	SD	Median	p25	p75
Interest Rate Spread	0.78	0.92	0.62	0.06	1.35
Duration	21.25	28.07	18.00	13.00	18.00
Borrower from A Richer City	0.02				
SOE	0.10				
Listed Firm	0.03				
Internal Rating	5.43	3.85	4.00	3.00	6.00
ln(Credit Amount)	15.33	1.61	15.32	14.51	16.12
ln(Duration)	2.82	0.54	2.89	2.56	2.89
ln(Employees)	4.81	1.55	4.65	3.69	5.74
ln(Capital)	16.43	2.26	16.12	14.91	17.73
ln(Deposit)	11.19	5.22	12.42	8.63	14.95
ln(Local GDP)	10.71	0.68	10.67	10.24	11.19
Anti-corruption	0.75				

Table 2: Baseline Regressions with Firm Characteristics

This table reports the results of the baseline panel regressions with firm characteristics. In column (1), the dependent variable is the log of the credit amount on the loan contract (ln(Credit Amount)). In column (2), the dependent variable is the interest rate spread between the nominal interest rate and the corresponding base rate (Interest Rate Spread). In column (3), the dependent variable is the log of duration in month (ln(Duration)). SOE is a dummy variable equal to one if the borrower is a state-owned Enterprise. Other control variables include whether the borrower is from a city richer than the bank branch (Borrower from A Richer City), the log of the borrower's employee size (ln(Emplyees)), whether the borrower is listed in an stock exchange (Listed Firm), the log of the borrower's capital amount (ln(Capital)), the log of the borrower's deposit account balance (Deposit), the borrower's internal rating by the bank (Internal Rating), and the local GDP in RMB where the borrower is located (ln(Local GDP)). Industry, province, and month fixed effects are included in all regressions. Standard errors are clustered at the month level. *t*-statistics are shown in parentheses, with *, **, *** denoting statistical significance at 10%, 5%, 1% respectively. The sample period is from 2012 to 2016.

	Dep Var: ln(Credit Amount)	Dep Var: Interest Rate Spread	Dep Var: ln(Duration)
	(1)	(2)	(3)
SOE	0.437***	-0.309***	0.170***
	(18.812)	(-17.994)	(20.456)
Borrower from A Richer City	0.115***	-0.107***	0.143***
	(4.079)	(-5.010)	(11.244)
ln(Employees)	0.275***	-0.091***	-0.027***
	(50.610)	(-17.179)	(-16.412)
Listed Firm	0.112***	-0.026**	-0.115***
	(5.256)	(-2.426)	(-18.876)
ln(Capital)	0.234***	-0.075***	0.034***
	(68.566)	(-19.955)	(26.303)
ln(Deposit)	0.014***	-0.013***	0.002***
	(10.390)	(-16.804)	(5.983)
Internal Rating	-0.013***	0.017***	-0.002***
	(-5.531)	(8.330)	(-6.707)
ln(Local GDP)	0.128***	-0.072***	0.019***
	(11.060)	(-5.782)	(5.378)
Industry Fixed Effect	Yes	Yes	Yes
Province Fixed Effect	Yes	Yes	Yes
Month Fixed Effect	Yes	Yes	Yes

Table 3: Difference-in-Difference Tests of the Anti-corruption Campaign

This table reports the results of difference-in-difference tests of the Anti-corruption Campaign. In column (1) and column (2), the dependent variable is the log of the credit amount on the loan contract (ln(Credit Amount)). In column (3) and (4), the dependent variable is the interest rate spread between the nominal interest rate and the corresponding base rate (Interest Rate Spread). In column (5) and (6), the dependent variable is the log of duration in month (ln(Duration)). SOE is a dummy variable equal to one if the borrower is a state-owned Enterprise. Anti-corruption is a dummy variable equal to one if the loan contract is approved after the Anti-corruption Campaign started in June 2013. Other control variables include whether the borrower is from a city richer than the bank branch (Borrower from A Richer City), the log of the borrower's employee size (ln(Emplyees)), whether the borrower is listed in an stock exchange (Listed Firm), the log of the borrower's capital amount (ln(Capital)), the log of the borrower's deposit account balance (Deposit), the borrower's internal rating by the bank (Internal Rating), and the local GDP in RMB where the borrower is located (ln(Local GDP)). Industry, province, and month fixed effects are included in all regressions. Standard errors are clustered at the month level. t-statistics are shown in parentheses, with *, **, *** denoting statistical significance at 10%, 5%, 1% respectively. The sample period is from 2012 to 2016.

	Dep Var: ln(Credit Amount)		Dep Var: Interest Rate Spread		Dep Var: ln(Duration)	
	(1)	(2)	(3)	(4)	(5)	(6)
Anti-corruption	0.138***	0.078***	-0.784***	-0.728***	0.090***	0.063***
	(15.421)	(6.985)	(-98.298)	(-79.825)	(27.427)	(18.617)
SOE	1.757***	0.519***	-0.916***	-0.450***	0.267***	0.216***
	(36.334)	(11.709)	(-32.727)	(-13.829)	(12.820)	(11.082)
Anti-corruption*SOE	-0.182***	-0.113**	0.225***	0.194***	-0.066***	-0.063***
	(-3.334)	(-2.105)	(4.070)	(3.583)	(-2.695)	(-2.619)
Borrower from A Richer City		0.114***		-0.107***		0.143***
		(4.058)		(-5.035)		(11.274)
ln(Employees)		0.275***		-0.091***		-0.027***
		(50.548)		(-17.311)		(-16.334)
Listed Firm		0.111***		-0.025**		-0.115***
		(5.245)		(-2.373)		(-18.983)
ln(Capital)		0.234***		-0.075***		0.034***
		(68.608)		(-19.941)		(26.399)
ln(Deposit)		0.014***		-0.013***		0.002***
		(10.367)		(-16.292)		(5.882)
Internal Rating		-0.013***		0.017***		-0.002***
		(-5.529)		(8.352)		(-6.773)
ln(Local GDP)		0.128***		-0.072***		0.019***
		(11.105)		(-5.799)		(5.404)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Province Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Month Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes

Table 4: Difference-in-Difference Tests of the Anti-corruption Campaign without Credit Rating

This table reports the results of difference-in-difference tests of the Anti-corruption Campaign. In column (1) and column (2), the dependent variable is the log of the credit amount on the loan contract (ln(Credit Amount)). In column (3) and (4), the dependent variable is the interest rate spread between the nominal interest rate and the corresponding base rate (Interest Rate Spread). In column (5) and (6), the dependent variable is the log of duration in month (ln(Duration)). SOE is a dummy variable equal to one if the borrower is a state-owned Enterprise. Anti-corruption is a dummy variable equal to one if the loan contract is approved after the Anti-corruption Campaign started in June 2013. Other control variables include whether the borrower is from a city richer than the bank branch (Borrower from A Richer City), the log of the borrower's employee size (ln(Emplyees)), whether the borrower is listed in an stock exchange (Listed Firm), the log of the borrower's capital amount (ln(Capital)), the log of the borrower's deposit account balance (Deposit), and the local GDP in RMB where the borrower is located (ln(Local GDP)). Industry, province, and month fixed effects are included in all regressions. Standard errors are clustered at the month level. t-statistics are shown in parentheses, with *, **, *** denoting statistical significance at 10%, 5%, 1% respectively. The sample period is from 2012 to 2016.

	Dep Var: ln(Credit Amount)		Dep Var: Interest Rate Spread		Dep Var: ln(Duration)	
	(1)	(2)	(3)	(4)	(5)	(6)
Anti-corruption		0.076***		-0.725***		0.063***
		(6.837)		(-79.470)		(18.578)
SOE	0.440***	0.521***	-0.313***	-0.452***	0.171***	0.216***
	(18.771)	(11.711)	(-18.433)	(-13.780)	(20.467)	(11.111)
Anti-corruption*SOE		-0.111**		0.191***		-0.063***
		(-2.072)		(3.506)		(-2.602)
Borrower from A Richer City	0.108***	0.108***	-0.099***	-0.099***	0.141***	0.141***
	(3.865)	(3.846)	(-4.662)	(-4.684)	(11.094)	(11.123)
ln(Employees)	0.276***	0.276***	-0.092***	-0.093***	-0.027***	-0.027***
	(49.899)	(49.830)	(-17.741)	(-17.881)	(-16.241)	(-16.165)
Listed Firm	0.111***	0.111***	-0.026**	-0.025**	-0.115***	-0.115***
	(5.213)	(5.203)	(-2.398)	(-2.345)	(-18.909)	(-19.015)
ln(Capital)	0.234***	0.234***	-0.075***	-0.075***	0.034***	0.034***
	(68.559)	(68.596)	(-20.277)	(-20.264)	(26.269)	(26.364)
ln(Deposit)	0.018***	0.018***	-0.019***	-0.019***	0.003***	0.003***
	(12.570)	(12.642)	(-21.243)	(-20.872)	(9.749)	(9.639)
ln(Local GDP)	0.127***	0.127***	-0.070***	-0.071***	0.019***	0.019***
	(10.884)	(10.927)	(-5.702)	(-5.719)	(5.343)	(5.369)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Province Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Month Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes

Table 5: Difference-in-Difference Test for ln(Credit Amount) with Fixed Effects on the Exact Approved Date

This table reports the results of the difference-in-difference test for credit amount with fixed effects on the exact approved date. In all the columns, the dependent variable is the log of the credit amount on the loan contract (ln(Credit Amount)). SOE is a dummy variable equal to one if the borrower is a state-owned Enterprise. Anti-corruption is a dummy variable equal to one if the loan contract is approved after the Anti-corruption Campaign started in June 2013. Other control variables include whether the borrower is from a city richer than the bank branch (Borrower from A Richer City), the log of the borrower's employee size (ln(Emplyees)), whether the borrower is listed in an stock exchange (Listed Firm), the log of the borrower's capital amount (ln(Capital)), the log of the borrower's deposit account balance (Deposit), the borrower's internal rating by the bank (Internal Rating), and the local GDP in RMB where the borrower is located (ln(Local GDP)). Industry, province, and month fixed effects are included in all regressions. The first two columns do not consider the fixed effect of the exact approved date. Column (3) and column (4) consider the fixed effect of the exact approved date. Standard errors are clustered at the month level. t-statistics are shown in parentheses, with *, **, *** denoting statistical significance at 10%, 5%, 1% respectively. The sample period is from 2012 to 2016.

	Dep Var: ln(Credit Amount)			
	(1)	(2)	(3)	(4)
Anti-corruption		0.078***		0.103***
		(6.985)		(11.140)
SOE	0.437***	0.519***	0.437***	0.508***
	(18.812)	(11.709)	(19.979)	(11.639)
Anti-corruption*SOE		-0.113**		-0.111**
		(-2.105)		(-2.085)
Borrower from A Richer City	0.115***	0.114***	0.115***	0.028
	(4.079)	(4.058)	(4.108)	(1.300)
ln(Employees)	0.275***	0.275***	0.274***	0.274***
	(50.610)	(50.548)	(53.215)	(53.177)
Listed Firm	0.112***	0.111***	0.113***	0.117***
	(5.256)	(5.245)	(5.310)	(5.598)
ln(Capital)	0.234***	0.234***	0.234***	0.234***
	(68.566)	(68.608)	(70.308)	(70.545)
ln(Deposit)	0.014***	0.014***	0.014***	0.015***
	(10.390)	(10.367)	(10.789)	(11.676)
Internal Rating	-0.013***	-0.013***	-0.013***	-0.012***
	(-5.531)	(-5.529)	(-5.563)	(-5.356)
ln(Local GDP)	0.128***	0.128***	0.129***	0.128***
	(11.060)	(11.105)	(11.693)	(11.104)
Industry Fixed Effect	Yes	Yes	Yes	Yes
Province Fixed Effect	Yes	Yes	Yes	Yes
Month Fixed Effect	Yes	Yes	Yes	Yes
Date Fixed Effect	No	No	Yes	Yes

Table 6: Difference-in-Difference Test for Interest Rate Spread with Fixed Effects on the Exact Approved Date

This table reports the results of the difference-in-difference test for interest rate spread with fixed effects on the exact approved date. In all the columns, the dependent variable is the interest rate spread between the nominal interest rate and the corresponding base rate (Interest Rate Spread). SOE is a dummy variable equal to one if the borrower is a state-owned Enterprise. Anti-corruption is a dummy variable equal to one if the loan contract is approved after the Anti-corruption Campaign started in June 2013. Other control variables include whether the borrower is from a city richer than the bank branch (Borrower from A Richer City), the log of the borrower's employee size (ln(Emplyees)), whether the borrower is listed in an stock exchange (Listed Firm), the log of the borrower's capital amount (ln(Capital)), the log of the borrower's deposit account balance (Deposit), the borrower's internal rating by the bank (Internal Rating), and the local GDP in RMB where the borrower is located (ln(Local GDP)). Industry, province, and month fixed effects are included in all regressions. The first two columns do not consider the fixed effect of the exact approved date. Column (3) and column (4) consider the fixed effect of the exact approved date. Standard errors are clustered at the month level. t-statistics are shown in parentheses, with *, **, *** denoting statistical significance at 10%, 5%, 1% respectively. The sample period is from 2012 to 2016.

	Dep Var: Interest Rate Spread			
	(1)	(2)	(3)	(4)
Anti-corruption		-0.728***		-0.732***
		(-79.825)		(-78.434)
SOE	-0.309***	-0.450***	-0.309***	-0.450***
	(-17.994)	(-13.829)	(-18.239)	(-13.810)
Anti-corruption*SOE		0.194***		0.194***
		(3.583)		(3.583)
Borrower from A Richer City	-0.107***	-0.107***	-0.107***	-0.107***
	(-5.010)	(-5.035)	(-5.002)	(-5.026)
ln(Employees)	-0.091***	-0.091***	-0.091***	-0.091***
	(-17.179)	(-17.311)	(-17.294)	(-17.424)
Listed Firm	-0.026**	-0.025**	-0.026**	-0.025**
	(-2.426)	(-2.373)	(-2.418)	(-2.364)
ln(Capital)	-0.075***	-0.075***	-0.075***	-0.075***
	(-19.955)	(-19.941)	(-19.933)	(-19.918)
ln(Deposit)	-0.013***	-0.013***	-0.013***	-0.013***
	(-16.804)	(-16.292)	(-17.127)	(-16.594)
Internal Rating	0.017***	0.017***	0.017***	0.017***
	(8.330)	(8.352)	(8.410)	(8.432)
ln(Local GDP)	-0.072***	-0.072***	-0.072***	-0.072***
	(-5.782)	(-5.799)	(-5.802)	(-5.820)
Industry Fixed Effect	Yes	Yes	Yes	Yes
Province Fixed Effect	Yes	Yes	Yes	Yes
Month Fixed Effect	Yes	Yes	Yes	Yes
Date Fixed Effect	No	No	Yes	Yes

Table 7: Difference-in-Difference Test for ln(Duration) with Fixed Effects on the Exact Approved Date

This table reports the results of the difference-in-difference test for loan duration with fixed effects on the exact approved date. In all the columns, the dependent variable is the log of duration in months (ln(Duration)). SOE is a dummy variable equal to one if the borrower is a state-owned Enterprise. Anti-corruption is a dummy variable equal to one if the loan contract is approved after the Anti-corruption Campaign started in June 2013. Other control variables include whether the borrower is from a city richer than the bank branch (Borrower from A Richer City), the log of the borrower's employee size (ln(Emplyees)), whether the borrower is listed in an stock exchange (Listed Firm), the log of the borrower's capital amount (ln(Capital)), the log of the borrower's deposit account balance (Deposit), the borrower's internal rating by the bank (Internal Rating), and the local GDP in RMB where the borrower is located (ln(Local GDP)). Industry, province, and month fixed effects are included in all regressions. The first two columns do not consider the fixed effect of the exact approved date. Standard errors are clustered at the month level. *t*-statistics are shown in parentheses, with *, **, *** denoting statistical significance at 10%, 5%, 1% respectively. The sample period is from 2012 to 2016.

	Dep Var: ln(Duration)			
	(1)	(2)	(3)	(4)
Anti-corruption		0.063***		0.070***
		(18.617)		(20.775)
SOE	0.170***	0.216***	0.170***	0.217***
	(20.456)	(11.082)	(21.221)	(11.267)
Anti-corruption*SOE		-0.063***		-0.063***
		(-2.619)		(-2.652)
Borrower from A Richer City	0.143***	0.143***	0.143***	0.143***
	(11.244)	(11.274)	(11.309)	(11.338)
ln(Employees)	-0.027***	-0.027***	-0.027***	-0.027***
	(-16.412)	(-16.334)	(-16.961)	(-16.879)
Listed Firm	-0.115***	-0.115***	-0.115***	-0.115***
	(-18.876)	(-18.983)	(-18.902)	(-19.013)
ln(Capital)	0.034***	0.034***	0.034***	0.034***
	(26.303)	(26.399)	(26.767)	(26.870)
ln(Deposit)	0.002***	0.002***	0.002***	0.002***
	(5.983)	(5.882)	(6.255)	(6.150)
Internal Rating	-0.002***	-0.002***	-0.002***	-0.002***
	(-6.707)	(-6.773)	(-6.929)	(-6.999)
ln(Local GDP)	0.019***	0.019***	0.020***	0.020***
	(5.378)	(5.404)	(5.658)	(5.685)
Industry Fixed Effect	Yes	Yes	Yes	Yes
Province Fixed Effect	Yes	Yes	Yes	Yes
Month Fixed Effect	Yes	Yes	Yes	Yes
Date Fixed Effect	No	No	Yes	Yes

Table 8: Robustness Test on Interest Rate Spread with a Control of ln(Duration)

This table reports the results of the robustness test on Interest Rate Spread with a control of ln(Duration). In all the columns, the dependent variable is the interest rate spread between the nominal interest rate and the corresponding base rate (Interest Rate Spread). SOE is a dummy variable equal to one if the borrower is a state-owned Enterprise. Anti-corruption is a dummy variable equal to one if the loan contract is approved after the Anti-corruption Campaign started in June 2013. Other control variables include the log of duration in month (ln(Duration)), whether the borrower is from a city richer than the bank branch (Borrower from A Richer City), the log of the borrower's employee size (ln(Emplyees)), whether the borrower is listed in an stock exchange (Listed Firm), the log of the borrower's capital amount (ln(Capital)), the log of the borrower's deposit account balance (Deposit), the borrower's internal rating by the bank (Internal Rating), and the local GDP in RMB where the borrower is located (ln(Local GDP)). Industry, province, and month fixed effects are included in all regressions. Standard errors are clustered at the month level. t-statistics are shown in parentheses, with *, **, *** denoting statistical significance at 10%, 5%, 1% respectively. The sample period is from 2012 to 2016.

	Dep Var: Interest Rate Spread			
	(1)	(2)	(3)	(4)
Anti-corruption		-0.728***		-0.725***
		(-79.825)		(-75.607)
SOE	-0.309***	-0.450***	-0.301***	-0.440***
	(-17.994)	(-13.829)	(-17.330)	(-13.488)
Anti-corruption*SOE		0.194***		0.191***
		(-3.583)		(3.539)
Borrower from A Richer City	-0.107***	-0.107***	-0.100***	-0.100***
	(-5.010)	(-5.035)	(-4.754)	(-4.786)
ln(Duration)			-0.048***	-0.047***
			(-3.352)	(-3.291)
ln(Employees)	-0.091***	-0.091***	-0.092***	-0.092***
	(-17.179)	(-17.311)	(-17.079)	(-17.191)
Listed Firm	-0.026**	-0.025**	-0.031***	-0.031***
	(-2.426)	(-2.373)	(-2.986)	(-2.922)
ln(Capital)	-0.075***	-0.075***	-0.074***	-0.074***
	(-19.955)	(-19.941)	(-20.687)	(-20.703)
ln(Deposit)	-0.013***	-0.013***	-0.013***	-0.013***
	(-16.804)	(-16.292)	(-17.244)	(-16.696)
Internal Rating	0.017***	0.017***	0.017***	0.017***
	(-8.330)	(-8.352)	(8.294)	(8.317)
ln(Local GDP)	-0.072***	-0.072***	-0.071***	-0.071***
	(-5.782)	(-5.799)	(-5.788)	(-5.807)
Industry Fixed Effect	Yes	Yes	Yes	Yes
Province Fixed Effect	Yes	Yes	Yes	Yes
Month Fixed Effect	Yes	Yes	Yes	Yes

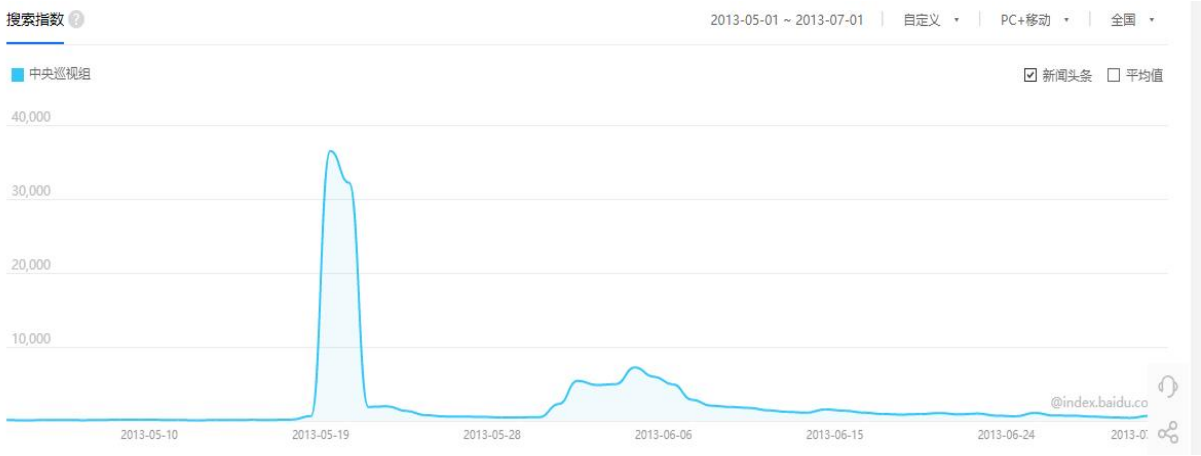

Figure 1: The search intensity of "Central Inspection Group" in Baidu from May 2013 to July 2013. The search intensity measures the number of times that the keyword is being searched by users through Baidu from both computers and phones.

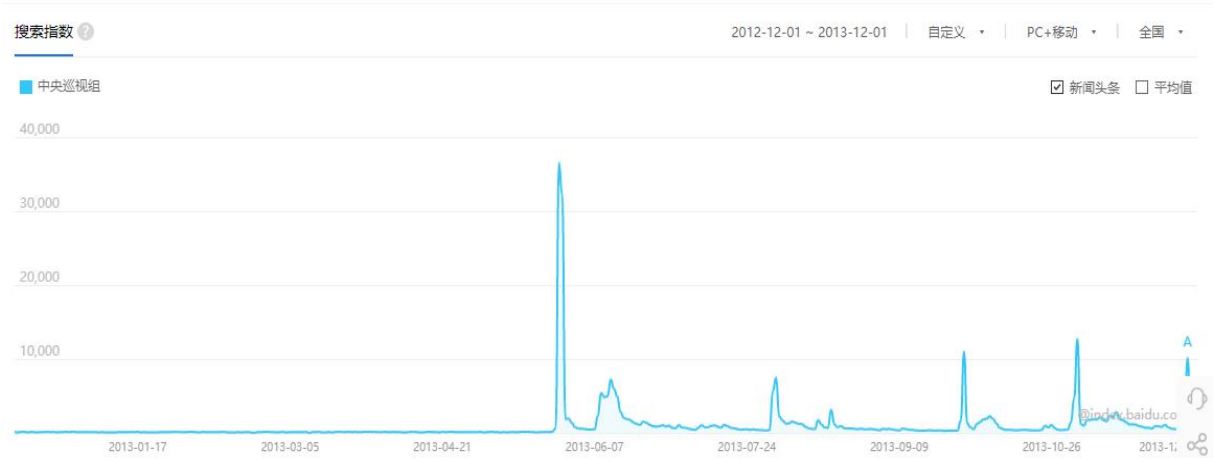

Figure 2: The search intensity of "Central Inspection Group" in Baidu from December 2012 to December 2013. The search intensity measures the number of times that the keyword is being searched by users through Baidu from both computers and phones.

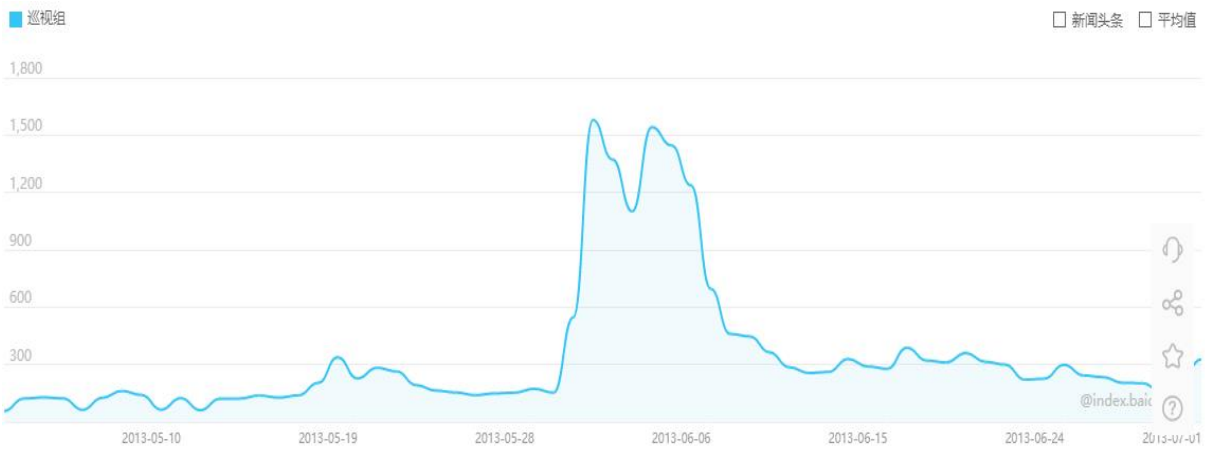

Figure 3: The search intensity of " Inspection Group" in Baidu from May 2013 to July 2013. The search intensity measures the number of times that the keyword is being searched by users through Baidu from both computers and phones.

Figure 4: The search intensity of"Inspection Group" in Baidu from December 2012 to December 2013. The search intensity measures the number of times that the keyword is being searched by users through Baidu from both computers and phones.

Figure 5: Credit Rating over Time

This graph shows the coefficient on the dummy variable of the SOE ownership, when credit rating was regressed on other firm characteristics for the sub sample from $t-6$ month to $t+6$ month. Other firm control variables include whether the borrower is from a city richer than the bank branch (Borrower from A Richer City), the log of the borrower's employee size (ln(Emplyees)), whether the borrower is listed in an stock exchange (Listed Firm), the log of the borrower's capital amount (ln(Capital)), the log of the borrower's deposit account balance (Deposit), and the local GDP in RMB where the borrower is located (ln(Local GDP)). Industry, province, and month fixed effects are included in all regressions.