China's Anti-corruption Campaign and Credit Reallocation from SOEs to PEs*

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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 state-owned enterprises (SOE) to privately-owned, non-SOE firms. Our evidence suggests that industry specific competition effect dominates the contagion effect for non-SOE peers. This credit reallocation effect is more concentrated in short-term debt versus long-term debt and in bank loans versus corporate bonds, with higher investment efficiency and market share. The credit shifting towards non-SOE firms is also consistent with a supply-side explanation that we corroborate using an exogenous shock to the banking industry. Our findings imply that the anti-corruption campaign in China is beneficial to the economy due to more efficient credit allocation.

Keywords: Anti-corruption, competition, contagion, credit reallocation, financing capacity, political risk.

JEL classification: G30, G32, G34, P26.

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1. Introduction

This paper uses the Chinese anti-corruption campaign as a natural experiment to identify the impact of political uncertainty associated with corruption investigations on credit reallocation among industry rivals. For certain rival firms, the investigation of government officials can trigger a contagion effect within an industry---the public become more concerned about the political uncertainty faced by peer firms that could be subject to future investigation. For example, rival firms in the same industry may have a higher probability of being investigated following anti-corruption investigations and the exposure of political network.[1] Alternatively, investigation of government officials does not necessarily convey negative information about competitors of corruption firms. In contrast, it could imply brighter growth opportunities for peer firms by increasing their market share if the competition effects dominate.[2] Our paper intends to fill this void by addressing three critical questions: Would rival firms benefit from or be hurt by the competitors' loss of political connections? Does the state ownership matter in determining the competitive advantages of industry peers? What is the underlying mechanism driving the changes in industry peers' comparative advantage as political uncertainty increases?

We provide a novel empirical finding that the government ownership matters decisively in weighing the impact of anti-corruption on industry peer firms. Our results show that industry rivals experience increases in financing capacity if they are privately-owned enterprises (referred to as non-SOEs). This positive result reflects the fact that non-SOE rivals gain from the increase in political uncertainty faced by their SOE rivals. The increase in financing capacity for non-SOE peers is consistent with the competition hypothesis. In contrast, SOE peers experience reductions in financing capacity upon the corruption investigations. The results for SOE peers are consistent with the contagion hypothesis, which reflects the public's expectation that the announcements may trigger further investigations. Our

[1] Prior studies (Lang and Stulz (1992), Hertzel and Officer (2012)) demonstrate that bankruptcy filings can trigger significant industry-specific contagion effects in terms of stock prices and bank loan spreads.

[2] For example, Lang and Stulz (1992) shows that bankruptcy filings in concentrated industries can have positive consequences for rivals through increased market share, as the competition effects dominate the contagion effects in concentrated markets.

micro-level evidence is robust after controlling for firm and bank fixed effects. This credit reallocation result during anti-corruption campaign contrasts sharply with the established finding that SOEs received preferential treatment in bank lending during normal times (Boyreau-Debray and Wei (2005), Song, Storesletten, and Zilibotti (2011)). Figure 1 demonstrates the *unconditional* financing advantage for SOEs relative to non-SOEs in aggregate and the widening gap in credit access from 2010 to 2016.

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, with the goal of improving the transparency of governance. For each announcement of corruption case, the website discloses the name of the government official, the type of corruption and the degree of corruption (measured by the estimated monetary and non-monetary amounts associated with rent seeking activities). We conduct textual analysis to identify possible political connections by searching the media (e.g., on Baidu and Google) and extracting relevant key words regarding the connection between the investigated government officials and public firms listed on the Shanghai and Shenzhen stock exchanges. We further conduct random manual checks to ensure that the connection measure indeed captures the valid existing relationship between investigated officials and public firms.

China's anti-corruption campaign since late 2012 provides an ideal laboratory to evaluate the impact of loss of political connections. The number of government officials investigated in 2015 is more than four times as what it was back in 2013. We take advantage of the unexpected investigation of government officials as an exogenous shock to political uncertainty. From the identification perspective, these shocks are considered as exogenous to the industry rivals as the probability of investigating corrupt firms is unlikely to be correlated with rivals' fundamental. These anti-corruption events provide an ideal laboratory to study the causal relation between political uncertainty and competitors' financing capacity.

To better understand whether the reallocation of credit towards non-SOE peers is efficient, we provide further evidence on investment efficiency and market shares. The results indicate increases in

investment efficiency, as capital expenditure increases with higher Tobin's Q. Non-SOE competitors are able to exploit the growth opportunities when the political uncertainty increases for SOE peers. In terms of market share, our findings reveal that SOE rivals experience significant reduction in market shares, despite the fact that SOE peers have *unconditional* financing advantage over non-SOEs as shown in Figure 1.

We further document the mechanism through which the credit shifts from SOE to non-SOE peers. In particular, we take advantage of an unexpected political event happed 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 banking channel that facilitates the credit reallocation from SOE to non-SOE peers. After Mao's investigation, loan officers extend significantly less bank lending towards SOE peers, suggesting bankers' sensitivity to heightened political risk faced by SOE firms---their managers have close relationship to corrupt government officials and bank managers. This evidence further corroborates the earlier result that government ownership has a differential impact in credit allocation on the rival SOE versus non-SOE firms, upon anti-corruption investigations in China.

There is an important policy implication of our findings. The conventional wisdom argues that the recent anti-corruption campaign in China is bad for the economy, because it deters local government officials and business community from conducting commerce given increases in the cost associated with building connections. However, once considering the indirect financing flow effect on industry rivals---SOE versus non-SOE peers, the anti-corruption investigations might have enhanced more efficient credit reallocation, which in turn might be translated into more fundamental improvement in corporate investment, production, and employment in the days ahead.

Literature

There is a growing literature on using the Chinese anti-corruption campaign as an experiment to study the effects of political uncertainty. Liu, Shu, and Wei (2016) use Bo Xilai's downfall in March 2102

as an unexpected political event happened in China to identify the impact of political uncertainty on stock prices. Ang, Bai, and Zhou (2016) demonstrate that political risk based on the anti-corruption campaign in China translates into higher Chengtou bond yields or funding costs for local governments. Griffin, Liu, and Shu (2016) document that the campaign has limited effect on Chinese firms' self-dealing activities with the exception of entertainment expenditure. Giannetti, Liao, You, and Yu (2016) show that small and young firms are less productive than their more established peers in provinces and industries with high corruption, as measured by the entertainment expenses of large firms in that province and industry.

Our research is among the first to document the credit reallocation effect from anti-corruption investigations on industry rivals and the differential effects due to government ownership. Lin, Morck, Yeung, and Zhao (2016) study the heterogeneous impact of anti-corruption campaign on SOEs and non-SOEs by exploiting the announcement of its Eight-point Regulation at the initiation of the anti-corruption campaign on December 4, 2012. By exploiting China's economic stimulus plan introduced in 2008, Cong and Ponticelli (2016) document that credit stimulus implemented during recessions can slow down or even reverse the gradual reallocation of resources from low productivity SOEs to high productivity non-SOEs. 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)). Aligned with the literature on the cost of government ownership, our paper emphasizes the negative externalities of political connection for SOE rivals associated with the anti-corruption campaign.[3]

[3] Many papers document 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)). Our evidence on the credit reallocation from SOE to non-SOE competitors is consistent with the argument for economic cost of corruption.

Another strand of the literature explores the relationship between political connections and bank financing decisions, especially in various emerging countries. Khwaja and Mian (2005) examine whether politically connected firms in banking in Parkistan are more likely to conduct rent seeking activities. Their results indicate that 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 IO literature on competition versus 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. 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. Zeume (2016) demonstrates that the U.K. Bribery Act had positive effects on direct competitors of U.K. firms that do not fall under the provisions of the Act. Lang and Stulz (1992) first outline the contagion effects and the competition effects arising from bankruptcy announcements. Hertzel and Officer (2012) document a positive relation between loan spreads and the incidence of bankruptcy filings by industry rivals. Parsons, Sulaeman, and Titman (2014) examine whether misconduct incentive of firms is related to the misconduct of neighboring firms. In particular, their paper provides direct evidence on spillover effects to local firms in terms of the incentives to engage in fraud using non-local industry shocks. Our findings support the competition hypothesis for non-SOE rivals by demonstrating the increases in loans offered by banks and increases in operating efficiency.

The rest of the paper is organized as follows. Section 2 describes institutional background, data collection, and summary statistics. Section 3 presents our main finding on credit reallocation effect of the anti-corruption investigation for industry SOE and non-SOE peers. Section 4 explores the mechanism that

drives the credit reallocation by focusing on an exogenous shock to the banking industry. Section 5 documents the stock market responses to the anti-corruption investigations and provides further discussions on policy implications. Section 6 concludes the paper.

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).[4] Since senior officials possess substantial political power while the local government officials may have less influence on firms, 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.

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

[4] 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.

literature except for education-based connections (Fracassi and Tate, 2012). Current employment connections are typical directorships in the same firm. Prior employment connections capture overlapping 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 the case.

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 major media releases. This data collection procedure is performed by the authors and four graduate students at Tsinghua University PBC School of Finance.

Before the formal connection search, we perform a pilot experiment with a random sample of 100 news articles initially selected just by officials' name association, to finalize the criteria of key word search on news articles. 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 that have established relationships with 61 public firms.

Since our paper focuses on anti-corruption announcements, we keep only the first announcement of the investigated 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 30 corruption industries that have prior connections with investigated cases and senior 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, we use the two-digit industry classification according to the WIND China dataset.[5] The WIND two-digit 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.[6] We further require firms to not have missing information on stock prices, financial statements, and ownership structure. Our final sample has 1,965 public peer firms that operate in the same industries of the firms related to corruption investigation.

B. Variable Definitions

We use various measures to capture industry rivals' financial capacity such as total debt, short-term debt versus long-term debt, and bank loans versus corporate bonds. The total debt issuance *Log_Total_Debt* equals the logarithm of one plus the total short-term debt and long-term debt. The short-term debt issuance *Log_Short_Debt* equals the logarithm of one plus the short-term debt. The long-term debt issuance *Log_Long_Debt* equals the logarithm of one plus the long-term debt. The loan amount *Log_Loan_Amt* equals the logarithm of one plus the loan amount. The bond issuance amount *Log_Bond_Amt* equals the logarithm of one plus the bond issuance amount. The capital expenditure is defined as the logarithm of one plus capital expenditures. The market share in sales (in percentage points) is a firm's total sales divided by the total sales of all firms in a two-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 two-digit SIC industry by WIND China dataset.

The government ownership dummy equals one if an industry peer firm is stated owned and equals zero otherwise. In our regressions, we control for determinants of financing capacity that have been used in

[5] Our main results are robust to the alternative method of using the three-digit classification to identify industry peers.

[6] 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).

previous studies. 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. Leverage is calculated as the long-term debt plus short-term debt divided by total assets. 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 concentration index (HHI) captures the degree of industry competition, which is defined as the sum of the square of each firm's share in the same two-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 from 2012-2015. 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 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.[7] 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 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 equipment, chemical, real estate, and pharmaceutical industries as the numbers of peers in those industries are large.

[7] 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.

Table 2 provides summary statistics for the dependent variables and peer firm characteristics. Table 3 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 (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 Effects of Anti-corruption Investigations on Industry Peers

In this section, we first set out the hypotheses testing of contagion versus competition effects, in terms of financing capacity for industry rivals upon corruption investigation. Then, we provide direct evidence on various dimensions of total debt, short-term debt versus long-term debt, and bank loans versus corporate bonds, shift significantly from SOE to non-SOE peers, due to increased political uncertainty after corruption investigation. Finally, we report the differences in investment efficiency and market shares, upon investigation events.

A. Hypothesis and Methodology

The investigation announcement of government officials conveys negative information about the growth prospectus of the corruption firms in terms of the decline of future cash flow and the loss of political connections. The investigation events can affect the industry peers through the following two channels. First, the announcement of investigations of officials reveals negative information to investors on the whole industry. For example, peer firms could also have established similar connections with the investigated officials. The investigation of officials reveals the political network to public, which may trigger further investigations on peer firms and the potential loss of political connection. This negative impact of anti-corruption events on peer firm is referred to as the contagion effect. Second, the investigation events can convey information to public on the competitive position of peer firms in the same industry. For example, the industry peers firms can be more efficient and may not have the incentive to seek political rents from

bureaucrats. Consequently, the announcement of investigation increases the market value of the peer firms that is not affected by the political events. This positive implication of anti-corruption events on peer firms is referred to as the competition effect.

To test the contagion versus competition hypotheses, we examine whether peer firms' financing capacity increases or decreases after the investigation event by using the difference-in-differences methodology. For each announcement of investigation in an industry, we compare peer firms' financing decision before and after the events as well as the difference in financing capacity between SOE and non-SOE peers. Our regression specification can be described as follows:

$$y_{i,t} = \beta_1 Investigation_{i,t} + \beta_2 Investigation_{i,t} * SOE_i + \beta_3 InvestigationAft_{i,t} + \beta_4 InvestigationAft_{i,t} * SOE_i + Firm\ Controls_{i,t} + Firm\ fixed_i + Quarter_{i,t} + \varepsilon_{i,t} \quad (1)$$

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. The variable $InvestigationAft_{i,t}$ 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. The key dependent variables are: the total debt issuance, the short-term debt issuance, the long-term debt issuance, the amount from bank loans, and the amount from corporate bond issuance, etc., as defined in Section 2. 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: the ROA, the firm size (the logarithm of total assets), the Tobin's Q, the leverage, and the SOE dummy captures whether a peer firm is state-owned. The Herfindahl-Hirschman (HHI) concentration index is included in all regression specifications because it can significantly affect debt issuance decision and how firms compete to obtain financing.

B. The Impact of Investigations on the Total Debt Issuance

We start by exploiting the debt issuance implication associated with anti-corruption investigations. Figure 2 plots the logarithm of total debt 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. Among 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 issuance 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 issuance 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.[8] Moreover, the difference in average total debt issuance change between non-SOE peers and SOE peers is 0.503, which is statistically significant at the 5 percent level (*p*-value=0.021).

Table 4 presents the regression estimation results in a formal difference-in-differences framework for the sample consisting of industries that a public firm has connections with the investigated official. This filtering procedure generates 30 corruption industries that have prior connections with investigated officials. To control for firm specific time-invariant omitted variables that may contaminate our regression results, all 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 4 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*, and the set of firm level controls. Column (2) controls for firm level characteristics and quarterly fixed effects. Columns (3) controls for firm fundamentals, quarterly fixed effects, and firm fixed effects to address the concern that the regression results might be driven by omitted time-invariant firm characteristics.

[8] This result is robust to using an alternative event window [-4, +4] around the investigations. Though for longer event window the effect cannot be precisely estimated, due to our limited sample period of 2012-2015.

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 debt issuance following the investigation of government officials. In terms of economic magnitude, the results demonstrate that debt issuance increases by 23 percent in Column (3) after controlling for firm and quarter fixed effects. The positive relation between investigation and debt issuance for non-SOE peers reveals that the competition effects dominate the contagion effects as these firms experience increases in debt capacity.

The magnitude of increase in total debt issuance for non-SOE peers may seem large compared to developed economies; but it reflects the fact that private firms are financially repressed in the credit market in China during normal times. For example, Song, Storesletten, and Zilibotti (2011) demonstrate that SOEs finance more than 30 percent of their investments through bank loans compared to less than 10 percent for non-SOEs. In Figure 1, we show a consistent pattern of financial repression: banks loans constitute more than 50 percent of total debt for SOEs in 2010, and banks loans constitute more than 60 percent of total debt for SOEs in 2016. In addition, credit repression is reflected in that banks ration the cheap credit in favor of less productive SOEs given the implicit government guarantees (Brandt and Zhu, 2001). In our sample, after the anti-corruption investigation, close to 5 percent of the non-SOE rivals experience increases in total debt issuances from zero to 10 million RMB Yuan; close to 10 percent of the non-SOE rivals experience increases in total debt issuances from zero to 50 million RMB Yuan.

The interaction term between $InvestigationAft_{i,t}$ and the *SOE* dummy captures whether *SOE* and *non-SOE* peer firms respond differently to the investigation of corruption related firm in their industry. In contrast to the non-SOEs, the coefficients on the interaction term are negative and statistically significant at the 1 percent level. The negative estimation results imply that, among the peer firms of anti-corruption affected industry, SOEs rivals face reductions in debt issuances after the investigation event. The reduction in financing capacity faced by SOE peers indicates that the contagion effects dominate the competition effects. The magnitude of reduction for 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 financing drop from 91.9 percent in 2002 to 51.3 percent in 2013.

C. The Impact of Investigations on the Short-term Debt versus Long-term Debt

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

Table 5 shows the difference-in-differences regression results for short-term debt and long-term debt respectively. From the regression estimates shown in Columns (1)-(3) of Table 5, we observe significant increases in short-term debt issuance before and after the investigation events for non-SOE peers. In terms of economic magnitude (Column (3), this translates into 27 percent increase in short-term financing after the investigation shocks. However, the SOE peer firms experience sharp decreases in short-term debt issuance, which is statistically significant at the 1 percent level. Columns (4)-(6) display the difference-in-differences regression results on the long-term debt issuance between SOE peers and non-SOE peers. The results demonstrate that, on average, we do not observe any change in long-term debt issuance after the investigation events for the non-SOE peers. The long-term debt issuance decreases for SOE peers but is only significant at the 10 percent level.

Consistent with our earlier finding, evidence here indicates that SOE rivals face significant reductions in financing capacity, especially in the short-term debt. Given increases in political uncertainty, external financiers treat SOE peer firms and non-SOE peer firms differently *conditional on* the investigation of government officials. The evidence on resource re-allocation towards non-SOE peers are in contrast to the existing literature on the *unconditional* financing advantage of SOEs as mentioned earlier (Boyreau-Debray and Wei (2005), Song, Storesletten, and Zilibotti (2011)) and shown in Figure 1.

D. The Impact of Investigations on Bank Loans versus Corporate Bonds

We further examine the impact of anti-corruption investigations on peer firm financing capacity in terms of bank loans versus corporate bonds, realizing the fact that Chinese firms are more dependent on banks loans than corporate bonds. Comparing changes in the issuance of these instruments help to understand on whether bankers and investors respond to the investigation events differently. Panel A of Figure 4 plots the change in financing for bank loans. We observe that the anti-corruption events are associated with significant increases in the bank loan issuance for non-SOE peers compared to SOE peers. The average change in loan issuance 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 Panel B, both non-SOE peers and SOE peers experience reductions in the corporate bond issuance, which is consistent with the alleged financing frictions in Chinese bond market.

Table 6 displays the regression results in a formal difference-in-differences framework. In Table 6, the dependent variables in Columns (1)-(3) are the amount raised from bank loans and the dependent variables in Columns (4)-(6) are the amount raised from the issuance of corporate bonds, respectively. In Columns (1)-(3), the positive coefficient on $InvestigationAft_{i,t}$ indicates that non-SOE peer firms experience substantial increases in bank loans after the investigation of government officials. In contrast, the interaction term $InvestigationAft_{i,t} * SOE$ suggests that SOE peers experience significant reductions in bank loans after the events. Given that the coefficient magnitude on $InvestigationAft_{i,t}$ is smaller than the coefficient on $InvestigationAft_{i,t} * SOE$, banks seem to only partially switch lending to non-SOE borrowers. The reductions in bank loans for SOE peers reflect the fact that bankers become sensitive to the future political risk associated with SOE peer firms following anti-corruption investigations, as prior rent-seeking activities could be discovered. To reduce the risk of future corruption investigations and the associated increase loan default risks, banks have incentive to switch lending to non-SOE peers, at least partially to diversify these risks.

Columns (4)-(6) 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. In contrast, the SOE peers experience increases in bond issuance after the investigation events. We interpret these results as SOE peers issue *more costly* corporate bonds to compensate for the reduction in *less costly* bank loans, while non-SOE peers substitute *less costly* bank loans for *more costly* corporate bonds. Given the limited capacity of Chinese bond market, SOE peers are unlikely to issue sufficient amounts of bonds to fully substitute the reduction in financing capacity from the investigation shocks.[9]

E. Investment Efficiency

Our previous evidence demonstrates that the banks allocate more loans towards non-SOE peers while reduce lending for SOE peers following investigation events. One 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. Another possible explanation is that more efficient peer firms did not seek as much political rent or bribing government officials, therefore the financing shift after the investigation represents more efficient resource allocation.

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 7, the regression estimates on the interaction term between the post investigation dummy and the Tobin's Q in all columns of Table 7 are positive and statistically significant at the 1 percent level.

[9] Our evidence on bank loan is robust to an alternative *CSMAR loan level data*, which contains detailed information on loan issuance amount, the maturity of each loan, the spreads, and the inclusion of collateral, and the related syndicate members. In an unreported analysis using this kind of loan data, we obtain consistent results on credit reallocation between SOEs and non-SOEs after anti-corruption events.

This evidence indicates that non-SOE peer firms increase the amount of capital expenditure when the growth opportunity is high. Last section shows that banks tend to lend more to non-SOE than SOE rivals upon investigations. Taken these two findings together, Table 7 demonstrates that anti-corruption events are associated with increases in investment efficiency when banks reallocate more credits away from SOE to non-SOE peers.

F. The Peer Firm Market Share

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 sales to the total sales by all firms in the same two-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 two-digit SIC industry classified by WIND China.

Figure 5 Panel A depicts the change in market share measured in sales and Panel B shows 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, documented in Panel B.

Table 8 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) of Table 8 shows that corruption investigation is associated with reductions in market shares (in sales) for SOE peers given the negative coefficient estimates on the interaction term $InvestigationAft_{i,t} * SOE$. This represents about a 17 percent reduction in the market share as

compared to the median level of market share of all CSMAR firms (0.464 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 but insignificant. One possible explanation for the insignificance is that non-SOE peer firms do not necessarily capture more market shares immediately following the anti-corruption events. Furthermore, the insignificant loading of non-SOE peers can also be explained by the stylized fact that the market is highly dispersed among non-SOE peers in China. After the investigation events, each small non-SOE firm capture only a small portion of the market share lost by large SOE industry peers. In an unreported result figure with longer horizon, we are able to observe that the decrease in market share for SOE peers is a long-lasting phenomenon, and the decrease persists even three years after the investigation events.

Columns (3) and (4) display the regression results using an alternative measure of market share---the fraction of a firm's assets to the total assets by all firms in the same two-digit SIC industry classified by WIND China. Similar to the previous findings of the differential impact of government ownership on credit reallocation, SOE industry rivals experience sharp declines in the market share after the investigation of corruption related firms. This evidence suggests that the contagion effects arising from anti-corruption investigations dominate the competition effects for the SOE peer firms. The coefficient estimates for all control variables yield similar sign and statistical significance across different specifications.

4. Demand or Supply Channel?

Now we turn to the economic mechanism how anti-corruption events could affect the credit reallocation among industry rivals. Either the demand or supply channel could drive the positive relation between anti-corruption investigation and subsequent improvement in financing capacity for non-SOE peers. The demand channel suggests that firms under corruption investigation face reduction in demand in the product market, which is associated with increases in the market share for non-SOE rivals. However, the insignificant results on market share for non-SOE peers shown in Table 8 demonstrate that these firms not

necessarily experience expansions in the product markets, despite the fact that SOE peers lose significant market shares. This evidence suggests that demand side cannot provide a satisfactory explanation. On the other hand, the financing shift towards non-SOE peers is mainly driven by short-term debt instead of long-term debt (Table 5) and driven by bank loans instead of corporate bonds (Table 6), which tentatively suggests an active role for bankers or credit supply channel.

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. Minsheng was founded in 1996 and was China's first joint-ownership bank (partially private-owned), which focuses on lending to small, privately owned, non-SOE companies. Minsheng Bank had Rmb3.8tn ($603bn) in assets as of end-September 2015, according to Bloomberg data. The CEO Mao Xiaofeng resigned and was investigated on January 30, 2015 in a corruption case related to several high-profile government officials.[10]

Besides the ties between corrupt firms and government officials we examined previously, the linkage between government officials and banking executives is another critical building block in typical Chinese corruption cases investigated by CCDI. For example, when a firm bribes the government official to obtain bank loans at favorable terms, the official are more likely to approach a banker with close past relationship or even nominated by the official. Therefore, rent-seeking activities occur within the iron triangle of the firm, the government official, and the banker. To reduce the obstacles and frictions in rent-seeking activities, the government official has incentive to control the assignment of bankers and to determine the compensation package of bankers. In the early methodology section, we clarify that peer firms do not have political connections with the investigated officials, using our search procedure. Throughout the analysis, we use the investigation of bank officials as a shock to the peer firms to evaluate the credit reallocation effect of the anti-corruption events. Given the strong linkage between investigated

[10] 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 net.

officials and bankers, the investigation of bankers represents a shock to the peer firms as these firms are less likely to have connections with corruption firms and investigated officials.

The deep connection between bankers and government officials mentioned above offers an ideal setup to study how financiers respond to political risk. CEO Mao's investigation drew enormous media coverage especially by the official channels, which amounts to the first and most influential case in the anti-corruption campaign in banking industry. This event was unlikely to be expected by the investors, bankders, and the general public, as the media reported that Minsheng Bank requested all the high-profile bankers at the headquarter and branches to attend a special meeting on that weekend of January 30, 2015.[11] Given the extensive linkage between the banking network and the government network in China, the investigation of CEO Mao could trigger further investigations on other bankers. As the cost associated with rent-seeking increases, it is interesting to see whether the financial industry respond to this negative shock by reducing lending, especially for state-owned firms (SOEs).

Table 9 shows difference-in-difference estimating result. 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 total amounts of debt, the amounts of short-term debt, and the amounts of long-term debt. The coefficients on the interaction term $InvestigationAft * AftMao_{i,t} * SOE$ are negative and statistically significant at the 10 percent level for total debt and 1 percent level for short-term debt---after the investigation of CEO Mao, bankers become more conservative in originating loans by cutting the credit supply to SOE rivals. In contrast, the coefficients on the interaction term $InvestigationAft * AftMao_{i,t}$ are 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 after the scandal being reported. This credit reallocation effect from

[11] The investigation on CEO Mao was immediately reported by Caixin on Saturday, which is a leading and well-respected financial 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.

SOEs to non-SOEs reflects potential reduction in rent-seeking activities by bankers and their belief on the increases in political uncertainty, especially associated with SOE rival firms.

Columns (4) and (5) show the regression results with dependent variables as the amounts for loans and bonds, respectively. Consistent with the benchmark regression results, the reallocation of credit is mostly concentrated in bank loans (significant) instead of corporate bonds (insignificant). Overall, using the banking industry shock related to CEO Mao's investigation, we infer that the shifting of credit towards non-SOE peers is driven by the supply side rather than the demand side considerations.

Although we do not completely rule out the demand side explanation for the credit reallocation from SOE to non-SOE rivals, the earlier evidence (Figure 1) that SOEs receive "preferential treatment" in external financing especially in terms of bank loans (Boyreau-Debray and Wei, 2005; Song, Storesletten, and Zilibotti, 2011) lends support to our supply side explanation. SOEs might have demanded more bank loans during uncertain economic times, if not for the active bankers' decisions on reducing the credit supply to SOEs surrounding the anti-corruption investigations.

5. Equity Market Response and Further Discussions

Recent studies related to 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 (2016) 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 credit in China (1.3 percent), while loan financing is the dominant source (about 85 percent), the rest are corporate bonds and short-term bills (Wang, Wang, Wang, and Zhou (2016)).

There lacks in-depth research focusing on credit flows, in the form of bank loans, corporate bonds, or even stock issuances---which may further translate initial financial market reaction to anti-corruption

investigations into more fundamental changes in corporate investments, production, and employment in the longer-term. The bulk of our paper has been trying to fill this void by examining the credit reallocations, while in this section we first try to connect to the existing literature on stock price reaction and then corroborate with stock issuance evidence. We provide some policy discussions in the end.

A. Abnormal Returns

We estimate daily abnormal stock returns using the Fama and French (1993) three factor model.[12] 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 6 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 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

[12] 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.

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 government ownership effect is more pronounced in the post-investigation periods. In summary, the evidence from Table 10 demonstrates 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 7 plots the logarithm of total equity issuance in the window extending from three quarters before the investigation to three quarters after the event for the peer firms. Similarly, we plot separately time paths for SOE peers and non-SOE peers to evaluate whether these firms' equity issuance decision change with respect to the investigation. 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 4. In Columns (1) and (3), the coefficient on $InvestigationAft_{i,t}$ is positive and statistically significant at the 1 and 10 percent levels, respectively, which suggests that non-SOE peer firms experience increases in equity issuance following the investigation of government officials. The positive relation between investigation and equity issuance for non-SOE peers is consistent with the previous findings on increases in debt capacity for non-SOE peers. In contrast, for SOE peers the coefficients on the interaction term for Columns (1) through (3) are all negative and statistically significant at the 1 percent level. The negative estimation results imply 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, the negative externalities among all SOE firms in the same industry imply a higher probability of investigation after the anti-corruption announcements on government officials. For instance, SOE peer firms' CEOs typically have significant interactions with corruption firms during prior job assignment. 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 SOE peers as well. The nature of political connection dictates that contagion effect dominates the SOE peers while competition effect dominates the non-SOE peers in the same industry.

C. Further Discussions and Policy Implications

There has been a fierce debate about whether the anti-corruption campaign in China can be effective in improving corporate governance and transparency. 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, business people may complain about the increases in bribery costs to inhibit "normal" commerce activity. In this paper, we provide the opposite empirical evidence that anti-corruption campaign is indeed effective, in terms of credit reallocation from less productive SOE peers to more productive non-SOE peers. There are three key ingredients for our paper to reach a different conclusion than the popular news media or some policy-academic research.

First, most popular policy research similar to the FT 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 around the 2012-2015 period. However, these macro or market level arguments are not identifiable or separable with alternative explanations: (1) cyclical slowdowns of global growth and international trade, (2) structural changes in the Chinese economy like population ageing and

industrial upgrading. Rather, once we focus on firm-level, micro-based event-studies, our finding of positive credit reallocation effect towards non-SOE industry peers, is consistent with other micro-based firm-level or provincial-level evidence: (1) political risk from the anti-corruption campaign in China translates into higher Chengtou bond yields or local government funding cost (Ang, Bai, and Zhou (2016)), (2) the anti-corruption campaign indeed targets more corrupted firms with all kinds of corporate malfeasances (Griffin, Liu, and Shu (2016)).

Second, the popular 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 in both overseas and domestic stock markets. 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 (Wang, Wang, Wang, and Zhou (2016)). However, as the anti-corruption campaign gradually ramps up, bankers may become more cautious to lend to SOEs for fear of the potential political connection risks, despite the fact that SOEs have low credit risk with implicit government guarantees. Instead, loan officers may be more willing to allocate credit towards non-SOE rivals to diversify the anti-corruption investigation risk, despite the fact that they may have higher credit risk and no government guarantees. That is exactly what is revealed in our shock experiment on the banking industry by the investigation on Minsheng bank CEO Mao Xiaofeng. In essence, the empirical evidence shown in this paper sheds light on the more efficient lending practice by the financial industry upon the anti-corruption campaign, which may be worthwhile for a full examination in future research.

Finally, the simple view that anti-corruption campaign is bad for the economy might have extrapolated the direct effect on corruption officials and associated firms to the broader economy and the whole market, without carefully distinguishing the indirect effects of contagion versus competition among industry rivals. In essence, the anti-corruption campaign not only directly curtails the rent seeking activities of associated firms and official under investigation, which might have an adverse effect on the real economy as a collateral damage, but also indirectly facilitates more efficient credit provision by financial institutions

from low productivity SOE rivals to high productivity non-SOEs. More specifically, banks seem to be more willing to lend to non-SOE peers, which are more productive with higher ROA than SOEs and are less susceptible to further investigations because of less political connections than SOEs. We also provide further evidence that non-SOE rivals' preferential access to credit come with boosting investment efficiency and enlarging market shares.

6. Conclusion

We provide a novel empirical finding that the anti-corruption campaign in China is associated with reallocation of credit from low-productivity SOE peers to high-productivity non-SOE peers. After the investigation event, non-SOE rivals experience persistent increases in financing capacity of total debt issuance, the fraction of short-term debt (as opposed to long-term debt), and the fraction of bank loans (as opposed to corporate bonds). Our evidence indicates that the competition effect dominates the contagion effect for non-SOE rivals, while the opposite is true for SOE rivals. This indicates that the political uncertainty increases for SOE peers due to perceived higher probability of further investigations. Moreover, the reallocation of credit improves investment efficiency for non-SOE rivals operate in the same industry, which is measured by increases in capital expenditure for firms with higher Tobin's Q.

We further pin down the supply-side channel through which non-SOE peer firms benefit from the anti-corruption campaign. Using one of the most influential corruption cases in the financial industry, CEO Mao's scandal of Minsheng Bank, our empirical results reveal that bankers become more sensitive to heightened political uncertainty and are more likely to allocate credit towards non-SOE to reduce the risk of further investigations. The career concern associated with investigations of bankers can outweigh the benefit associated with rent seeking activities when providing loans to SOEs. By focusing on the investigation of a bank CEO as an exogenous shock, we provide a supply-side explanation that drives the more efficient credit reallocation.

Our study contributes to the literature by providing micro-level firm-based evidence that the anti-corruption campaign indeed has a positive spillover effect, by changing the competitive positions of SOE

and non-SOE rivals in the same industry for accessing credit. Given the dominant role of banks in allocating financing resources in China, further research on how bankers react to anti-corruption investigations can open up the black box as how heightened political uncertainty affects the real economy.

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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 are politically connected, and the number of peer firms in the same industry. The year-quater refers to the calendar year and quarter that the investigation occured. Panel B displays the number of peer firms in each of the industries that are affected by the anti-corruption cases, which is classified using the WIND China two-digit SIC codes. We keep only the first announcement of investigations in each industry for all 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	209
2013-1	1	0	0
2013-2	6	8	646
2013-3	6	0	0
2013-4	11	2	74
2014-1	4	0	0
2014-2	14	7	605
2014-3	15	2	52
2014-4	9	6	303
2015-1	11	2	76
Total	78	30	1965

Panel B: Number of peer firms across industries

Industry	Number of peer firms
Semiconductor products and semiconductor devices	46
Electric power	45
Electrical equipment	126
Electronic equipment, instruments and components	148
Independent power producer and energy	7
Real estate and development	136
Aerospace and defense	19
Internet software and services	19
Chemical industry	213
Mechanics	209
Household consumer durables	62
Building material	43
Building products	31
Construction and engineering	52
Mining	151
Media	54
Automobile	23
Auto parts	69
Software	37
Business services and supplies	34
Commercial bank	14
Oil and natural gas	45
Food	102
Water	14
Information technology services	53
Medical and health care equipment and supplies	18
Paper products	31
Pharmacy	119
Financial services	23
Other	22
Total	1,965

Table 2
Summary Statistics

This table presents the summary statistics of the dependent variables and firm controls. The 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 sum of the square of each firm's share in the same two-digit SIC classification from WIND China dataset. SOE is a dummy that equal one if a peer firm is state-owned and equals zero otherwise. The total debt issuance *Log_Total_Debt* equals the logarithm of one plus the total short-term debt and long-term debt. The short-term debt issuance *Log_Short_Debt* equals the logarithm of one plus the short-term debt. The long-term debt issuance *Log_Long_Debt* equals the logarithm of one plus the long-term debt. The total cash from loan and bond issuance *Log_Total_Loan_Bond* equals the logarithm of one plus the cash flow from loans and bond issuances. The cash from loan *Log_Loan_Amt* equals the logarithm of one plus the cash flow from loans. The cash from bond issuance *Log_Bond_Amt* equals the logarithm of one plus the cash flow from bond issuances. The capital expenditure is defined as the logarithm of one plus capital expenditures. The market share in sales (in percentage points) is a firm's total sales divided by the total sales of all firms in a two-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 two-digit SIC industry by WIND China.

Variables	N	Mean	P25	P50	P75	SD
ROA	35875	0.009	0.001	0.007	0.017	0.019
Size	35875	22.030	21.102	21.879	22.803	1.327
Tobin's Q	35875	2.714	1.393	2.002	3.128	2.262
Leverage	35875	0.468	0.287	0.469	0.642	0.229
HHI	35875	0.089	0.035	0.068	0.105	0.085
SOE	35875	0.507	0.000	1.000	1.000	0.500
Log_Total_Debt	35875	18.127	18.257	20.150	21.494	6.541
Log_Short_Debt	35875	16.129	17.153	19.447	20.658	7.848
Log_Long_Debt	35875	12.813	0.000	17.910	20.293	9.463
Log_Loan_Amt	35875	14.255	0.000	18.469	19.931	8.544
Log_Bond_Amt	35875	0.865	0.000	0.000	0.000	4.122
Market share in sales (%)	35875	1.987	0.150	0.464	1.593	5.187
Market share in assets (%)	35875	1.987	0.216	0.560	1.771	4.591

Table 3

Difference in Summary Statistics

This table presents the difference in summary statistics between state-owned firms and privately-owned firms. The 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 sum of the square of each firm's share in the same two-digit SIC classification from WIND China dataset. SOE is a dummy that equal one if a peer firm is state-owned and equals zero otherwise. The total debt issuance *Log_Total_Debt* equals the logarithm of one plus the total short-term debt and long-term debt. The short-term debt issuance *Log_Short_Debt* equals the logarithm of one plus the short-term debt. The long-term debt issuance *Log_Long_Debt* equals the logarithm of one plus the long-term debt. The cash from loan *Log_Loan_Amt* equals the logarithm of one plus the cash flow from loans. The cash from bond issuance *Log_Bond_Amt* equals the logarithm of one plus the cash flow from bond issuances. The capital expenditure is defined as the logarithm of one plus capital expenditures. The market share in sales (in percentage points) is a firm's total sales divided by the total sales of all firms in a two-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 two-digit SIC industry 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	18183	0.007	0.000	0.006	0.015	0.019	17692	0.010	0.002	0.009	0.018	0.020	-17.249	***
Size	18183	22.488	21.553	22.319	23.385	1.379	17692	21.558	20.845	21.481	22.206	1.085	70.886	***
Tobin's Q	18183	2.207	1.216	1.652	2.480	1.778	17693	3.235	1.697	2.426	3.730	2.566	-44.214	***
Leverage	18183	0.533	0.377	0.550	0.694	0.214	17693	0.400	0.220	0.385	0.557	0.223	57.509	***
HHI	18183	0.097	0.037	0.071	0.111	0.091	17692	0.081	0.035	0.065	0.099	0.076	18.248	***
Log_Total_Debt	18183	19.409	19.187	20.794	22.163	5.671	17693	16.809	17.190	19.562	20.732	7.091	38.407	***
Log_Short_Debt	18183	17.177	18.035	19.892	21.168	7.383	17693	15.051	15.895	18.968	20.168	8.159	25.897	***
Log_Long_Debt	18183	15.171	12.899	19.229	21.246	8.872	17693	10.389	0.000	15.731	19.129	9.440	49.455	***
Log_Loan_Amt	18183	15.448	16.455	18.993	20.463	8.174	17693	13.030	0.000	17.952	19.380	8.741	27.072	***
Log_Bond_Amt	18183	1.103	0.000	0.000	0.000	4.655	17693	0.619	0.000	0.000	0.000	3.474	11.132	***
Market share in sales	18183	2.519	0.208	0.633	2.186	5.595	17693	1.441	0.111	0.344	1.053	4.669	19.797	***
Market share in assets	18183	2.494	0.271	0.749	2.222	5.214	17693	1.466	0.170	0.429	1.342	3.777	21.336	***

Table 4
The Debt Issuance Surrounding Investigations

This table presents the OLS regression of total debt issuance on the anti-corruption investigation events. The *investigation* is an indicator variable that equals one if the investigation of an official occurs within the fiscal quarter end date for a peer firm, and equals zero for all other quarters. The variable *InvestigationAft* is a dummy that equals one for all quarters after the investigation of an official, and equals zero for all other quarters prior to the investigation event. The 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 sum of the square of each firm's share in the same two-digit SIC classification from WIND China dataset. SOE is a dummy that equal one if a peer firm is state-owned and equals zero otherwise. The total debt issuance *Log_Total_Debt* equals the logarithm of one plus the total short-term debt and long-term debt. 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)
Variables		*Log_Total_Debt*	
Investigation	0.483**	0.346*	0.233
	(2.443)	(1.654)	(1.600)
*Investigation*SOE*	-0.451	-0.414	-0.277
	(-1.632)	(-1.498)	(-1.459)
InvestigationAft	0.927***	0.441***	0.233**
	(11.091)	(3.435)	(2.346)
*InvestigationAft*SOE*	-0.958***	-0.954***	-0.531***
	(-8.411)	(-8.379)	(-6.428)
SOE	-0.203**	-0.204**	-0.159
	(-2.493)	(-2.501)	(-0.893)
ROA	-15.694***	-15.078***	-5.122***
	(-10.047)	(-9.584)	(-4.139)
Size	1.482***	1.441***	2.261***
	(50.579)	(48.379)	(36.151)
TobinQ	-0.406***	-0.443***	0.001
	(-27.198)	(-28.467)	(0.051)
Leverage	10.550***	10.651***	8.285***
	(73.786)	(73.957)	(39.670)
HHI	-3.752***	-3.818***	-3.606***
	(-10.787)	(-10.966)	(-3.927)
Quarterly fixed effects	No	Yes	Yes
Firm fixed effects	No	No	Yes
Observations	34,518	34,518	34,518
R-squared	0.387	0.388	0.131

Table 5

The Short and Long-term Debt Issuance

This table presents the OLS regression of short-term and long-term debt issuance on the anti-corruption investigation events. The *investigation* is an indicator variable that equals one if the investigation of an official occurs within the fiscal quarter end date for a peer firm, and equals zero for all other quarters. The variable *InvestigationAft* is a dummy that equals one for all quarters after the investigation of an official, and equals zero for all other quarters prior to the investigation event. The 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 sum of the square of each firm's share in the same two-digit SIC classification from WIND China dataset. SOE is a dummy that equal one if a peer firm is state-owned and equals zero otherwise. The short-term debt issuance *Log_Short_Debt* equals the logarithm of one plus the short-term debt. The long-term debt issuance *Log_Long_Debt* equals the logarithm of one plus the long-term debt. 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)
Variables	*Log_Short_Debt*			*Log_Long_Debt*		
Investigation	0.478*	0.085	0.214	-0.276	0.009	-0.012
	(1.892)	(0.318)	(1.167)	(-0.992)	(0.031)	(-0.063)
*Investigation*SOE*	-0.651*	-0.581	-0.410*	0.058	0.079	0.198
	(-1.842)	(-1.644)	(-1.707)	(0.149)	(0.203)	(0.760)
InvestigationAft	1.005***	0.044	0.269**	0.262**	0.137	0.069
	(9.403)	(0.271)	(2.145)	(2.225)	(0.756)	(0.508)
*InvestigationAft*SOE*	-1.282***	-1.279***	-0.593***	-0.625***	-0.620***	-0.215*
	(-8.812)	(-8.797)	(-5.678)	(-3.899)	(-3.871)	(-1.893)
SOE	-0.676***	-0.669***	-0.319	0.315***	0.295**	0.303
	(-6.478)	(-6.417)	(-1.419)	(2.740)	(2.567)	(1.241)
ROA	-18.929***	-17.713***	-4.894***	-19.218***	-19.412***	-4.980***
	(-9.480)	(-8.812)	(-3.129)	(-8.741)	(-8.771)	(-2.931)
Size	1.333***	1.272***	2.441***	2.867***	2.826***	4.099***
	(35.597)	(33.407)	(30.880)	(69.519)	(67.416)	(47.742)
TobinQ	-0.510***	-0.560***	0.011	-0.337***	-0.390***	0.026
	(-26.703)	(-28.182)	(0.515)	(-16.048)	(-17.832)	(1.126)
Leverage	12.305***	12.487***	9.652***	13.097***	13.148***	9.052***
	(67.333)	(67.858)	(36.566)	(65.080)	(64.892)	(31.564)
HHI	-5.808***	-5.945***	-3.420***	-1.414***	-1.376***	-4.361***
	(-13.064)	(-13.364)	(-2.947)	(-2.888)	(-2.809)	(-3.459)
Quarterly fixed effects	No	Yes	Yes	No	Yes	Yes
Firm fixed effects	No	No	Yes	No	No	Yes
Observations	34,518	34,518	34,518	34,518	34,518	34,518
R-squared	0.302	0.304	0.102	0.416	0.418	0.136

Table 6
The Bank Loans and Bond Issuance

This table presents the OLS regression of the cash flow from bank loans and bond issuance on the anti-corruption investigation events. The *investigation* is an indicator variable that equals one if the investigation of an official occurs within the fiscal quarter end date for a peer firm, and equals zero for all other quarters. The variable *InvestigationAft* is a dummy that equals one for all quarters after the investigation of an official, and equals zero for all other quarters prior to the investigation event. The 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 sum of the square of each firm's share in the same two-digit SIC classification from WIND China dataset. SOE is a dummy that equal one if a peer firm is state-owned and equals zero otherwise. The cash from loan *Log_Loan_Amt* equals the logarithm of one plus the cash flow from loans. The cash from bond issuance *Log_Bond_Amt* equals the logarithm of one plus the cash flow from bond issuances. 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)
Variables	*Log_Loan_Amt*			*Log_Bond_Amt*		
Investigation	0.102	-0.054	-0.042	-0.217	-0.149	-0.295*
	(0.374)	(-0.187)	(-0.184)	(-1.434)	(-0.931)	(-1.933)
*Investigation*SOE*	-0.175	-0.124	-0.049	0.238	0.229	0.255
	(-0.459)	(-0.326)	(-0.165)	(1.122)	(1.081)	(1.279)
InvestigationAft	0.793***	0.355**	0.398**	-0.213***	-0.327***	-0.554***
	(6.889)	(2.009)	(2.545)	(-3.316)	(-3.329)	(-5.324)
*InvestigationAft*SOE*	-1.147***	-1.156***	-0.668***	0.188**	0.203**	0.192**
	(-7.323)	(-7.386)	(-5.136)	(2.150)	(2.324)	(2.221)
SOE	-0.888***	-0.888***	0.033	-0.442***	-0.441***	-0.099
	(-7.904)	(-7.912)	(0.119)	(-7.062)	(-7.052)	(-0.530)
ROA	-20.635***	-19.714***	-9.276***	-2.655**	-1.900	-0.127
	(-9.600)	(-9.108)	(-4.763)	(-2.216)	(-1.577)	(-0.098)
Size	1.884***	1.842***	2.776***	0.911***	0.890***	0.674***
	(46.743)	(44.936)	(28.211)	(40.569)	(39.000)	(10.282)
TobinQ	-0.602***	-0.644***	-0.004	0.095***	0.083***	-0.010
	(-29.279)	(-30.122)	(-0.161)	(8.291)	(7.000)	(-0.554)
Leverage	11.218***	11.317***	6.670***	0.470***	0.526***	0.445**
	(57.015)	(57.116)	(20.292)	(4.289)	(4.768)	(2.031)
HHI	-6.369***	-6.416***	-0.998	0.196	0.174	4.346***
	(-13.307)	(-13.396)	(-0.690)	(0.735)	(0.653)	(4.514)
Quarterly fixed effects	No	Yes	Yes	No	Yes	Yes
Firm fixed effects	No	No	Yes	No	No	Yes
Observations	34,518	34,518	34,518	34,518	34,518	34,518
R-squared	0.314	0.316	0.062	0.070	0.075	0.016

Table 7
The Investment Efficiency of Peer Firms

This table presents the OLS regression of capital expenditures on the anti-corruption investigation events and the growth opportunity. The capital expenditure *Log_Capx* is defined as the logarithm of one plus capital expenditures. The *investigation* is an indicator variable that equals one if the investigation of an official occurs within the fiscal quarter end date for a peer firm, and equals zero for all other quarters. The variable *InvestigationAft* is a dummy that equals one for all quarters after the investigation of an official, and equals zero for all other quarters prior to the investigation event. The 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 sum of the square of each firm's share in the same two-digit SIC classification from WIND China dataset. SOE is a dummy that equal one if a peer firm is state-owned and equals zero otherwise. 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)
Variables		Log_Capx	
Investigation	-0.496***	-0.565***	-0.123
	(-3.682)	(-3.956)	(-0.970)
*nvestigation*SOE*	0.185	0.201	0.216
	(0.981)	(1.067)	(1.298)
InvestigationAft	-1.269***	-1.470***	-0.572***
	(-14.145)	(-13.376)	(-5.335)
*InvestigationAft*SOE*	0.230*	0.243**	0.315***
	(1.864)	(1.971)	(2.699)
*InvestigationAft*TobinQ*	0.144***	0.161***	0.140***
	(6.719)	(7.415)	(6.610)
*SOE*TobinQ*	0.057**	0.055**	0.007
	(2.124)	(2.070)	(0.213)
*SOE*InvestigationAft*TobinQ*	-0.044	-0.045	-0.042
	(-1.209)	(-1.220)	(-1.186)
SOE	-0.233***	-0.238***	-0.174
	(-2.640)	(-2.706)	(-0.920)
ROA	-0.240***	-0.259***	-0.078***
	(-14.298)	(-15.158)	(-3.584)
Size	11.542***	11.297***	4.358***
	(10.821)	(10.526)	(4.023)
TobinQ	1.337***	1.332***	1.644***
	(65.993)	(64.672)	(29.458)
Leverage	-2.996***	-2.983***	-2.426***
	(-30.598)	(-30.295)	(-13.182)
HHI	0.420*	0.417*	-1.775**
	(1.767)	(1.756)	(-2.209)
Quarterly fixed effects	No	Yes	Yes
Firm fixed effects	Yes	No	Yes
Observations	34,518	34,518	34,518
R-squared	0.215	0.218	0.045

Table 8
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 two-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 two-digit SIC industry by WIND China. The *investigation* is an indicator variable that equals one if the investigation of an official occurs within the fiscal quarter end date for a peer firm, and equals zero for all other quarters. The variable *InvestigationAft* is a dummy that equals one for all quarters after the investigation of an official, and equals zero for all other quarters prior to the investigation event. The 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 sum of the square of each firm's share in the same two-digit SIC classification from WIND China dataset. SOE is a dummy that equal one if a peer firm is state-owned and equals zero otherwise. 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	-0.112**	0.042	-0.181***	-0.001
	(-2.063)	(0.730)	(-5.590)	(-0.037)
*Investigation*SOE*	-0.108	-0.109	-0.019	-0.018
	(-1.426)	(-1.435)	(-0.418)	(-0.408)
InvestigationAft	-0.280***	0.019	-0.346***	0.002
	(-10.342)	(0.481)	(-21.467)	(0.068)
*InvestigationAft*SOE*	-0.096***	-0.079**	-0.070***	-0.050**
	(-2.899)	(-2.388)	(-3.592)	(-2.573)
SOE	-0.276***	-0.306***	-0.161***	-0.196***
	(-3.890)	(-4.310)	(-3.824)	(-4.686)
ROA	0.657	-0.152	-0.060	-1.004***
	(1.345)	(-0.308)	(-0.207)	(-3.445)
Size	0.690***	0.805***	0.849***	0.985***
	(29.944)	(32.244)	(61.980)	(66.885)
TobinQ	0.003	0.014**	0.013***	0.028***
	(0.475)	(2.124)	(3.681)	(6.954)
Leverage	0.710***	0.660***	0.321***	0.261***
	(8.533)	(7.920)	(6.479)	(5.309)
HHI	-0.161	0.155	0.470**	0.846***
	(-0.445)	(0.422)	(2.181)	(3.913)
Quarterly fixed effects	Yes	Yes	Yes	Yes
Firm fixed effects	No	Yes	No	Yes
Observations	34,518	34,518	34,518	34,518
R-squared	0.039	0.044	0.128	0.146

Table 9
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 periods after Jan 30, 2015, and equals zero for all other quarters. The variable *InvestigationAft* is a dummy that equals one for all quarters after the investigation of an official, and equals zero for all other quarters prior to the investigation event. The total debt issuance *Log_Total_Debt* equals the logarithm of one plus the total short-term debt and long-term debt. The short-term debt issuance *Log_Short_Debt* equals the logarithm of one plus the short-term debt. The long-term debt issuance *Log_Long_Debt* equals the logarithm of one plus the long-term debt. The cash from loan *Log_Loan_Amt* equals the logarithm of one plus the cash flow from loans. The cash from 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	0.165	0.078	0.067	-0.161	-0.270*
	(1.114)	(0.417)	(0.330)	(-0.691)	(-1.741)
*Investigation*SOE*	-0.233	-0.314	0.160	-0.051	0.264
	(-1.205)	(-1.285)	(0.603)	(-0.166)	(1.301)
*SOE*AftMao*	-1.626*	-2.035*	-2.361**	-0.547	0.376
	(-1.924)	(-1.906)	(-2.035)	(-0.411)	(0.424)
*Investigation*AftMao*	1.722**	3.045***	-1.613	2.492**	-0.329
	(2.359)	(3.302)	(-1.610)	(2.169)	(-0.430)
*Investigation*AftMao *SOE*	-1.216	-2.499**	1.080	-0.201	-0.183
	(-1.246)	(-2.026)	(0.806)	(-0.131)	(-0.179)
InvestigationAft	0.223**	0.213*	0.103	0.353**	-0.537***
	(2.228)	(1.687)	(0.748)	(2.239)	(-5.121)
*InvestigationAft*SOE*	-0.511***	-0.541***	-0.224*	-0.635***	0.199**
	(-6.100)	(-5.112)	(-1.952)	(-4.823)	(2.269)
*InvestigationAft *AftMao*	0.607*	2.105***	-1.176**	1.955***	-0.473
	(1.695)	(4.651)	(-2.390)	(3.467)	(-1.259)
*InvestigationAft *AftMao*SOE*	-0.880*	-2.210***	0.385	-1.542**	-0.110
	(-1.814)	(-3.605)	(0.578)	(-2.019)	(-0.216)
Firm controls	Yes	Yes	Yes	Yes	Yes
Quarterly fixed effects	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	34,518	34,518	34,518	34,518	34,518
R-squared	0.131	0.103	0.136	0.062	0.017

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 sample includes peer firms operate in the same industry as corruption firms given investigation occurred 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, and the T-test for the difference in cumulative abnormal returns. The pvalues 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

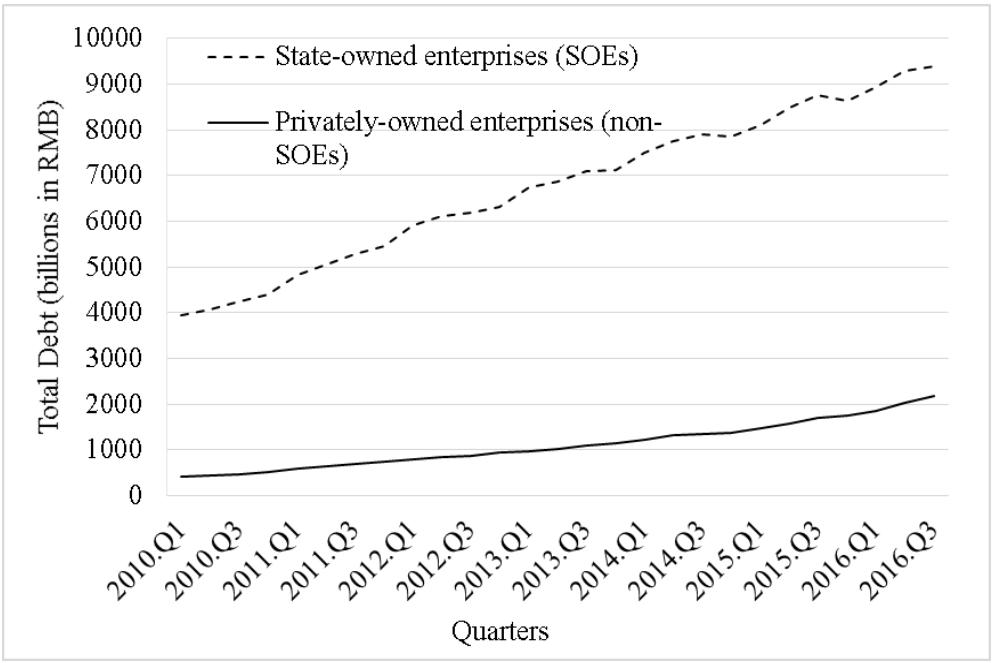
Table 11
The Equity Issuance Surrounding Investigations

This table presents the OLS regression of total equity issuance on the anti-corruption investigation events. The *investigation* is an indicator variable that equals one if the investigation of an official occurs within the fiscal quarter end date for a peer firm, and equals zero for all other quarters. The variable *InvestigationAft* is a dummy that equals one for all quarters after the investigation of an official, and equals zero for all other quarters prior to the investigation event. The 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 sum of the square of each firm's share in the same two-digit SIC classification from WIND China dataset. SOE is a dummy that equal one if a peer firm is state-owned and equals zero otherwise. The total debt issuance *Log_Total_Equity* equals the logarithm of one plus the total amounts of equity issued. 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.

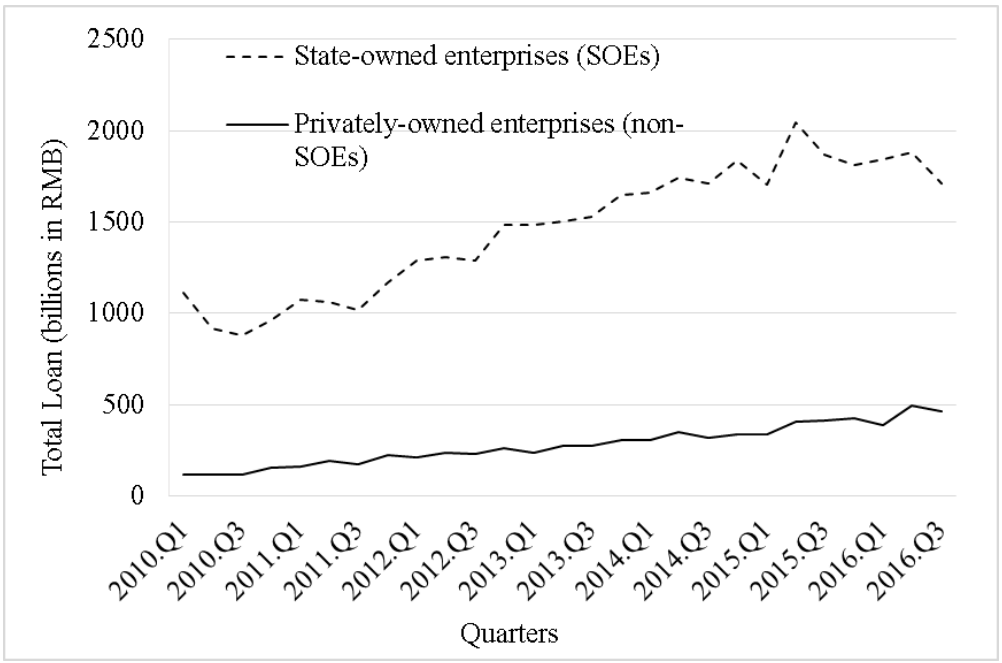
	(1)	(2)	(3)
Variables		*Log_Total_Equity*	
Investigation	0.302**	-0.012	-0.010
	(2.193)	(-0.084)	(-0.067)
*Investigation*SOE*	-0.021	-0.018	0.061
	(-0.107)	(-0.096)	(0.315)
InvestigationAft	0.696***	0.136	0.176*
	(11.941)	(1.520)	(1.734)
*InvestigationAft*SOE*	-0.431***	-0.423***	-0.294***
	(-5.426)	(-5.340)	(-3.477)
SOE	-0.116**	-0.108*	0.059
	(-2.043)	(-1.897)	(0.325)
ROA	6.725***	7.394***	8.798***
	(6.176)	(6.745)	(6.959)
Size	0.057***	0.031	0.309***
	(2.782)	(1.473)	(4.842)
TobinQ	0.033***	0.018	0.102***
	(3.217)	(1.620)	(5.892)
Leverage	1.058***	1.156***	3.250***
	(10.617)	(11.519)	(15.228)
HHI	-0.398	-0.485**	0.377
	(-1.642)	(-1.999)	(0.402)
Quarterly fixed effects	No	Yes	Yes
Firm fixed effects	No	No	Yes
Observations	34,518	34,518	34,518
R-squared	0.012	0.015	0.019

Figure 1
The Aggregate Debt and Loan Issuance

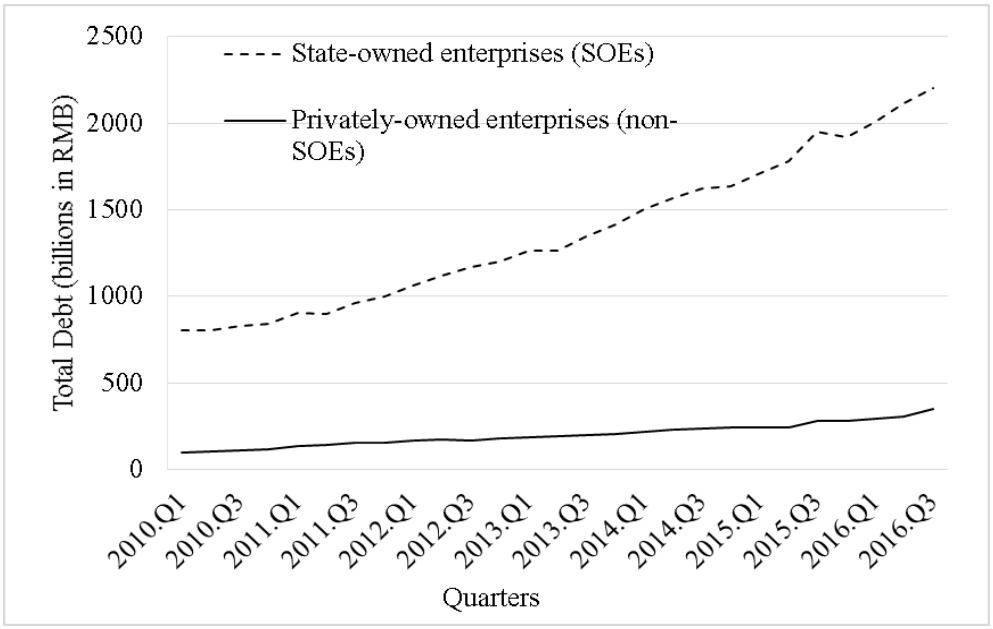
Panel A: The Aggregate Debt Issuance for Investigated and Non-investigated Industries



Panel B: The Aggregate Bank Loan Issuance for Investigated and Non-investigated Industries



Panel C: The Aggregate Debt Issuance for Non-investigated Industries



Panel D: The Aggregate Bank Loan Issuance for Non-investigated Industries

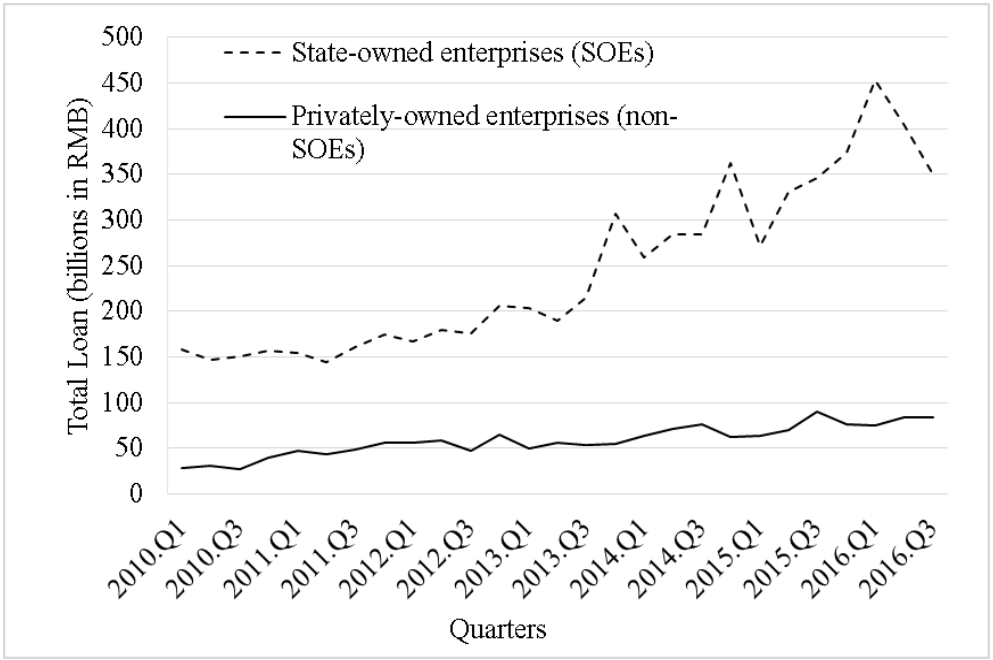


Figure 1:The aggregate debt and bank loan issuance for investigated and non-investigated industries. Panel A illustrates the aggregate debt issuance for both investigated and non-investigated industries; Panel B illustrates aggregate bank loan issuance for both investigated and non-investigated industries; Panel C shows the aggregate debt issuance for non-investigated industries; Panel D shows the aggregate bank loan issuance for non-investigated industries. The aggregate debt issuance *Total Debt* equals the total short-term debt and long-term debt in quarter t. The aggregate cash from loan *Total Loan* equals the cash flow from loans in quarter t. The solid line represents the non-SOE peer firms, and the dash line represents the SOE peer firms. Quarters indicate the aggregate debt and bank loans for each corresponding quarters.

Figure 2
Firm Total Debt Issuance around Investigation Events

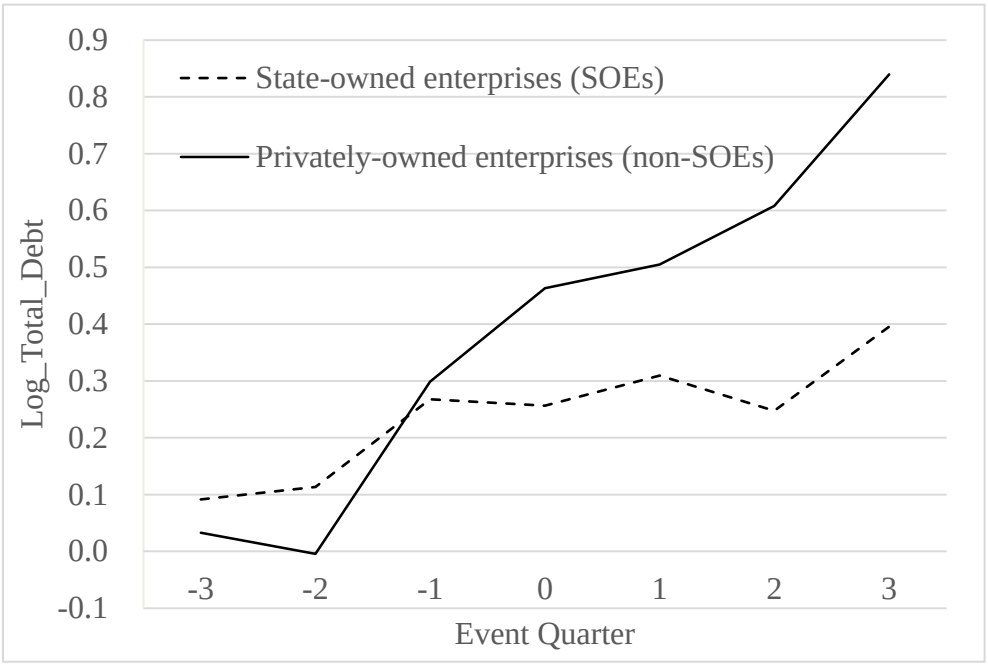
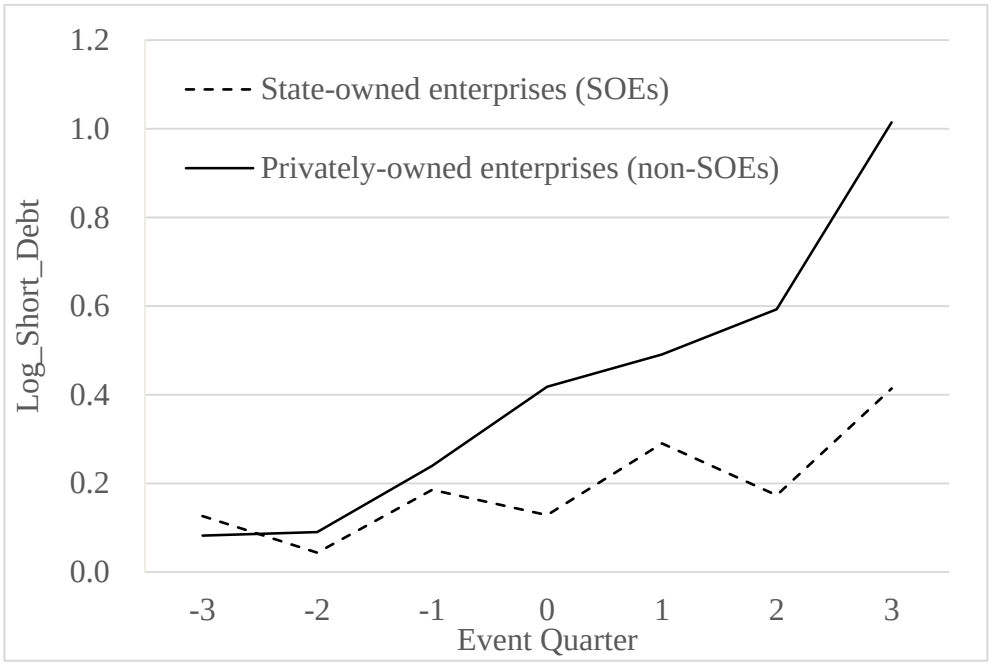


Figure 2: Firm total debt issuance around investigation events. The total debt issuance *Log_Total_Debt* equals the logarithm of one plus the total short-term debt and long-term debt in quarter t. The solid line represents the non-SOE peer firms, and the dash line represents the SOE peer firms. Quarter 0 is the quarter during which the investigation occurs.

Figure 3
The Short and Long-term Debt Issuance around Investigation Events

Panel A: Short-term Debt Issuance around Investigations



Panel B: Long-term Debt Issuance around Investigations

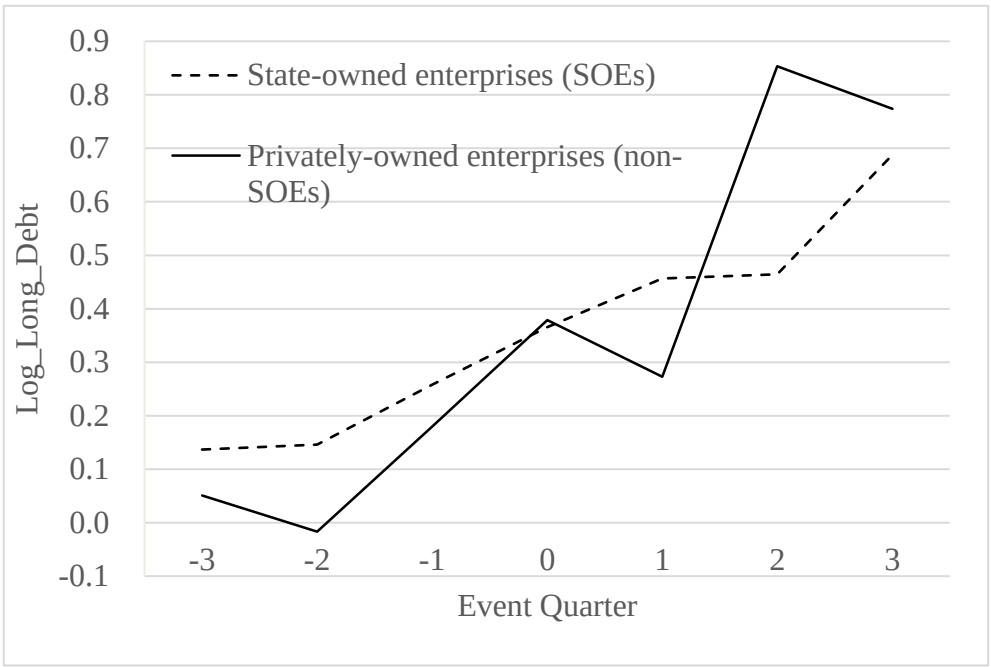
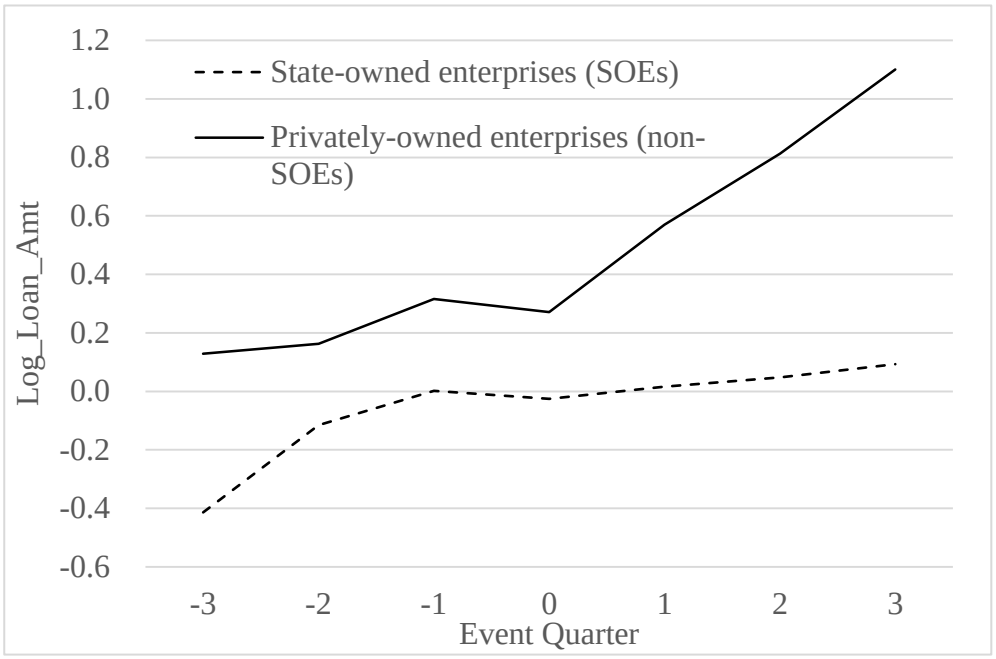


Figure 3: Short-term versus long-term debt around investigation events. The short-term debt issuance *Log_Short_Debt* equals the logarithm of one plus the short-term debt in quarter *t* . The long-term debt issuance *Log_Long_Debt* equals the logarithm of one plus the long-term debt in quarter *t* . 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.

Figure 4
The Bank Loan and Bond Issuance around Investigation Events

Panel A: Bank Loan Issuance around Investigations



Panel B: Corporate Bond Issuance around Investigations

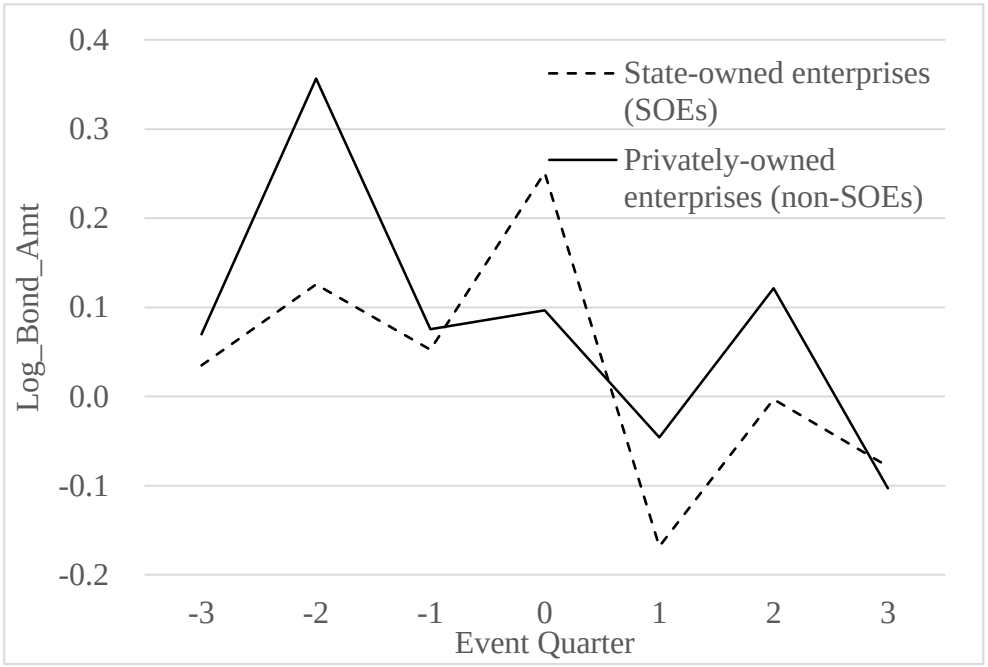
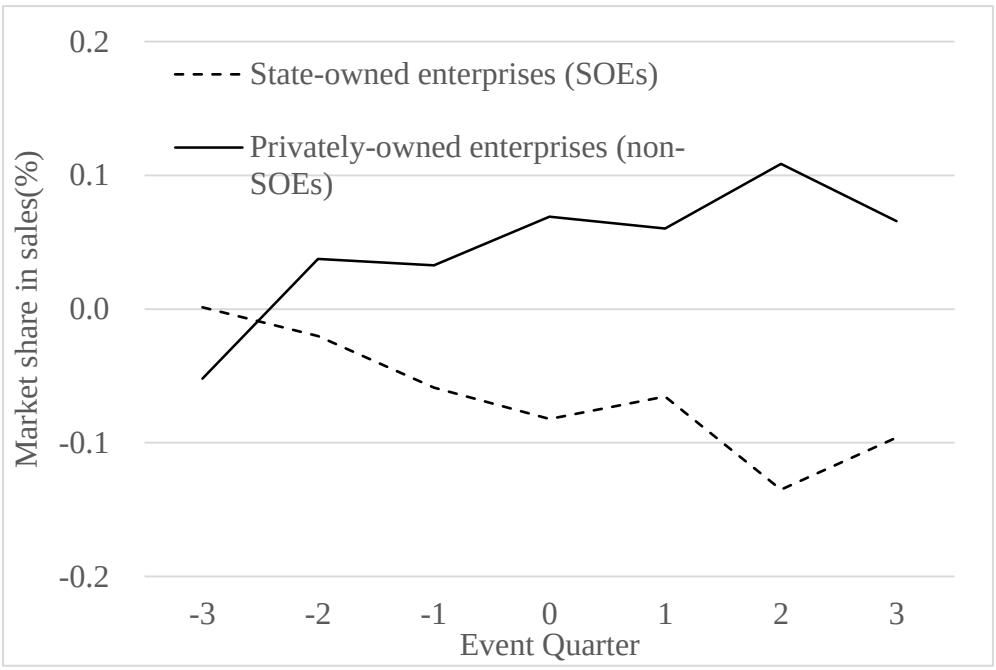


Figure 4: The bank loan versus corporate bond issuance around investigation events. The cash from loan *Log_Loan_Amt* equals the logarithm of one plus the cash flow from loans in quarter *t* . The cash from bond issuance *Log_Bond_Amt* equals the logarithm of one plus the cash flow from bond issuances 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.

Figure 5
The Peer Firm Market Share around Investigation Events

Panel A: The Market Share in Sales



Panel B: The Market Share in Assets

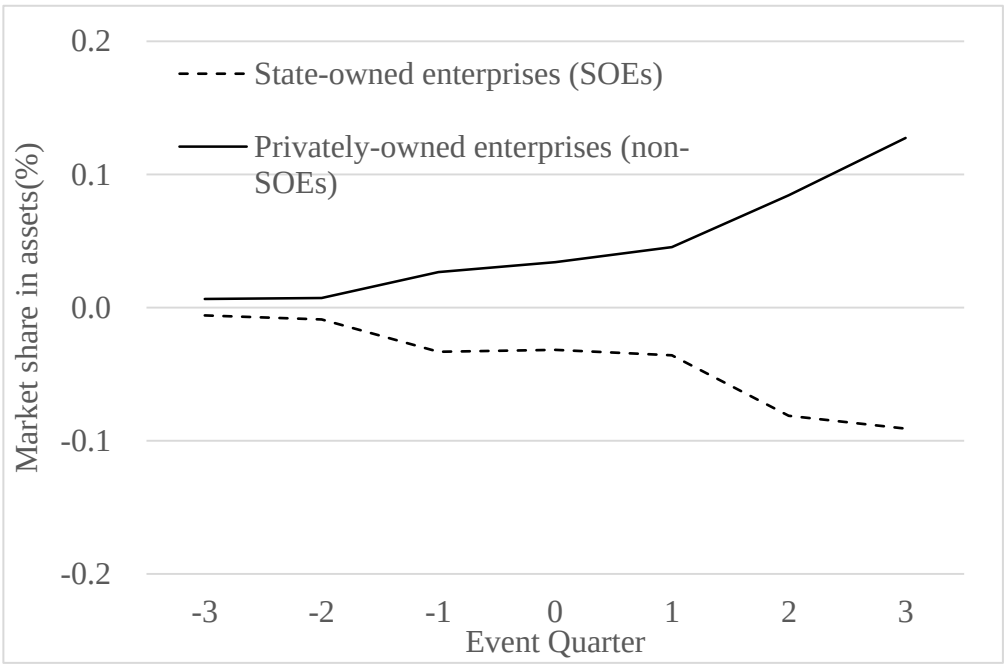


Figure 5: The change in peer firm market share around investigation events. The market share in sales (in percentage points) is a firm's total sales divided by the total sales of all firms in a two-digit SIC industry by WIND China. The market share in assets (in percentage points) is a firm's total assets divided by the total assets of all firms in a two-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.

Figure 6: Cumulative abnormal returns (CARs) for state-owned enterprises (SOEs) and privately-owned enterprises (non-SOEs)

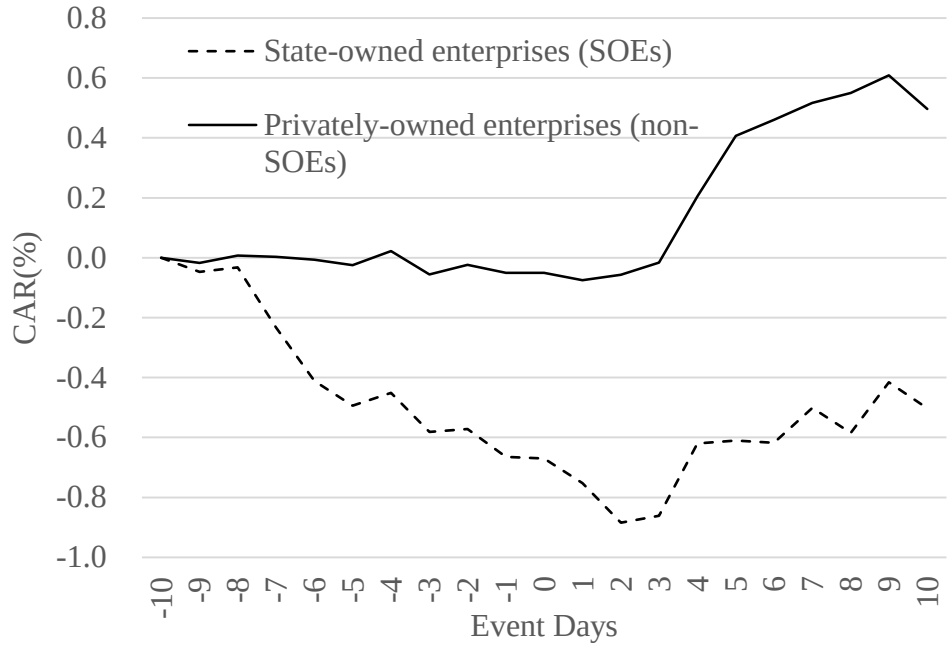


Figure 6: Cumulative abnormal returns (CARs) for state-owned enterprises (SOEs) and privately-owned enterprises (non-SOEs). This figure plots the cumulative abnormal returns (in percentage pints) associated with events surrounding anti-corruption investigations for peers firms that are privately-owned enterprises (non-SOEs) and state-owned enterprises (SOEs) respectively. The sample includes peer firms operate in the same industry as corruption firms given investigation occurred 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, +10]. The solid line represents the non-SOE peer firms, and the dash line represents the SOE peer firms.

Figure 7
The Equity Issuance around Investigation Events

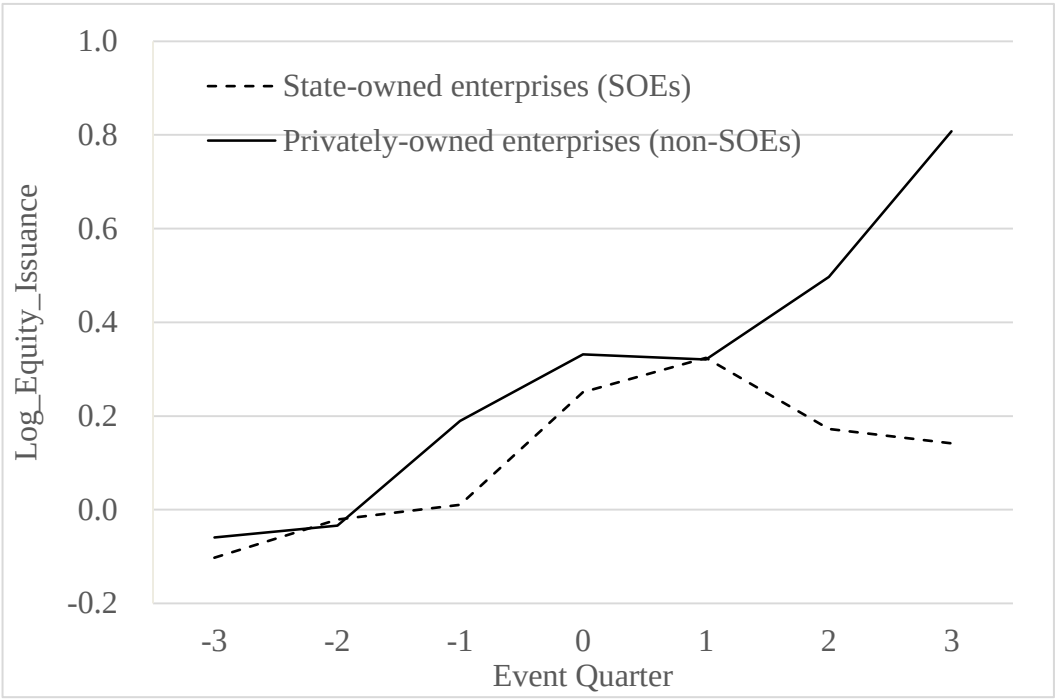


Figure 7: The peer firm equity issuance around investigation events. The equity issuance *Log_Equity_Issuance* equals the logarithm of one plus the amount of equity issued in quarter *t* . The solid line represents the non-SOE peer firms, and the dash line represents the SOE peer firms.