Economic Policy Uncertainty, State Ownership, and Credit Allocation

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Abstract: Employing the news-based economic policy uncertainty (EPU) Index of Baker, Bloom, and Davis (2016) and quarterly data of Chinese listed companies, we find that an increase in EPU raises the average debt-to-asset ratio of state-owned enterprises (SOEs) but lowers that of private-owned enterprises (POEs). These findings are largely consistent with in spike of EPU, banks prefer to lend to firms possessing implicit guarantees, but inconsistent with banks allocate credit resources to firms outperforming their peers via information advantage. Our findings highlight that EPU can reduce the real efficiency through worsening credit misallocation.

Keywords: Economic policy uncertainty; Ownership discrimination, Credit allocation, Corporate leverage

JEL Classification: G32; E44; P26

1. Introduction

The raise of economic policy uncertainty (henceforth EPU) is a concern around the world. A well-established channel argues that EPU affects the value of real options, which delays corporate investment and hinders economic growth (Julio and Yook, 2012; Baker, Bloom, and Davis, 2016; Gulen and Ion, 2016; Jens, 2017). An efficient external capital market has the ability to allocate capital to its best use, the well-functioning of which can be hampered by extensive politically-motivated guidance (Shleifer, 1998; Wurgler, 2000). In this paper, we provide evidence of a largely unexplored channel in addition to the wait-and-see effect through which EPU can adversely affect the real economy: It worsens the resource misallocation problem among firms with differential access to policymakers, especially when the resource allocation mechanism is ex-ante inefficient.

We predict that two channels, both of which predict a larger amount of credit resources flows to political-connected firms under heightened EPU, but with divergent implications on the efficiency of resource allocation. On the one hand, political connection enables firms to possess implicit guarantees against default (Dewenter and Malatesta, 2001; Faccio, 2006; Faccio, Masulis, and McConnell, 2006; Borisova, Fotak, and Holland et al., 2015; Jin, Wang, and Zhang, 2017), which are more valuable when defaults are more probable due to changes in economic conditions (Ivashina and Scharfstein, 2010). During periods with frequent adjustment and vague orientation of economic policies, to avoid risky borrowers, banks are more likely to allocate resources for pure connection-based reasons, which leads to severer

discrimination problem and results in worsened resource misallocation. We term this view the *implicit guarantee* channel.

Alternatively, with greater access to political information and a greater understanding of the likelihood of policy developments (Ovtchinnikov, Reza, and Wu, 2016; Wellman, 2017), political-connected firms can operate more efficiently and outperform their non-connected peers in spike of heightened EPU, making themselves attractive borrowers. Under this scenario, banks may choose to allocate resources to connected firms for economic reasons, which results in more efficient lending decisions. We term this view the *information advantage* channel.

To test for these predictions, our empirical analysis focuses on the heterogeneous effects of EPU on the accessibility of credit resources between state-owned enterprises (henceforth SOEs) and private-owned enterprises (or non-SOEs, henceforth POEs) in China. Although China is not the only setting in which we can investigate credit allocation in high EPU period, our setting possesses several features worth noticing, which are summarized as follows.

First, the establishment of political connection is endogenous, which itself can be affected by the degree of policy uncertainty (Akey, 2015), making it difficult to identify how credit resources are allocated between firms with and without connections in react to increased EPU.[1] Therefore, it is important to identify a group of firms endowed with long-standing connections with the government, which are free from the endogenous choice

[1] Dinc (2005) documents that governments are more likely to bail out banks after elections. Faccio, Masulis, and McConnell (2006) also consider the possibility that the prospect of an immediate bailout may "cause" political connections. Claessen, Feijen, and Laeven (2008) find that Brazilian firms that provided contributions to elected federal deputies substantially increased their bank financing relative to a control group after elections. Carney and Child (2013) indicate that corporate ownership would undergo substantial changes where major political changes occurred. Akey and Lewellen (2017) find that firms' uncertainty about future government policies plays a first-order role in explaining corporate political contributions.

of becoming politically connected. Our setting allows us to examine a relatively large number of such firms (SOEs) whose connections with the government are naturally endowed, which enables either the *implicit guarantee* channel or the *information advantage* channel to work.

Second, firms may strategically switch between bank loans and public debt because of changes in the cost of financing and the information asymmetries (Ben Nasr, Bouslimi, and Zhong, 2017). Failure to take account of the interaction among different sources of debt financing may lead to a biased inference on the effect of EPU on corporate leverage. However, due to the immature public bond market, this possibility is minimized in China. Therefore, in this regard, China represents a cleaner setting for our investigation on credit allocation issues.

Third, the rapid development of private sector in China actively establish political connections via hiring formal government officials or government experience, just as enterprises in developed countries. Our setting enables us to study a broad array of political connections common in both developing and developed economies. The acquired and endowed political connection have similar function in maintaining information advantage in times of policy changes, but differ in possible government bailouts since the POEs are not part of the state assets. In this sense, China is a unique setting which offers relatively large sample of both SOEs and POEs and the difference of their political connections to identify the implicit guarantee channel and the information advantage channel in our story.

Fourth, regional divergences of institutional environments are more typical in the Chinese financial markets (Fan, Wang, and Zhu, 2011), generating significant cross-sectional

variations for the relative extent of implicit guarantees, which facilitate us to evaluate the effect of institutional reform on ownership discrimination in spike of EPU.

We start by examining the effect of EPU on corporate leverage by employing a news based EPU index developed by Baker, Bloom, and Davis (2016) and quarterly data of about 3000 listed companies between 2003 and 2014. Our primary measure of corporate leverage is the debt-to-asset ratio.[2] We add the interaction term between SOE dummy and EPU index to test for heterogeneous effects of EPU for SOE and POE. After controlling for time-invariant heterogeneity across firms and time-varying difference across time with firm- and quarter-fixed effects, we show that an increase in the EPU index by one standard deviation raises the average leverage ratio of SOEs by 1.51 percentage points but lowers that of POEs by 1.50 percentage points. In other words, the heterogeneous effects of EPU is both statistically significant and economically meaningful.

We then go further to identify the underlying channels of the heterogeneous effects. To distinguish between the *information advantage* channel and the *implicit guarantee* channel, our tests are three folds. We begin by compare the relative performances of SOEs and POEs during high EPU period. We predict that if the *information advantage* channel works, SOEs should outperform their private-owned peers, since they can mitigate the adverse effects of EPU through information advantage on government policies and manage their operations better than POEs. In turn, they have more access to valuable credit resources and should experience less decrease in investment than POEs. However, estimation results indicate that

[2] We interchangeably use the term "debt-to-asset ratio" and "leverage" throughout this paper.

faced with heightened EPU, SOEs perform even worse than POEs, and they show a similar pattern of declined investment with POEs. These findings are inconsistent with the *information advantage* channel, but can be explained by the *implicit guarantee* channel.

We then conduct two additional tests to buttress these arguments. First, we examine whether the cross-sectional variations in the effects of EPU are consistent with the *implicit guarantee* channel. We assume that the implicit guarantee problem will be less severe in more financial liberalized areas. We employ the National Economic Research Institute's Marketization Index, which tracks Chinese provinces' very different progress towards market liberalization, to proxy for the degree of financial liberalization. We re-estimate firm-level regression exploring the interaction terms of this provincial-level financial marketization index, the EPU Index, and the SOE dummy. The results confirm our conjecture that financial liberalization could help alleviate ownership discrimination, further supporting the *implicit guarantee* channel.

The second test further distinguishes between these two channels via considering POEs with different access to the government. POEs can voluntarily obtain political connection through appointing board members with government experience. For POEs with board members' official affiliation, the information disadvantage compared with SOEs is alleviated. Thus we expect that if the *information advantage* channel works, the political connected POEs should suffer less than other POEs in spike of EPU. The estimation results show the impacts on POEs with connected board member and other POEs are not significantly different. Also, whether the firm is a local sales star or not can make a difference in getting

access to bank loans: For POEs which are local sales stars, they are more likely to enjoy implicit guarantee provided by local government similar as SOEs. Thus we expect the sales star POEs are less affected than other POEs during high EPU period if the implicit guarantee channel works. Indeed, we find that local sales star POEs do experience less decrease on leverage ratios compared with the other POEs. Combined together, these tests further confirm the prominent role of the *implicit guarantee* channel over the *information advantage* channel.

After pinning down the specific underlying channel, we conduct several additional tests for robustness. The first concern about our results is that the EPU index may also capture the effect of general economic uncertainty, not just policy uncertainty, which may weaken the validity of information advantage channel. To address this concern, we control for macroeconomic measure of uncertainty as proposed by Baker, Bloom, and Davis et al. (2013). The main results remain significant and robust, further confirms the information advantage of SOE due to political connection. These findings further buttress our main findings.

In the last section, we discuss several alternative explanations. A potential problem is that EPU increased at the same time as the 4 trillion RMB stimulus package was launched, which helped SOEs maintain their high leverage ratio (Johansson and Feng, 2013). To address this issue, we control for the timing and benefiting industries of the package, given that the package was directed mainly toward infrastructure projects after 2008. The results confirm the heterogeneous effect of stimulus package on SOE and POEs while our main results remain significant and robust. In other words, both EPU and the stimulus policy contributed to the divergence of leverage ratios between SOEs and POEs.

We further examine the possibility that size discrimination and monopoly power may be driving our results rather than ownership, given that SOEs often are bigger than POEs (Gou et al., 2014), and they monopolize key industries in China (Li, Zhang, and Chang, 2015). To separate size discrimination and ownership discrimination, we rank the total assets of firms within the same city and define firms with a high asset ranking as "large firm." Using this "large firm" dummy to take size discrimination into consideration, we find that the heterogeneous effects of EPU on corporate leverage discovered earlier remain largely unchanged. We then control for a monopoly power effect by focusing in non-competitive industries and competitive industries. The results show the heterogeneity effect of EPU on SOE and POEs still exists in all the subgroups. Therefore, our results are not driven by size discrimination or monopoly power.

Our paper contributes to several strands of literature. First, our paper adds to the on-going literature on the financial and real effects of policy uncertainty. Although there is a growing literature focusing on how policy uncertainty can affect firm investment (Julio and Yook, 2012; Nguyen and Phan, 2014; An, Chen, and Luo et al., 2016; Gulen and Ion, 2016; Cao, Li, and Liu, 2017; Amore and Minichilli, 2017; Bonaime, Gulen, and Ion, 2017; Jens, 2017), few studies pay attention on policy uncertainty EPU affects firms' access to external financing. Cao, Duan, and Uysal (2013) find that firms delay debt issuances when there is high uncertainty about the general political environment. Gao and Qi (2013) document that policy uncertainty leads to an increase in public financing costs. Çolak, Durnev, and Qian (2017) find that political uncertainty deters the origination of IPOs. However, they focus on

public equity and debt financing while we mainly focus on bank loans. Also, none of these studies explore the heterogonous effects of EPU in firms with differential access to policymakers. Therefore, they speak little on whether and how EPU affects the efficiency of credit allocation.

In addition, our paper is among one of the first to document the credit reallocation effect regarding government policies. The resource misallocation problem among firms with high and low productivities is ex-ante severe in China (Hsieh and Klenow, 2009; Whited and Zhao, 2016). Two recent studies reveal that the economic stimulus package in post-crisis period makes more credit resources available to SOEs and reverse the process of capital reallocation towards POEs (Cong, Gao, and Ponticelli et al., 2017; Liu, Pan, and Tian, 2018). Li, Wang, and Zhou (2017) find that the recent Anti-corruption Campaign is beneficial to the economy due to more efficient credit allocation. Our paper indicates that not only government policy can lead to resource misallocation, but also the *uncertainty* regarding government policy can further worsen the misallocation problem.

The rest of this paper is organized as follows. The next section introduces the EPU Index, describes the financial data, and sets out a strategy for empirical analysis. The third section presents and discusses the main results, conducts some robustness checks and verifies the findings by examining some possible channels. The last section provides some concluding remarks and policy implications.

2. Institutional Background

China's rapidly rising leverage ratios have become a global concern. According to Li et al. (2015), between 2008 and 2014, total non-financial corporate borrowing surged from 98% of GDP to 149.1% in China. It is easy to understand potential risks associated with high and growing leverage (Reinhart and Rogoff, 2009). Many China observers fear an imminent "Minsky Moment" – a sudden major collapse of asset values following long periods of prosperity and speculation. In March 2016, both Moody's and Standard & Poor revised their ratings outlooks for China's sovereign debt from stable to negative. The IMF also weighed in on this debate (Daniel, Garrido, and Moretti, 2016, in IMF technical notes and manual). David Lipton, the IMF's First Deputy Managing Director, warned that "[c]orporate debt remains a serious and growing problem that must be addressed immediately" (Lipton, 2016). The Chinese government is also aware of this tough challenge and identified "deleveraging" as one of the five policy priorities for 2016. Despite that policy, China's leverage ratios have not shown any sign of slowing.

What is even more concerning is the so-called "the state advancing and the private sector retreating" in corporate leverage. Between 2008 and 2015, the average debt-asset ratio (DAR) of listed SOEs increased from 0.51 to 0.53, but that of listed non-SOEs declined from 0.48 to 0.35 (Figure 1). Such divergence could be problematic given that, on average, SOEs are only about 70% as profitable as non-SOEs. This is particularly worrisome because in recent years, the state sector also has suffered from a more serious overcapacity problem and has more zombie firms (Tan, Huang, and Woo, 2016). The rise of "bad leverage" and the fall

of "good leverage" poses important questions about not only efficiency of financial resources but also the sustainability of economic growth.

<Insert Figure 1 here>

Although the rise of EPU across the world can be driven by common political issues (such as the economy-wide shock of the 2007/08 financial crisis), holding the underlying shock fixed, the impact of which can lead to a larger response in China. Due to the lack of open and frequent communications regarding future economic reforms and policy implementation, there is larger information asymmetry between enterprises and policymakers in China. Born, Ehrmann, and Fratzscher (2014) document the frequency of speeches and interviews by central bank governor regarding financial stability, and Chinese central bank was among those with the lowest communication. Also, Chinese banking system is mainly controlled by government, which is obligated to take political objectives into consideration rather than pure commercial judgment. Therefore, credit allocation is more easily influenced by the prospect of policy changes.

3. Data and model specification

In this study, we apply the EPU Index constructed by Baker, Bloom, and Davis et al. (2013) and Baker, Bloom, and Davis (2016), which is basically a scaled frequency count of articles about policy-related economic uncertainty in the South China Morning Post (SCMP).

This Index for China follows similar logic and methodology of a news-based index for the U.S., which has already been used widely in empirical analyses (Pastor and Veronesi, 2012; Azzimonti and Talbert, 2014; Born and Pfeifer, 2014; Gulen and Ion, 2015). There are several reasons why Baker and his collaborators chose the SCMP. The SCMP is probably the English-language paper outside of China that covers Chinese economic news most comprehensively. Moreover, the SCMP has both print and online edition and updates the news very quickly.

The Index was constructed in three steps (Baker Bloom, and Davis et al., 2013). The first step was to identify SCMP articles about economic uncertainty pertaining to China by flagging all articles that contained at least one term from each of the China economic uncertainty term sets: {China, Chinese} and {economy, economic} and {uncertain, uncertainty}. The second step was to identify the subset of the China economic uncertainty articles that also discussed policy matters. The third step was to yield a monthly frequency count of SCMP articles about policy-related economic uncertainty. The final step was to divide the monthly frequency count by the number of all SCMP articles in the same month. The Index is normalized to a mean value of 100 from January 1995 to December 2011.

The EPU Index tends to spike during events that are ex-ante likely to cause increases in perceived policy uncertainty (Figure 2). It spiked three times in recent years. The first period was around 2009, when the global financial crisis dampened the Chinese economy. The government adopted the stimulus policy, which quickly boosted economic growth. Then questions arose as to whether the government would quickly exit from or continue with the

stimulus program. The second period appeared around 2012, when China faced a new round of leadership transition and the world struggled to figure out China's new policy direction. The worsening of the Euro Zone debt crisis probably also added to policy uncertainty in China. The third period occurred in 2015, when China's economic growth reached its lowest rate in 25 years and when policy hiccups in foreign exchange and stock markets triggered wide suspicion about China's economic policymaking.

<Insert Figure 2 here>

For the purpose of empirical analyses in this study, we transform the monthly EPU Index into a quarterly series using two different approaches. One is a simple average of three monthly readings of the quarter. The other uses different weights for each month in a quarter (1/2, 1/3, 1/6), following Gulen and Ion (2016).

The other dataset we use in this study is quarterly information for listed companies from the China Security Market and Accounting Research (CSMAR) database, covering the period from the first quarter of 2003 to the fourth quarter of 2015. We include all firms that are listed with A-shares on the Shenzhen and Shanghai Stock Exchanges but exclude all financial institutions from the sample. We only keeps state owned and private owned firms and excludes those with ownership changes.[3] We also obtained supplementary information on firm location from WIND. To make sure large firms do not dominate the empirical results, we normalize all firm-level variables by total assets at the beginning of the period. As for

[3] Du and Liu (2017) investigate the privatization process of Chinese SOEs, suggesting a privatization reform slowdown since 2002. Our sample starts from 2003, and thus are less influenced by the ownership changes. In fact, our main results does not changes if estimated with whole sample.

financial marketization measures, we include three standardized indices from Fan, Wang, and Zhu (2011): Small government (share of government official in total population); Loan marketization (share of loan issued to non-SOEs); and Job creation by POE (share of employment by POE in total urban employment). We also winsorize all variables at the 1st and 99th percentiles in order to minimize the impact of data errors and outliers. The results are not qualitatively sensitive to any of the above filters.

In order to understand the effects of political connection and local financing environments, we collect data on political connection from the WIND database and use the financial marketization indices from Fan, Wang, and Zhu (2011). We use two proxies for political connection following the literature. One is political experience of board members of non-SOEs (Fan, Wong, and Zhang, 2007; Calomiris, Fisman, and Wang, 2010). This dummy equals 1 if a non-SOE board member holds or previously held an official position. Here official position could be with the government, the national or local People's Congress, the People's Political Consultative Conference, or financial market regulators. The other is spending on building political connection, proxied by "entertainment & travel costs" (ETC). It is common for Chinese firms to use ETC expenses to reimburse expenditures spent on officials, clients, and suppliers (Cai, Fang, and Xu, 2011; Lin, Morck, and Yeung et al., 2016). As for financial marketization measures, we include three standardized indices from Fan, Wang, and Zhu (2011): aggregate "financial marketization," "loan marketization" (share of loan issued to non-SOEs), and "bank competition" (share of deposits in non-state-owned financial institutions).

In order to control for overall economic uncertainty, we also construct two measures using economists' forecasts for GDP growth (Baker, Bloom, and Davis et al., 2013; Gulen and Ion, 2015). These forecasts are compiled by the China Center of Economic Research at Peking University. The program, which is called the Lang Run Forecast, contains forecasts by 20 to 40 public and private institutions. We first use the mean of the forecast, assuming a lower mean implies greater economic uncertainty. We then use the standard deviation of all GDP growth forecasts GDP to proxy for economic uncertainty. Summary statistics of the data are presented in Table 1.

<Insert Table 1 here>

The basic model is a panel data regression.[4] Following previous research on determinants of leverage ratio (Dewenter and Malatesta, 2001; Faccio, 2006), we estimate the following model:

$$Leverage_{i,t+1} = \alpha_i + \beta_1 EPU_t * SOE_i + \beta_2 EPU_t + \beta_3 GDP\ \ Growth_{i,t} + \beta_4 M_{i,t} + \beta_5 Quarter_t + \varepsilon_{i,t+1}$$

Here, $Leverage_{i.t+1}$ is the debt-to-asset ratio of firm i at quarter $t+1$.[5] Coefficient α_i is the firm fixed-effect and $Quarter_t$ is the quarterly dummy variable. Standard errors are always clustered at the firm and calendar quarter level to correct for potential cross-sectional and serial correlation in the error term $\varepsilon_{i,t+l}$ (Petersen, 2009; Gulen and Ion, 2015). As

[4] We mainly employ ordinary least square (OLS) to conduct the regressions. In order to test whether the results are driven by minority, we also tried quantile regression and robust regression, which examine the majority effect instead of the average effect. Both ways show similar estimated results as OLS.

[5] We are aware that some research interprets debt ratio as firm's optimal choice of capital structure (Titman & Wessels, 1988; Jõeveer, 2013), but that is only true when we suggest the firms do not suffer from borrowing constraints. Studies regarding financing discrimination usually use debt ratio as a proxy for access to debt financing (Dewenter and Malatesta, 2001; Faccio, 2006).

EPU_t is a quarter-varying variable, we cannot include time fixed effects in our specification. In the absence of a time fixed-effect, we control for firm characteristics in $M_{i,t}$ including the share of fixed assets in total assets, sales growth and the firm size (using log assets). We also control for possible confounding macroeconomic forces explicitly, such as $GDP\ \ Growth_{i,t}$.

4 Main results

4.1 Baseline results

Before addressing statistical analysis, we visually examine the relationship between EPU and leverage in Figure 3. The horizontal axis is the EPU Index, and the vertical axis is the debt-to-asset ratio. The different patterns for SOEs and POEs are straightforward: the higher the EPU, the higher the SOEs' leverage. By comparison, the leverage ratio of POEs is negatively associated with the EPU. These patterns are in accordance with our conjecture that EPU has heterogeneous effects on state and non-state sectors.

<Insert Figure 3 here>

We further confirm our conjecture by estimating the baseline model. Estimation results are reported in Table 2. Here, the quarterly EPU Index is the average of three monthly indices. In Column (1), the estimated coefficient for EPU is -0.012, and the estimated coefficient for the interaction term between EPU and SOE-dummy is 0.065. Both of the coefficients are significant at the 1% level. These estimation results suggest that if EPU increases by one

standard deviation, the average debt-to-asset ratio of POEs drops by 0.012 standard deviations, which implies a decrease of 0.57 percentage points. Meanwhile, the average debt-to-asset ratio of SOEs goes up by 0.053 standard deviations, which implies an increase of 2.46 percentage points (0.0529*0.465*100). Combining the above opposite influences, we conclude that a one standard deviation increase in EPU leads to a 3.03 percentage point increase in SOEs' leverage ratio relative to POEs. In Columns (2) and (3), we control for economic growth and some firm characteristics such as fixed asset ratio, sales growth, and firm size. The results are largely unchanged. A one standard deviation increase in EPU is associated with an increase in SOEs' leverage level of 3.01 percentage points relative to POEs' (SOEs' leverage rises by 1.51 percentage points, while POEs' declines by 1.50 percentage points).

Following Gulen and Ion (2016), we also compute a different EPU Index by assigning different weights to different months of the quarter. We then use this new EPU Index to repeat the base model regression in Columns (4)-(6). Again, the findings remain largely unchanged. In subsequent analyses, we take the results in Column (3) as the benchmark model.

<Insert Table 2 here>

4.2 Discussion of underlying channels: Implicit guarantee or information advantage

In this section, we discuss the two possible underlying channels through which SOEs increase their debt-to-asset ratio compared to POEs under heightened EPU. The first one is

the *implicit guarantee* channel, which argues that the implicit guarantee from government to SOE will reduce the lenders' sensitivity against all kinds of uncertainty, including policy uncertainty. The second one is the *information advantage* channel. This view suggests that SOEs are naturally connected to government hence possess the advantage to obtain inner information of potential policy changes.

We perform three sets of tests to help us disentangle the *information advantage* view from the *implicit guarantee* view. First, these two views have different predictions on the performance of SOEs compared to POEs under heightened EPU. Since the information advantage will help firms overcome policy uncertainty and perform better, if the information advantage channel holds, the performance of SOEs will improve under heightened EPUs, while implicit guarantee worsens capital misallocation, and the implicit guarantee view predicts the opposite. Table 3 compares the performances of SOEs and POEs during high EPU period. We replace the dependent variable leverage by ROA and ROE in Columns (1)-(2), respectively. The coefficient for interaction term of EPU and SOE are significantly negative for ROE and ROA, indicating that SOEs remain inefficient during high EPU period and haven't increased their investments despite they are better funded. Using the different weighted EPU Index following Gulen and Ion (2016) in Columns (4)-(6) doesn't change the results.

<Insert Table 3 here>

Second，making use of the different marketization process across different provinces in China and assuming implicit guarantee is larger in less market-oriented areas, we explore the interaction of SOE, marketization index, and EPU. We find the in more market-oriented provinces, the ownership discrimination in high EPU period alleviates. This further supports the implicit guarantee hypothesis.

In Table 4, to test for whether firms located in provinces that had a relatively lower potential for implicit guarantee will alleviate the discrimination during high EPU period, we re-estimate the base model by including interaction terms of the three respective financial marketization indices, the EPU Index, and the SOE dummy. For simplicity, the three provincial-level measures are included one-by-one in separate regression. In order to avoid possible influence of policy uncertainty on political connection or the marketization level, we only use values of the variables in 2003, which is the beginning period of our sample. Results applying the marketization measures of loans, small government and the share of POE employment in total employment are reported in Columns (1)-(3) for leverage and in Columns (4)-(6) for ROA, respectively. In all three regressions for leverage, the estimated coefficients for the interaction term of EPU and SOE are significantly positive, while the estimated coefficients for the interaction terms of the three marketization measures, EPU, and SOE are all negative. These results confirm our speculation that marketization could help alleviate borrowing or lending discrimination in favor of the SOEs. In all the three regressions for ROA, the estimated coefficients for the interaction term of EPU and SOE are significantly negative, while the estimated coefficients for the interaction terms of the three

marketization measures, EPU, and SOE are all positive, further confirming marketization helps to alleviate capital misallocation.

<Insert Table 4 here>

Third, we turn to the POE subsample and examine how POEs could overcome the discrimination during high EPU period. If information advantage hypothesis works, we will find the POEs with board members' official affiliation less affected by EPU since they are also able to obtain inner information. If the implicit guarantee hypothesis works, we will find the POEs which are local sales star have better financial access since the local government rely on the sales star for local GDP growth and often offer some extent of guarantee to the local POE stars. The results show sales star rather that connected POEs have better financial access, which further supports the implicit guarantee hypothesis.

In Table 5, we focus on the subgroup of POEs and test for whether political connected POEs or local-star POEs suffer less from EPU. Column (1) of Table 5 shows the estimated coefficient for the interaction term of EPU and political connection is not significant, which implies that board member connection does not help POE to obtain better financial access during high EPU period. We also regress ROA on the EPU and its interaction with political connection, finding that political connected POE underperform those without connection ,which is consistent with previous studies (for example, Fan, Wong, and Zhang, 2007). Column (3) shows the interaction of EPU and local star is significantly positive on leverage, indicating being a local sales star helps POE to suffer less during high EPU period.

In Column (4), we further regress ROA on EPU and its interaction with local star. The estimation results show that the local star actually make less profit than other POEs. Combining the results in column (3) and (4), we infer that the implicit guarantee by local government for star POE sacrifices the efficiency for GDP growth, which is beneficial at micro level for local government and star POE but inefficient at macro level. These empirical results further confirm the implicit guarantee hypothesis.

In sum, we find that SOEs underperform POEs significantly under heightened EPU, which is inconsistent with the *information advantage* hypothesis.

<Insert Table 5 here>

5 Robustness checks

The results in the previous sections suggest that the ownership discrimination problem worsens significantly during high EPU period. In this section, we test the robustness of the main findings. The first concern about our results is that the EPU index may also capture the effect of general economic uncertainty, not just policy uncertainty. To address this concern, in Table 6, we control macroeconomic measure of uncertainty in the regression as proposed by Baker, Bloom, and Davis (2013). In Column (1), we use the mean and standard deviation of growth forecasts in the Langrun Survey to proxy for economic uncertainty. Since the Langrun Survey covers the period of 2005--2015, we re-estimate the base equation using the same period. In Column (2), we replace lagged GDP growth by the mean of GDP growth

forecasts. In Column (3), we include the standard deviation of Langrun forecasts to control for the effects of economic uncertainty. In Column (4), we further include the interaction term of EPU and an SOE dummy to distinguish the heterogeneous effect of uncertainty towards SOEs and non-SOEs. All these exercises suggest that the original findings are robust.

<Insert Table 6 here>

Another potential concern is that EPU increased at the same time as the 4-trillion-yuan stimulus package was launched. Some economists already have suggested that the stimulus policy could be a trigger for the recent divergence of corporate leverage ratios (Johansson and Feng, 2015; Pan, Shi, and Wang et al., 2016). If the stimulus policy also worked, how can one be sure that divergence of corporate leverage ratios was mainly caused by rising EPU?

To address this issue, we conduct three additional tests in Table 7. We first construct a new dummy variable, *after2008q4*, which equals one after 2008q4, and zero otherwise. Following Johansson and Feng (2015), in Column (1), we add dummy *after2008q4* and its interaction term with SOEs to the benchmark regression. The estimated coefficient on *after2008q4* is significantly negative while that for its interaction term is significantly positive with a larger absolute value. The coefficients on EPU and its interaction with SOE remain significant but with a smaller magnitude than the benchmark regression. These findings confirm that the main findings from the earlier exercises still hold. In other words, our findings imply that in addition to the government policy *in place*, the *uncertainty*

regarding future government polices also contributes to the divergence of leverage ratios between SOEs and POEs.

We further test the effects of the stimulus program at the industry level. Since the 4-trillion-yuan stimulus package was directed mainly toward infrastructure projects, we identify infrastructure as the main beneficiary of the stimulus policy. In Column (2), we control the effect by including dummy *after2008q4* and its interaction with an infrastructure dummy. The estimated coefficient on *after2008q4* is significantly negative while that for its interaction term with infrastructure industry is significantly positive with a larger absolute value. The evidence suggests that firms in the infrastructure industry benefitted from the stimulus package and the policies had crowd-out effects on other industries. Finally, in Column (3), we control the interaction effect of the stimulus policy and SOE dummy. The estimated coefficients of the three interaction terms between benefiting industry, *after2008q4*, and SOE are significantly positive. To sum up, the stimulus policy had some impact on diverging corporate leverage ratios, but the findings on roles played by EPU remain robust and significant.

<Insert Table 7 here>

Last, we turn to validate our main findings by investigating two more questions. One might suspect that the discrimination effect of policy-related uncertainty is caused by some other characteristics such as size or monopoly power rather than firms' ownership, given that

SOEs often are bigger than POEs (Gou, Huang, and Liu, 2014), and they are more concentrated in monopoly industries. We report estimation results in Table 8.

To separate size discrimination and ownership discrimination, we perform the following tests. First, we rank the total sales of firms within the same city and define firms with a high sales ranking as "Large firm." In Columns (1)-(4), "Large firm" is respectively defined as the top 50%, 40%, 30%, and 20% of firms. We then include this "Large firm" dummy, its interaction with EPU, and its interaction with EPU and SOE in the regressions. Some of these new variables appear to be significant in the new regressions, but the heterogeneous effects of EPU on corporate leverage discovered earlier remain largely unchanged.

To control for a monopoly power effect, we identify competitive and monopoly industries in China, and compare ownership discrimination only in competitive and non-monopoly industries. The results are presented in Columns (5) and (6) in Table 8. In both columns, the estimated coefficients on EPU is significantly negative and smaller than the coefficient of the interaction term, suggesting that the heterogeneity effect of EPU on SOE and non-SOEs still exists in all the subgroups.

<Insert Table 8 here>

6. Concluding remarks

In this paper, we apply a dataset of listed non-financial Chinese companies and an existing EPU Index for China to empirically examine whether heightened EPU improves or

reduces the efficiency of credit allocation. Our findings indicate that an increase in EPU raises the average debt-to-asset ratio of state-owned enterprises (SOEs) but lowers that of private-owned enterprises (POEs). This divergence effect can be better explained by an *implicit guarantee* view rather than an *information advantage* view, highlighting that EPU can reduce the real efficiency through worsening credit misallocation. We validate the main findings through various robustness tests.

Our findings have important policy implications. First, the government should probably make efforts to reduce policy uncertainty by clearly communicating policy intentions to the public and markets. Although certain degree of EPU always exists, especially in transitional economies, the government can help improve policy transparency by outlining the direction and steps of both reform and macroeconomic policies. Second, while we document that rising EPU *cause* worsen resource misallocation, ownership discrimination is still a fundamental institutional driving force. The government should at least consider creating a true level playing field for SOEs and POEs. Third, the government should rely on macroeconomic and other policy measures to achieve its policy goals, and restrain SOEs to leverage up at difficult times. Our study calls for more market-oriented financial reform aiming to enforce market discipline on enterprises and financial institution and lessen the consequences of policy distortions.

References

Acemoglu D, Johnson S, Kermani A, et al. The value of connections in turbulent times: Evidence from the United States[J]. Journal of Financial Economics, 2016, 121(2): 368-391.

Allen F, Qian J. China's Financial System and the law[J]. Cornell Int'l LJ, 2014, 47: 499.

Allen, F., Qian, J., Qian, M., 2005. Law, finance and economic growth in China. Journal of Financial Economics 77, 157-116.

Akey P, Lewellen S. Policy uncertainty, political capital, and firm risk-taking[J]. 2017, working paper.

Amore M D, Minichilli A. Local political uncertainty, family control and investment behavior[J]. 2017, working paper.

An H, Chen Y, Luo D, et al. Policy uncertainty and corporate investment: Evidence from China[J]. Journal of Corporate Finance, 2016, 36: 174-189.

Antoniou, Antonios, Guney, Yilmaz, Paudyal , Krishna. The determinants of capital structure: Capital market oriented versus bank oriented institutions[J]. Journal of Financial and Quantitative Analysis, 2008, 43(1):59-92.

Azzimonti, M., Talbert, M., 2014. Polarized business cycles. Journal of Monetary Economics 67, 47-61.

Baek, S.-W., 2005. Does China follow the East Asian development model? Journal of Contemporary Asia 35(4), 485-498.

Baker S R, Bloom N, Davis S J. Measuring economic policy uncertainty[J]. Quarterly Journal of Economics, 2016, 131(4): 1593-1636.

Baker, S., Bloom, N., Davis, S.J., Wang, X., 2013. A Measure of Economic Policy Uncertainty for China. Work in progress. University of Chicago.

BCBS (2010), "Guidance for national authorities operating the countercyclical buffer", Basel Committee on Banking Supervision, December 2010.

Beck, T., Levine, R., 2002. Industry growth and capital allocation: does having a market- or bank-based system matter? Journal of Financial Economics 64(2), 147-180.

Ben Nasr H, Bouslimi L, Zhong R. The choice between public versus private debt and political uncertainty[J]. 2017, working paper.

Bernanke, B. S., 1983. Irreversibility, Uncertainty, and Cyclical Investment. Quarterly Journal of Economics 98(1), 85-106.

Bloom, N., 2014. Fluctuations in Uncertainty. The Journal of Economic Perspectives 28(2), 153-175.

Boocock, G., Woods, M., 1997. The evaluation criteria used by venture capitalists: evidence from a UK venture fund. International Small Business Journal 16(1), 36-57.

Bonaime A A, Gulen H, Ion M. Does policy uncertainty affect mergers and acquisitions?[J]. 2017, working paper.

Born B, Ehrmann M, Fratzscher M. Central bank communication on financial stability[J]. The Economic Journal, 2014, 124(577): 701-734.

Born, B., Pfeifer, J., 2014. Policy risk and the business cycle. Journal of Monetary Economics 68, 68-85.

Borisova G, Fotak V, Holland K, et al. Government ownership and the cost of debt: Evidence from government investments in publicly traded firms[J]. Journal of Financial Economics, 2015, 118(1): 168-191.

Boutchkova M, Doshi H, Durnev A, et al. Precarious politics and return volatility[J]. Review of Financial Studies, 2011, 25(4): 1111-1154.

Brogaard J, Detzel A. The asset-pricing implications of government economic policy uncertainty[J]. Management Science, 2015, 61(1): 3-18.

Cai, H., Fang, H., Xu, L. C., 2011. Eat, Drink, Firms, Government: An Investigation of Corruption from the Entertainment and Travel Costs of Chinese Firms. The Journal of Law and Economics 54(1), 55-78.

Calomiris, C. W., Fisman, R., Wang, Y., 2010. Profiting from government stakes in a command economy: Evidence from Chinese asset sales. Journal of Financial Economics 96(3), 399-412.

Cao C, Li X, Liu G. Political uncertainty and cross-border acquisitions[J]. Review of Finance, 2017, 1: 32.

Cao W, Duan X, Uysal V B. Does political uncertainty affect capital structure choices?[J]. 2013, working paper.

Carney R W, Child T B. Changes to the ownership and control of East Asian corporations between 1996 and 2008: The primacy of politics[J]. Journal of Financial Economics, 2013, 107(2): 494-513.

Carvalho D. The real effects of government-owned banks: Evidence from an emerging market[J]. Journal of Finance, 2014, 69(2): 577-609.

Chen H. Macroeconomic conditions and the puzzles of credit spreads and capital structure[J]. Journal of Finance, 2010, 65(6): 2171-2212.

Claessens S, Feijen E, Laeven L. Political connections and preferential access to finance: The role of campaign contributions[J]. Journal of Financial Economics, 2008, 88(3): 554-580.

Çolak G, Durnev A, Qian Y. Political uncertainty and IPO activity: Evidence from US gubernatorial elections[J]. Journal of Financial and Quantitative Analysis, 2017, 52(6): 2523-2564.

Cong L, Gao H, Ponticelli J, et al. Credit allocation under economic stimulus: Evidence from China[J]. 2017, working paper.

Cuadra G, Sapriza H. Sovereign default, interest rates and political uncertainty in emerging markets[J]. Journal of international Economics, 2008, 76(1): 78-88.

Cull, R., Xu, L.C., 2003. Who gets credit? The behavior of bureaucrats and state banks in allocating credit to Chinese state-owned enterprises. Journal of Development Economics 71(2), 533-559.

Daniel, J., Garrido, J., Moretti, M., 2016. Debt Equity Conversions and NPL Securitization in China—Some Initial Considerations. IMF technical notes and manuals 16/05. http://www.imf.org/external/pubs/ft/tnm/2016/tnm1605.pdf.

Deng Y, Morck R, Wu J, et al. China's pseudo-monetary policy[J]. Review of Finance, 2014, 19(1): 55-93.

Dewenter, K. L., Malatesta, P. H., 2001. State-owned and privately owned firms: An empirical analysis of profitability, leverage, and labor intensity. American Economic Review 91(1), 320-334.

Din ç I S. Politicians and banks: Political influences on government-owned banks in emerging markets[J]. Journal of Financial Economics, 2005, 77(2): 453-479.

Du, J., Liu, X., Zhou, Y., 2014. State advances and private retreats? — Evidence of aggregate productivity decomposition in China. China Economic Review 31, 459-474.

Duchin R, Sosyura D. The politics of government investment[J]. Journal of Financial Economics, 2012, 106(1): 24-48.

Erel I, Julio B, Kim W, et al. Macroeconomic conditions and capital raising[J]. Review of Financial Studies, 2011, 25(2): 341-376.

Faccio, M., 2006. Politically connected firms. American economic review 96(1), 369-386.

Faccio M. Differences between politically connected and nonconnected firms: A cross-country analysis[J]. Financial management, 2010, 39(3): 905-928.

Faccio M, Masulis R W, McConnell J. Political connections and corporate bailouts[J]. Journal of Finance, 2006, 61(6): 2597-2635.

Fan, G., Wang, X., Zhu, H., 2011. NERI Index of Marketization of China's Provinces: 2011 report (in Chinese). Economic Science Press, Beijing.

Fan, J. P., Wong, T.J., Zhang, T., 2007. Politically connected CEOs, corporate governance, and Post-IPO performance of China's newly partially privatized firms. Journal of Financial Economics 84(2), 330-357.

Fisman R. Estimating the value of political connections[J]. American Economic Review, 2001, 91(4): 1095-1102.

Gao P, Qi Y. Political uncertainty and public financing costs: Evidence from us gubernatorial elections and municipal bond market[J]. 2013, working paper.

Gertler, M., Gilchrist, S., 1991. Monetary policy, business cycles and the behavior of small manufacturing firms. National Bureau of Economic Research.

Gilchrist, S., Sim, J. W., Zakrajšek, E., 2014. Uncertainty, financial frictions, and investment dynamics. Working Paper 20038. National Bureau of Economic Research.

Goldman E, Rocholl J, So J. Do politically connected boards affect firm value?[J]. Review of Financial Studies, 2008, 22(6): 2331-2360.

Gou Q., Huang, Y., Liu, X., 2014. Does ownership discrimination exist in credit allocation? Management World 1, 16-26. (in Chinese)

Gulen, H., Ion, M., 2016. Policy uncertainty and corporate investment. Review of Financial Studies 29(3), 523-564.

Gungoraydinoglu A, Çolak G, Öztekin Ö. Political environment, financial intermediation costs, and financing patterns[J]. Journal of Corporate Finance, 2017, 44: 167-192.

Hsieh C T, Klenow P J. Misallocation and manufacturing TFP in China and India[J]. Quarterly Journal of Economics, 2009, 124(4): 1403-1448.

Holz, C. A., 2011. The unbalanced growth hypothesis and the role of the state: The case of China's state-owned enterprises. Journal of Development Economics 96(2), 220-238.

Houston J F, Jiang L, Lin C, et al. Political connections and the cost of bank loans[J]. Journal of Accounting Research, 2014, 52(1): 193-243.

Ivashina V, Scharfstein D. Bank lending during the financial crisis of 2008[J]. Journal of Financial economics, 2010, 97(3): 319-338.

Jens C E. Political uncertainty and investment: Causal evidence from US gubernatorial elections[J]. Journal of Financial Economics, 2017, 124(3): 563-579.

Jensen, J. B., McGuckin, R. H., 1997. Firm performance and evolution: empirical regularities in the US microdata. Industrial and Corporate Change 6(1), 25-47.

Jin S, Zhang Z. Political connections, government subsidies, and capital misallocation: Evidence from China[J]. 2017, working paper.

Jin S, Wang W, Zhang Z. The value and real effects of implicit government guarantees[J]. 2017, working paper.

Jõeveer, K., 2013. Firm, country and macroeconomic determinants of capital structure: Evidence from transition economies. Journal of Comparative Economics 41(1), 294-308.

Johansson, A. C., Feng, X., 2015. The state advances, the private sector retreats? Firm effects of China's great stimulus program. Cambridge Journal of Economics 75,1-34.

Julio, B., Yook, Y., 2012. Political uncertainty and corporate investment cycles. The Journal of Finance 67(1), 45-83.

Khwaja, A. I., Mian, S., 2005. Do lenders favor politically connected firms? Rent provision in an emerging financial market. Quarterly Journal of Economics, 1371-1411.

Kelly B, Pástor Ľ, Veronesi P. The price of political uncertainty: Theory and evidence from the option market[J]. Journal of Finance, 2016, 71(5): 2417-2480.

Kornai, J., 1986. The soft budget constraint. Kyklos 39(1), 3-30.

Lardy, N. R., 2014. Markets over Mao: The rise of private business in China. Peterson Institute for International Economics, Washington, D.C.

Leary M T. Bank loan supply, lender choice, and corporate capital structure[J]. Journal of Finance, 2009, 64(3): 1143-1185.

Li B, Wang Z, Zhou H. China's Anti-corruption Campaign and credit reallocation from SOEs to PEs[J]. 2017, working paper.

Li K, Yue H, Zhao L. Ownership, institutions, and capital structure: Evidence from China[J]. Journal of Comparative Economics, 2009, 37(3): 471-490.

Li, Y., Zhang, X., Chang X., 2015. China's Sovereign Balance Sheet 2015: Leverage Adjustment and Risk Management (in Chinese). China Social Science Press, Beijing. (李扬, 张晓晶, 常欣. (2015). 中国国家资产负债表2015：杠杆调整与风险管理，北京: 中国社会科学出版社).

Li, H., Meng, L., Wang, Q., Zhou, L-A., 2008. Political connections, financing and firm performance: Evidence from Chinese private firms. Journal of Development Economics 87(2), 283-299.

Lin, C., Morck, R., Yeung, B., Zhao, X., 2016. Anti-Corruption Reforms and Shareholder Valuations: Event Study Evidence from China. Working Paper 22001. National Bureau of Economic Research.

Lin, J. Y., Tan, G., 1999. Policy Burdens, Accountability, and the Soft Budget Constraint. American Economic Review 89(2), 426-431.

Lipton, D., 2016. Rebalancing China: International Lessons in Corporate Debt. Speech on China Economic Society Conference on Sustainable Development in China and the World, Shenzhen, China. http://www.imf.org/external/np/speeches/2016/061016.htm.

Liu L X, Shu H, Wei K C J. The impacts of political uncertainty on asset prices: Evidence from the Bo scandal in China[J]. Journal of Financial Economics, 2017.

Liu Q, Pan X, Tian G G. To what extent did the economic stimulus package influence bank lending and corporate investment decisions? Evidence from China[J]. Journal of Banking & Finance, 2018.

Luechinger S, Moser C. The value of the revolving door: Political appointees and the stock market[J]. Journal of Public Economics, 2014, 119: 93-107.

Megginson W L, Ullah B, Wei Z. State ownership, soft-budget constraints, and cash holdings: Evidence from China's privatized firms[J]. Journal of Banking & Finance, 2014, 48: 276-291.

Nguyen N H, Phan H V. Policy uncertainty and mergers and acquisitions[J]. Journal of Financial and Quantitative Analysis, 2017, 52(2): 613-644.

Ovtchinnikov A V, Reza S W, Wu Y. Political activism and firm innovation[J]. 2016, working paper.

Pan, S., Shi, K., Wang, L., Xu, J.J., 2016. Excess Liquidity and Credit Misallocation: Evidence from China. Available at SSRN. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2797515.

Pastor, L., Veronesi, P., 2012. Uncertainty about government policy and stock prices. Journal of Finance 67(4), 1219-1264.

Pastor, L., Veronesi P. Political uncertainty and risk premia[J]. Journal of Financial Economics, 2013, 110(3): 520-545.

Petersen, M. A., 2009. Estimating standard errors in finance panel data sets: Comparing approaches. Review of Financial Studies 22(1), 435-480.

Qian, Y., Roland, G., 1998. Federalism and the soft budget constraint. American Economic Review 88(5), 1-39.

Rajan, R. G., Zingales, L., 1998. Financial Dependence and Growth. The American Economic Review 88(3), 559-586.

Reinhart, C. M., Rogoff, K.S., 2009. This time is different: Eight centuries of financial folly. Working Paper. Princeton University Press.

Shleifer A, Vishny R W. Politicians and firms[J]. Quarterly Journal of Economics, 1994, 109(4): 995-1025.

Shleifer A, State versus private ownership, 1998

Song, Z., Storesletten, K., Zilibotti, F., 2011. Growing like china. The American Economic Review 101(1), 196-233.

Sun Q, Tong W H S. China share issue privatization: the extent of its success[J]. Journal of Financial Economics, 2003, 70(2): 183-222.

Tan, Y., Huang, Y., Woo, W.T., 2016. Zombie firms and the crowding-out of private investment in China. Asian Economic Papers 15(3), 1-30.

Whited T M, Zhao J. Capital structure misallocation[J]. 2016, working paper.

Wurgler J. Financial markets and the allocation of capital[J]. Journal of Financial Economics, 2000, 58(1): 187-214.

Zhou Z. Government ownership and exposure to political uncertainty: Evidence from China[J]. Journal of Banking & Finance, 2017, 84: 152-165.

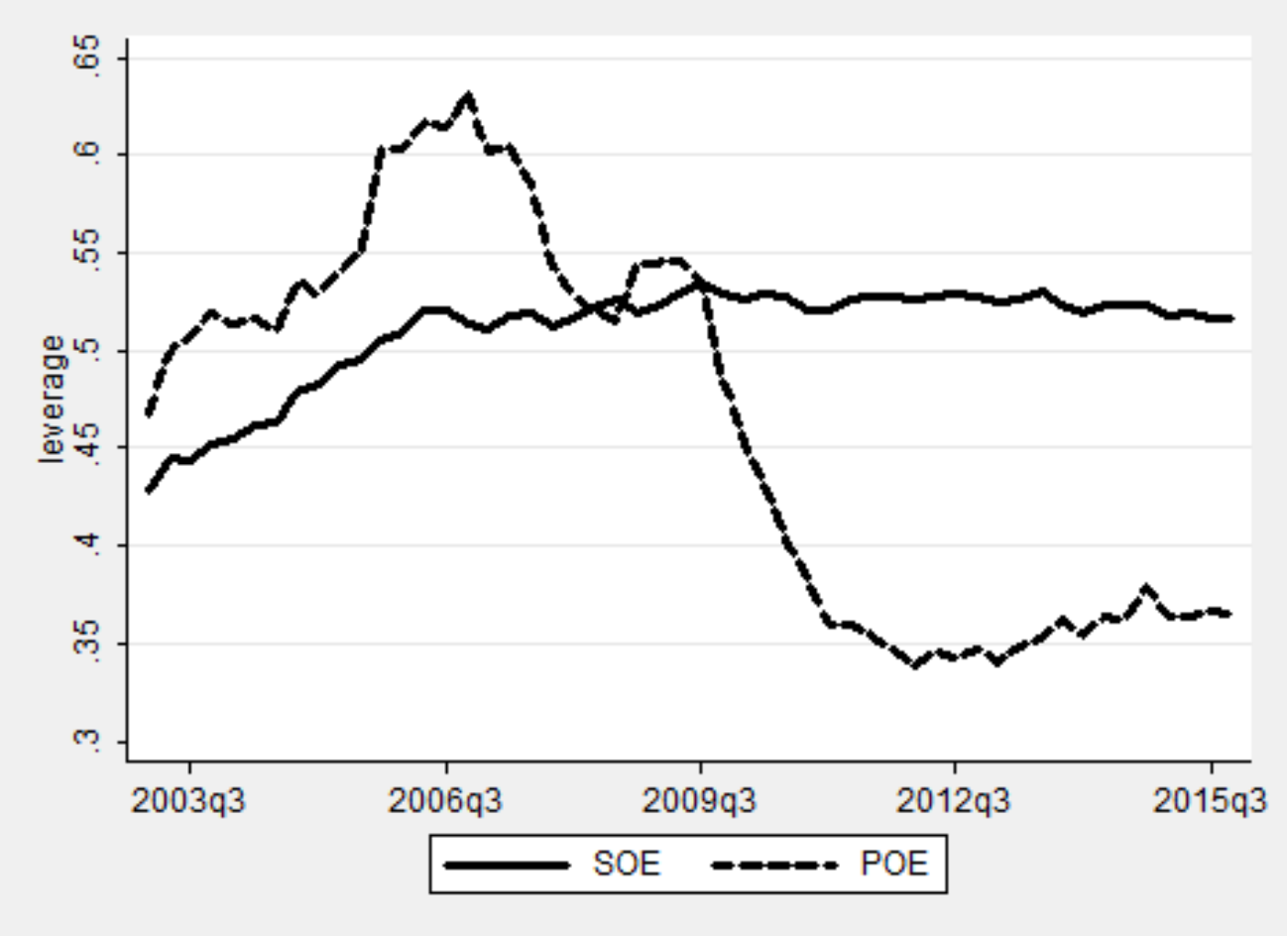

Figure 1 Leverage of listed SOEs and POEs from 2003 to 2015

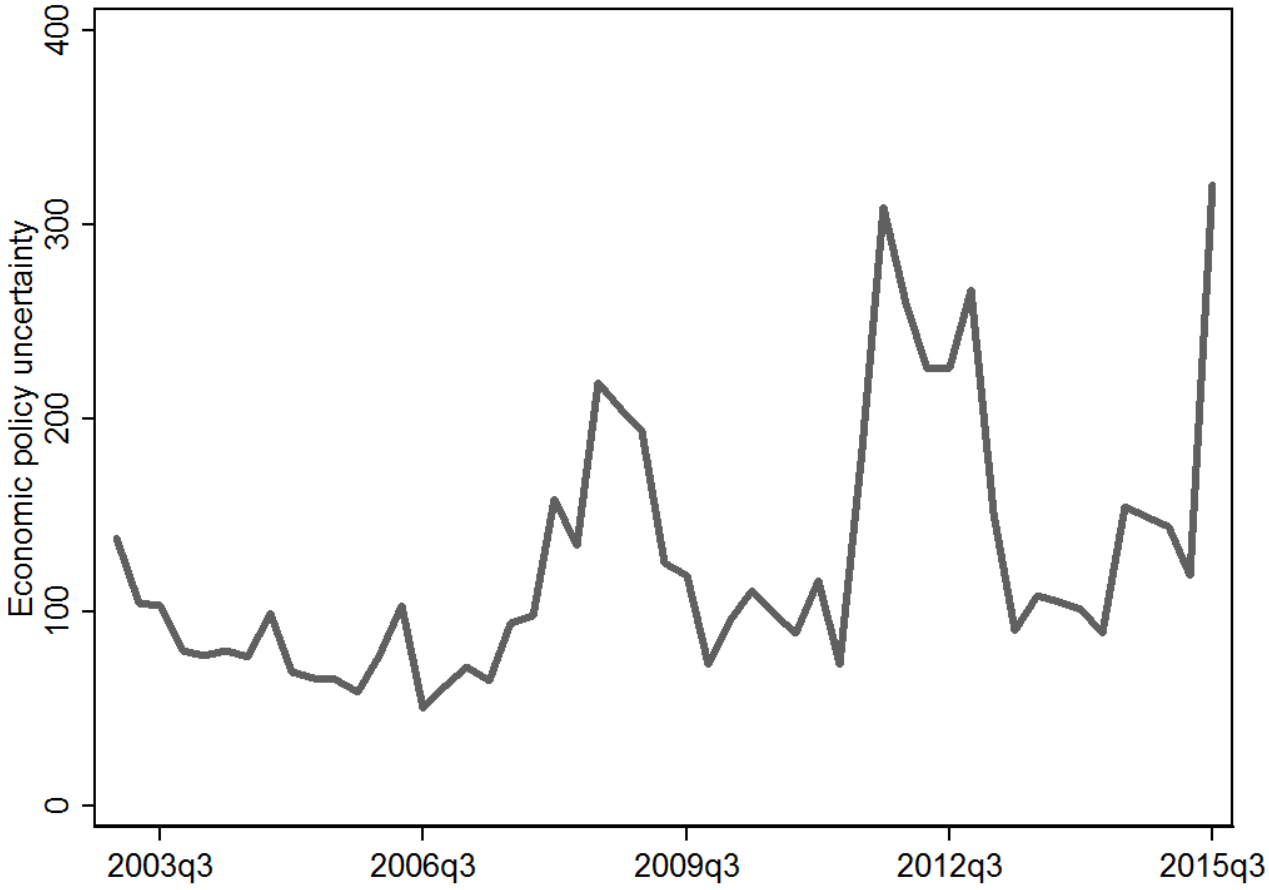

Figure 2 Economic policy uncertainty (EPU) index from 2003 to 2015

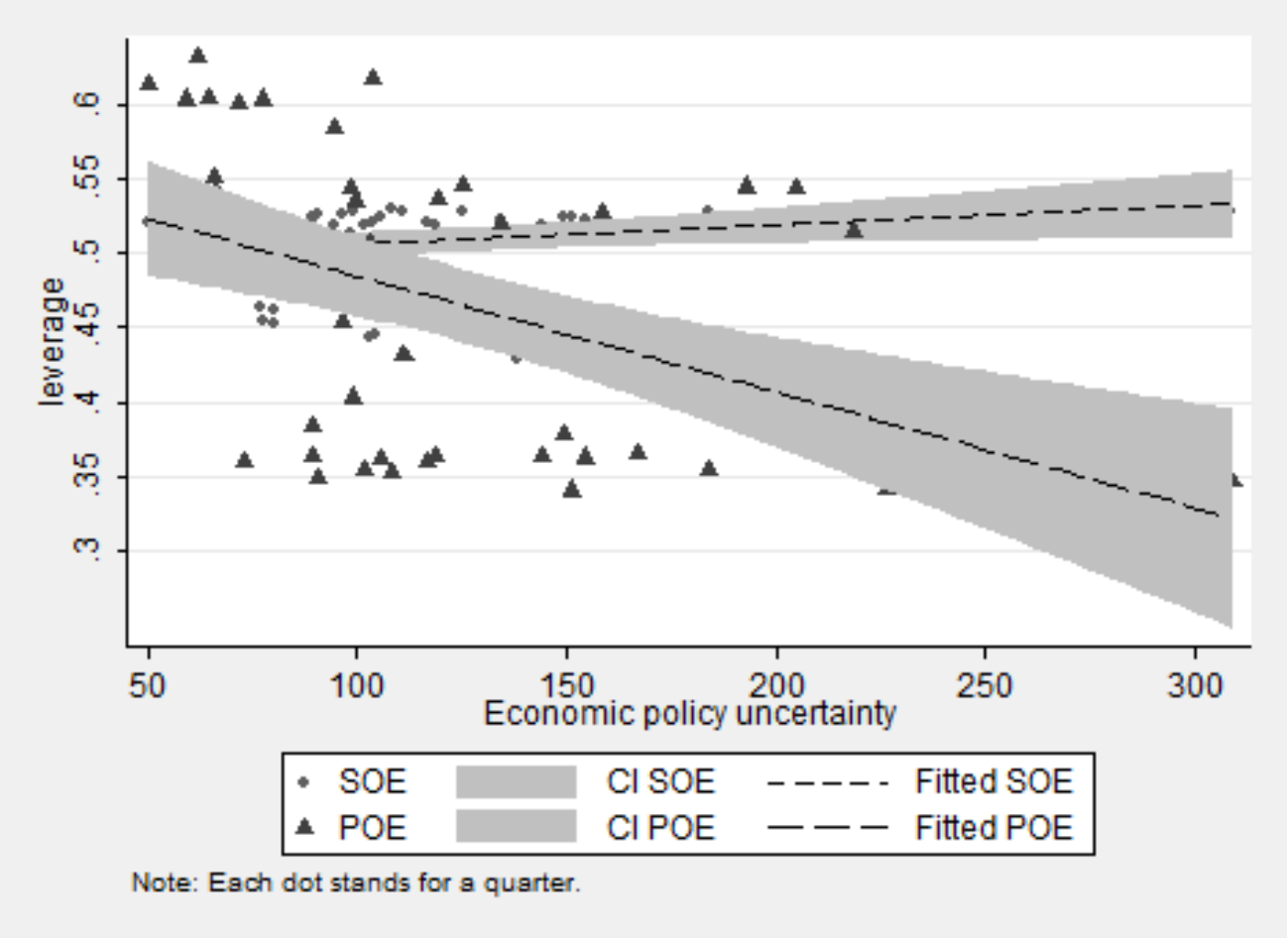

Figure 3 Discrimination Effect of Economic Policy Uncertainty

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Table 1 Statistic Summary

Variable	Obs	Mean	Std. Dev.	Min	Max
Firm level data					
Leverage	76461	0.465	0.338	0.003	16.605
Fixed assets/total assets	76461	0.248	0.173	0.000	0.971
Sales growth	67061	0.437	11.042	-0.995	1791.760
Log assets	76463	20.877	1.229	18.088	25.203
Political connection dummy	46109	0.067	0.250	0.000	1.000
ETC	59036	0.001	0.003	0.000	0.097
Time series data					
Policy uncertainty	51	137.693	66.911	50.195	308.898
GDP Growth	51	13.012	6.524	-0.270	32.891
Forecast mean for GDP Growth	41	8.639	1.360	6.500	11.600
Forecast sd for GDP Growth	40	0.048	0.051	0.006	0.274
Province level data					
Financial marketization	31	7.932	2.435	2.400	11.490
Loan marketization	31	6.146	2.207	-8.020	9.510
Bank competition	31	7.721	2.965	1.010	11.780

Table 2 Baseline Results

	(1)	(2)	(3)	(4)	(5)	(6)
	Leverage ratio (total liabilities/total assets)					
	Quarterly EPU: equally weighted average			Quarterly EPU: {1/6, 1/3, 1/2}weights		
EPU*SOE	0.0652***	0.0603***	0.0648***	0.0592***	0.0539***	0.0580***
	(0.0050)	(0.0050)	(0.0051)	(0.0047)	(0.0047)	(0.0048)
EPU	-0.0123***	-0.0255***	-0.0323***	-0.0117***	-0.0241***	-0.0279***
	(0.0035)	(0.0034)	(0.0037)	(0.0032)	(0.0032)	(0.0035)
GDP Growth		-0.0310***	0.0207***		-0.0325***	0.0206***
		(0.0031)	(0.0032)		(0.0032)	(0.0032)
Fixed assets/total assets			0.1124***			0.1124***
			(0.0097)			(0.0097)
Sales growth			0.0028			0.0026
			(0.0030)			(0.0030)
Log assets			0.2990***			0.3001***
			(0.0148)			(0.0148)
Constant	2.0129***	2.1090***	-3.2274***	2.0196***	2.1161***	-3.2475***
	(0.0060)	(0.0097)	(0.2580)	(0.0053)	(0.0093)	(0.2580)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Firm	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Quarter	Yes	Yes	Yes	Yes	Yes	Yes
Obs	73,865	73,865	64,775	73,865	73,865	64,775
R^2	0.7509	0.7516	0.7759	0.7507	0.7514	0.7757

Note: For columns 1--3, we calculate the mean EPU index for every quarter. In columns 4--6, we use different weights for different months as in Gulen and Iron (2016). In all the specifications, the dependent variable has a lead of a quarter with respect to all the independent variables. To facilitate the assessment of economic magnitudes, all variables are normalized by their sample standard deviation. Standard errors are clustered at the quarter and firm level following Petersen (2009) and Gulen and Ion (2016). Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table 3 Implicit Guarantee or Information Advantage: The Effect on Firm Performance

	(1)	(2)	(3)	(4)	(5)	(6)
	Quarterly EPU: equally weighted average			Quarterly EPU: {1/6, 1/3, 1/2}weights		
	ROA	ROE	Investment	ROA	ROE	Investment
EPU*SOE	-0.0237***	-0.0244***	0.0052	-0.0252***	-0.0241***	0.0053
	(0.0070)	(0.0078)	(0.0077)	(0.0069)	(0.0077)	(0.0077)
EPU	0.0115**	0.0079	-0.0106*	0.0080	0.0044	-0.0109*
	(0.0052)	(0.0054)	(0.0060)	(0.0051)	(0.0053)	(0.0059)
GDP Growth	0.0610***	0.0657***	0.0001	0.0590***	0.0643***	0.0002
	(0.0040)	(0.0047)	(0.0048)	(0.0040)	(0.0046)	(0.0048)
Fixed assets/total assets	-0.1330***	-0.1152***	0.0264**	-0.1337***	-0.1157***	0.0265**
	(0.0104)	(0.0118)	(0.0105)	(0.0104)	(0.0118)	(0.0105)
Sales growth	0.1341***	0.1291***	-0.0042	0.1341***	0.1291***	-0.0042
	(0.0047)	(0.0052)	(0.0045)	(0.0047)	(0.0052)	(0.0045)
Log assets	-0.1193***	-0.0416**	-0.1468***	-0.1194***	-0.0419**	-0.1470***
	(0.0148)	(0.0165)	(0.0148)	(0.0147)	(0.0164)	(0.0148)
Constant	2.4619***	1.0210***	2.6297***	2.4772***	1.0365***	2.6322***
	(0.2577)	(0.2878)	(0.2628)	(0.2578)	(0.2879)	(0.2632)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Firm	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Quarter	Yes	Yes	Yes	Yes	Yes	Yes
Obs	64,571	64,571	58,787	64,571	64,571	58,787
R^2	0.3904	0.2451	0.1622	0.3905	0.2451	0.1622

Note: For columns 1--3, we calculate the mean EPU index for every quarter. In columns 4--6, we use different weights for different months as in Gulen and Iron (2016). In all the specifications, the dependent variable has a lead of a quarter with respect to all the independent variables. To facilitate the assessment of economic magnitudes, all variables are normalized by their sample standard deviation. Standard errors are clustered at the quarter and firm level following Petersen (2009) and Gulen and Ion (2016). Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table 4 Implicit Guarantee or Information Advantage: Cross-sectional Evidence

	(1)	(2)	(3)	(4)	(5)	(6)
	Leverage ratio (total liabilities/total assets)			ROA		
EPU* Loan marketization *SOE	-0.0070***			0.0111***		
	(0.0022)			(0.0030)		
EPU* Small government *SOE		-0.0041*			0.0075**	
		(0.0023)			(0.0032)	
EPU* POE job creation *SOE			-0.0081***			0.0095***
			(0.0018)			(0.0024)
EPU* Loan marketization	0.0002			-0.0066***		
	(0.0016)			(0.0022)		
EPU* Small government		0.0037**			-0.0018	
		(0.0015)			(0.0025)	
EPU* POE job creation			0.0032**			-0.0024
			(0.0013)			(0.0018)
EPU*SOE	0.1170***	0.0906***	0.1265***	-0.1133***	-0.0691***	-0.0945***
	(0.0190)	(0.0152)	(0.0157)	(0.0259)	(0.0215)	(0.0211)
EPU	-0.0342**	-0.0555***	-0.0592***	0.0682***	0.0229	0.0315*
	(0.0143)	(0.0103)	(0.0123)	(0.0199)	(0.0169)	(0.0162)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Firm	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Quarter	Yes	Yes	Yes	Yes	Yes	Yes
Obs	64,775	64,775	64,775	64,571	64,571	64,571
R^2	0.7760	0.7759	0.7760	0.3906	0.3905	0.3907

Note: Other control variables include "SOE," "GDP Growth," "Fixed assets/total assets," "Sales growth," and "Log assets." In all the specifications, the dependent variable has a lead of a quarter with respect to all the independent variables. To facilitate the assessment of economic magnitudes, all variables are normalized by their sample standard deviation. Standard errors are clustered at the quarter and firm level following Petersen (2009) and Gulen and Ion (2016). Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table 5 Implicit Guarantee or Information Advantage: The Effect of Connection and Sales star

VARIABLES				
	Leverage	ROA	Leverage	ROA
	Board member connections	Board member connections	Sales star	Sales star
EPU* connection	-0.0045	-0.0619***		
	(0.0111)	(0.0193)		
EPU* sales star			0.0146**	-0.0402***
			(0.0068)	(0.0099)
EPU	-0.0259***	0.0072	-0.0321***	0.0192***
	(0.0042)	(0.0058)	(0.0052)	(0.0073)
Other controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Cluster by Firm	Yes	Yes	Yes	Yes
Cluster by Quarter	Yes	Yes	Yes	Yes
Observations	28,628	28,536	28,628	28,536
R-squared	0.7832	0.4045	0.7833	0.4047

Note: Other control variables include "SOE," "GDP Growth," "Fixed assets/total assets," "Sales growth," and "Log assets." In all the specifications, the dependent variable has a lead of a quarter with respect to all the independent variables. To facilitate the assessment of economic magnitudes, all variables are normalized by their sample standard deviation. Standard errors are clustered at the quarter and firm level following Petersen (2009) and Gulen and Ion (2016). Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table 6 Robustness Tests: Controlling general economic uncertainty

	(1)	(2)	(3)	(4)
	Leverage ratio (total liabilities/total assets)			
EPU*SOE	0.0693***	0.0668***	0.0696***	0.0676***
	(0.0049)	(0.0048)	(0.0049)	(0.0048)
EPU	-0.0364***	-0.0391***	-0.0373***	-0.0368***
	(0.0039)	(0.0037)	(0.0039)	(0.0039)
GDP Growth	0.0184***		0.0143***	0.0139***
	(0.0032)		(0.0030)	(0.0030)
Mean level of forecast GDP		0.0200***		
		(0.0036)		
Sd of forecast GDP			3.3255***	6.6596***
			(0.5573)	(1.0608)
Sd of forecast GDP*SOE				-5.1406***
				(1.3006)
Other controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Cluster by Firm	Yes	Yes	Yes	Yes
Cluster by Quarter	Yes	Yes	Yes	Yes
Obs	56,494	55,555	56,494	56,494
R^2	0.8000	0.8044	0.8002	0.8004

Note: Other control variables include "SOE," "Fixed assets/total assets," "Sales growth," and "Log assets." In all the specifications, the dependent variable has a lead of a quarter with respect to all the independent variables. We keep the sample to the time period during which the forecasts are not missing. To facilitate the assessment of economic magnitudes, all variables are normalized by their sample standard deviation. Standard errors are clustered at the quarter and firm level following Petersen (2009) and Gulen and Ion (2016). *** p<0.01, ** p<0.05, * p<0.1.

Table 7 Robustness Tests: Controlling stimulus program after 2008 crisis

	(1)	(2)	(3)
VARIABLES	Leverage ratio (total liabilities/total assets)		
	No specific benefiting industry	Infrastructure as benefiting industry	Infrastructure as benefiting industry
EPU*SOE	0.0320***	0.0603***	0.0320***
	(0.0037)	(0.0050)	(0.0037)
EPU	-0.0170***	-0.0307***	-0.0169***
	(0.0031)	(0.0036)	(0.0031)
After2008q4	-0.1599***	-0.0177	-0.1620***
	(0.0203)	(0.0116)	(0.0209)
SOE*After2008q4	0.2498***		0.2231***
	(0.0229)		(0.0242)
Infrastructure*After2008q4		0.1938***	0.0681
		(0.0263)	(0.0719)
Infrastructure *After2008q4*SOE			0.0813
			(0.0772)
Other controls	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes
Cluster by Firm	Yes	Yes	Yes
Cluster by Quarter	Yes	Yes	Yes
Obs	64,775	64,775	64,775
R^2	0.7779	0.7767	0.7784

Note: In column 1, we include a time dummy *After2008q4* and its interaction term with SOE to control the effect of stimulus programs after 2008 following Johansson and Feng (2015). In column 2, infrastructure industry is defined as benefiting industry of stimulus program after the 2008 crisis, and its interaction with *after2008q4* is added to the regression. In column 3, interactions of SOE with after2008q4 and infrastructure*after2008q4 are added to the regression. Other control variables include "SOE," "GDP Growth," "Fixed assets/total assets," "Sales growth" and "Log assets." In all the specifications, the dependent variable has a lead of a quarter with respect to all the independent variables. To facilitate the assessment of economic magnitudes, all variables are normalized by their sample standard deviation. Standard errors are clustered at the quarter and firm level following Petersen (2009) and Gulen and Ion (2016). Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table 8 Robustness Test: controlling size discrimination effect and monopoly effect

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Leverage ratio (total liabilities/total assets)					
	50th	40th	30th	20th	Non-monopoly	Competitive
EPU* SOE	0.0645***	0.0644***	0.0639***	0.0636***	0.0610***	0.0474***
	(0.0052)	(0.0052)	(0.0052)	(0.0051)	(0.0052)	(0.0098)
EPU	-0.0325***	-0.0330***	-0.0337***	-0.0340***	-0.0295***	-0.0332***
	(0.0045)	(0.0042)	(0.0040)	(0.0039)	(0.0037)	(0.0074)
Large firm	-0.0197	0.0043	0.0187	0.0033		
	(0.0147)	(0.0146)	(0.0147)	(0.0149)		
EPU*large firm	0.0007	0.0019	0.0051	0.0092*		
	(0.0049)	(0.0047)	(0.0047)	(0.0049)		
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Firm	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Quarter	Yes	Yes	Yes	Yes	Yes	Yes
Obs	64,775	64,775	64,775	64,775	60,395	15,320
R^2	0.7759	0.7759	0.7759	0.7759	0.7797	0.8092

Note: In column 1, we define a firm as a "large firm," if its asset is ranked in the top 50% of the firms in the city in a specific year. In columns 2--4, the thresholds are set to 40th, 30th, and 20th respectively. The sample in column (5) has deleted observations in monopoly industries. Column (6) further restricts the observations to competitive industries. Competitive and monopoly industries are classified following Yue et al. (2011). Other control variables include "SOE," "GDP Growth," "Fixed assets/total assets," "Sales growth," and "Log assets." In all the specifications, the dependent variable has a lead of a quarter with respect to all the independent variables. To facilitate the assessment of economic magnitudes, all variables are normalized by their sample standard deviation. Standard errors are clustered at the quarter and firm level following Petersen (2009) and Gulen and Ion (2016). *** p<0.01, ** p<0.05, * p<0.1.