China's Anti-Corruption Campaign and Credit Reallocation from SOEs to Non-SOEs*

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Abstract

We provide a novel empirical finding that the recent anti-corruption investigations in China are associated with credit reallocation from less productive state-owned enterprises (SOEs) to more productive non-SOEs, indicating that the competition effect dominates the contagion effect for non-SOEs within affected industries. The credit shift is more significant for bank loans (vs corporate bonds), extensive margin (vs intensive margin), and short-term debt (vs long-term debt), which is consistent with a supply-side explanation corroborated by an exogenous shock to the banking industry. Although recent literature documents a negative financial impact of China's anti-corruption campaign, our findings point to a particular positive channel due to more efficient credit reallocation.

Keywords: Anti-corruption, competition, contagion, credit reallocation, state ownership, political risk.

JEL Classification: G30, G32, G34, P26.

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1. Introduction

We provide a novel empirical finding that the financing impact of China's anti-corruption campaign on industry peers differs decisively along the line of state ownership. Industry rivals experience significant increases in financing capacity if they are privately-owned or non-state-owned enterprises (non-SOEs). This positive result reflects the fact that non-SOE rivals gain from the heightened political uncertainty faced by their SOE rivals upon investigating senior government officials, which is consistent with the competition hypothesis. In contrast, the rival state-owned enterprises (SOEs) experience significant reductions in financing capacity upon investigation announcements. This negative result reflects the public's expectation that the announcements may trigger further investigations associated with SOE rivals, which is consistent with the contagion hypothesis. The credit reallocation towards non-SOEs during anti-corruption campaign contrasts sharply with the stylized fact that SOEs received preferential treatment in bank lending *unconditionally* during normal times, as illustrated in Figure 1.

To identify the financing shift effect associated with the anti-corruption campaign, we exploit a unique data set from the Central Commission for Discipline Inspection (CCDI) in China. Since 2012, the government required timely disclosure of investigation announcements of corruption officials to the public. The number of government officials investigated in 2015 is more than four times as what it was back in 2013. We conduct textual analysis to identify possible political connections between the investigated officials and firms listed on stock exchanges. The series of investigations constitute staggered events to identify the impact of loss of political connections on credit allocation. We take advantage of the unexpected investigation of government officials as an exogenous shock to political uncertainty. First, the probability of investigating government officials connected to listed firms is unlikely to be correlated with the rival firms' economic fundamental at the point of investigation. Second, the exact timings of investigations are considered as exogenous to the general public, despite rumors and speculations about the pending investigations. These anti-corruption events provide an ideal laboratory to study the causal relationship between political uncertainty and competitors' financing capacity.

We conduct in-depth analysis on different aspects of the financing impact of the anti-corruption investigations on industry rivals. Loan issuance sharply increases for non-SOEs and decreases for SOEs; while both SOE and non-SOE rivals experience substantial reduction in bond issuance. On the extensive and intensive margins, non-SOEs have a significant high probability of obtaining new loans, while SOEs received much less amount of bank loans if they obtain new loans. In terms of debt maturity composition, the credit shifting from SOEs to non-SOEs is highly significant for short-term debt but not significantly for long-term debt. All these findings imply that bank loan officers might have taken an active role in such a credit shifting process upon announcements of corruption investigations: (1) low cost loans substituting high cost bonds for non-SOE firms, (2) initiating new loans for previously underserved non-SOEs, and (3) shifting short-term lending from SOEs to non-SOEs, all in response to the heightened political uncertainty surrounding corruption investigations.

We further corroborate such a banking channel through which the credit shifts away from SOE to non-SOE peers. In particular, we take advantage of an unexpected political event happened on January 30, 2015, the investigation of CEO Mao Xiaofeng of Minsheng Bank---one of the largest commercial banks in China, to identify an exogenous shock to the financial industry. This exogenous shock provides a unique setting to pin down the supply side explanation of the credit reallocation. After Mao's investigation, loan officers extend significantly less bank lending towards SOE peers and more to non-SOE peers, suggesting bankers' sensitivity to heightened political risk faced by SOE firms. In China, under current political system, both SOE senior managers and large bank officials are appointed by the central or local government. Perhaps both political connection concern and lending diversification consideration may explain the bankers' credit supply-channel, through which the anti-corruption investigations generate a credit reallocation effect from SOEs to non-SOEs.

To connect with the existing literature, we provide additional evidence on stock market responses, investment efficiency, and product market shares. On stock market, within the twenty-day windows of the anti-corruption investigation announcements, non-SOE firms experience significant increases in

cumulative abnormal returns compared to SOE firms. Moreover, three quarters after investigation announcements, non-SOEs significantly increase their seasonal equity issuances relative to SOEs. Capital expenditure increases with Tobin's Q for non-SOEs (insignificantly) but decreases for SOEs (significantly). Since non-SOEs have higher Tobin's Q and ROA than SOEs, the overall investment efficiency is increased. As for the product markets, we find that SOE rivals experience significant reductions in shares of sales and assets, while non-SOE rivals experience enlargement of shares. These additional results and robustness checks seem to support, or at least not to contradict, our main findings on the credit reallocation effect.

Our findings have important policy implications. The conventional wisdom is that the recent anti-corruption campaign in China may have hurt the real economy, because it deters government officials and business leaders from conducting commerce given the increasing cost of building connections. Indeed existing studies do find negative financial market impacts of these anti-corruption investigations. However, our findings suggest that there also exists a positive credit reallocation channel, through which more productive non-SOE rivals receive more financing while less productive SOE rivals receive less financing. This effect of more efficient credit reallocation could potentially be translated into more fundamental and long-run improvements in investment, employment, and output, which we leave for future research.

Literature

There is a growing literature that utilizes the Chinese anti-corruption campaign as a natural experiment to study the effects of increases in political uncertainty, although most of the literature documents a negative impact on financial market. Liu, Shu, and Wei (2017) use Bo Xilai's downfall in March 2012 as an unexpected political event happened in China to identify the negative impact of political uncertainty on stock prices through a discount rate channel. Ang, Bai, and Zhou (2016) demonstrate that political risk related to anti-corruption campaign translates into higher Chengtou bond yields for local governments. Griffin, Liu, and Shu (2016) document that the anti-corruption campaign

indeed targets more corruption firms but has limited impact on improving corporate governance. Lin, Morck, Yeung, and Zhao (2016) study the heterogeneous impact of anti-corruption on SOEs (positively) and non-SOEs (negatively) by analyzing the stock market reaction to the Eight-Point Regulation introduced in late 2012. In contrast to these studies, we document externality of the anti-corruption investigations to industry rivals---positive for non-SOE firms and negative for SOE firms---through the credit reallocation channel.

As well-established in literature, SOEs in China receive preferential treatment in bank lending during normal times (see, e.g., Brandt and Zhu, 2001; Boyreau-Debray and Wei, 2005; Song, Storesletten, and Zilibotti, 2011; Cong, Gao, Ponticelli, and Yang, 2017). Megginson, Nash, and Randenborgh (1994), Dewenter and Malatesta (2001), Boubakri, Cosset, and Guedhami (2005), Liao, Liu, and Wang (2014) demonstrate how privatization can boost firm performance and align managerial incentives. This paper is also related to the literature on how ownership structure affects debt financing costs (Lin, Ma, Malatesta, and Xuan, 2011; Borisova, Fotak, Holland, and Megginson, 2015). Our paper emphasizes the positive externalities from the anti-corruption campaign for more productive, non-SOE rivals, due to bankers' active role in corporate financing.

There are a lot of papers documenting the economic costs of corruption and examine the channels through which corruption fosters rent-seeking activities (Shleifer and Vishny, 1993; Shleifer and Vishny, 1994; Mauro, 1995; Fisman, 2001; Fisman and Svensson, 2007; Butler, Fauver, and Mortal, 2009). However, political connections can also mitigate financial frictions between firms and politicians, especially in developing economies (Faccio, 2006; Goldman, Rocholl, and So, 2009; Amore and Bennedson, 2013; Dreher and Gassebner, 2013). Although existing empirical evidence goes both ways, our finding of the credit reallocation effect from SOE to non-SOE rival firms is consistent with the argument for economic cost of corruption.

A closely related literature explores the relationship between political connections and bank financing decisions in various emerging countries. Khwaja and Mian (2005) indicate that in Pakistan

politically-connected firms borrow 45 percent more and have 50 percent higher default rates if directors of firms participate in an election. Claessens, Feijen, and Laeven (2008) demonstrate that political connections have financing shift impact on firms as lenders increased bank financing during the four years following each election in Brazil. Leuz and Oberholzer-Gee (2006) show that Suharto connected firms are more likely to issue publicly traded foreign securities after Wahid's election to mitigate the political uncertainty.

Our paper contributes to the empirical banking literature on competition vs contagion effects. It is not clear ex-ante whether these industry peers are adversely affected based on the contagion hypothesis or positively affected based on the competition hypothesis. Lang and Stulz (1992) and Hertzel and Officer (2012) demonstrate that bankruptcy filings can trigger significant industry-specific contagion effects in terms of stock prices and bank loan spreads. However, Lang and Stulz (1992) also show that bankruptcy filings in concentrated industries can have positive consequences for rivals through increased market share, as the competition effects dominate. Zeume (2016) studies the importance of bribes for firm value by exploiting the U.K. Bribery Act that imposes substantial unexpected fines on the use of bribes. Parsons, Sulaeman, and Titman (2014) examine whether the misconduct incentive of firms is related to the misconduct of neighboring firms. Our findings support the competition hypothesis for the more productive, non-SOE rivals and the contagion hypothesis for the less productive, SOEs.

The rest of the paper is organized as follows. Section 2 describes data collection and summary statistics with some institutional background. Section 3 presents our main findings on credit reallocation effect of the anti-corruption investigation for industry SOE and non-SOE peers, respectively. Section 4 explores the supply-side mechanism that drives the credit reallocation by focusing on an exogenous shock to the banking industry. Section 5 further documents the differential impacts of anti-corruption investigations on SOE vs non-SOE rivals in terms stock market response, investment efficiency, and market shares, with additional robustness checks conducted. Section 6 concludes and discusses policy implications.

2. Corruption Cases and Summary Statistics

In this section, we first introduce the unique data sample on China's anti-corruption campaign, identifying SOE and non-SOE peers of the investigated corruption firms; then we define key economic control variable and provide sample statistics on the firm characteristics.

A. Data Sample on Corruption Cases

In the first phase, we collect our sample of corruption cases by searching the investigation documents on government officials between 2012 and 2015 from the website of Central Commission Discipline Inspection (CCDI). Since late 2012, the government required the immediate information disclosures of the corruption related officials to the public, with the intention to improve the transparency of governance. For each corruption case, the website discloses the name of the government official, the current position right before the investigation, the previous positions served as government officials or as CEOs of public firms, the type of corruption, and the degree of corruption (measured by the estimated monetary and non-monetary amounts of rent seeking activities).[1] Since senior officials possess substantial political power and much more influence on firms than lower level officials, we keep only the senior officials under investigation---those hold positions at or above deputy minister level at the central government and deputy governor level at the provincial government (see, also, Ding, Fang, Lin, and Shi, 2017).

To measure the political connectedness between the investigated officials and the publicly-listed firms, we manually search news articles and record whether a connection exists. Specifically, we consider connections of five types: current employment, previous employment, business associations, relatives and friends, and specific investigators. The former three types of connections follow the social network literature except for education-based connections (Fracassi and Tate, 2012).[2] Current employment connections are typical directorships in the same firm. Prior employment connections capture overlapping

[1] Since the announcements may not contain the whole curriculum of the government official, we manually search all the previous positions served by the official to identify the political network of the investigated officials.

[2] There is some tentative evidence that in China education-based connection does not work or works in opposite direction as in the established studies (Griffin, Liu, and Shu, 2016).

prior employment in any firm. The last two types of connections are specific to China's corruption culture. Given the fact that loyalty to family and clan can override loyalty to the state, we emphasize the influence of family and friend network on officials' decisions. The investigator connections refer to the circumstance when investigation officials and judges receive bribes and subsequently reduce the magnitude of penalty associated with prior related cases.

In the second phase, we search extensively any existing linkage between the investigated senior government officials and public firms listed in the Shanghai and Shenzhen stock exchanges. In particular, we use an algorithm that allows us to manually trace the existence of political relationship and identify the type of connection using the Baidu news search engine. We replicate the search through Google as well, and the result remains robust, due to the consistency in headline news releases. This data collection procedure is performed by the authors and four graduate students at Tsinghua University PBC School of Finance. We further perform a pilot experiment with a random sample of 100 news articles to check the validity of our key word search. For each news article, two team members evaluate the key words independently, and the lists of key words are chosen if they are consistent more than 90 percent of the time. In the formal data collection stage, we use two independent groups to further evaluate each report to ensure consistent determination of the political connections. This searching procedure yields a total of 78 investigation cases.[3]

Since our paper focuses on the impact of anti-corruption announcements on industry rivals' financing capacity, we keep only the first investigation of officials in an industry as our final sample. This filtering approach reflects the arrival of new information on corruption firms and the shocks on their industry rivals. This search method yields a total of 31 industries that have prior connections with investigated corruption cases and senior government officials. We restrict our sample to the investigation of senior government officials as they build extensive political network and have significant power in controlling the economic resources. To identify the industry peers within the corruption related industries,

[3] In an unreported table, we show that the 78 investigation cases have established relationships with 61 implicated firms.

we use the three-digit industry classification according to the WIND China dataset.[4] The WIND classification has been extensively used by academia and practitioners in China. Finally, we merge the industry peer firm sample with the China Stock Market and Accounting Research Database (CSMAR), which provides comprehensive information about stock prices, financial statements, and ownership structure.[5] We further require that firms do not have missing information on stock prices, financial statements, and ownership structure. Our final sample has 1,560 public peer firms that operate in the same industries of investigation-related firms.

B. Variable Definitions

We measure industry rivals' financial capacity using the total debt outstanding, the bank loan issuance, the corporate bond issuance, the short-term debt outstanding, and the long-term debt outstanding from the fourth quarter of 2012 to the first quarter of 2017.[6] The total debt outstanding *Log_Total_Debt* equals the logarithm of one plus the total short-term debt and long-term debt outstanding. The short-term debt outstanding *Log_Short_Debt* equals the logarithm of one plus the short-term debt outstanding. The long-term debt outstanding *Log_Long_Debt* equals the logarithm of one plus the long-term debt outstanding. The loan issuance amount *Log_Loan_Amt* equals the logarithm of one plus the loan amount issued. The bond issuance amount *Log_Bond_Amt* equals the logarithm of one plus the bond amount issued. The capital expenditure ratio is defined as the total value of property, plant, and equipment investment in quarter *t* divided by the total book value of assets in quarter *t-1*. The market share in sales (in percentage points) is a firm's total sales divided by the total sales of all firms in a three-digit SIC industry classification by WIND China. The market share in assets (in percentage points) is a firm's total assets divided by the total assets of all firms in a three-digit SIC industry classification by WIND China dataset.

[4] Our main results are robust to the alternative method of using the two-digit classification to identify industry peers.
[5] This merged dataset is similar to the merged COMPUSTAT-CRSP dataset in U.S., which has been widely used by researchers in China, like Sun and Tong (2003), Xu (2011), Liao, Liu, and Wang (2014), and You, Zhang, and Zhang (2017).
[6] The period we search for investigation of government officials is between 2012 and 2015 from the website of Central Commission Discipline Inspection (CCDI). We choose the first quarter of 2015 as our last period of search for investigations because this procedure leaves two years lead time to identify the economic impact of anti-corruption campaign on financial capacity variables.

In our regressions, we control for determinants of financing capacity that have been used in previous studies from the fourth quarter of 2012 to the first quarter of 2017. The government ownership dummy SOE follows prior literature (e.g., Wang, Wong, and Xia, 2008), which equals one if a firm is state-owned, given its largest ultimate shareholder is either a central or local government entity, and equals zero otherwise. The set of firm characteristics include the firm size (the logarithm of total assets in millions of RMB Yuan), the book leverage ratio (total debt over total assets) to measure a firm's ex-ante debt capacity. We measure growth opportunities using the Tobin's Q and measure profitability using return on assets (ROA). Tobin's Q is the ratio of the market value of assets to total book assets, while ROA is operating income before depreciation divided by total assets. Market Herfindahl-Hirschman (*HHI*) concentration index is defined as the squared sum of the fraction of industry sales by all firms in the same three-digit SIC classification from WIND China dataset.

C. Sample Overview

Table 1 presents the summary statistics of our sample of government officials under investigations, corruption related industries, and industry peer firms based on investigations conducted from the fourth quarter of 2012 to the first quarter of 2015.[7] Panel A tabulates the number of investigations by quarter and year. In terms of timing and frequency of corruption investigations, 32 percent of the investigations occurred within the early period 2012-2013 and the remaining 68 percent occurred from 2014 to 2015. The intensive investigations in later periods reflect the fact that the anti-corruption campaign may be a serious reform measure, which may have long lasting impact on the corporate sector.[8] Panel B tabulates the distribution of peer firms across industries. Since each industry can experience more than one investigated official and/or one corruption firm, we keep only the first time investigation announcement of officials for each industry

[7] We start the news article search on investigations from the fourth of quarter of 2012 since this period has been documented in the literature as the starting point of the anti-corruption campaign. Lin, Morck, Yeung, and Zhao (2016) study the heterogeneous impact of anti-corruption campaign on SOEs and non-SOEs by exploiting the Eight-Point Regulation that was initiated on December 4, 2012.

[8] The increasing number of investigations is consistent with the *Financial Times* coverage on January 25, 2017 that the number of prosecutions almost doubled from 2012 to 2015 but decreased by 16 percent during 2016.

throughout the analysis. This filtering procedure avoids including the duplicates of corrupt-infested industries and the peer firms within. The balanced sample across industries gives peer firms equal weight in evaluating the effect of anti-corruption events. The investigations are more likely to affect peer firms in real estate, chemical, mechanics, mining, and pharmaceutical industries as the numbers of peers in those industries are large.

Panel A of Table 2 provides summary statistics for the dependent variables and firm characteristics used throughout the analysis. We have a total of 37,474 observations for the sample spans from the fourth quarter of 2012 to the first quarter of 2017. To prevent outliers from affecting our conclusions, we winsorize all variables of interest at the 1 and 99 percent levels. On average, government ownership of the listed companies in our sample averaged 50.5 percent of firms' equity, which reflects the representativeness of our sample for both state-owned enterprise (SOEs) and privately-owned enterprises (non-SOEs). Panel B of Table 2 presents the difference in summary statistics between the SOE and the non-SOE peers. The SOE peer firms are fairly large in size, reflecting the fact that bribing activities often occur for firms with large amounts of economic resources. Further, the SOE peer firms have higher leverage, lower growth opportunities, and lower return on assets (i.e., lower productivity) compared to the privately-owned, non-SOE peer firms. In addition, SOE peers are more likely to operate in concentrated industries, indicating their comparative advantage in building political networks ex-ante.

3. Credit Reallocation Effect of Anti-Corruption Investigations on Industry Peers

In this section, we first outline the testing hypotheses of contagion vs competition effects, in terms of financing capacity for SOE and non-SOE rivals, upon anti-corruption investigations. Then, we provide direct evidence on the credit relocation effect towards non-SOEs---due to increased political uncertainty after corruption investigations---using various measures, including total debt, bank loan vs corporate bond issuances, extensive vs intensive margins, and short-term vs long-term debts.

A. Hypothesis and Methodology

Literature implies that anti-corruption campaign might have opposite predictions on the value of non-investigated industry rivals. On the one hand, investigation events convey negative information about the growth prospectus of the investigated firms and the whole industry, given the loss of political connections. For example, peer firms could also have established connections with the investigated officials and have used bribes to obtain bank financing. The anti-corruption campaign may cause negative externality on industry rivals by reducing firm value, which is referred to as the "contagion effect". On the other hand, the investigation events can convey positive information about the competitive positions of the same industry rivals that have less or no prior connections to the investigated officials. Furthermore, anti-corruption campaign could serve as an external monitoring device, and may further increase rival firm value through its impact on compliance and corporate governance. This positive implication of anti-corruption on peer firms is referred to as the "competition effect".

To test the contagion vs competition hypotheses, we conduct empirical tests to examine whether rival firms experience increase or reduction in financing capacity around the investigation events.
We do not, undertake a simple cross-sectional comparison due to potential endogeneity concerns. For example, the investigated industries and non-investigated industries are inherently different given their relationship to the political power center. To address this empirical challenge, we exploit China's anti-corruption campaign's initial investigations into 31 industries as an identification strategy, which provides a natural experiment to evaluate the impact of loss of political connections. The series of investigations constitute staggered events to identify the impact of increases in the cost associated with rent seeking. The basic idea is that the investigation events result in sharp change in the perceptions of rival firms' political risk, while keeping other firm attributes as fixed.

In particular, our empirical specification resembles a triple-difference methodology, where the difference-in-difference captures the variation between the rival firms' financing capacity before and after investigations and captures the variation in rival firms' financing capacity between a treatment group under the concurrent investigation and a control group not under the concurrent investigations. In this

specification, for rival firms of any industry under investigation occurred at quarter *t*, the control group is constructed from rival firms in industries that are not investigated at the same quarter *t*, but are investigated either before or after quarter *t*. The third difference compares the before-and-after, investigated-and-control variation in financing capacity between rival SOE and non-SOE firms. Our generic regression specification can be described as follows:

$$y_{i,t+1} = \beta_1 Investigation_{i,t} + \beta_2 Investigation_{i,t} * SOE_{i,t} + \beta_3 InvestigationAft_{i,t} + \beta_4 InvestigationAft_{i,t} * SOE_{i,t} + \beta_5 SOE_{i,t} + Firm\ Controls_{i,t} + Firm\ Fixed_i + Industry_i Fixed_i + Quarter_t + \varepsilon_{i,t} \quad (1)$$

where $Investigation_{i,t}$ is an indicator variable that equals one if the investigation occurs within the fiscal quarter *t*, and equals zero for all other quarters. $InvestigationAft_{i,t}$ is a dummy that equals one for all quarters after the investigation quarter *t*, and equals zero for all other quarters prior to and including the investigation event. $SOE_{i,t}$ is a dummy that equals one for all rival firms classified as SOEs in quarter *t*, and equals zero for all rival firms classified as non-SOEs. [9] The variable $Investigation_{i,t}$ and $InvestigationAft_{i,t}$ capture the difference-in-differences specification discussed above. For each investigation event that occurred at quarter *t*, the treatment firms are the rivals of the investigated industry at quarter *t*, while the control firms are the competitors of the non-investigated industries at quarter *t*. As the sample includes the 31 investigated industries, the coefficient β_3 of the interaction term $InvestigationAft_{i,t}$ captures a difference-in-difference effect for non-SOEs; the coefficient β_4 of the interaction term $InvestigationAft_{i,t} * SOE_{i,t}$ captures a difference-in-difference-in-difference effect for SOEs vs non-SOEs. Consequently, the difference-in-difference effect for SOEs can be deduced as $\beta_3 + \beta_4$.

The key dependent variables are defined within quarter *t+1*: total debt outstanding, bank loan issuance, corporate bond issuance, extensive margin (probability of getting a new loan), intensive margin

[9] Note that the dummy variable $SOE_{i,t}$ has a subscript *t*, because there are five firms switching types between SOEs and non-SOEs, mainly due to the shares privatization program.

(amount of bank loans if they obtain new loans), short-term debt, long-term debt, etc. The set of *Firm Controls* are included to account for firm characteristics that might affect the corporate financing decision, which follows the existing literature. These control variables include the followings: ROA, firm size (logarithm of total assets), Tobin's Q, and book leverage. The Herfindahl-Hirschman (HHI) concentration index is included in all regression specifications because it can significantly affect debt capacity and how firms compete to obtain financing.

B. The Impact of Investigations on Total Debt Capacity

Figure 2 plots the logarithm of total debt outstanding in the window extending from three quarters before the investigation to three quarters after the event for the peer firms, where quarter 0 is the end of the quarter in which the event occurs. We plot separately the changes for non-SOE peers (solid line) and SOE peers (dash line), to evaluate whether these firms respond differently to the investigation. For the non-SOE peers, we observe a noticeable improvement in financing capacity over the event window. The average change in value of the logarithm of total debt from quarter -3 to quarter +3 for the non-SOE peers is 0.807, which is statistically significant at the 1 percent level using the standard errors clustered at the firm level. In contrast, the total debt outstanding appears to be flat around the events for the SOE peers. The average change in value from quarter -3 to quarter +3 is 0.303 and is not statistically significant at the 10 percent level. Although firm total debt level is lower for non-SOE peers three quarters prior to the event, it appears to exceed the debt level of SOE peers three quarters after the event.[10] Moreover, the difference in average change of total debt between non-SOE peers and SOE peers is 0.503, which is statistically significant at the 5 percent level (p-value=0.021).

Table 3 presents the regression estimation results in a triple difference framework for the sample consisting of investigated industries where a public firm has connections with the investigated official. To control for firm specific time-invariant omitted variables that may contaminate our regression results, all

[10] This result is qualitatively similar to using an alternative event window of quarter [-4, +4] around the investigations, though for longer event windows up to quarter [-8, +8] the effect cannot be precisely estimated, due to the condense nature of the investigation events occurred during 2012-2015 and the first quarter of 2017 as the end of our sample period.

specifications include the firm fixed effects. We also include quarter fixed effects to rule out alternative macroeconomic events that may drive our results. The dependent variable in Table 3 is the total amount of debt. Column (1) controls for the key independent variables, $Investigation_{i,t}$, $InvestigationAft_{i,t}$, and their interactions with the state-ownership dummy $SOE_{i,t}$, and the set of firm level controls. Column (2) controls for firm level characteristics and quarterly fixed effects. Column (3) controls for firm fundamentals, quarterly fixed effects, and industry fixed effects. To address the concern that the regression results might be driven by omitted time-invariant firm characteristics, we further control for firm fixed effects and time fixed effects in Column (4).

In all columns, the coefficient on $InvestigationAft_{i,t}$ is positive and statistically significant at the 1 percent level, which suggests that non-SOE peer firms experience increases in the amount of debt outstanding following the investigation of government officials. In terms of economic magnitude, for agerage investigation event that occurred at quarter *t*, the treatment firms' total debt outstanding increases by 31 percent relative to the control firms as the competitors of the non-investigated industries at quarter *t*, for the case of controlling for firm and quarter fixed effects as shown in Column (4). The positive relationship between the anti-corruption investigations and total debt outstanding for non-SOE peers suggests that the competition effects dominate the contagion effects.

The magnitude of increase in total debt outstanding for non-SOE peers may seem large compared to the findings in developed economies; but it reflects the fact that private firms are financially repressed in the credit market in China during normal times. In an unreported analysis, we find more substantial increase in total debt outstanding for non-SOEs without previous bank lenders---close to 5 percent of the non-SOE rivals experience increases in total debt outstanding from zero to 10 million RMB Yuan; close to 10 percent of the non-SOE rivals experience increases in total debt outstanding from zero to 50 million RMB Yuan.

The interaction term between $InvestigationAft_{i,t}$ and the $SOE_{i,t}$ dummies captures whether SOE and non-SOE peer firms respond differently to the investigation of corruption related firm in their industry. The coefficients on the interaction term are all negative and statistically significant at the 1 percent level,

indicating that the post-investigation increase in total debt outstanding is much smaller when rivals are SOEs. The economic magnitude is also very large---the average effect for SOE rival firms is calculated as the sum of the two coefficients in Column (4): $0.308-0.593 = -0.258$. Thus, all else being equal, the post-investigation financing effect goes from a positive of 31 percent debt increase to a negative of 26 percent debt decrease relative to the control firms consist of the non-investigated industries, if the firm type change from non-SOE to SOE. The significant reduction in financing capacity faced by SOE peers indicates that the contagion effect dominates the competition effect.

The trend of reduction in SOE peers' debt financing is consistent with the finding in Wang, Wang, Wang, and Zhou (2016) that, the rise of shadow banking (mainly serving non-SOEs) is associated with the fall of traditional banking (mainly serving SOEs)---bank loans in the aggregate social financing drop from 91.9 percent in 2002 to 51.3 percent in 2013.

C. The Impact of Investigations on Bank Loans vs Corporate Bonds

Given the fact that Chinese firms are more dependent on indirect than direct financing as documented extensively in the literature, we further examine the impact of anti-corruption investigations on industry rivals' financing capacity in terms of bank loans vs corporate bonds, respectively. Comparing changes in the issuance of these instruments help to understand on how banks and bond investors respond differentially to the investigation events. Panel A of Figure 3 plots the changes in access to bank loans for SOE and non-SOE rivals, respectively. We observe that anti-corruption investigations are associated with sharp increases in the bank loan issuance for non-SOE peers compared to SOE peers since the event quarter 0. The average change in loan issuance between non-SOEs and SOEs from quarter -3 to quarter +3 is 0.971, which is significant at the 1 percent level using standard errors adjusted for firm-level clustering. In contrast, in Panel B, both SOE and non-SOE rivals experience substantial reductions in the corporate bond issuance, which provides a preliminary evidence on the substitution of high cost bond financing with low cost bank financing for private owned, non-SOE firms during the anti-corruption campaign.

Table 4 displays the regression results in the triple difference framework. The dependent variables in Columns (1)-(4) are the amount being raised from bank loans and in Columns (5)-(8) from the issuance of corporate bonds, respectively. In Columns (1)-(4), the positive coefficients on $InvestigationAft_{i,t}$ indicate that non-SOE peer firms experience substantial increases in bank loans after the investigations of government officials. In terms of economic magnitude, for average investigation event that occurred at quarter *t*, the treatment firms' bank loan issuance increases by 46 percent relative to the control firms as the competitors of the non-investigated industries at quarter *t* after controlling for firm and quarter fixed effects as shown in Column (4). In contrast, the signs on the interaction term $InvestigationAft_{i,t} * SOE_{i,t}$ are significantly negative, indicating that there are smaller gains or larger losses in bank loan financing capacity for SOEs relative to non-SOEs among treated firms in investigated industries. The average effect for SOE rivals is calculated as the sum of these two coefficients as shown in model (4) with firm fixed effects: $0.457 - 0.705 = -0.248$. The negative average effect suggests that SOE peers experience substantial reductions in bank loan issuance---a drop of 25 percent---compared to non-SOE peers after investigations in affected industries. In other words, it also suggests that the negative contagion effect dominates the positive competition effect for SOE borrowers. Potentially bankers could become more sensitive to the future political risk facing SOE peers following anti-corruption investigations, as prior rent-seeking activities could be discovered. To reduce the risks of future corruption related investigations, bankers may have incentive to switch lending towards non-SOE peers, at least partially to diversify these risks.

Columns (5)-(8) analyze the impact of anti-corruption events on financing through corporate bonds. Different from the findings on bank loans, the regression estimates indicate that the investigations events are associated with decreases in bond issuance for non-SOE peers. We interpret these results as non-SOE peers substitute *less costly* bank loans for *more costly* corporate bonds. Besides the reduction in bank loan issuance, SOE peers also experience reductions in bond issuance after the investigation events, which is shown by the negative signs of the sums of the coefficients on $InvestigationAft_{i,t}$ and $InvestigationAft_{i,t} * SOE_{i,t}$. Given the limited capacity of Chinese bond market, SOE peers are unlikely

to issue sufficient amounts of bonds immediately to compensate for the reduction in bank loan issuance upon investigation shocks. To summarize, the reduction in issuance here in both bank loans and corporate bonds for SOE industry rivals is consistent with the decrease in total debt as shown in Table 3.

D. The Impact of Investigations on Extensive vs Intensive Margins

Banks loans constitute more than 50 percent of total debt for SOEs in 2010 and more than 60 percent in 2016, as shown in Panels A and B in Figure 1. In addition, Brandt and Zhu (2001) documented credit repression in China that banks ration the cheap credit in favor of less productive SOEs, which enjoy implicit government guarantees. It is important to examine whether anti-corruption investigations affect the likelihood of obtaining bank loans for privately-owned firms previously deprived of financing access.

We conduct such analysis in an extensive margin framework. Table 5 reports the results from a probit regression on the likelihood of industry rivals obtain new loans around anti-corruption investigation in that industry. In all columns, the positive and significant coefficients on $InvestigationAft_{i,t}$ indicate that non-SOE competitors have a higher likelihood of obtaining bank loans upon the investigation of corrupt firms in that industry. However, the negative and significant coefficients on the interaction term $InvestigationAft_{i,t} * SOE_{i,t}$ suggest that SOE rivals face lower likelihood of bank financing by 21 to 22 percent compared to non-SOE peers. The sums of the coefficients on $InvestigationAft_{i,t}$ and $InvestigationAft_{i,t} * SOE_{i,t}$ are all negative, indicating that all of the anti-corruption gains in financing capacity are concentrated in privately-owned non-SOE firms. The extensive margin results therefore support the credit reallocation effect earlier based on the loan issuance amounts. More importantly, we demonstrate that the positive impact of anti-corruption investigations on competitors' loan financing is mostly residing on non-SOE firms.

Table 6 reports the result of intensive margin regression of loan issuance amounts for industry rivals that have obtained bank loans after the anti-corruption investigations. The empirical setup is the same as in previous sections, except for the smaller sample of 27,708 observations. The coefficients on the interaction term between $InvestigationAft_{i,t}$ and the $SOE_{i,t}$ dummies are all negative, albeit marginally significant,

which implies that, among borrowers that obtained bank loans after the corruption investigation events, SOEs receive relatively less subsequent bank financing than non-SOEs. The intensive margin results are also consistent with the earlier findings that SOE peers face lower financing capacity upon anti-corruption investigations, possibly due to the negative externality arising from the heighted political uncertainty.

E. The Impact of Investigations on Short-Term vs Long-Term Debts

We further examine the differential impact of anti-corruption investigations on the maturity choice by focusing on the amount of short-term and long-term debt outstanding. Panel A of Figure 4 plots the change in the short-term debt outstanding from quarter -3 to quarter +3. The graph reveals that the investigations events are followed by significant increases in the short-term debt capacity for non-SOE peers compared to SOE peers. In Panel B, the difference in the amount of long-term debt between non-SOE and SOE peers is statistically insignificant.

Table 7 shows the regression results for short-term and long-term debt outstandings, respectively. Columns (1)-(4) show some significant increases in short-term debt outstanding upon the investigation events for non-SOE peers, as shown by the positive signs of coefficients on $InvestigationAft_{i,t}$. In terms of economic magnitude, as in Column (4), this translates into a 37 percent increase in short-term debt financing after the investigation shocks relative to the control firms as the competitors of the non-investigated industries. However, the signs on the interaction terms between $InvestigationAft_{i,t}$ and $SOE_{i,t}$ dummies are all significantly negative at 1 percent level, indicating that the post-investigation increase in financing capacity is decisively smaller for SOE peers. In term of the average effect, all else being equal, the post-investigation financing impact changes from positive 0.365 to negative 0.288, as the firm changes type from non-SOE to SOE. In other words, the SOE peer firms experience sharp decreases in short-term debt financing, which is statistically significant at the 1 percent level. Columns (5)-(8) display the results on the long-term debt. On average, we do not observe any significant increase in long-term debt after the investigation events for non-SOE peers, while the amount of long-term debt decreases for SOE peers, but only significant at the 10 percent level.

Consistent with our earlier findings, evidence here indicates that SOE rivals face significant reductions in financing capacity in debt maturity choice, especially in terms of short-term debt. As indicated in the existing literature, short-term debt is lower cost financing compared to long-term debt and is more likely under bank loan officers' discretion. Given the increases in political uncertainty, external financiers, especially the bankers, treat SOE peers less favourably than non-SOE peers, *conditional on* the corruption investigation of government officials.

4. Zero in on the Supply Channel

Both the demand or supply channel could drive the credit reallocation effects of the anti-corruption investigations from SOE to non-SOE peers.

The demand channel could potentially work as the following: the anti-corruption investigations increase political uncertainty of the rival firms---both SOEs and non-SOEs---and reduce product market demand of the rival firms, which consequently cut investment expenditures and financing demand. However, the demand-side explanation does not necessarily provide a satisfactory distinction why SOE rivals reduce borrowing while non-SOE rivals increase borrowing. Most importantly, given the established finding of financial repression on non-SOE firms in China (Brandt and Zhu, 2001), it is hard to imagine why SOE firms---equipped with implicit or explicit government guarantee---would choose to reduce borrowing significantly relative to disadvantaged and underserved non-SOEs.

The supply channel could potentially work if the corruption investigations change bankers' perception about political uncertainty---much higher future investigation likelihood for the SOE rivals, which consequently shifts bank credit towards non-SOE peers given their limited prior exposure to political network.[11] In addition, our earlier findings---that the credit reallocation effects are mainly driven by bank loans instead of corporate bonds, by extensive margin instead of intensive margin, and by short-term debt

[11] The extensive political connection between government officials and state-owned enterprises exists in many emerging countries and has been well documented in the literature (Fisman, 2001; Johnson and Mitton, 2003; Leuz and Oberholzer-Gee, 2006). For China in particular, Fan, Wong, and Zhang (2007) show that a large number of government officials are appointed as CEOs of SOE firms.

instead of long-term debt---tentatively suggests an active role of bank loan officers and a credit supply channel.

A. Bank Specific Shock

In this section, we explore the supply-side angle using one of the most influential anti-corruption cases in the financial industry, China Minsheng Banking Corp., Ltd scandal. The CEO Mao Xiaofeng resigned and was investigated on January 30, 2015 in a corruption case related to several high-profile government officials.[12] Minsheng Bank investigation provides a fruitful setup to explore the supply side channel by examining the effect of the anti-corruption campaign in financial industry on the subsequent bank credit allocation. More importantly, as one of the leading midsize joint-stock banks with substantial government ownership, Minsheng Bank lends to both large, state-owned enterprises and small, privately owned, non-SOE companies. From a methodological perspective, the investigation of Minsheng Bank offers an ideal setup to study how financiers respond to the heighted political risk. For example, CEO Mao's investigation on Jan 30, 2015 drew enormous domestic and foreign headline news coverage, which is considered as the first and most influential case in the anti-corruption campaign in banking industry. Moreover, this investigation event was unlikely to be expected by the investors, bankers, and the general public, as Minsheng Bank abruptly requested all the high-profile bankers to attend a special meeting on that weekend of January 30, 2015.[13]

Moreover, in China, both major bank CEOs and SOE firm CEOs are appointed by either the central government or the local government, just like the government officials being investigated for corruption practices. Therefore, rent-seeking activities naturally occur within the three-party-circle among the firm (especially SOE), the government official, and the banker.[14] To reduce the obstacles and frictions in rent-

[12] According to the *Financial Times* coverage on this case on February 1, 2015, Mr. Mao Xiaofeng is closely related Mr. Ling Jihua, a top leader who rose up through the Chinese Youth League and in December 2015 became the latest top official ensnared in Chinese president Xi's Jinping's anti-corruption campaign.

[13] The investigation on CEO Mao was first promptly reported by Caixin on Saturday, which is a leading and well-respected financial news media in China. Mr. Mao had been detained for questioning by the Central Commission for Discipline Inspection (CCDI), the Chinese Communist Party's anti-graft arm.

[14] For example, when a firm bribes a government official in order to have access to bank loans or access bank loans at favorable terms, the official may subsequently request a banker with close relationship to issue loans to the firm.

seeking activities, the government official has an incentive to control the assignment of bankers and to determine the compensation package of bankers. Such a deep connection between bankers and government officials offers an ideal setup to study how financiers respond to political risk, as the shocks to the banking industry---the supply channel---should be almost surely uncorrelated with the nonbank industry firms' fundamentals, regardless being SOE or non-SOE firms. In public perceptions, the investigation of CEO Mao could trigger further investigations on other bankers. As the cost associated with rent-seeking increases, it is interesting to examine how financiers respond to this negative shock and reallocate credit among SOEs and non-SOEs across all industries.

Table 8 shows regression specifications by interacting the financial industry shock dummy $AftMao_{i,t}$ with each investigation event to demonstrate the supply side channel. The financial industry shock dummy $AftMao_{i,t}$ equals one for the periods after January 30, 2015, and equals zero for the period before and on January 30, 2015.

Columns (1)-(3) tabulate the regression results for the level of debt outstanding, the level of short-term debt outstanding, and the level of long-term debt. The coefficients on the interaction term $InvestigationAft * AftMao_{i,t} * SOE_{i,t}$ in Column (1) and (2) are all negative and statistically significant at the 5 percent level for total debt and 1 percent level for short-term debt, respectively---after the investigation of CEO Mao, bankers become more conservative in originating loans, especially short-term loans, to SOE rivals relative to non-SOE rivals. In contrast, the coefficients on the interaction term $InvestigationAft * AftMao_{i,t}$ are all positive and statistically significant at the 10 percent level for total debt and 1 percent level for short-term debt---bankers have incentive to lend more to non-SOEs, especially short-term loans, after the Mingsheng Bank scandal was reported. In terms of economic magnitude, for average investigation event that occurred at quarter *t*, the treatment firms' total debt outstanding and the level of short-term debt increases by 180 percent and 303 percent respectively relative to the control firms consist the competitors of the non-investigated industries at quarter *t* as shown in Column (1) and (2). This credit reallocation effect from SOEs to non-SOEs reflects the increases in

political uncertainty and higher costs associated with rent-seeking activities faced by bankers, who subsequently switch lending towards non-SOE rival firms, to at least partially diversify political risk of further anti-corruption investigations in the future.

Columns (4) and (5) show the regression results with the amounts for loans and bonds as dependent variables, respectively. Consistent with the benchmark regression results, the reallocation of credit is mostly concentrated in bank loans (significant at the 1 percent level) instead of corporate bonds (statistically insignificant) ---relative to SOE rivals, banks after the Mingsheng Bank scandal issue significantly more loans to non-SOE rivals. Overall, using the banking industry shock related to CEO Mao's investigation, our results demonstrate that the credit reallocation towards non-SOE peers can be explained by the supply side story.

B. Placebo Tests

One potential concern is that the impact of bank specific anti-corruption investigation on credit reallocation could be driven by preexisting trends. For example, non-SOE rival firms in industries that were investigated may already have experienced increases in bank financing even before the Mingsheng Bank event in January 30, 2015, while SOE rival firms may already have experienced reductions in bank lending due to other reform measures happened around the same time. If the preexisting trends drive our results, our estimates might be capturing the different long-term trends between SOE and non-SOE peers instead of the differential impact of bank specific supply shock.

To address the concern that sector specific trends could potentially drive the credit reallocation outcomes before and after the CEO Mao investigation shock to bank industry, we run a falsification test assuming that the Minsheng Bank investigation were conducted on January 30, 2013 instead of January 30, 2015. Given that the Minsheng Bank scandal was considered the first and most influential investigation within the banking industry, according to the CCDI data report, the falsification test using January 30, 2013 as the event date can serve as a plausible specification check.

Table 9 reports regression estimates of this falsification test for the same five outcome variables as shown in Table 8: total debt outstanding, short-term debt outstanding, long-term debt outstanding, bank loan issuance, and corporate bond issuance. The coefficients on the interaction term $InvestigationAft * 2013Placebo_{i,t}$ are statistically insignificant for most of the key outcome variables, which suggests that bankers are not likely to increase lending towards non-SOE rivals two years prior to the Minsheng Bank shock relative to the control firms as the competitors of the non-investigated industries. Similarly, the average effect for SOE peers are mostly statistically insignificant, as shown by the sums of coefficients on $InvestigationAft * 2013Placebo_{i,t} * SOE_{i,t}$ and $InvestigationAft * 2013Placebo_{i,t}$.[15]

Note that we do not completely rule out the demand side explanation for the credit reallocation from SOE to non-SOE rivals. However, since SOEs in China enjoy extreme "preferential treatment" in obtaining external financing in normal time *unconditionally* (Brandt and Zhu, 2001; Boyreau-Debray and Wei, 2005; Song, Storesletten, and Zilibotti, 2011; Cong, Gao, Ponticelli, and Yang, 2017), it is hard to reconcile with the demand-side story---SOEs would not be shy from obtaining bank financing even in difficult times.

5. Stock Market Reactions, Investment Efficiency, and Market Shares

There lacks in-depth research on the impact of China's anti-corruption investigations on credit flows or financing capacity, which may further translate into more fundamental changes in corporate investments, production, and employment in the long-run. The bulk of our paper earlier has been trying to fill this void by examining the credit financing venues, while in this section we first try to connect to the existing literature on stock price reaction to anti-corruption investigations and then provide additional evidence on investment efficiency and market shares. Additional robustness checks are also discussed here.

A. Abnormal Returns

[15] None of the coefficient on the interaction term $InvestigationAft * 2013Placebo_{i,t} * SOE$ is statistically significant, except for the estimate in Column (2) for short-term debt, which is positive and statistically significant. However, the positive sign---as opposed to the negative sign---for SOE rivals does not support the argument that there is a preexisting trend in reduction in financing capacity, which is the typical finding in all other parts of our paper.

Recent studies related to the anti-corruption campaign in China mainly focus on stock market price reactions---how shareholders react to political uncertainty. Lin, Morck, Yeung, and Zhao (2016) study stock market reactions associated with the Eight-Point Regulation which occurred at the initial phase of the anti-corruption campaign on December 4, 2012. Liu, Shu, and Wei (2017) identify the causal impact of political uncertainty on asset prices using the unexpected political event associated with Bo Xilai's downfall in March 2102 in China as a natural experiment. However, it should be pointed out that equity financing is only a very small portion of the aggregate social financing in China (1.3 percent), while loan financing is the dominant source (about 85 percent), and the rest are corporate bonds and short-term bills (Wang, Wang, Wang, and Zhou, 2016).

We estimate daily abnormal stock returns using the Fama and French (1993) three factor model.[16] For each firm in the sample, we estimate the parameters in the three-factor model over the 180 days in the pre-event period (Day -210 to Day -30). Figure 5 plots the cumulative abnormal returns (CARs) for both the non-SOEs (solid line) and SOEs (dash line) industry peer firms, over the 20 days event window. We observe that non-SOE peers experience substantial increases in abnormal returns in periods after the investigation events, while SOE peers experience significant decreases in abnormal returns in periods after the investigation events.

Table 10 displays the mean and median CARs for the SOE and non-SOE peers, and the T-test for the difference in CARs. We report the mean and median CARs over the [-10,-2], [-10, +2], and [-10, +10] three windows. Non-SOE peer firms experience a significant positive cumulative abnormal return of 0.497 percent over the period [-10, +10] using the equal-weighted approach. The SOE peer firms experience a significant negative cumulative abnormal return of -0.502 percent over the period [-10, +10]. The 0.999 percent difference in mean CARs between non-SOE and SOE peers is statistically significant at the 1

[16] We estimate the following: $R_{i,t} = \alpha_i + \beta_i R_{M,t} + s_i SMB_t + h_i HML_t + \varepsilon_{i,t}$, where $R_{i,t}$ is the return to a firm on Day t ; $R_{M,t}$ is the return to the value-weighted market index on Day t; SMB_t and HML_t are the returns to the small-minus-big (SMB) and high-minus-low (HML) portfolios that captures size and book-to-market effects on Day t. We use the three-factor model instead of the market model as in Liao, Liu, and Wang (2014) to capture the systematic effect associated with firm size.

percent level, indicating that anti-corruption investigations had positive impact on non-SOE industry peer firms and negative impacts on SOE industry peer firms. Over the 9-day period [-10,-2] before the investigation announcement, the difference in mean CARs between non-SOE and SOE peers is still statistically significant but the magnitude is almost half as the 20-day [-10, +10] period---0.548 percent. In addition, the difference in mean CARs between SOE and non-SOE peers is statistically significant over the period [-10, +2]. The magnitude of the difference in abnormal returns becomes stronger from the period [-10, +2] to the period [-10, +10], which suggests that the differential equity market reaction is more pronounced in the post-investigation periods. In summary, the evidence here suggests that investors respond positively to the investigation announcement for the non-SOE peers and negatively to the SOE peer firms in the same industry.

B. Equity Issuance

Figure 6 plots the logarithm of total equity issuance in the window extending from three quarters both before and after the event for the peer firms. Similarly, we plot separately time paths for SOE peers and non-SOE peers. Among the non-SOE peers, we observe significant increases in equity issuances over the event window. The average change in value of the logarithm of total equity from quarter -3 to quarter +3 for the non-SOE peers is 0.619, which is statistically significant at the 1 percent level using the standard errors clustered at the firm level. In contrast, the total equity issuance decreases after the events for the SOE peers. The difference in average equity issuance change between non-SOE peers and SOE peers is 0.488, which is statistically significant at the 10 percent level.

The dependent variable in Table 11 is the total amount of equity issuance. The sets of firm level controls and specifications follow the benchmark regression shown in Table 3. In Columns (1) and (3), the coefficients on $InvestigationAft_{i,t}$ are positive and statistically significant at the 1 and 5 percent levels, respectively, which suggests that non-SOE peer firms experience increases in equity issuance following the investigation of government officials, although not significant in Columns (2) and (4). In contrast, for SOE peers, the coefficients on the interaction term $InvestigationAft_{i,t} * SOE_{i,t}$ in Columns (1) through (4) are

all negative and statistically significant at the 1 percent level, and the sums of the coefficients here and above are all significantly negative. This negative estimation result implies that, investors are much more cautious to invest towards SOE peer firms after the investigation event given the heightened political risk, consistent with previous findings on the reduction in debt financing.

Intuitively, SOE peer firms' CEOs typically have significant interactions with government officials being investigated and the related corruption firms during current and prior job assignments (see Footnote 14). Investors subsequently expect that SOE peer firms may be less efficient and may have been involved in more rent seeking activities in the past, which can trigger further investigations on CEOs at SOE peers as well. The nature of political connection in China dictates that the contagion effect dominates for the SOE peers while the competition effect dominates for the non-SOE peers in the same industry.

C. Investment Efficiency

Our main findings demonstrate that the banks allocate more loans towards non-SOE peers while reduce lending to SOE peers following investigation events. One possible explanation is that more efficient non-SOE peer firms did not seek as much political rent as SOE peers, therefore the financing shift after the investigation represents more efficient resource allocation. Another possible explanation is that industry rivals are able to obtain financing and capture market share due to the disadvantage of corruption related firms. Under this situation, peer firms are not necessarily more efficient but simply grabbing the loss of market shares from the firms under investigation.

We conduct regression analysis with the logarithm of one plus capital expenditure as the dependent variables. To analyze the changes in investment efficiency after the shock, we measure the sensitivity of investment to Tobin's Q, following Gertner, Powers, and Scharfstein (2002). Hence, the key independent variable is the interaction of $InvestigationAft_{i,t}$ and the Tobin' Q, which captures how firms adjust the capital expenditure with respect to changes in growth opportunity. All specifications control for the same set of firm characteristics as in the benchmark regressions.

In Table 12, the dependent variable---capital expenditure ratio *Capx_ratio* is defined as the amount of capital expenditures at the end of quarter *t* divided by the value of assets at the end of quarter *t-1*. The coefficient estimates on the interaction term between the post investigation dummy and the Tobin's Q in all columns of Table 12 are all positive and mostly statistically significant. This evidence indicates that non-SOE peer firms increase the amount of capital expenditure when the growth opportunity is high. The coefficient estimates on the interaction term among the post investigation dummy and the Tobin's Q and SOE dummy in all columns of Table 12 are all negative and statistically significant at 1 percent level. And the sums of these two coefficients remain negative and more or less statistically significant. This evidence indicates that SOE peer firms increase the amount of capital expenditure when the growth opportunity is low.[17]

It should be pointed out that the total investment level significantly increases for SOE rivals but decreases for non-SOE rivals, following the anti-corruption investigations, as shown in Table 12 row (3) and row (4). This seems to be consistent with the *unconditional* trend that SOEs always receive more credit than non-SOEs over the time period of 2010-2017, as shown in Figure 1. It could also be explained by the economic slowdown during this period and macroeconomic policies---fiscal stimulus, monetary easing, and credit expansion---that typically favor asymmetrically the SOE firms. In summary, our regression results in Table 12 seems to suggest two effects happening at the same time---a visible hand of the state causes more credit and investment level for SOE firms, while an invisible hand of the market causes more credit and investment efficiency for non-SOE firms (due to bankers' active lending adjustments upon anti-corruption investigation announcements).

D. Market Shares

We further examine how the anti-corruption events affect peer firms' market share upon the investigation of government officials. The market share measure in sales is defined as fraction of a firm's

[17] As shown in Panel B of Table 2, the operational efficiency (ROA) of non-SOE (0.010) is significantly higher than that of SOE (0.007), and the Tobin's Q value of non-SOE (3.293) is significantly higher than that of SOE (2.222).

sales to the total sales by all firms in the same three-digit SIC industry classified by WIND China. The market share measure in assets is defined as fraction of a firm's assets to the total assets by all firms in the same three-digit SIC industry classified by WIND China.

Panel A of Figure 7 depicts the change in market share measured in sales and Panel B shows the change in market share in assets. Although the market share (in sales) is lower among non-SOE peers three quarters prior to the event, we observe significant increases in the market share for non-SOE peers three quarters following the event. An average non-SOE peer firm gains market share of 0.118 percent from three quarter pre-event to three quarters post-event. In contrast, comparing the mean market shares for SOE rivals around the investigation events yields a -0.097 percent decline. The difference in average market share change between non-SOE peers and SOE peers is 0.215 percent, which is statistically significant at the 10 percent level (*p*-value=0.063). There is a similar pattern of increases in the market share (in assets) for non-SOE peers and reductions for SOE peers, indicated in Panel B.

Table 13 reports the OLS regressions examining the consequence of corruption investigations on the market share of peer firms. The dependent variables in all regressions are the market share of peer firms. Columns (1) and (2) show that the coefficient estimates on the interaction term $InvestigationAft_{i,t} * SOE_{i,t}$, which indicates that corruption investigation is associated with less gain in market shares (in sales) for SOE peers compared to the control groups of non-investigated industries. This represents about a 16 percent less in the market share as compared to the median level of market share of all CSMAR firms (0.449 percent). The average effect is calculated as the sum of the coefficients on $InvestigationAft_{i,t}$ and $InvestigationAft_{i,t} * SOE_{i,t}$ of −0.063 as shown in Column (2). The negative average effect suggests that SOE peers experience substantial reductions in market share---a drop of 14 percent. The decrease in market share for SOE peer firms indicates that investigation of officials connected to that industry generates economically and statistically significant contagion effects. In contrast, the coefficient estimates on $InvestigationAft_{i,t}$ are positive albeit insignificant. The insignificant results on market share for non-SOE peers shown in this table demonstrate that these firms not necessarily experience expansions in the

product markets, despite the fact that SOE peers lose significant market shares. Columns (3) and (4) display the regression results using an alternative measure of market share in assets with similar conclusions.

E. Further Robustness Checks

Our empirical results so far suggest that the shocks to political connections produced by the anti-corruption investigations from 2012-2015 bring about a reallocation of credit from state-owned enterprises to privately-owned enterprises. In this subsection, we conduct a series of robustness tests for the analysis conducted earlier.

First, our analysis so far focuses on the first investigation event occurred in each industry as the shock. In order to address the concern that time-invariant industry specific characteristics might drive our results, we repeat our tests by including the first five investigation events in each industry. We find that only the first investigation event in each industry can significantly affect the credit reallocation between SOE rivals and non-SOE rivals. These robustness checks offer corroboration to our sample selection procedure and the exogeneity of the first investigation event from the identification perspective.

Second, we further study the effect of anti-corruption on credit reallocation by exploiting the change in total debt in addition to the level of total debt used in Table 3. The impacts on debt growths are all positive and statistically significant for privately-owned, non-SOE rivals, while all negative and statistically significant for SOE rivals. This pattern of debt growth reallocation between SOE and non-SOE peers is consistent with further evidence on bank loan and equity issuance later, as they are all flow-based variables.

Third, there is a potential concern about the supply-side shock story that the first investigation in the financial industry may not be random and might be correlated with other industries' investigation events. In that case we should observe our credit reallocation findings held even in absence of financial sector investigation shock---Mingsheng Bank investigation. To address this concern, we further run another falsification test assuming that Minsheng CEO Mao were detained on January 30, 2014 instead of January 30, 2015, in addition to the falsification test already conducted on January 30, 2013 in Table 9. In an unreported result table, available upon request, we show the insignificant regression estimates of this

falsification test for the same five outcome variables: total debt, short-term debt, long-term debt, bank loan, and corporate bond. This result, again, supports the exogeneity of the supply-side shock of the Mingsheng Bank investigation.

Finally, our evidence on bank loan issuance is robust to an alternative CSMAR loan level dataset, which is similar to the Dealscan dataset in the U.S., although it covers a significantly smaller number of firms in sample universe. The more detailed information includes: loan issuance amount, the maturity of each loan, the all-in-drawn spreads, the type of the credit (term loan or revolving credit), the inclusion of collateral, and the specific name of each lender, and syndicate member. In an unreported analysis using this loan contract level data, we obtain consistent results on credit reallocation between SOEs and non-SOEs surrounding the anti-corruption investigation events.

6. Conclusion and Policy Implications

We provide a novel empirical finding that the anti-corruption campaign in China is associated with credit reallocation from less-productive SOEs to more-productive non-SOEs within the same industry. Upon corruption investigation events, non-SOE rivals experience significant increases in financing capacity in terms of total debt, bank loans (vs corporate bonds), the likelihood of loan initiations (vs loan amount), and short-term (vs long-term) debt. Our evidence indicates that the competition effect dominates the contagion effect for non-SOE rivals, while the opposite is true for SOE rivals.

We further pin down the supply-side channel through which non-SOE peer firms benefit from the anti-corruption campaign. Using one of the first and most influential corruption cases in the financial industry, we find that bankers become more sensitive to heightened political uncertainty and are more likely to allocate more credit towards non-SOEs to reduce the risk of further investigations. More broadly, upon investigation announcements, non-SOE rivals also enjoy more equity issuance, higher investment efficiency, and larger market shares than their SOE rivals in subsequent quarters. Although recent literature mostly documents a negative impact of the China's anti-corruption campaign, especially on financial

market, our findings points to a subtle positive impact of credit reallocation from less efficient SOE to more efficient non-SOE rivals.

There has been a fierce debate about whether the anti-corruption campaign in China is beneficial or detrimental to the economy. A recent *Financial Times* article on January 4, 2017 discussed the political price of President Xi Jinping's anti-corruption campaign and whether Beijing's claim of "huge progress" is overblown. It has been argued that the campaign could have a superficial or negative impact, with lower-level officials prefer to enjoy quiet life instead of working diligently. Furthermore, increases in political uncertainty arising from the anti-corruption campaign can lead to increases in bribery costs to inhibit "normal" commerce activity. In this paper, we provide empirical evidence that the anti-corruption campaign does have a positive impact on the economy, in terms of shifting credit from less productive SOE peers to more productive non-SOE peers. We have reached a different conclusion than most news media or policy-industry research based on the following.

First, most policy-industry research similar to the *Financial Times* article mentioned above focuses on the macroeconomic trend or market level evidence that the anti-corruption campaign seems to coincide with the economic slowdown in China. However, these macro or market trends are not separately identifiable with other alternative explanations, for example: (1) cyclical slowdowns of global growth and international trade, (2) structural changes in the Chinese economy like population ageing, and (3) macroeconomic policy especially fiscal stimulus favors SOEs vs non-SOEs. Rather, once we zero in on firm-level, microeconomic evidence, our finding of positive credit reallocation effect towards non-SOE industry peers, seems to be consistent with other concurrent research: (1) China's anti-corruption campaign indeed targets more corrupted firms with all kinds of corporate malfeasances (Griffin, Liu, and Shu, 2016), and (2) stock market reactions to the anti-corruption investigations also favor non-SOE peers vs SOE peers (Ding, Fang, Lin, and Shi, 2017).

Second, the majority view that anti-corruption campaign is bad for the economy might have overlooked the subtle role of the banking industry, which has been partially privatized since early 2000s'

listings on both overseas and domestic stock exchanges. Chinese banks still have to choose between rationing credit in favor of SOEs backed by implicit government guarantee and opportunistically lending to non-SOEs for higher profit margin but with higher default risk (Brandt and Zhu, 2001; Wang, Wang, Wang, and Zhou, 2016). However, as the anti-corruption campaign gradually ramps up, loan officers may be more willing to allocate credit towards non-SOE rivals to diversify future investigation risk. That is exactly what is revealed in our shock experiment on the banking industry by the investigation on Minsheng bank CEO Mao. In essence, both SOE and major bank managers are appointed by the government, just like the government officials being investigated. The heightened political uncertainty upon corruption investigations may induce bankers to shift lending away from more connected SOE peers to less connected non-SOE peers.

Finally, the popular view that anti-corruption campaign may be bad for the economy could have over-extrapolated the direct effect on corruption officials and associated firms to the broader economy, without carefully examining the indirect contagion vs competition effects among industry rivals. It is obvious that the anti-corruption campaign directly curtails the rent seeking activities of connected firms and government official under investigation, which results in an adverse effect on the real economy as a collateral damage. However, the anti-corruption investigations also indirectly facilitate more efficient credit provision by financial institutions from low productivity SOE rivals to high productivity non-SOEs. More specifically, the non-SOE peers are more productive with higher ROA and Tobin's Q than SOE peers, therefore the indirect effect on industry credit reallocation results in better resource allocation in the economy. This is further supported by the evidence that non-SOE rivals have more access to equity market financing and occupy larger market shares after the investigation events.

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Table 1

Distribution of Anti-Corruption Cases by Year Quarter and Industry

This table displays the distribution of the sample of investigation of senior government officials and peer firms in each investigated industries. Panel A shows the number of announcement of investigations of government officials, the number of industries that are investigated, and the number of peer firms in the same industry. The year-quarter refers to the calendar year and quarter that the investigation occurred. Panel B displays the number of peer firms in each of the industries that are affected by the anti-corruption investigations, which is classified using the WIND China three-digit SIC codes. We keep only the first announcement of investigations in each industry throughout the analysis.

Panel A: The number of investigations

Year-quarter	Number of investigations	Number of affected industries	Number of peer firms
2012-4	1	3	201
2013-1	1	0	0
2013-2	6	8	520
2013-3	6	0	0
2013-4	11	2	65
2014-1	4	0	0
2014-2	14	9	447
2014-3	15	2	51
2014-4	9	5	216
2015-1	11	2	60
Total	78	31	1560

Panel B: Number of peer firms across industries

Industry	Number of peer firms
Semiconductor products and semiconductor devices	26
Electric power	44
Electrical equipment	88
Electronic equipment, instruments and components	95
Independent power producer and energy	7
Real estate and development	139
Aerospace and defense	18
Internet software and services	14
Chemical industry	163
Mechanics	145
Household consumer durables	49
Building material	38
Building products	21
Construction and engineering	42
Mining	141
Media	44
Automobile	21
Auto parts	50
Software	21
Business services and supplies	19
Oil and natural gas	44
Food	81
Water	13
Information technology services	29
Leisure equipment and supplies	12
Health care technology	2
Medical and health care equipment and supplies	11
Paper products	29
Pharmacy	100
Drinks	31
Other	23
Total	1560

Table 2

Panel A: Summary Statistics

This table presents the summary statistics of the dependent variables and firm controls based on the sample from the fourth quarter of 2012 to the first quarter of 2017. The government ownership dummy *SOE* equals one if a firm is state-owned, given its largest ultimate shareholder is either a government or local entity, and equals zero otherwise. *ROA* is operating income before depreciation divided by total assets. Firm size is the logarithm of total assets. *Tobin's Q* is the ratio of the market value of assets to total assets. *Leverage* is long-term debt plus short-term debt divided by total assets. Market Herfindahl-Hirschman (*HHI*) concentration index is defined as the squared sum of the fraction of industry sales for firms in the same three-digit SIC classification from WIND China dataset. The total debt outstanding *Log_Total_Debt* equals the logarithm of one plus the total short-term debt and long-term debt outstanding. The short-term debt outstanding *Log_Short_Debt* equals the logarithm of one plus the short-term debt outstanding. The long-term debt outstanding *Log_Long_Debt* equals the logarithm of one plus the long-term debt outstanding. The loan issuance amount *Log_Loan_Amt* equals the logarithm of one plus the loan amount issued. The bond issuance *Log_Bond_Amt* equals the logarithm of one plus the cash flow from bond issuances. The *market share in sales* (in percentage points) is a firm's total sales divided by the total sales of all firms in a three-digit SIC industry classification by WIND China. The *market share in assets* (in percentage points) is a firm's total assets divided by the total assets of all firms in a three-digit SIC industry classification by WIND China.

Variables	N	Mean	P25	P50	P75	SD
SOE	37474	0.505	0.000	1.000	1.000	0.500
ROA	37474	0.009	0.001	0.007	0.016	0.019
Size	37474	22.037	21.129	21.896	22.808	1.309
Tobin's Q	37474	2.753	1.408	2.026	3.161	2.344
Leverage	37474	0.467	0.287	0.466	0.640	0.228
HHI	37474	0.088	0.038	0.068	0.104	0.080
Log_Total_Debt	37474	18.114	18.261	20.166	21.487	6.547
Log_Short_Debt	37474	16.079	17.111	19.450	20.635	7.874
Log_Long_Debt	37474	12.827	0.000	17.957	20.290	9.445
Log_Loan_Amt	37474	14.212	0.000	18.469	19.914	8.554
Log_Bond_Amt	37474	0.860	0.000	0.000	0.000	4.107
Market share in sales (%)	37474	1.874	0.144	0.449	1.499	4.954
Market share in assets (%)	37474	1.862	0.208	0.543	1.692	4.233

Table 2

Panel B: The Comparision of Summary Statistics between SOEs and Non-SOEs

This table presents the comparison of summary statistics between state-owned firms and privately-owned firms based on the sample from the fourth quarter of 2012 to the first quarter of 2017. The government ownership dummy *SOE* equals one if a firm is state-owned, given its largest ultimate shareholder is either a government or local entity, and equals zero otherwise. *ROA* is operating income before depreciation divided by total assets. Firm size is the logarithm of total assets. *Tobin's Q* is the ratio of the market value of assets to total assets. *Leverage* is long-term debt plus short-term debt divided by total assets. Market Herfindahl-Hirschman (*HHI*) concentration index is defined as the squared sum of the fraction of industry sales for firms in the same three-digit SIC classification from WIND China dataset. The total debt outstanding *Log_Total_Debt* equals the logarithm of one plus the total short-term debt and long-term debt outstanding. The short-term debt outstanding *Log_Short_Debt* equals the logarithm of one plus the short-term debt outstanding. The long-term debt outstanding *Log_Long_Debt* equals the logarithm of one plus the long-term debt outstanding. The loan issuance amount *Log_Loan_Amt* equals the logarithm of one plus the loan amount issued. The bond issuance *Log_Bond_Amt* equals the logarithm of one plus the cash flow from bond issuances. The *market share in sales* (in percentage points) is a firm's total sales divided by the total sales of all firms in a three-digit SIC industry classification by WIND China. The *market share in assets* (in percentage points) is a firm's total assets divided by the total assets of all firms in a three-digit SIC industry classification by WIND China.

	State-owned Enterprises (SOEs)						Privately-owned Enterprises (Non-SOEs)							
Variables	N	Mean	P25	P50	P75	SD	N	Mean	P25	P50	P75	SD	T-test	Sig
ROA	18908	0.007	0.000	0.006	0.014	0.019	18566	0.010	0.002	0.009	0.018	0.020	-18.245	***
Size	18908	22.482	21.571	22.328	23.369	1.353	18566	21.584	20.870	21.512	22.233	1.090	70.647	***
Tobin's Q	18908	2.222	1.224	1.661	2.490	1.830	18566	3.293	1.719	2.478	3.767	2.664	-45.430	***
Leverage	18908	0.533	0.376	0.549	0.694	0.215	18566	0.399	0.221	0.384	0.551	0.221	59.575	***
HHI	18908	0.096	0.038	0.072	0.110	0.088	18566	0.080	0.036	0.066	0.097	0.070	19.553	***
Log_Total_Debt	18908	19.344	19.199	20.797	22.135	5.742	18566	16.862	17.217	19.579	20.732	7.059	37.360	***
Log_Short_Debt	18908	17.087	18.005	19.891	21.135	7.448	18566	15.053	15.924	18.980	20.160	8.159	25.208	***
Log_Long_Debt	18908	15.179	13.390	19.241	21.202	8.826	18566	10.432	0.000	15.761	19.163	9.453	50.258	***
Log_Loan_Amt	18908	15.362	16.285	18.996	20.445	8.206	18566	13.041	0.000	17.959	19.379	8.740	26.506	***
Log_Bond_Amt	18908	1.066	0.000	0.000	0.000	4.572	18566	0.651	0.000	0.000	0.000	3.559	9.799	***
Market share in sales	18908	2.373	0.197	0.601	2.025	5.289	18566	1.366	0.107	0.336	1.034	4.532	19.780	***
Market share in assets	18908	2.337	0.259	0.712	2.072	4.821	18566	1.378	0.165	0.424	1.285	3.469	22.060	***

Table 3
The Total Debt Outstanding Surrounding Investigations

This table presents the OLS regression of total debt outstanding on the anti-corruption investigation events based on the sample from the fourth quarter of 2012 to the first quarter of 2017. The dependent variable total debt outstanding *Log_Total_Debt* equals the logarithm of one plus the total short-term debt and long-term debt outstanding. *Investigation* is an indicator variable that equals one if the investigation occurs within the fiscal quarter *t* , and equals zero for all other quarters. *InvestigationAft* is a dummy that equals one for all quarters after the investigation quarter *t* , and equals zero for all other quarters prior to and including the investigation event. The government ownership dummy *SOE* equals one if a firm is state-owned, given its largest ultimate shareholder is either a government or local entity, and equals zero otherwise. *ROA* is operating income before depreciation divided by total assets. Firm size is the logarithm of total assets. *Tobin's Q* is the ratio of the market value of assets to total assets. *Leverage* is long-term debt plus short-term debt divided by total assets. Market Herfindahl-Hirschman (*HHI*) concentration index is defined as the squared sum of the fraction of industry sales for firms in the same three-digit SIC classification from WIND China dataset. The *market share in sales* (in percentage points) is a firm's total sales divided by the total sales of all firms in a three-digit SIC industry classification by WIND China. The *market share in assets* (in percentage points) is a firm's total assets divided by the total assets of all firms in a three-digit SIC industry classification by WIND China. ***, **, or * indicates that the regression coefficient is statistically significant from zero at the 1%, 5%, and 10% level respectively.

	(1)	(2)	(3)	(4)
Variables		*Log_Total_Debt*		
Investigation	0.481**	0.351*	0.363*	0.260*
	(2.435)	(1.677)	(1.750)	(1.756)
*Investigation*SOE*	-0.444	-0.407	-0.371	-0.281
	(-1.605)	(-1.469)	(-1.366)	(-1.450)
InvestigationAft	0.916***	0.463***	0.522***	0.308***
	(11.437)	(3.647)	(3.782)	(3.100)
*InvestigationAft*SOE*	-0.963***	-0.962***	-0.921***	-0.593***
	(-8.845)	(-8.840)	(-8.605)	(-7.380)
SOE	-0.189**	-0.192**	-0.209***	-0.225
	(-2.322)	(-2.357)	(-2.577)	(-1.406)
ROA	-15.065***	-14.548***	-11.697***	-5.095***
	(-10.180)	(-9.770)	(-7.927)	(-4.308)
Size	1.445***	1.411***	1.464***	2.206***
	(51.038)	(48.947)	(50.436)	(37.425)
TobinQ	-0.422***	-0.454***	-0.427***	-0.041***
	(-30.329)	(-31.493)	(-29.250)	(-2.635)
Leverage	10.523***	10.610***	10.980***	8.520***
	(76.443)	(76.490)	(76.426)	(43.532)
HHI	-3.640***	-3.708***	-2.882**	-3.510***
	(-10.870)	(-11.072)	(-2.386)	(-4.077)
Quarterly fixed effects	No	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	No
Firm fixed effects	No	No	No	Yes
Observations	37,474	37,474	37,474	37,474
R-squared	0.384	0.386	0.412	0.141

Table 4

The Bank Loans and Bond Issuance

This table presents the OLS regression of the cash flow from bank loans and bond issuance around anti-corruption investigation events. The loan issuance amount *Log_Loan_Amt* equals the logarithm of one plus the amount of bank loans issued. The bond issuance amount *Log_Bond_Amt* equals the logarithm of one plus the amount of corporate bond issued. *Investigation* is an indicator variable that equals one if the investigation occurs within the fiscal quarter *t,* and equals zero for all other quarters. *InvestigationAft* is a dummy that equals one for all quarters after the investigation quarter *t,* and equals zero for all other quarters prior to and including the investigation event. We include the following firm level controls: *ROA* , *Size* , *Tobin's Q* , *Leverage* , *HHI* , and *SOE* dummy. The government ownership dummy *SOE* equals one if a firm is state-owned, given its largest ultimate shareholder is either a government or local entity, and equals zero otherwise. All regressions have standard errors clustered at the firm level, which is shown in the parentheses. ***, **, or * indicates that the regression coefficient is statistically significant from zero at the 1%, 5%, and 10% level respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	*Log_Loan_Amt*				*Log_Bond_Amt*			
Investigation	0.112	-0.036	0.073	-0.028	-0.222	-0.151	-0.287*	-0.290*
	(0.410)	(-0.123)	(0.254)	(-0.120)	(-1.455)	(-0.937)	(-1.765)	(-1.897)
*Investigation*SOE*	-0.175	-0.126	-0.086	-0.045	0.244	0.235	0.240	0.257
	(-0.458)	(-0.329)	(-0.229)	(-0.149)	(1.144)	(1.105)	(1.128)	(1.287)
InvestigationAft	0.685***	0.413**	0.741***	0.457***	-0.228***	-0.284***	-0.510***	-0.502***
	(6.177)	(2.349)	(3.890)	(2.931)	(-3.692)	(-2.902)	(-4.723)	(-4.903)
*InvestigationAft*SOE*	-1.172***	-1.185***	-1.139***	-0.705***	0.107	0.118	0.109	0.102
	(-7.774)	(-7.875)	(-7.709)	(-5.580)	(1.274)	(1.406)	(1.305)	(1.229)
SOE	-0.880***	-0.886***	-0.766***	-0.040	-0.454***	-0.456***	-0.428***	-0.217
	(-7.816)	(-7.880)	(-6.831)	(-0.158)	(-7.251)	(-7.285)	(-6.732)	(-1.317)
Firm level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarterly fixed effects	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	No	No	No	Yes	No
Firm fixed effects	No	No	No	Yes	No	No	No	Yes
Observations	37,474	37,474	37,474	37,474	37,474	37,474	37,474	37,474
R-squared	0.309	0.312	0.343	0.068	0.072	0.077	0.083	0.017

Table 5
The Likelihood of Obtaining a Loan

This table presents the probit regression of the likelihood of industry rivals obtain new loans around anti-corruption investigation of that industry. The dependent variable *Prob(New_Loan)* is an indicator for whether a borrower obtained a new loan after the anti-corruption investigation. *Investigation* is an indicator variable that equals one if the investigation occurs within the fiscal quarter *t*, and equals zero for all other quarters. *InvestigationAft* is a dummy that equals one for all quarters after the investigation quarter *t*, and equals zero for all other quarters prior to and including the investigation event. The government ownership dummy *SOE* equals one if a firm is state-owned, given its largest ultimate shareholder is either a government or local entity, and equals zero otherwise. *ROA* is operating income before depreciation divided by total assets. Firm size is the logarithm of total assets. *Tobin's Q* is the ratio of the market value of assets to total assets. Leverage is long-term debt plus short-term debt divided by total assets. Market Herfindahl-Hirschman (*HHI*) concentration index is defined as the squared sum of the fraction of industry sales for firms in the same three-digit SIC classification from WIND China dataset. All regressions have standard errors clustered at the firm level, which is shown in the parentheses. ***, **, or * indicates that the regression coefficient is statistically significant from zero at the 1%, 5%, and 10% level respectively.

	(1)	(2)	(3)	(4)
Variables		*Prob(New_Loan)*		
Investigation	0.004	-0.031	-0.006	-0.041
	(0.072)	(-0.524)	(-0.104)	(-0.567)
*Investigation*SOE*	-0.030	-0.022	-0.011	0.021
	(-0.367)	(-0.270)	(-0.133)	(0.214)
InvestigationAft	0.106***	0.066*	0.137***	0.121**
	(4.681)	(1.771)	(3.267)	(2.425)
*InvestigationAft*SOE*	-0.221***	-0.224***	-0.223***	-0.207***
	(-6.885)	(-6.957)	(-6.789)	(-5.042)
SOE	-0.157***	-0.159***	-0.130***	-0.089
	(-6.710)	(-6.799)	(-5.356)	(-1.629)
ROA	-4.060***	-3.937***	-3.329***	-2.548***
	(-9.891)	(-9.497)	(-7.809)	(-4.751)
Size	0.298***	0.295***	0.329***	0.534***
	(31.986)	(30.865)	(32.609)	(23.003)
TobinQ	-0.093***	-0.099***	-0.099***	-0.023***
	(-24.094)	(-24.499)	(-22.889)	(-3.408)
Leverage	1.888***	1.902***	2.079***	1.893***
	(47.989)	(47.809)	(48.364)	(23.264)
HHI	-1.298***	-1.314***	0.245	-0.953***
	(-13.062)	(-13.190)	(0.678)	(-3.145)
Quarterly fixed effects	No	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	No
Firm fixed effects	No	No	No	Yes
Observations	37,474	37,474	37,474	37,474

Table 6

The Effect of Anti-Corruption on Bank Loans in Intensive Margin

This table presents the OLS regression of anti-corruption on loan issuance amounts among financially unconstrained borrowers that obtained bank loans during anti-corruption investigation events. The dependent variable loan issuance amount *Log_Loan_Amt* equals the logarithm of one plus the loan amount issued. *Investigation* is an indicator variable that equals one if the investigation occurs within the fiscal quarter *t*, and equals zero for all other quarters. *InvestigationAft* is a dummy that equals one for all quarters after the investigation quarter *t*, and equals zero for all other quarters prior to and including the investigation event. The government ownership dummy *SOE* equals one if a firm is state-owned, given its largest ultimate shareholder is either a government or local entity, and equals zero otherwise. *ROA* is operating income before depreciation divided by total assets. Firm size is the logarithm of total assets. *Tobin's Q* is the ratio of the market value of assets to total assets. *Leverage* is long-term debt plus short-term debt divided by total assets. Market Herfindahl-Hirschman (*HHI*) concentration index is defined as the squared sum of the fraction of industry sales for firms in the same three-digit SIC classification from WIND China dataset. All regressions have standard errors clustered at the firm level, which is shown in the parentheses. ***, **, or * indicates that the regression coefficient is statistically significant from zero at the 1%, 5%, and 10% level respectively.

	(1)	(2)	(3)	(4)
Variables		*Log_Loan_Amt*		
Investigation	-0.296	-0.424	-0.328	-0.377
	(-1.163)	(-1.577)	(-1.219)	(-1.548)
*Investigation*SOE*	0.311	0.376	0.356	0.420
	(0.900)	(1.089)	(1.043)	(1.355)
InvestigationAft	-0.185*	-0.174	0.053	0.074
	(-1.776)	(-1.082)	(0.299)	(0.458)
*InvestigationAft*SOE*	-0.177	-0.185	-0.225*	-0.280**
	(-1.293)	(-1.354)	(-1.649)	(-2.119)
SOE	-0.707***	-0.716***	-0.673***	-0.322
	(-6.809)	(-6.908)	(-6.436)	(-1.138)
ROA	-8.704***	-7.691***	-5.161**	-9.238***
	(-4.231)	(-3.716)	(-2.483)	(-4.339)
Size	1.341***	1.335***	1.379***	1.609***
	(37.841)	(37.114)	(37.435)	(15.162)
TobinQ	-0.333***	-0.354***	-0.382***	-0.079**
	(-13.960)	(-14.143)	(-14.877)	(-2.361)
Leverage	5.533***	5.513***	6.321***	5.351***
	(27.762)	(27.529)	(30.174)	(14.981)
HHI	-2.117***	-2.098***	3.486**	2.438*
	(-5.161)	(-5.119)	(2.246)	(1.717)
Quarterly fixed effects	No	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	No
Firm fixed effects	No	No	No	Yes
Observations	27,708	27,708	27,708	27,708
R-squared	0.173	0.178	0.194	0.031

Table 7
The Short and Long-term Debt Outstanding

This table presents the OLS regression of short-term and long-term debt outstanding on the anti-corruption investigation events. The short-term debt outstanding *Log_Short_Debt* equals the logarithm of one plus the short-term debt outstanding. The long-term debt outstanding *Log_Long_Debt* equals the logarithm of one plus the long-term debt outstanding. *Investigation* is an indicator variable that equals one if the investigation occurs within the fiscal quarter *t* , and equals zero for all other quarters. *InvestigationAft* is a dummy that equals one for all quarters after the investigation quarter *t* , and equals zero for all other quarters prior to and including the investigation event. The government ownership dummy *SOE* equals one if a firm is state-owned, given its largest ultimate shareholder is either a government or local entity, and equals zero otherwise. *ROA* is operating income before depreciation divided by total assets. *Size* is the logarithm of total assets. *Tobin's Q* is the ratio of the market value of assets to total assets. *Leverage* is long-term debt plus short-term debt divided by total assets. Market Herfindahl-Hirschman (HHI) concentration index is defined as the squared sum of the fraction of industry sales for firms in the same three-digit SIC classification from WIND China dataset. All regressions have standard errors clustered by the peer firm, which is shown in the parentheses. ***, **, or * indicates that the regression coefficient is statistically significant from zero at the 1%, 5%, and 10% level respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	*Log_Short_Debt*				*Log_Long_Debt*			
Investigation	0.475*	0.088	0.368	0.255	-0.272	0.013	0.114	-0.008
	(1.873)	(0.329)	(1.415)	(1.362)	(-0.978)	(0.044)	(0.390)	(-0.041)
*Investigation*SOE*	-0.643*	-0.573	-0.491	-0.413*	0.066	0.089	0.075	0.188
	(-1.810)	(-1.613)	(-1.444)	(-1.686)	(0.170)	(0.229)	(0.196)	(0.700)
InvestigationAft	0.936***	0.057	0.692***	0.365***	0.291***	0.161	0.354*	0.096
	(9.100)	(0.352)	(4.007)	(2.905)	(2.577)	(0.900)	(1.828)	(0.701)
*InvestigationAft*SOE*	-1.275***	-1.278***	-1.169***	-0.653***	-0.625***	-0.620***	-0.635***	-0.252**
	(-9.120)	(-9.150)	(-8.718)	(-6.420)	(-4.072)	(-4.040)	(-4.225)	(-2.264)
SOE	-0.663***	-0.661***	-0.598***	0.043	0.348***	0.328***	0.320***	-0.012
	(-6.350)	(-6.332)	(-5.877)	(0.212)	(3.035)	(2.866)	(2.801)	(-0.052)
ROA	-19.234***	-18.215***	-12.632***	-5.744***	-17.771***	-17.986***	-15.509***	-3.678**
	(-10.123)	(-9.533)	(-6.834)	(-3.841)	(-8.521)	(-8.573)	(-7.486)	(-2.249)
Size	1.285***	1.237***	1.379***	2.353***	2.814***	2.775***	2.740***	3.984***
	(35.343)	(33.434)	(37.925)	(31.569)	(70.498)	(68.346)	(67.239)	(48.896)
TobinQ	-0.523***	-0.566***	-0.528***	-0.039**	-0.342***	-0.388***	-0.354***	0.007
	(-29.277)	(-30.585)	(-28.908)	(-1.978)	(-17.440)	(-19.107)	(-17.297)	(0.340)
Leverage	12.338***	12.484***	13.734***	10.137***	13.143***	13.199***	12.828***	9.166***
	(69.810)	(70.128)	(76.318)	(40.961)	(67.743)	(67.535)	(63.598)	(33.874)
HHI	-5.717***	-5.851***	-2.702*	-3.516***	-1.034**	-1.056**	-2.484	-3.025**
	(-13.296)	(-13.612)	(-1.786)	(-3.230)	(-2.192)	(-2.238)	(-1.465)	(-2.542)
Firm level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarterly fixed effects	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	No	No	No	Yes	No
Firm fixed effects	No	No	No	Yes	No	No	No	Yes
Observations	37,474	37,474	37,474	37,474	37,474	37,474	37,474	37,474
R-squared	0.299	0.301	0.362	0.111	0.412	0.414	0.443	0.142

Table 8
Supply-side Shock

This table presents the regression using the financial industry shock from the investigation of Minsheng Bank Governor Mao. The banking sector shock dummy *AftMao* equals one for the periods after January 30, 2015, and equals zero for the period before and on January 30, 2015. *Investigation* is an indicator variable that equals one if the investigation occurs within the fiscal quarter *t* , and equals zero for all other quarters. *InvestigationAft* is a dummy that equals one for all quarters after the investigation quarter *t* , and equals zero for all other quarters prior to and including the investigation event. The total debt outstanding *Log_Total_Debt* equals the logarithm of one plus the total short-term debt and long-term debt outstanding. The short-term debt outstanding *Log_Short_Debt* equals the logarithm of one plus the short-term debt outstanding. The long-term debt outstanding *Log_Long_Debt* equals the logarithm of one plus the long-term debt outstanding. The loan issuance amount *Log_Loan_Amt* equals the logarithm of one plus the loan amount issued. The bond issuance *Log_Bond_Amt* equals the logarithm of one plus the cash flow from bond issuances. We include the following firm level controls: *ROA* , *Size* , *Tobin's Q* , *Leverage* , *HHI* , and *SOE* dummy. All regressions have standard errors clustered by the peer firm, which is shown in the parentheses. ***, **, or * indicates that the regression coefficient is statistically significant from zero at the 1%, 5%, and 10% level respectively.

	(1)	(2)	(3)	(4)	(5)
Variables	*Log_Total_ Debt*	*Log_Short_ Debt*	*Log_Long_ Debt*	*Log_Loan_ Amt*	*Log_Bond_ Amt*
Investigation	0.190	0.110	0.084	-0.153	-0.267*
	(1.263)	(0.576)	(0.404)	(-0.645)	(-1.713)
*Investigation*SOE*	-0.230	-0.314	0.155	-0.041	0.264
	(-1.162)	(-1.255)	(0.568)	(-0.131)	(1.293)
*SOE*AftMao*	0.131	-1.451	-0.033	-1.542	-0.064
	(0.183)	(-1.604)	(-0.034)	(-1.371)	(-0.087)
*Investigation*AftMao*	1.795**	3.031***	-1.489	2.554**	-0.362
	(2.410)	(3.220)	(-1.446)	(2.184)	(-0.471)
*Investigation*AftMao *SOE*	-1.373	-2.491**	0.869	-0.215	-0.099
	(-1.379)	(-1.980)	(0.631)	(-0.137)	(-0.096)
InvestigationAft	0.296***	0.284**	0.164	0.393**	-0.489***
	(2.956)	(2.244)	(1.185)	(2.501)	(-4.729)
*InvestigationAft*SOE*	-0.563***	-0.577***	-0.266**	-0.639***	0.108
	(-6.897)	(-5.593)	(-2.360)	(-4.988)	(1.283)
*InvestigationAft *AftMao*	0.628*	2.348***	-1.600***	2.148***	-0.292
	(1.952)	(5.779)	(-3.601)	(4.255)	(-0.879)
*InvestigationAft *AftMao*SOE*	-0.979**	-2.619***	0.641	-2.368***	-0.138
	(-2.221)	(-4.700)	(1.051)	(-3.420)	(-0.303)
Firm controls	Yes	Yes	Yes	Yes	Yes
Quarterly fixed effects	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	37,474	37,474	37,474	37,474	37,474
R-squared	0.142	0.112	0.142	0.069	0.017

Table 9
Placebo Test of Supply-side Shock

This table presents the regression results by conducting the placebo test assuming that the Minsheng Bank investigation was conducted on January 30, 2013 instead of January 30, 2015, where January 30, 2015 was the actual time of the financial industry shock. The falsification banking sector shock dummy *2013Placebo* equals one for the periods after January 30, 2013, and equals zero for the period before and on January 30, 2013. *Investigation* is an indicator variable that equals one if the investigation occurs within the fiscal quarter *t* , and equals zero for all other quarters. *InvestigationAft* is a dummy that equals one for all quarters after the investigation quarter *t* , and equals zero for all other quarters prior to and including the investigation event. The total debt outstanding *Log_Total_Debt* equals the logarithm of one plus the total short-term debt and long-term debt outstanding. The short-term debt outstanding *Log_Short_Debt* equals the logarithm of one plus the short-term debt outstanding. The long-term debt outstanding *Log_Long_Debt* equals the logarithm of one plus the long-term debt outstanding. The loan issuance amount *Log_Loan_Amt* equals the logarithm of one plus the loan amount issued. The bond issuance *Log_Bond_Amt* equals the logarithm of one plus the cash flow from bond issuances. We include the same set of firm level controls. All regressions have standard errors clustered by the peer firm, which is shown in the parentheses. ***, **, or * indicates that the regression coefficient is statistically significant from zero at the 1%, 5%, and 10% level respectively.

	(1)	(2)	(3)	(4)	(5)
Variables	*Log_Total_ Debt*	*Log_Short_ Debt*	*Log_Long_ Debt*	*Log_Loan_ Amt*	*Log_Bond_ Amt*
Investigation	0.595	1.153**	0.418	0.694	-0.112
	(1.312)	(2.009)	(0.667)	(0.974)	(-0.240)
*Investigation*SOE*	-0.429	-1.481**	0.094	-0.215	0.480
	(-0.764)	(-2.089)	(0.121)	(-0.244)	(0.831)
*SOE*2013Placebo*	1.474***	0.780	2.154***	0.061	0.052
	(3.220)	(1.348)	(3.403)	(0.085)	(0.111)
*Investigation*2013Placebo*	-0.380	-1.025*	-0.466	-0.841	-0.066
	(-0.791)	(-1.690)	(-0.702)	(-1.116)	(-0.133)
*Investigation*2013 *SOE*	0.152	1.178	0.095	0.136	-0.249
	(0.255)	(1.558)	(0.115)	(0.145)	(-0.404)
InvestigationAft	0.345*	0.521**	0.178	0.491	0.854***
	(1.742)	(2.081)	(0.649)	(1.579)	(4.188)
*InvestigationAft*SOE*	-0.736***	-1.481***	-0.114	-1.235***	0.196
	(-3.192)	(-5.080)	(-0.357)	(-3.409)	(0.827)
*InvestigationAft*2013Placebo*	-0.052	-0.193	-0.098	-0.075	-1.470***
	(-0.272)	(-0.805)	(-0.375)	(-0.252)	(-7.535)
*InvestigationAft *2013Placebo*SOE*	0.176	0.974***	-0.157	0.627	-0.219
	(0.717)	(3.143)	(-0.463)	(1.629)	(-0.867)
Firm controls	Yes	Yes	Yes	Yes	Yes
Quarterly fixed effects	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	37,474	37,474	37,474	37,474	37,474
R-squared	0.142	0.112	0.142	0.069	0.022

Table 10
Abnormal Returns Surrounding Anti-corruption Investigations

This table reports the stock returns associated with events surrounding anti-corruption investigations for peers firms that are privately-owned enterprises (Non-SOEs) and state-owned enterprises (SOEs) respectively. The government ownership dummy *SOE* equals one if a firm is state-owned, given its largest ultimate shareholder is either a government or local entity, and equals zero otherwise. The sample includes peer firms operate in the same industry as investigated firms between 2012 and 2015. Cumulative abnormal returns (CARs) are calculated with the Fama-French three factor model over the 180 days estimation window in the pre-event period (Day -210 to Day -30) and over the event windows of [-10,-2], [-10,+2], and [-10, +10] respectively. This table displays the mean and median cumulative abnormal returns for the non-SOE peers and SOE peers respectively, and the T-test for the difference in cumulative abnormal returns. The *p* -values for statistical significance are shown below the difference in CARs.

T-test for differences in CARs between SOE and non-SOE peer firms

	Privately-owned enterprises (Non-SOEs)			State-owned enterprises (SOEs)			Diff (Non-SOEs-SOEs)	
Event window	N	Mean	Median	N	Mean	Median	T-test mean	T-test median
[-10,-2]	2699	-0.024	-0.695	2285	-0.572	-0.986	0.548	0.291
		0.860	0.000		0.000	0.000	0.004	0.006
[-10,+2]	2681	-0.056	-0.989	2279	-0.884	-1.464	0.828	0.476
		0.730	0.000		0.000	0.000	0.000	0.001
[-10,+10]	2681	0.497	-0.587	2271	-0.502	-1.389	0.999	0.802
		0.019	0.001		0.017	0.000	0.001	0.001

Table 11
The Equity Issuance Surrounding Investigations

This table presents the OLS regression of total equity issuance on the anti-corruption investigation events. The dependent variable equity issuance *Log_Total_Equity* equals the logarithm of one plus the total amount of new equity issued. *Investigation* is an indicator variable that equals one if the investigation occurs within the fiscal quarter *t*, and equals zero for all other quarters. *InvestigationAft* is a dummy that equals one for all quarters after the investigation quarter *t*, and equals zero for all other quarters prior to and including the investigation event. The government ownership dummy *SOE* equals one if a firm is state-owned, given its largest ultimate shareholder is either a government or local entity, and equals zero otherwise. *ROA* is operating income before depreciation divided by total assets. *Size* is the logarithm of total assets. *Tobin's Q* is the ratio of the market value of assets to total assets. *Leverage* is long-term debt plus short-term debt divided by total assets. Market Herfindahl-Hirschman (*HHI*) concentration index is defined as the squared sum of the fraction of industry sales for firms in the same three-digit SIC classification from WIND China dataset. All regressions have standard errors clustered by the peer firm, which is shown in the parentheses. ***, **, or * indicates that the regression coefficient is statistically significant from zero at the 1%, 5%, and 10% level respectively.

	(1)	(2)	(3)	(4)
Variables		*Log_Total_Equity*		
Investigation	0.300**	-0.013	0.037	-0.012
	(2.143)	(-0.088)	(0.244)	(-0.079)
*Investigation*SOE*	-0.019	-0.016	-0.023	0.055
	(-0.098)	(-0.084)	(-0.116)	(0.278)
InvestigationAft	0.679***	0.120	0.242**	0.155
	(11.952)	(1.332)	(2.425)	(1.537)
*InvestigationAft*SOE*	-0.398***	-0.393***	-0.410***	-0.260***
	(-5.147)	(-5.098)	(-5.295)	(-3.180)
SOE	-0.130**	-0.122**	-0.114*	-0.109
	(-2.247)	(-2.115)	(-1.941)	(-0.666)
ROA	6.890***	7.489***	7.871***	8.782***
	(6.565)	(7.094)	(7.374)	(7.290)
Size	0.065***	0.041**	0.053**	0.325***
	(3.250)	(1.993)	(2.527)	(5.412)
TobinQ	0.025**	0.011	0.004	0.088***
	(2.562)	(1.068)	(0.389)	(5.518)
Leverage	1.042***	1.135***	1.345***	2.875***
	(10.676)	(11.538)	(12.938)	(14.420)
HHI	-0.275	-0.356	1.637*	1.500*
	(-1.157)	(-1.497)	(1.874)	(1.710)
Quarterly fixed effects	No	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	No
Firm fixed effects	No	No	No	Yes
Observations	37,474	37,474	37,474	37,474
R-squared	0.012	0.015	0.017	0.018

Table 12
The Investment Efficiency

This table presents the OLS regression of capital expenditures on the anti-corruption investigation events and the growth opportunity. The dependent variable capital expenditure ratio $Capx_ratio_t$ is defined as the amount of capital expenditures at the end of quarter t divided by the value of assets at the end of quarter *t-1*. *Investigation* is an indicator variable that equals one if the investigation occurs within the fiscal quarter t, and equals zero for all other quarters. *InvestigationAft* is a dummy that equals one for all quarters after the investigation quarter t, and equals zero for all other quarters prior to and including the investigation event. We include the following firm level controls: *ROA*, *Size*, *Tobin's Q*, *Leverage*, *HHI*, and *SOE* dummy. All regressions have standard errors clustered by the peer firm, which is shown in the parentheses. ***, **, or * indicates that the regression coefficient is statistically significant from zero at the 1%, 5%, and 10% level respectively.

	(1)	(2)	(3)	(4)
Variables		*Capx_ratio*		
Investigation	-0.482***	-0.214***	-0.099	-0.073
	(-7.120)	(-3.017)	(-1.423)	(-1.185)
*Investigation*SOE*	0.150	0.144	0.167*	0.112
	(1.585)	(1.536)	(1.827)	(1.391)
InvestigationAft	-0.730***	-0.447***	-0.236***	-0.217***
	(-17.200)	(-8.423)	(-4.288)	(-4.347)
*InvestigationAft*SOE*	0.296***	0.303***	0.380***	0.301***
	(5.061)	(5.230)	(6.752)	(5.662)
*InvestigationAft*TobinQ*	0.030**	0.030**	0.037***	0.018
	(2.349)	(2.339)	(2.965)	(1.324)
*SOE*TobinQ*	0.015	0.030***	0.037***	0.041***
	(1.532)	(3.042)	(3.785)	(4.394)
*SOE*InvestigationAft*TobinQ*	-0.049***	-0.045***	-0.056***	-0.044***
	(-2.850)	(-2.640)	(-3.402)	(-2.743)
SOE	-0.391***	-0.408***	-0.493***	-0.401***
	(-9.021)	(-9.504)	(-11.691)	(-4.956)
ROA	-0.003	-0.007	0.000	0.043***
	(-0.360)	(-0.854)	(0.050)	(4.484)
Size	4.942***	4.576***	5.632***	3.139***
	(9.736)	(9.053)	(11.354)	(6.411)
TobinQ	0.074***	0.090***	0.118***	0.043*
	(7.574)	(9.090)	(11.944)	(1.741)
Leverage	-0.766***	-0.820***	-0.513***	-1.422***
	(-16.162)	(-17.354)	(-10.593)	(-17.425)
HHI	-0.121	-0.070	-0.141	-0.239
	(-1.051)	(-0.612)	(-0.346)	(-0.670)
Quarterly fixed effects	No	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	No
Firm fixed effects	No	No	No	Yes
Observations	37,474	37,474	37,474	37,474
R-squared	0.142	0.112	0.142	0.069

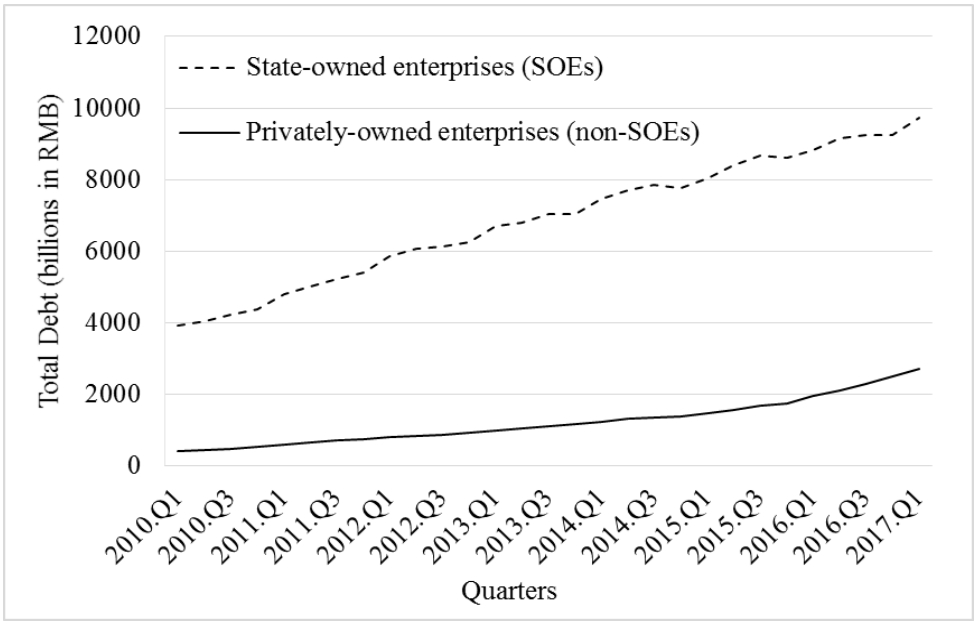
Table 13
The Changes in Market Share Surrounding the Investigations

This table presents the OLS regression of market share on the anti-corruption investigation events. The *market share in sales* (in percentage points) is a firm's total sales divided by the total sales of all firms in a three-digit SIC industry by WIND China. The *market share in assets* (in percentage points) is a firm's total assets divided by the total assets of all firms in a three-digit SIC industry. *Investigation* is an indicator variable that equals one if the investigation occurs within the fiscal quarter *t*, and equals zero for all other quarters. *InvestigationAft* is a dummy that equals one for all quarters after the investigation quarter *t*, and equals zero for all other quarters prior to and including the investigation event. The government ownership dummy *SOE* equals one if a firm is state-owned, given its largest ultimate shareholder is either a government or local entity, and equals zero otherwise. *ROA* is operating income before depreciation divided by total assets. Firm size is the logarithm of total assets. *Tobin's Q* is the ratio of the market value of assets to total assets. *Leverage* is long-term debt plus short-term debt divided by total assets. Market Herfindahl-Hirschman (*HHI*) concentration index is defined as the squared sum of the fraction of industry sales for firms in the same three-digit SIC classification from WIND China dataset. All regressions have standard errors clustered by the peer firm, which is shown in the parentheses. ***, **, or * indicates that the regression coefficient is statistically significant from zero at the 1%, 5%, and 10% level respectively.

	(1)	(2)	(3)	(4)
Variables	*Market share in sales*		*Market share in assets*	
Investigation	-0.010	0.034	-0.057	-0.006
	(-0.070)	(0.567)	(-0.477)	(-0.149)
*Investigation*SOE*	-0.088	-0.101	0.040	-0.014
	(-0.464)	(-1.303)	(0.256)	(-0.298)
InvestigationAft	-0.092	0.010	-0.110	-0.011
	(-0.961)	(0.258)	(-1.383)	(-0.426)
*InvestigationAft*SOE*	0.044	-0.073**	0.102*	-0.033
	(0.590)	(-2.264)	(1.661)	(-1.631)
SOE	0.042	-0.274***	-0.082*	-0.175***
	(0.745)	(-4.265)	(-1.757)	(-4.383)
ROA	2.971***	-0.431	-2.890***	-1.299***
	(2.886)	(-0.909)	(-3.410)	(-4.393)
Size	1.954***	0.867***	2.012***	1.073***
	(96.480)	(36.673)	(120.667)	(72.758)
TobinQ	0.260***	0.029***	0.257***	0.045***
	(25.495)	(4.565)	(30.723)	(11.413)
Leverage	-0.216**	0.704***	-0.727***	0.251***
	(-2.157)	(8.966)	(-8.808)	(5.125)
HHI	0.084	0.412	0.515	0.879***
	(0.099)	(1.193)	(0.742)	(4.081)
Quarterly fixed effects	Yes	Yes	Yes	Yes
Firm fixed effects	No	Yes	No	Yes
Observations	37,474	37,474	37,474	37,474
R-squared	0.500	0.051	0.536	0.156

Figure 1
The Aggregate Debt and Loan Issuance

Panel A: The Aggregate Debt Outstanding for All Industries



Panel B: The Aggregate Bank Loan Issuance for All Industries

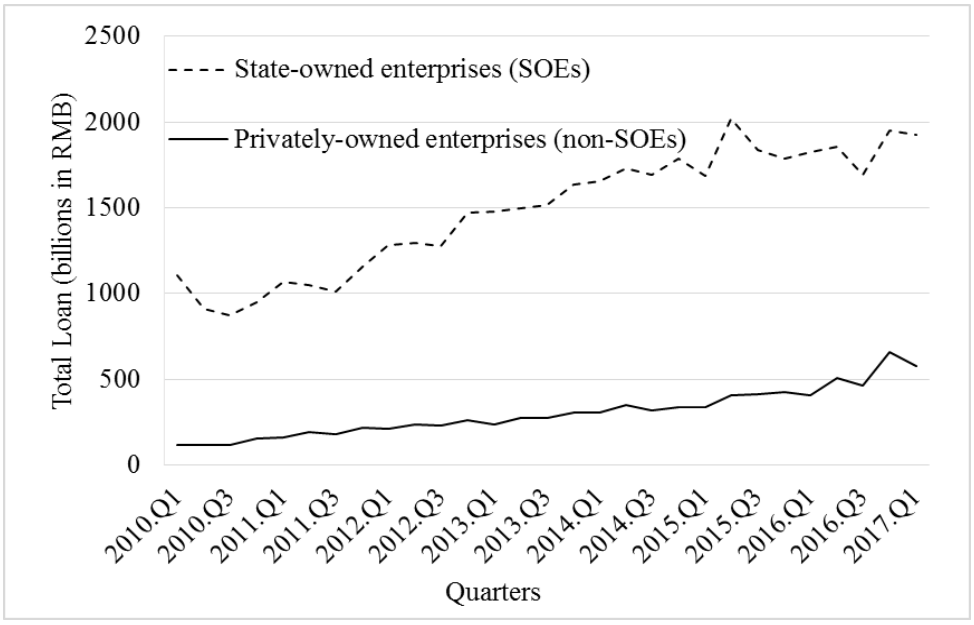


Figure 1:The aggregate debt outstanding and bank loan issuance for both investigated and non-investigated industries. The aggregate debt *Total Debt* $_t$ equals the total amount of short-term debt and long-term debt outstanding in quarter t. The aggregate cash from loan *Total Loan* $_t$ equals the cash flow from loans issued in quarter t. The solid line represents the non-SOE peer firms, and the dash line represents the SOE peer firms.

Figure 2
Total Debt Outstanding around Investigation Events

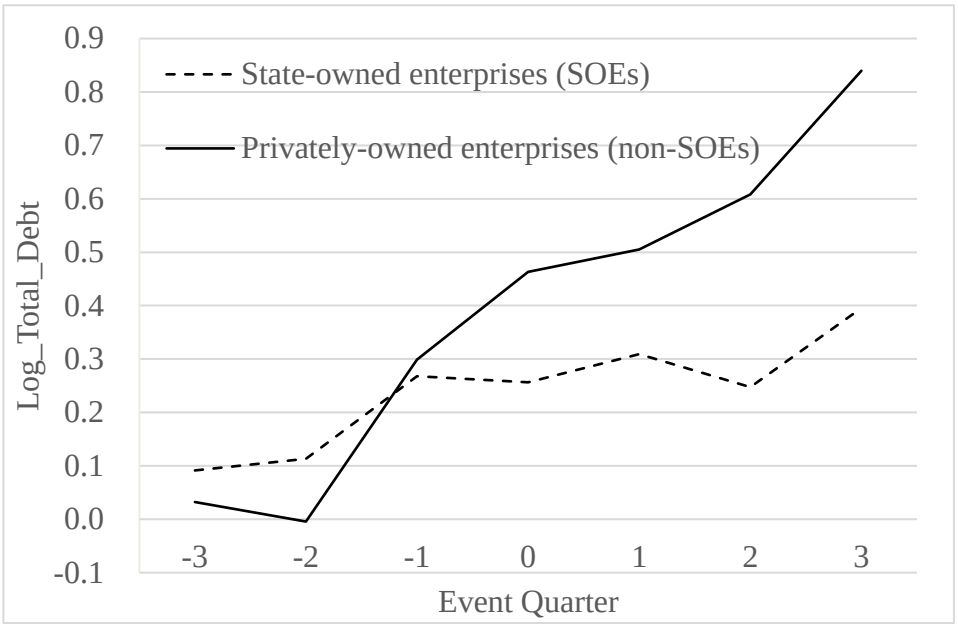
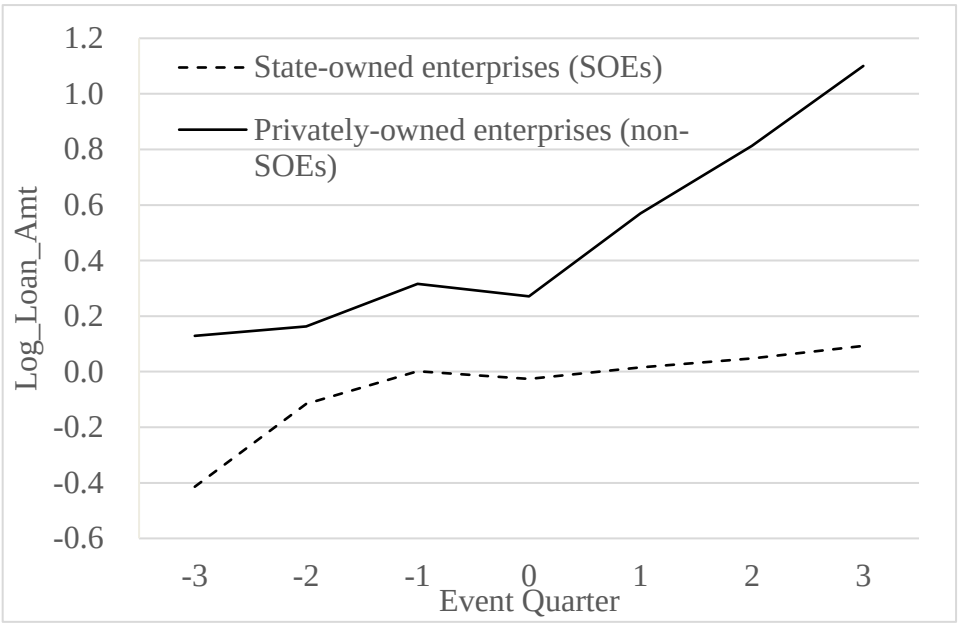


Figure 2: Total debt outstanding around investigation events. The total debt outstanding $Log_Total_Debt_t$ equals the logarithm of one plus the total short-term debt and long-term debt outstanding in quarter t. The solid line represents the non-SOE peer firms, and the dash line represents the SOE peer firms. Quarter 0 is the quarter during which the investigation occurs. The government ownership dummy *SOE* equals one if a firm is state-owned, given its largest ultimate shareholder is either a government or local entity, and equals zero otherwise.

Figure 3
The Bank Loan and Bond Issuance around Investigation Events

Panel A: Bank Loan Issuance around Investigations



Panel B: Corporate Bond Issuance around Investigations

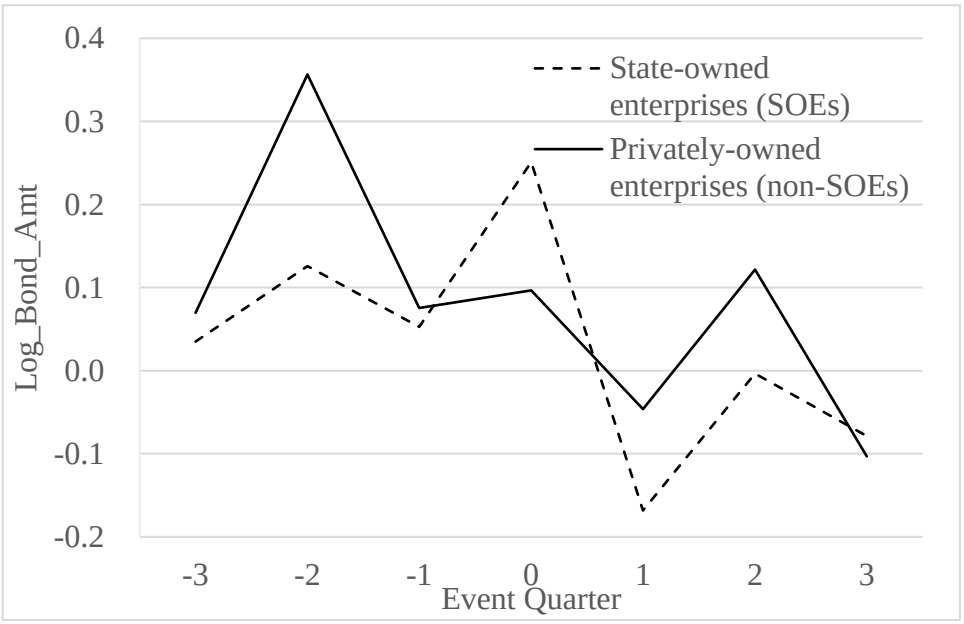
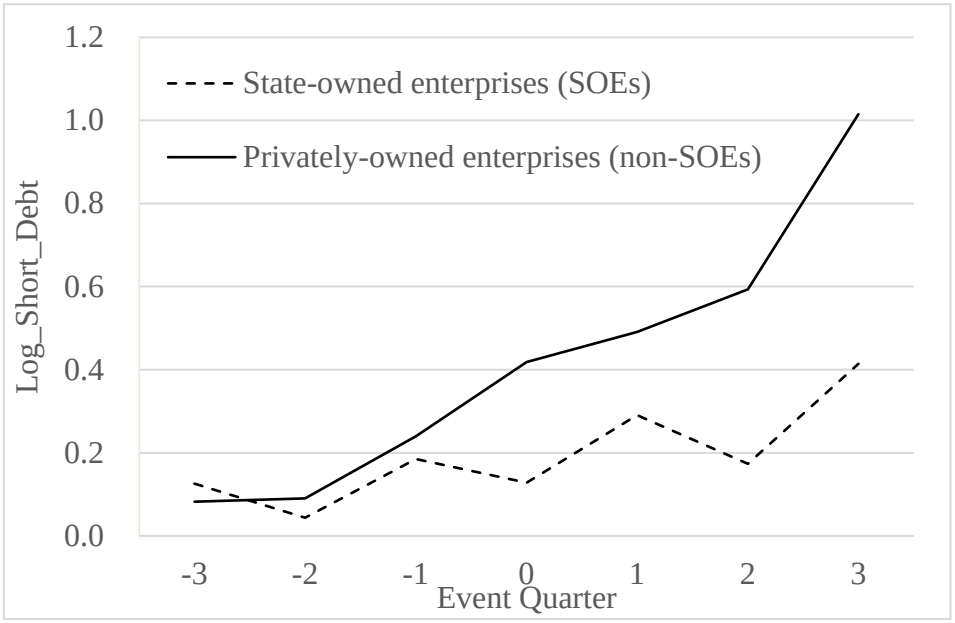


Figure 3: The bank loan versus corporate bond issuance around investigation events. The bank loan issuance amount loan $Log_Loan_Amt_t$ equals the logarithm of one plus the cash flow from bank loans iassued in quarter t. The corporate bond issuance amount $Log_Bond_Amt_t$ equals the logarithm of one plus the cash flow from bond issued in quarter t. The solid line represents the non-SOE peer firms, and the dash line represents the SOE peer firms. The government ownership dummy *SOE* equals one if a firm is state-owned, given its largest ultimate shareholder is either a government or local entity, and equals zero otherwise. Quarter 0 is the quarter during which the investigation occurs.

Figure 4
The Short and Long-term Debt Outstanding around Investigation Events

Panel A: Short-term Debt Outstanding around Investigations



Panel B: Long-term Debt Outstanding around Investigations

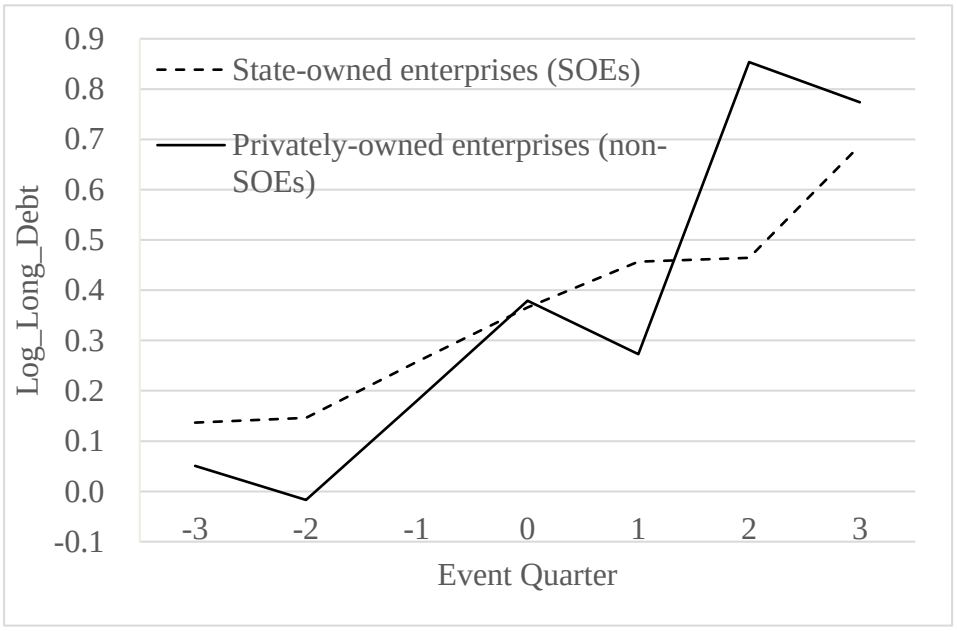


Figure 4: Short-term versus long-term debt outstanding around investigation events. The short-term debt outstanding *Log_Short_Debt* equals the logarithm of one plus the short-term debt outstanding. The long-term debt outstanding *Log_Long_Debt* equals the logarithm of one plus the long-term debt outstanding. The solid line represents the non-SOE peer firms, and the dash line represents the SOE peer firms. The government ownership dummy *SOE* equals one if a firm is state-owned, given its largest ultimate shareholder is either a government or local entity, and equals zero otherwise. Quarter 0 is the quarter during which the investigation occurs.

Figure 5
Cumulative abnormal returns (CARs) for state-owned enterprises (SOEs) and privately-owned enterprises (non-SOEs)

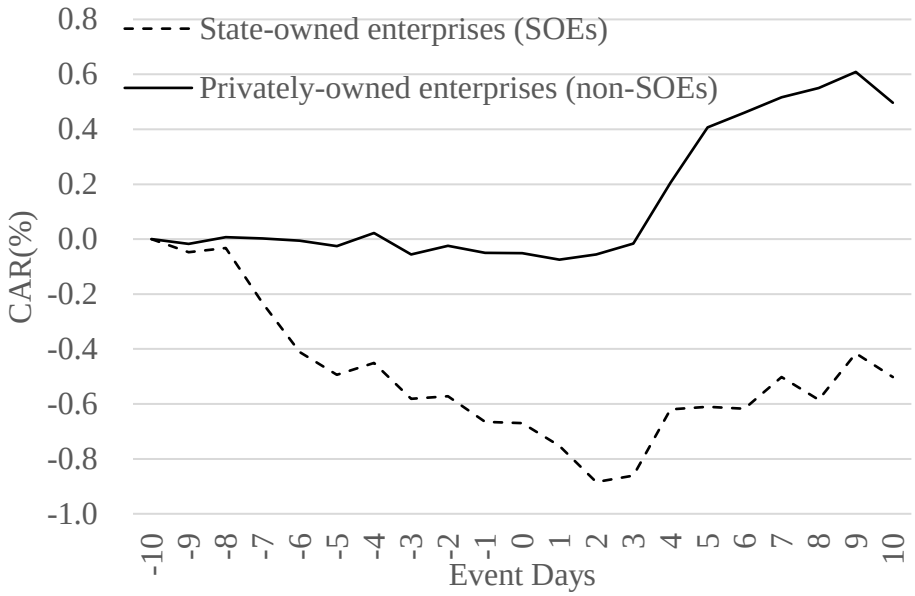


Figure 5: Cumulative abnormal returns (CARs) for state-owned enterprises (SOEs) and privately-owned enterprises (non-SOEs). This figure plots the cumulative abnormal returns (in percentage pints) associated with events surrounding anti-corruption investigations for peers firms that are privately-owned enterprises (non-SOEs) and state-owned enterprises (SOEs) respectively. The government ownership dummy SOE equals one if a firm is state-owned, given its largest ultimate shareholder is either a government or local entity, and equals zero otherwise. Quarter 0 is the quarter during which the investigation occurs. Cumulative abnormal returns (CARs) are calculated with the Fama-French three factor model over the 180 days estimation window in the pre-event period (Day -210 to Day -30) and over the event windows of [-10, +10]. The solid line represents the non-SOE peer firms, and the dash line represents the SOE peer firms.

Figure 6
The Equity Issuance around Investigation Events

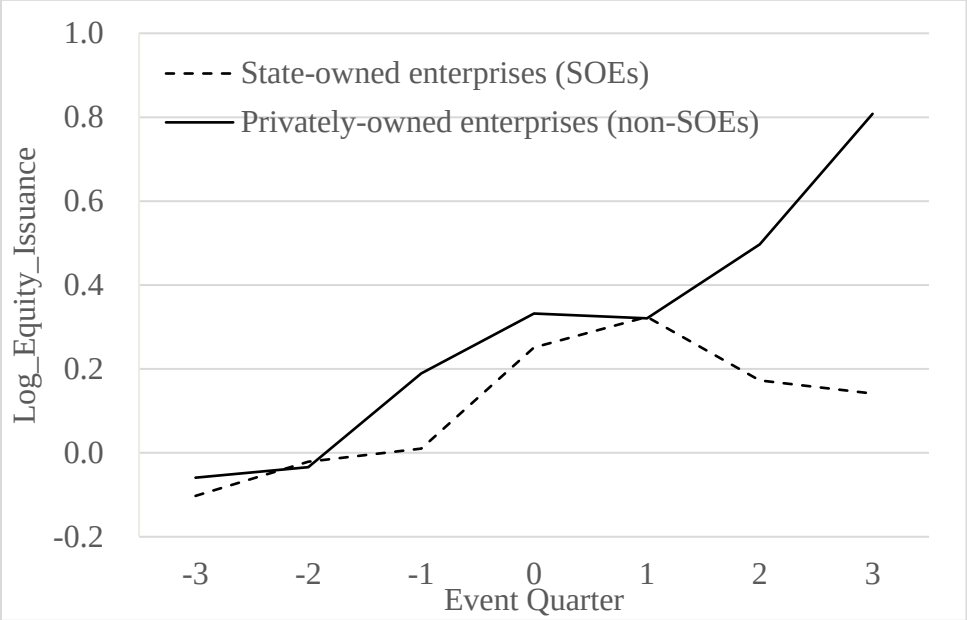
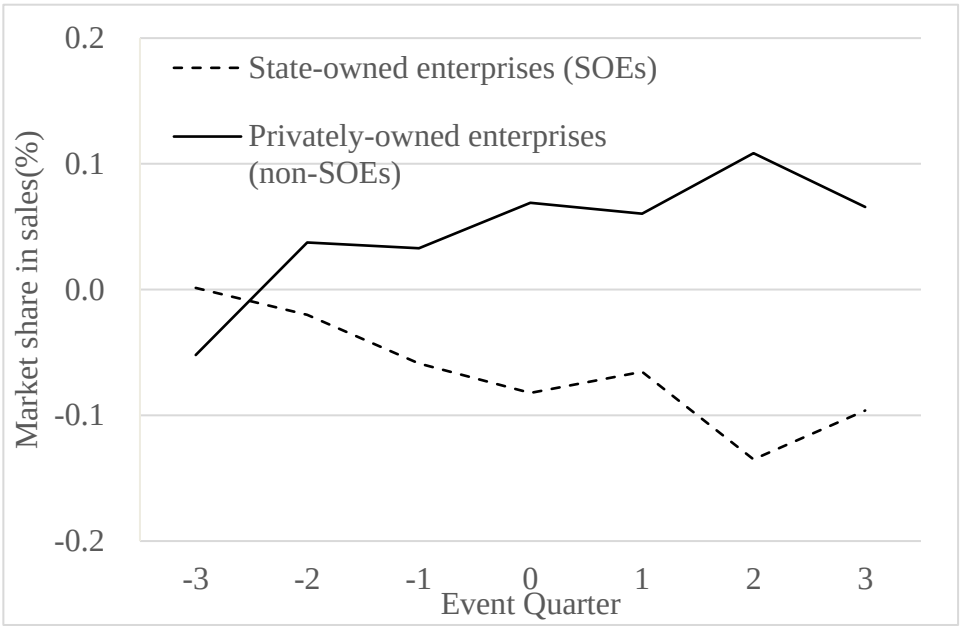


Figure 6: The peer firm equity issuance around investigation events. The equity issuance $Log_Equity_Issuance_t$ equals the logarithm of one plus the amount of equity issued in quarter t. The solid line represents the non-SOE peer firms, and the dash line represents the SOE peer firms. The government ownership dummy *SOE* equals one if a firm is state-owned, given its largest ultimate shareholder is either a government or local entity, and equals zero otherwise. Quarter 0 is the quarter during which the investigation occurs.

Figure 7
The Market Share Change around Investigation Events

Panel A: The Market Share in Sales



Panel B: The Market Share in Assets

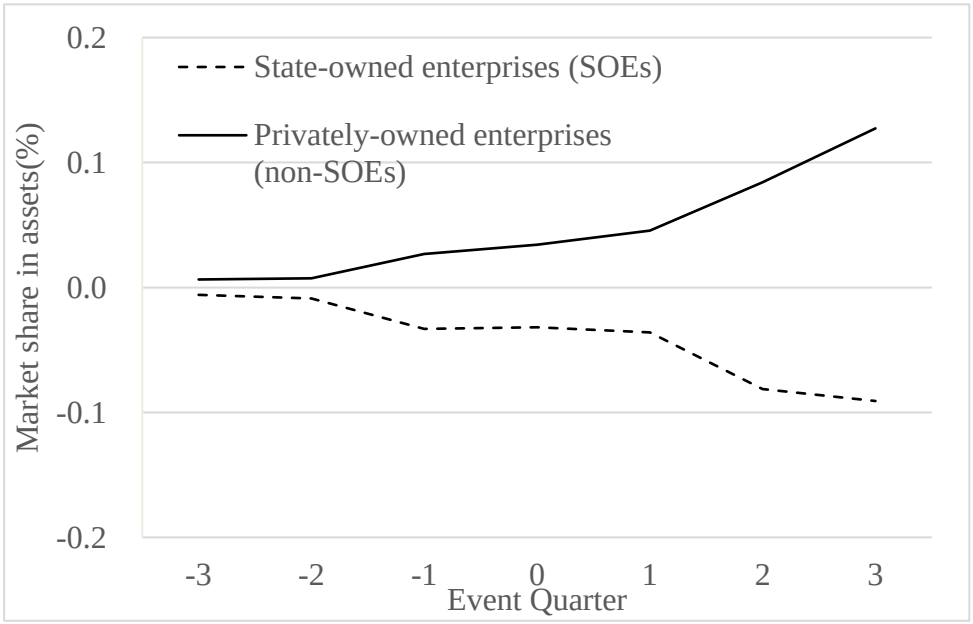


Figure 7: The change in peer firm market share around investigation events. The *market share in sales* (in percentage points) is a firm's total sales divided by the total sales of all firms in a three-digit SIC industry by WIND China. The *market share in assets* (in percentage points) is a firm's total assets divided by the total assets of all firms in a three-digit SIC industry by WIND China. The solid line represents the non-SOE peer firms, and the dash line represents the SOE peer firms. Quarter 0 is the quarter during which the investigation occurs.