

# The Reverse Bail-Out of Indebted Local Governments by Local Firms

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## Abstract

Using a dataset of over one million local government procurement contracts in China, we study whether the government's indebtedness causes delays in payment which can be averse to suppliers' financial conditions. Higher local government distress predicts an increase in accounts receivables for suppliers participating in procurement auctions after the distress period increase. Local governments are less likely to delay payments in areas with more property rights and less likely to delay payment to (1) large companies, (2) those in high-tech industries, (3) state-owned suppliers. Instrumenting for government financial distress by connections of local government officials to senior central communist party leaders increases the point estimates. Our results suggest that local government indebtedness induces a bail-in by firms supplying goods and services to the government. Governments appear to follow a pecking order to pay for government contracts, and firms bailing in the local government are more likely to fail.

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# 1. Introduction

In 2021, the total debt of local government financing vehicles in China was estimated to be US\$8.2 trillion, or around 52% of China's gross domestic product (Bloomberg 2021). The high and rising local government debt has raised concerns of systemic risks (Lu and Sun, 2013; Zhang and Barnett, 2014; Ang et al., 2016; Amstad and He, 2019; Chen et al., 2020). The local government debt (including contingent debt) had risen to 120% of local GDP, equivalent to over 600% of local governments' fiscal income as of 2019. For comparison, the city of Detroit in the United States had a debt-to-fiscal income level of over 700% when it defaulted in June 2013. However, in China, local governments wield a large amount of discretionary power from procurement to land scales.

In this paper, we study whether local governments use their discretionary power over procurement contract payment to shift the debt burden to other sectors in response to higher fiscal constraints. Such a "reverse bail-out" may increase financial burdens on private firms, who may lack political power and a judicial remedy against the government. China's judicial system is not independent, as the courts are controlled by the local party members, which tends to be naturally biased in favor of the local government. The odds of winning litigation against the local government are small, and even those winners usually find it impossible to execute the courts' orders. As a result, the government may be shifting its debt burdens unto private firms with low debt capacity and liquidity, causing a negative spillover.

To test this reversed bail-out hypothesis, we assemble a dataset including over one million government procurement contracts in China since 2013. Chinese central government requires all government procurement contracts to be collected and published on a unified website.<sup>2</sup> Each contract has the key information, e.g., the name of the government and the firm, the total amount, and the nature of the service/goods involved, and the transaction duration. We matched this dataset with the local firms' balance sheets obtained from the Oriana database and government debt. For each local government, we obtain its explicit debt or the debt it issued in the inter-bank market and make the greatest attempt to collect its implicit debt or those debt

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<sup>2</sup> <http://www.ccg.gov.cn/>

issued via local government financing vehicles (LGFVs), which are special purpose vehicles that local governments use to finance their activities due to laws against local governments directly issuing debt.<sup>3</sup> We do so by collecting all the balance sheets of government-related SPVs.

In our empirical analyses, we use the heterogeneity in the local governments' debt accumulation trajectory to compare similar firms supplying to different governments. Our baseline regressions suggest that those firms contracting with local governments with more than 50% debt-to-fiscal income experienced a 1.734% increase in account receivables compared to similar firms contracting with local governments with less debt.<sup>4</sup> Given the median level of account receivables (6.52 million RMB), this estimate amounts to an increase of 113 thousand RMB (approx. US\$ 17 thousand) per firm.

However, two types of endogeneity concerns arise. The first endogeneity concern is that those governments with more debt may differ from those with low debt due to various unobservable traits – such as the extent of corruption or investment opportunities – in a way that makes comparing similar firms' across cities unreasonable. To overcome this concern, we use the political connection of the previous local leader 5 years ago as the instrument of current government debt. Most local government debts are long-termed, usually mature in more than 3 years. He and Wang (2015) shows that the political connection of local leaders may loosen financial constraints and allow them to spend more and accumulate more debt. Therefore, a connected leader would mean more debt issuance five years ago and more debt to be repaid now.<sup>5</sup> On the other hand, as the typical tenure of a local leader is less than three years, the political connection of a replaced leader may be less connected with other local economic factors now. We find that the connections with the senior officials when the debt was issued issuance years ago have no significant correlation with the maturity of the debt and a series of economic indicators, e.g., the city's GDP, the infrastructure growth rate, and the government debt growth rate now. Our results turn to be robust when using the instrumental variable.

The second endogeneity concern is that the increase of the local firm account payable

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<sup>3</sup> SPVs, 政府融资平台, can either borrow directly from the bank, or issue debt in the inter-bank market.

<sup>4</sup> 50% of the fiscal income is roughly the median level in our database.

<sup>5</sup> Most of the local government debt matures in 5 years.

may come from their other clients rather than the government. It could be the case that the government expenditure, financed by the government debt, may stimulate the local economy, also increasing the account payable/receivable between firms. To mitigate this concern, we conduct robustness checks using only the firms located in different cities from the government. It is less plausible that government stimulus in other cities could affect the firms' accounts receivable. Around half of the firm-government pairs are across cities. Using only the cross-city sample does not change our result either.

Further, we find that the more powerful local governments are, the more likely they are to delay the payment to private firms. The impact is more significant in regions with governments with high expropriate tendencies and where judicial remedies are more difficult. We also find that the influence on the smaller, non-high-tech, and private firms, who may lack core competitiveness in the negotiation with the government, is also greater. Our findings are consistent with the government bail-in hypothesis.

We also provide additional evidence that rules out two alternative explanations whereby firms may willingly provide credit to indebted governments. First, firms do not appear to be passing on their lower costs of capital to the government since most supplier firms are small with high costs of capital. Second, firms may finance the government through trade credit to obtain the governments' favor in return. We explore several ways the government may reciprocate the favor of trade credit, e.g., the sequential government procurement and the tax cut. We failed to find any government favoritism in the next couple of years. Those firms with government procurement may have a long-term relationship with governments and are forced to provide trade credit because they previously enjoyed certain benefits from the government. Again, this is implausible as we find that more than 60% of the firms only engage in one government procurement contract. We find no evidence in the empirical analysis either. Our findings suggest that companies are forced to share the burden of government debt involuntary.

Finally, we find that the rise in high account receivables due to government payment delays have negative consequences supplier firms. Chinese firms can face liquidity shortages which push them into default, as the banking system's rigidity only allows them to have short-term loans. The high account receivable would further squeeze their liquidity and increase the likelihood of defaulting on other creditors like banks. On top of that, the Chinese impotent

bankruptcy system means that most financially distressed firms are liquidated. Using both reduced-form and instrumental variables analysis, we find that the higher accounts receivable is associated with a higher likelihood of being sued by other creditors and liquidated.

## **Related Literature**

Our paper is related to the literature on the Chinese government debt and corporate investment. Notably, Huang et al. (2020) shows evidence that local public debt crowds out local government debt by imposing financial constraints on private firms. Relative to this paper, we seek to causally establish an alternate propagation mechanism whereby indebtedness causes delays in payment which private firm dynamics in terms of investment, R&D spending, litigation, and bankruptcy. In addition, a group of literature has discussed the origin and sustainability of Chinese government debt (Feng, 2013; Sun, 2019; Amstad and He, 2020). Some focused on their nexus with the shadow banking system (Hachem, 2018; Wu, 2019; Chen et al., 2020; Gao et al., 2021). However, few have explored the impact of rising government debt on firm behaviors (Liang et al., 2017; Cong et al., 2019; Huang et al., 2020). To our knowledge, ours is the first paper to explore its implication over the nature of the government, i.e., whether the government financial conditions affect private firms. Our research also challenges the long-held belief that governments bail out banks and companies during financial crises in general (Blau et al., 2013; Hung et al., 2017) by studying the behavior of local governments.

Our paper is also related to the government procurement literature, which focuses on the underlying corruption, collusion, and welfare loss from discretionary awarding decisions, especially in emerging markets. (Mahmood, 2010; Pontré et al., 2011; Dastidar and Mukherjee, 2014; Fazekas and Kocsis, 2020) Our paper, however, focuses on the post-procurement effects on firms. Most relevant to this article is Beraja et al. (2021), who explain part of the rapid development of AI companies in China due to the government procurement and sharing of big data. We emphasize that the government may expropriate companies through procurement contracts under poor property protection and institutions, whereas existing research like Ferraz et al. (2016) show that government procurements increase supplier firms' growth. Our paper is also related to the literature regarding the nature of the government. There has been extensive

literature on whether the government is the helping or grabbing hand and the governments' role in economic development. (Shleifer and Vishny, 1993, 1994; Frye and Shleifer 1996; La Porta et al., 1999). We complement that literature by suggesting that the nature of the government could be contingent on its financial status. On that end, our paper is related to Tilly (1985) and other papers on the form of government. In a recent paper, Sánchez De La Sierra (2020) suggests that the form of the government, exploitive or not, would be highly determined by the difficulty of monopolizing the main resource.

## **2. Institutional Background**

### **2.1 Local Government Debt in China**

Governments must sell assets or borrow to cover the difference between their income and fiscal expenditures. In China, local governments bear most of the costs of regional affairs, including primary/middle education, medical and old-age care, and the payroll of civil servants. On top of that, incentivized “promotion tournaments,” government officials frequently make large infrastructure investments to stimulate the economy (e.g., Li and Zhou, 2005; Jin et al., 2005; Han and Kung, 2015; Bai et al., 2016; Lv et al., 2020). According to China's Bureau of Statistics, local governments account for an annual average of 84.5% of the total government expenditures in China in the past decade.

On the other hand, the fiscal income share of local government as a fraction of total government income has decreased over the years. Since a tax reform in 1994, the central government has gained more taxing authority through corporate and individual income taxes. Since then, the fiscal income share of local government decreased from 78 percent to 47 percent through 2009. Considering that local government expenditures account for more than 70% of the total government expenditure, the decline in local government income share has led local governments to have a significant fiscal gap of around 20% of the total government revenue. This leads local governments to issue more debt to finance their spending.

Prior to the 2014 New Budget Law, local governments could not issue bonds directly.<sup>6</sup>

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<sup>6</sup> The old budget law in 1995 stopped the local government from issuing debt. In addition, the Law of the People's Bank of China, which took effect at the same period, also stopped the banks from lending to local governments.

As a result, government financing platforms – a special purpose vehicle – were established to bypass this regulation. China’s local-platform debt model gained momentum after the 2008 financial crisis. At that time, the central government launched a 4 trillion economic stimulus plan, 1.18 trillion RMB of which came from the central government, and the remaining 2.82 trillion came from local government spending. As a result, local governments had to use SPVs for debt for financing because they had no additional fiscal revenues sources. Since then, local financing platforms emerged in 2009 and grew to 11,567 local government financing platforms in 2019. Less than a fifth of existing SPVs are provincial-level, about 56 percent are municipal-level, and more than 20 percent are county-level.<sup>7</sup>

Most SPVs are companies with no real business operations. The head of the local government or its finance department usually takes the duality position as the head of the SPV to ensure absolute control of the SPV. The SPVs borrow in two ways. First, SPVs can issue “quasi-municipal debt” in the inter-bank market. The debts range from short-term financing notes to long-term bonds. All debt issuance needs approval from the National Development and Reform Commission and carries an annual interest rate of around 5.5%. The local government can also use SPVs to obtain loans from local banks. Those loans are usually guaranteed by the government fiscal revenue. Local banks, which local governments ultimately own,<sup>8</sup> typically do not chance to reject their loan application. While the debt issued in the inter-bank market is easy to track, the total amount of bank lending to the SPV is hard to monitor by central governments, as debt issuance is entirely off the book. This brings about systemic risks concerns.

To put the untraceable SPV debt under more oversight, the New Budget Law in 2014 allowed local governments to issue debts directly once the State Council approves. The provincial-level governments must guarantee the municipal governments’ bond to motivate strict monitoring over the debt quality of the subordinate governments. The local tax revenue also guarantees the bonds for general uses, and those for specific projects are mainly repaid with corresponding land sale revenue or project revenues (e.g., highway tolls).

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<sup>7</sup> Data from practitioner’s report: [In-Depth: Thematic research on local government debt](#).

<sup>8</sup> Another reason for the dependence of the local banks over the government is that the government usually puts their fiscal income into local banks as deposits.

At the same time, the local governments are not allowed to issue new debt via SPVs. In 2015, the central government required that the local SPV debt be converted into local government debt by the end of 2018. Otherwise, the governments will no longer provide any support to debt repayment. The local governments are also prohibited from providing guarantees for any outstanding or newly issued debts of SPVs. However, anecdotal evidence suggests that the local governments are trying to cut the SPV loans. For example, Chongqing city dismissed several county officials for providing illegal guarantees for SPVs.

Local government debts have been increasing over the past years. Figure 4 illustrates the total outstanding and maturing SPV bonds, SPV bank loans, and government debt. By the end of 2019, these three types of debts account for 85% of total GDP. Before 2014, the main method for local government debt finance was SPV loans from banks. The local government direct debt has experienced dramatic increases ever since its inception in 2014. By the end of 2019, it has been around 55% of the local governments' fiscal income. The total amount of SPV bonds and SPV bank loans have been almost constant over the years, reflecting an effort of local governments to replace it with government debts.

Many local governments accumulate debt, especially those with fast fiscal expenditure expansion and slow GDP growth. In a survey by the National Audit Office on outstanding government debt in 2013, total debt outstanding by local governments account for 36.74% of total local GDP; three provincial government (out of 34), 99 city-level government (out of 385), 195 county governments (out of 2000) having debt obligation more than 100% of its fiscal income. The expansion of local debt raised concern over the default likelihood of local governments. In 2017, Moody warned of the systemic risks of local debt and lowered the Chinese sovereign rating from Aa3 to A1.

Since 2014, the central government has taken a policy stance that it would not be responsible for the local debt. Despite the huge debt burden on local government, there has been no default yet. The main reason may be more political rather than economic. With the local debt accumulating, it is a consensus that first to default local government would trigger a domino effect, probably bringing about a systemic risk to all participants in the local debt market, affecting banks, the local government, and institutional and retail bondholders. The local leaders, whose promotion decisions are made by its higher government, are concerned

that the first to default would be a huge political stain that will cost them their political careers. Anecdotal evidence shows that local governments make disparate moves to make their debt sustainable. For example, a distressed county government in Guangdong was forced to lease its government hall to a bar to repay its debt.

## 2.2 Government Procurement and Payment

Chinese firms can become suppliers to the government if they have relevant professional competence, well-documented financial statements, and a tax record. Recently, local governments adopted the method of public bidding in choosing the suppliers, making many connected private firms become the governments' suppliers. The Ministry of Finance also stipulated that small and medium enterprises (SMEs) should enjoy preferential treatment in the bidding procedure, and at least 30% of the government procurement must go to the SMEs. By the end of 2019, more than 95% of government procurements are finished by private companies, with more than 77% finished by SMEs.

In China, the suppliers of the government procurements are determined in many ways, e.g., public bidding, competitive negotiation, purchasing inquiry. According to the Government Procurement Law, for all government procurements after 2015, the local government has to disclose the relevant information such as the identity of the supplier, the price, and quantity of the procurement within two working days after the decision was made. All information is disclosed on China Government Procurement Website<sup>9</sup>, the official website for government procurement publicity. See Figure A.7 for an example of a disclosed procurement contract.

However, the local governments can delay or deny the repayments to suppliers after the goods or services are provided. This is especially true for those private firms without political connections. Several reasons lead to the pervasive delay of government procurements. The payment process of local government is complicated, involving the financial department auditing and progress confirmation of third-party agencies. The government officials may want to use the opportunities to extract rents from the private suppliers. It is also likely that under great

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<sup>9</sup> <http://www.ccgp.gov.cn/>

pressures, the governments may not have sufficient cash flows to make ends meet, and the repayment to the suppliers must be delayed. Statistics show that the total overdue repayments to government procurement by the end of 2018 were at least 890 billion RMB, most of the suppliers are SMEs. By the end of August 2018, 480 local governments in China appear on the “Dishonest debtor” name list, meaning that they default on the procurement at least once.<sup>10</sup>

China’s judicial system does not impose sufficient checks on its government. Under the leadership of the local Party Committee,<sup>11</sup> the Chinese courts generally favor the local government in the face of conflicts between the government and the private citizens. Figure 5 illustrates the total number of cases brought by the government suppliers against governments that delayed payment over the years. For all 2,806 cases, the total amount of unpaid payments and interest amounted to about 106.1 billion Yuan. The small absolute number of cases reflects the reluctance of the suppliers to sue the government unless the value at stake was significant. More than 55% of cases were directly rejected to trial by the court over the years. For those courts that allow the prosecution, it is most likely that the suppliers would win the trial. However, in most cases, the courts do not have the enforcement power to force the government to repay.

The governments’ non-repayment on procurement may cause their suppliers to run out of liquidity. Most banks in China do not issue loans to private firms for more than one year. To finance the project longer than one year, firms need to repay the loan first after one year and re-borrow the loan conditional on the banks’ consent. Suppose the government failed to repay the suppliers within one year. In that case, the supplier must borrow from other resources to fill the funding gap caused by the account receivable against the government. Failing to do so would mean that the firm would default on its bank loans and be listed as the “Dishonest Debtor.” Given that private firms face credit rationing from banks, many suppliers cannot borrow

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<sup>10</sup> Some payment delays persist for a long time. For instance, a listed company named Orient Landscape, whose main business is to provide urban garden planting services to local governments, disclosed a total account receivable of 8.9 billion RMB, or 21.3% of its total asset. It is estimated that only 40% of its account receivable would be paid at all. One of its largest clients, the Management Committee of Binzhou Economic Development Zone, only paid 13 million out of its total of 1.5 billion unpaid procurements between 2014 and 2018.

<sup>11</sup> The head of Chinese courts is selected and appointed by the head of the local polity and legal commission, one division of the local party committee.

sufficient capital from the bank. As a result, it is not uncommon for firms to borrow expensive private loans, which charge an interest rate of 24% to finance their account receivable towards the government. That seriously weakens the financial health of the firm.

Moreover, government payables may exhaust the firms' working capital, leading to the failure to repay its upstream suppliers in time. It means that the governments' high pressures are passed among private firms, getting more involved firms. During the bankruptcy procedure in China, when one debtor borrows from multiple creditors, it is usually the case that creditors have the first move advantage. Those who first litigate and liquidate the firm may grab more assets and benefit from their first-mover advantages. Therefore, those distressed government suppliers risk being run by the creditors and liquidating pre-maturely. Therefore, the institutional setting of the local government procurement environment motivates our empirical analyses in Section 4 as well as firm outcomes in Section 5.

### **3. Data and Methodology**

#### **3.1 Data Source**

The data in this paper comes from three different sources: (1) government procurement information, (2) government debt information, and (3) corporate financial information.

First, we collect information on more than one million procurement announcements between 2013 and 2019, covering a total of 32 provinces and 324 cities in China. It is worth noting that the procurement law was implemented in 2014, and the procurement announcement before 2013 is not standardized in format and fewer in number. However, its impact on our merged database is limited as most firm-level information is only available after 2014. We extract key information, including the procurement government, the project/goods involved, the supplier's identity, purchase amount, and prices. We then construct a company-by-year panel data by summing the total government procurements for the firm in the specific year. Although on average, one firm has 1.7 procurements contract over the 7-year sample period (2013-2019), a firm rarely receives multiple contracts from the government in one year. In

those very rare cases that one firm receives contracts from multiple governments, we use the feature of the government with the largest procurement contract amount.

Second, government debt data comes from the Wind database, China's most prominent financial and economic data provider. As mentioned before, Chinese local governments raise debt in two ways. The first one is to issue bonds directly. However, Chinese local governments were not allowed to issue bonds directly until 2014, when the central government tried to make the total quantity of local government debt more transparent. The second way is to use the local SPV, usually called an urban investment platform, to issue debt. This is the primary method to raise external finance for local government. The platforms can issue bonds in the market or take interest-bearing loans from banks. Figure A.3 shows the stock of each type of debt over our sample period from 2014 to 2019. While the bond issued by SPVs are open to the market, the loan and other interest-bearing debt are relatively harder to track. Then, for the local government bonds and SPV bonds, we obtain the relevant information regarding the date of issuance, identity of the issuer, maturity date, total amount, and coupon rate. The most challenging task is identifying SPVs from all other non-SPV debt-issuing companies. The name list of SPVs comes from Wind database, a widely used source used by both academics and practitioners. It is estimated to cover more than 70% of all local government SPVs. Information regarding other SPV interest-bearing debt comes from their financial statements. Most SPVs are not listed companies, so they must announce financial statements only when they issue bonds. We then sum the local government bond, SPV bond, and other interest-bearing debt of SPVs as the total debt of local governments. Figure A.4 shows that although there was a substantial increase in the local government bond recently, the maturing debts are mostly SPV bonds and SPV debts.

Third, data on financial statements of public suppliers are from ORIANA, the Asia Pacific company information from Bureau van Dijk, a Moody's Analytics Company.<sup>12</sup> The data include information on public and private companies and are primarily consolidated from original filings to regulatory agencies, which include a company's directors and contracts,

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<sup>12</sup> The dataset belongs to the same company as the global Orbis database, which is also a Bureau Van Dijk Moody's Analytics Company. This dataset was shown by (Kalemli-Ozcan et al. 2015) to permit the construction of a nationally representative sample compared to aggregate Eurostat statistics.

corporate structures, financial statement variables. Although not all financial statement information is available, we rely on the headline financial statement information, for which data are more readily available. We obtained basic information and shareholder profiles of approximately 2 million companies in China from 2009 to 2019. We only keep companies with at least three years of complete financial information and winsorize total assets at the 5% level to avoid skewing our results by extreme valued observations. We end up with 953,653 observations from 245,948 companies.

We merge the three databases using the firm identities and city names. The sample covers 7,750 unique firms from 295 cities in China. Table 1 shows the summary statistics.

## 4. Empirical Analyses

### 4.1 Empirical Specification

We estimate a regression specification of the form:

$$y_{i,t} = \alpha_i + \alpha_{j(i),t} + \beta 1[\text{Supplier}]_{it} \times 1[\text{High pressure}]_{it} + X'_{i,t-1}\Gamma + \theta_i + \mu_c + \rho_t + \varepsilon_{i,t},$$

where  $i$  indexes a firm,  $j(i)$  indexes an industry, and  $t$  indexes a year.  $\alpha_i$  denotes firm fixed effects and  $\alpha_{j(i),t}$  denotes industry-by-year fixed effects. The outcome variables  $y_{i,t}$  are firm characteristics. In the baseline regression the outcome variable is the account receivables scaled by past total assets. In later sections we explore other firm characteristics, e.g. whether a firm faces liquidation, its cashholding and R&D expenditure and government features, e.g. fiscal expenditures. We cluster standard errors by firm.

Our main variable of interest is the interaction between the  $1[\text{Supplier}]_{it}$  and  $1[\text{High pressure}]_{it}$ .  $1[\text{Supplier}]_{it}$  is a dummy variable that is 0 before the firm becomes a government supplier and 1 after a firm becomes a government supplier.  $1[\text{High pressure}]_{it}$  is a dummy variable that equals 1 if the government has a higher-than-median government debt-to-income ratio or a higher-than-median debt interest premium and 0 otherwise.<sup>13</sup> The

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<sup>13</sup> Government income includes both income from taxation and the extra-tax income, mostly from the sale or leasing of land.

reason to consider the interest rate is to capture the possible deterioration of the debt issuer's credit rating and the associated rollover risks even when the total scale of debt is not large. The definition of  $1[\text{High pressure}]_{it}$  is based on the comparison to median of government observations of the same year to avoid overweighting observations from later years in our sample since debt has risen across the board.  $X_{i,t-1}$  is a set of time-varying firm and city characteristics, including firms' total asset, leverage ratio, local GDP growth rate. Time invariant features of firms and cities are absorbed by the  $\theta_i$  and  $\mu_c$  fixed effects parameters, and macroeconomic variables affecting all firms equally are absorbed by the time fixed-effect  $\rho_t$ .

## 4.2 Baseline Results

Table 2 shows the baseline results. In Column (1), the coefficient of the interactive term between the  $1[\text{Supplier}]_{it}$  and  $1[\text{High pressure}]_{it}$  is positive and significant, meaning that once firms become suppliers of a highly indebted local government, they subsequently see higher account receivables compared to another firm in the same industry that became a supplier of a less indebted government around the same time. The point estimate suggests that suppliers to an indebted government are associated with 7.3 Million RMB (approx. 1.1 million USD) additional account receivables after the contract is signed. This is economically meaningful, as it accounts for 28.85% of the total value of the average amount of government procurement, 25.3 Million RMB. In other words, the indebted governments are delaying nearly 30% of their repayment due right after the procurement contract is finished. Subsequent columns include the firm and city level control variables and the firm, city, year fixed effects. Including the additional explanatory variables decreases the estimated point estimate, but it remains statistically significant. From Columns (2) onwards, the estimated coefficients remain quantitatively similar, meaning that the result is not driven by observable firm and city characteristics, unobservable static firm and city characteristics, or industry trends.

To ensure that certain outliers do not drive the results, we decompose the government into quartiles according to their respective government pressures. If the High pressure drives the delay in repayment, one would expect to see a monotonically increasing effect over the

supplier's account receivables across local government debt-to-income quartiles: Those governments with the highest (lowest) High pressure should be associated with the largest (smallest) local firms' account receivables. This conjecture is supported in Column (3) of Table 2. The coefficient of the most indebted government is highest, followed by the coefficient of the less indebted governments.

## 4.2 Robustness Tests

We consider six robustness tests that support our interpretation that suppliers to more indebted governments appear to provide more short-term financing for governments compared to those supplying to less indebted governments.

First, certain features of the procurement contracts could drive the observed high account receivables of the indebted governments' suppliers. For instance, the contracts of the indebted governments' suppliers may be larger than those of non-indebted governments. As a result, its suppliers have a higher account receivable even if the indebted governments' repayment ratio is the same as the non-indebt government. However, Column (5) suggests that controlling for contract amount does not change our results.

Second, another possibility is that the high account receivables could result from the firms' delay in finishing the project or delivering the goods purchased, rather than the governments' delay in repayment. We use two different ways to address this concern. First, it is plausible that the nature of the procurement largely determines the time to completion of the government contract. Construction projects, for instance, would naturally take much more time than goods to be delivered. We therefore control for the types of procurement: whether it is a construction project or goods. An alternative method is to redefine  $1[\text{Supplier}]_{it}$  to be 1 only after the due delivery time of the contract, rather than after signing the contract. This new definition takes full consideration of the difference in finishing time for various projects. We find that the coefficient is almost unchanged in those two robustness tests, suggesting that the time to finish has little impact on our result.

Third, another possible interpretation of the high level of account receivable of suppliers of indebted government is that they receive multiple procurement contracts in later years.

Therefore, the high account receivable results from the ongoing projects, instead of the delayed repayment of the finished project. It seems reasonable that indebted governments may be more exclusive in selecting suppliers and rewarding most procurement contracts to a small number of connected firms. However, 86.7% of firms in our sample have only one procurement from the government, with the median number of contracts only being 1. To further mitigate this concern, we conduct a robustness check on a sample excluding those firms with multiple government procurements. The result is reported in Column (8) of Table 2. The fact that the coefficient is almost unchanged further alleviates the concern that the accumulating account receivables are not a result of the ongoing future procurement projects.

Fourth, certain exogenous but confounding events would also significantly impact governments' repayment to their suppliers. The most prominent is the ongoing anti-corruption campaign. The anti-corruption investigation would significantly delay the local governments' repayment speed, either because the officials in charge were taken away from the investigation or because other uninvestigated officials were reluctant to let go of the repayment out of the fear that the procurement is involved in any corruptions cases. The official making the repayment would be suspicious. This conjecture seems plausible as the indebted government with huge fiscal expenditures is usually the place for corruption investigations. We therefore exclude those cities with recent anti-corruption investigations. We find that the result is almost unchanged, suggesting that the result is not brought up by the anti-corruption campaigns either.

Fifth, the accounts receivable may reflect some financial manipulation and not reflect the firm's economic condition. Numerous studies on listed firms in China have shown that firms can inflate their total asset and profitability by increasing their account receivables (Zang, 2012; Gao et al., 2017). However, in our setting, it is hard to imagine why suppliers of indebted governments are more likely to engage in financial manipulations than their peers of non-indebted governments. We address this concern by comparing the standalone firms and those affiliated to large conglomerates. The usual way to inflate the account receivables is to collaborate with their trade partners by either recognizing a phony transaction or early recognizing the sales in the future. Having related companies who can play the role of trade partners would be instrumental in financial manipulation. We therefore exclude those firms affiliated with conglomerates from our sample and use the standalone sample. The coefficient

reported in Column (6) of Table 3 is quite close to our baseline result, alleviating the concern that financial manipulations drive our result.

Sixth, another possibility is a differential trend among firms matching with indebted governments versus those that match with less indebted governments. The former may have an increasing level of account receivables before becoming the government suppliers. It is plausible as governments may choose their suppliers based on certain firm-level features. Existing contracts from other private firms may play the role of a signal to illustrate the firm's quality, and those contracts would bring up the account receivable. In that case, we would expect a pre-existing trend in increasing account receivables before the firm obtained the government procurement contracts. However, the empirical evidence does not support this conjecture. Figure 3 shows that the account receivable level only increases after the firm becomes the government's supplier.

Therefore, our results suggest that suppliers to indebted governments see a rise in accounts receivables. The results do not appear driven by outliers, contract features, future contract awards, confounding events, financial manipulation, or differential trends between those supplying to indebted versus less indebted governments. Nonetheless, the endogenous selection of whether a firm matches a particular government and when a government becomes highly indebted may still explain our results. We address these specific concerns below and subsequently present more corroborating evidence suggesting that delay in payments harms supplier firms.

### **4.3 Endogeneity and Confounding Factors**

This section addresses the potential endogeneity problems in the baseline analyses. There are two types of endogeneity issues in our setting. Firstly, the selection of firms into government suppliers could be affected by various unobserved firm and contractual features. Second, the indebtedness of the local government is also endogenous to local economic conditions and other unobservable factors which may also affect payment and firm outcomes.

#### **4.3.1. Matching of Suppliers and Government**

One possibility is that the highly indebted government is more likely to hire firms more likely to accumulate account receivables. This could be because the highly indebted governments are more likely to use certain contracts, e.g., long-term contracts that may delay the repayment procedure, or hire firms with certain characteristics. For example, expanding firms with good financial health could easily accumulate account receivables. In the previous analyses, we already showed that firm size and the nature of the procurement contract alone do not drive our results. To further address this concern, we investigate various features of the procurement contract and features of the firms prior to becoming the government supplier and explore whether there is a significant difference between those contracts and suppliers associated with indebted governments and those with non-indebted governments. For the contract characteristics, we look at the maturity, the total amount of procurement, whether it affiliates to a series of contracts, and the type of contract (goods or projects). For the firm characteristics, we look at the total asset, leverage, account receivable, profitability, and industry distributions. The features are tabulated in Panel A of Table 5. The average differences do not appear significant, considering their respective variation.

Second, suppliers of the indebted governments may be different from suppliers of the non-indebted government along unobservable time-varying characteristics. While time-invariant characteristics are all absorbed by fixed effects, we need to address the possibility of time-varying unobservable features affecting our results. For instance, the government may grant procurement contracts to those firms according to certain soft information: such as those with the greatest expansion potentials. We therefore follow Anderson (2008) to construct a firm index and a contract index, to capture the impact of the potential time-varying unobservable features. We therefore control for all the interactions between the firm index and the year dummy ( $\sum_T T_t X_{it}$ ), and the interactions between the contract index and year dummy ( $\sum_T T_t C_{it}$ ). We proxy for firms' annual index using their establishment year, size, leverage, and shareholder composition prior to becoming a government supplier. We also calculate the contract index using its type, term, and total amount. After controlling for the two indexes in our regression (Panel B of Table 5), our main result is also unchanged. This alleviates the concern that our results are driven by certain observable features of the suppliers and the contracts.

Finally, it could also be the case that the government contract is a screening signal which helps the firm obtain more contracts from the private sector. We use two methods to address this concern. First, we investigate the impact of government contracts on suppliers' account receivables. One would expect that the effect is concentrated on those government-reliant suppliers, if it is the procurement contract, rather than other contracts that drives up the firms' account receivables. We defined a government reliance dummy that equals 1 if the firm's share of the procurement contract is higher than the median level of all firms. We then interact this government reliance dummy with the  $1[\text{Supplier}]_{it}$  and  $1[\text{High pressure}]_{it}$  interaction. Column (1) of Table 5 shows that the interaction is positive and significant, suggesting that the government procurement contract is important in driving our result. Second, we directly account for recent firm growth in our empirical specifications. We define an expanding firm dummy that equals 1 if the firm's recent sales growth is higher than the median level. We then interact this expanding firm dummy with the  $1[\text{Supplier}]_{it}$  and  $1[\text{High pressure}]_{it}$  interaction. The result is shown in Column (2) of Table 5. We find that the firms' high growth rate of sales does not account for the high account receivable of the firms, one conclusion reiterating the role of government arrears.

#### **4.3.1. Endogeneity of High Government Debt**

The second type of endogeneity concern arises as the governments' high indebtedness could result from certain city-level features. For instance, the low local economic growth may lead to the high accumulated account receivables of local firms and, at the same time, increase the local government debt. We use three methods to address this concern.

Firstly, we control for certain measures of the local economy. We use a low GDP growth dummy variable (that equals 1 if the growth rate is lower than the median level) and a low fiscal expenditure level (that equals 1 if the ratio of fiscal expenditure to GDP is lower than the median level) to proxy the local economic situation. The results are shown in the first two columns of Table 6. We find that the local economic growth and local fiscal expenditure levels have little do with the firms' account receivables once the local governments' High pressure is considered. The second method we use focuses on firms whose procurement contract comes

from a different city. The economic situation of another municipality should have a much weaker direct impact on the firm's procurement. Therefore, we use a subsample consisting of firms with only procurement contracts from other governments. The result illustrated in Column (3) of Table 6 is still positive and significant. The economic scale is similar to the baseline, suggesting that the local economic situation has little impact on the firm's account receivables.

Relatedly, government agencies may also change their procurement behavior as they become indebted, affecting the matching between supplier firms and the government just as our variables for Supplier and High Pressure equal 1. Conceptually, it is unclear whether the high indebted government would decrease its new debt issuance by cutting expenditures. For most local governments, increasing fiscal income is not an option as the collectible tax and tax rate are all set by the central government. Negotiating with the debt creditors to cut their debt is usually not an option, as default to local debt may trigger a domino effect that could jeopardize the local economy and the local leader's political career. Therefore, if the indebted local government is not trying to cut the local expenditures, the local debt must increase.<sup>14</sup> Therefore, we investigate the impact of governments indebtedness on the governments' procurement and expenditures. We use both the  $1[\text{High pressure}]_{it}$  and the total debt amount to measure the extent of local debt accumulation. Panel E of Table 6 suggests that governments deep in debt still make large fiscal expenditure each year and their expenditure is almost identical compared with those non-indebted governments. Therefore, the indebtedness does not appear to change the spending patterns of local governments. Nonetheless, we further address the timing of when a local government becomes highly indebted in the next subsection below.

The third method we use to alleviate the endogeneity concern of the high government debt is an instrumental variable regression. In particular, we use the exogenous change in political connection of previous city leaders five years ago as the instrumental variable. The exogenous change is defined as an unexpected reshuffle of the leader due to his predecessor's death, retirement, or being arrested for corruption. We use a 5-year lag as the average maturity of municipal debt in our sample is five years, and as a result, debt issued five years ago means

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<sup>14</sup> We believe local political leaders may run up the debt in a myopic way as most local officials are short-sighted and have no long-term interest in the locality as their expected tenure is only 3 years.

the government is facing repayment or rolling-over pressure now. As our sample started in 2014, the debt issuance five years ago started in 2009. The Chinese central government launched the 4 trillion fiscal stimuli in 2019. Political connected local leaders have great advantages over their unconnected peers in getting the central government's approvals for large-scale infrastructural construction projects, such as building roads, railways, and airports. (Chen, He and Liu, 2020). Since then, those cities with connected leaders are inevitably associated with higher debt. On the other hand, the political connection of the previous city leaders can hardly have affected current economic conditions in channels other than debt. Those decision-makers at that time have long been transferred as the average turnover rate of city-level leaders is merely three years. In the placebo test, we illustrated that a variety of current economic measures of the city, such as the maturity of its debt, GDP growth rate, infrastructure growth, and loan growth rate, has little to do with the political connection of previous leaders. We conduct the first-stage regression with the following specification:

$$1[\text{High pressure}]_{it} = \alpha + \beta 1[\text{PoliticalConnction}]_{i,2008-2012} + \gamma X_{it} + \theta_i + \mu_c + \varepsilon_{it},$$

where  $1[\text{PoliticalConnction}]_{i,2008-2012}$  is a dummy variable that equals 1 if the local leader between 2008 and 2012 has working experience with then provincial leaders and 0 if otherwise. We also control for time-varying city features  $X_{it}$  and city and year fixed effects ( $\theta_i$  and  $\mu_c$ ).

In the first stage regression, we find that leaders' connections matter for debt accumulation. Having a city leader with political connections between 2008 and 2012, during the fiscal stimulus period, is associated with significantly high local debt. In the second stage, we find that government indebtedness significantly impacts a firm's accounts receivable. The coefficient scale is larger than the OLS ones, suggesting that the endogeneity issue in the OLS regression may work against us by bringing down the coefficient. It could be the case that local firms, expecting that an indebted government may delay its payment for procurement contracts, would be more discreet in bidding and seek more protective terms like a higher prepayment in their contracts. This means that our result is under-estimated due to the discreet business conduct of private firms. By bringing in exogenous shocks to local government indebtedness, the instrumental variable regression ignores this possibility and therefore yields higher coefficients.

## 4.4 Economic Mechanism

To ensure that our interpretation of the result is appropriate, we consider three alternative economic mechanisms consistent with our main findings. Firstly, the local firms may be willing to provide the local government with trade credit because they have lower external finance costs. Second, the trade credit provision may be a firm's way to compensate the government for other observed favoritism, such as the number of contracts awarded or lower taxation. Third, the delay in procurement contract payments may reflect the expropriation of firms by the local government.

*The suppliers' lower cost of capital* - In general, local government should have a much lower cost of external capital than the private SMEs (Faccio, 2006; Li et al., 2006; Xu, et al., 2016). However, those high indebted local governments may be so loathed by the financial market to justify an interest rate higher than the private firms.<sup>15</sup> Then those firms with lower costs of capital are more likely to help the government. We consider two proxies for a firms' cost of capital. The first one is that the industry's average cost is measured by average interest expense to total debt, and the other is a dummy variable that equals 1 for industries with high external finance dependence, following Rajan and Zingales (1996). We would expect firms with high costs of capital firms within the industry of high external finance dependence should be less likely to engage in trade credit injection to the government. Panel A of Table 8 suggests that firms with high costs of capital suppliers do not see any differential changes in their account receivables compared to those with lower capital costs. Therefore, a firm's strategic financing of local governments due to their differential cost of capital is unlikely why their accounts receivables increase.

*Reciprocal behavior of the suppliers* - The second explanation is that firms voluntarily

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<sup>15</sup> There is some anecdotal evidence that suggests that the real cost of capital government debts could be significantly higher than the interest rate on paper, especially for those governments with small fiscal income. It is estimated that the local government's interest rate could be as high as 10%. See <https://www.reuters.com/article/china-local-debt-snowball-fin-cost-idCNCNE95201X20130603>. In one extreme case, one district government issue debt with an interest rate of 15% to its employees. See [http://www.jsthinktank.com/jiangsuzhiku/cjcyjjy/news/201706/t20170607\\_4196168.shtml](http://www.jsthinktank.com/jiangsuzhiku/cjcyjjy/news/201706/t20170607_4196168.shtml).

provide trade credit to the government in exchange for other benefits. That is, the provision of trade credit to indebted local governments could be the reciprocal behavior from the supplier's side to the government's favoritism (Compte et al., 2005; Ishii, 2009). We explore the two most plausible ways a government can help a firm: granting more procurement contracts or reducing its taxes. The government may be more likely to grant more contracts to its favored firms even if others submit more competitive bids (Goldman, Rocholl, and So, 2008). Governments can often exclude competing bidders by placing special requirements on their purchases so that their preferred firms are the only ones that meet the criteria. Alternatively, the government also has discretionary power in determining the taxes that a firm needs to hand in and may grant more taxation exemption to its favored firms.<sup>16</sup> We address these potential reciprocities by collecting information on procurement contracts and the tax exemption of the supplier, and we interact them with  $1[\text{Supplier}]_{it}$  and  $1[\text{High pressure}]_{it}$  variables. Panel B of Table 8 reports the results of the analyses and fails to detect a significant effect for firms with favored government treatments are running a high account receivable, suggesting that the reciprocal behavior of the firms does not drive the results.

*The expropriation channel* - Finally, we explore whether the expropriation of the local government causes the effect. Local firms may be forced to provide subsidies to the local government because the government may refuse to pay the procurement on time after delivering goods and projects. There is no judicial remedy available to force the local government as all courts in China are affiliated with the local government. As a result, the local firms may be *forced* to accumulate high account receivables. We test this hypothesis by exploring the cross-sectional differences in the local governments' intention of expropriation. We firstly used a property rights protection index, which is constructed following 25 fundamental indicators, including government intervention in business (measured by how much time entrepreneurs spend with the government), the size of government (the number of employees), and the share of the private sector. We also use an index of local government corruption following Cai et al. (2011) to measure to what extent the local government officials

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<sup>16</sup> For instance, in a very influential paper, Li et al. (2008) suggests that firms connected to local governments enjoy significant higher level of tax exemptions than unconnected firms, illustrating the great discretionary power of Chinese local government in determining the local firms' tax exemptions.

extort the private firms without any checks and balances. Panel C of Table 8 shows that regions with lower property rights protection and more powerful local officials are associated with higher increases in local suppliers' account receivables. These results suggest that the firms' provision of trade credit may not be its choice but an outcome imposed by the local government.

To further test the expropriation hypothesis, we consider heterogeneous effects based on other firm or government characteristics. More than 90% of firms in our sample are small and medium private firms. As a result, our conclusion does not necessarily apply to certain advantaged firms, e.g., State-Owned Enterprises(SOEs), connected firms, listed conglomerates, or high technologies firms. The government may care more about the survivorship of those firms either because of their political connections, local employment, innovation, or their contribution to local economic growth. Therefore, those firms may be prioritized in the pecking order of the governments' payment. We therefore explore the account receivables of SOEs, connected firms, listed firms, and high tech firms. We define a firm as connected if it has any government officials on its board. Panel E of Table 6 shows that indebted governments are more likely to make repayments to those advantaged companies, either because of looking after the interests of connected parties or in an attempt to sustain the local economic growth. This result indicates that local governments' delay in repayment is selective and may follow a kind of pecking order, prioritizing firms with more bargaining power and strategic importance based on the Communist Party's designation and disproportionately hurting smaller firms with less bargaining power. These heterogeneous effects are particularly concerning as the smallest and weakest firms appear the most extorted.<sup>17</sup>

The next section studies what happens to firm activity when a firm become suppliers of highly indebted governments compared to those which supplied to less indebted governments around the same time.

## **5. The Real Impact on Supplier Firms**

We have established that highly indebted Chinese local governments delay payments to

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<sup>17</sup> These latter results also further contradict the hypothesis that firms supply credit to governments due to their lower capital costs as smaller firms likely have higher costs of capital.

their suppliers, effectively forcing local firms to provide trade credit to the government. This section explores the economic impact of this reversed bail-out on private firms' financial distress, survival, and real investment.

The most direct consequence of the high account receivable is the exhaust of the total working capitals for daily operations. It would not be a problem in a world where the firm can raise external funds with little cost. However, the SMEs to whom the government delayed payment is also likely those with high costs of capital and financial constraints. As a result, firms lacking external financing and facing liquidity shortages may default on their other debts, including those to banks.

To measure the firms' default events, we obtain the government suppliers' litigation information regarding their default. Litigation is necessary for the creditors to liquidate the asset of the defaulted borrower, and all the litigation information is included in the judicial database of China (Franks, Miao, and Sussman, 2021). Panel A of Table 9 shows that the probability of government suppliers being sued was significantly higher after they accumulated high account receivables, suggesting that the firms are more likely to default on their loans due to the exhaust of internal funding and operational cash. Moreover, due to the inefficiency of the Chinese bankruptcy system, all creditors are likely to run on a borrower firm's default and become fully liquidated once it defaults to even one creditor, i.e., cross-default (Franks, Miao, and Sussman, 2021). We find that the suppliers to more indebted governments are more likely to disappear from the Bureau of Industry and Commerce registration system, suggesting that they are likely to be liquidated after default.

Firms may also anticipate such payment delays by building more precautionary measures to prevent default and inefficient liquidation. Indeed, Panel B of Table 9 shows that the accumulation of the accounts receivable induced by the indebted government payment delays correlates with lower cash holdings. Likewise, firms also appear to cut R&D spending as they accumulate more accounts receivable from indebted government payment delays.<sup>18</sup> Therefore, they appear to sacrifice investments in future growth opportunities, perhaps to preserve funds

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<sup>18</sup> Column 1 in Table 9 Panel B shows that a relationship is not there for the accumulation of accounts receivable not related to indebted government payment delays, suggesting that in normal times, increases in accounts receivables may be a positive signal of a firm's growth.

to lower the odds that they may be liquidated due to a shortage of funding.

## **6. Conclusion**

We show that firms supplying to indebted governments face payment backlogs which predict future liquidations and lower future firm growth. Corroborating the extant empirical literature documenting the crowding-in effect of government spending on research and development (e.g., Beraja et al. 2021), we show evidence suggesting that financial hardships lead governments to delay procurement contract payments also cause a negative externality to local firms. Interestingly, we also document that local governments in China appear to follow a pecking order in payment delays, prioritizing payments for contracts most aligned with the federal government's objectives and those with more bargaining power, and delaying payments more for those where local governments appear stronger relative to firms.

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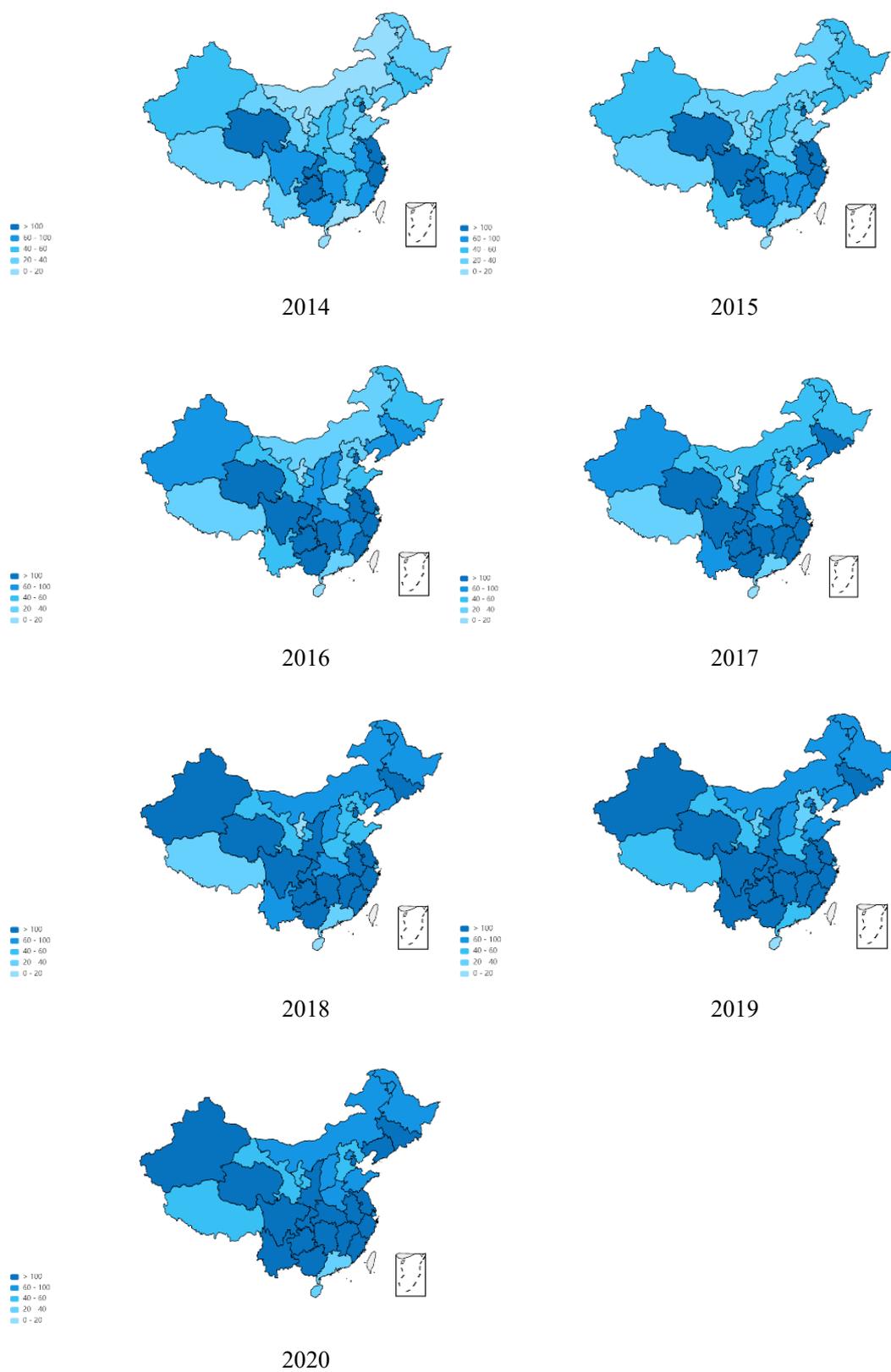
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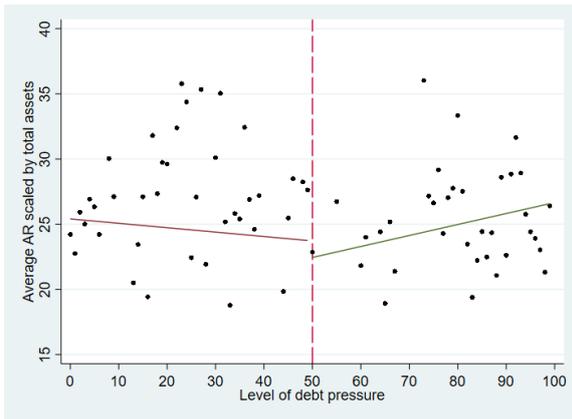
## Tables and Figures

**Figure 1. Percentage of maturing debt to total fiscal income (%), 2014-2019 annually.**

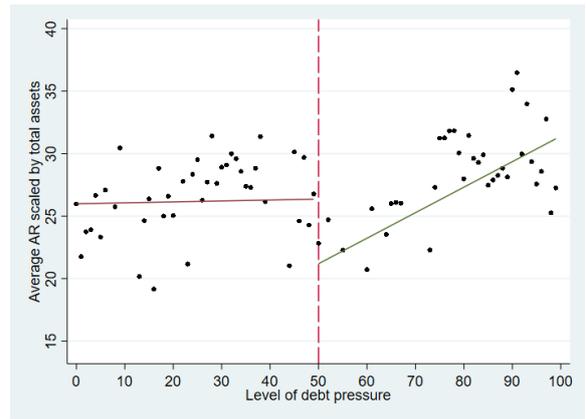


**Figure 2. Fitted value of High pressure and firm account receivables.**

The x-axis is the level of government High pressure, as measured by the debt to repay as share of the local government fiscal income. The y-axis is the average account receivable for firms with government procurement contract.



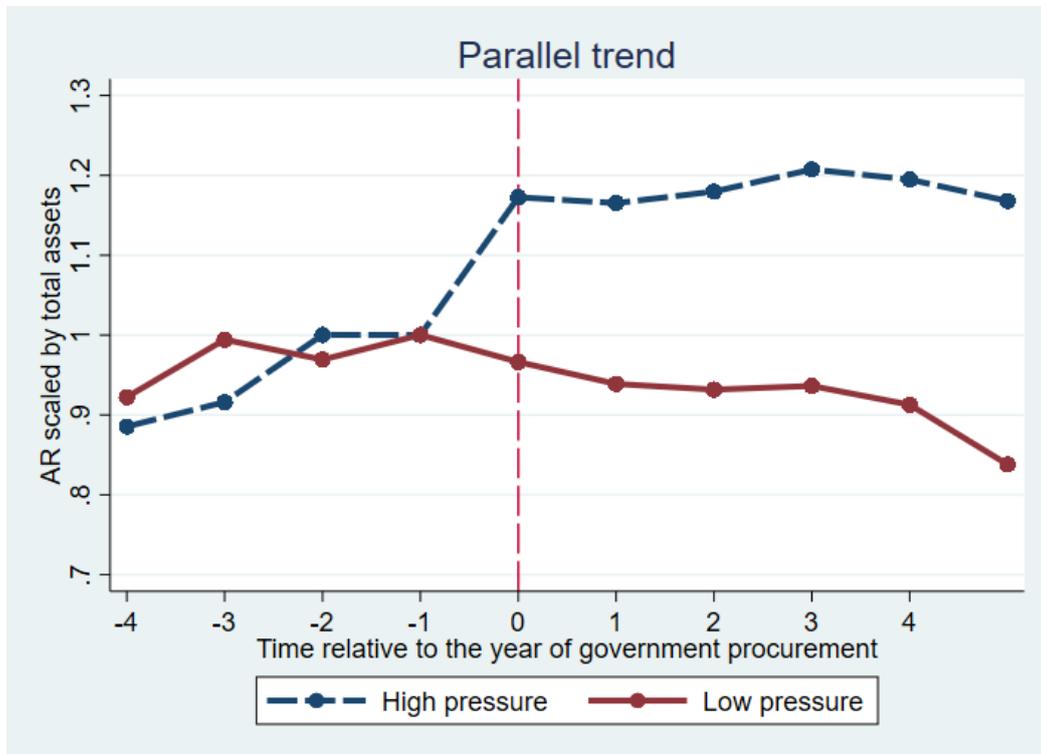
Panel A. Pre-supply, two fitted line.



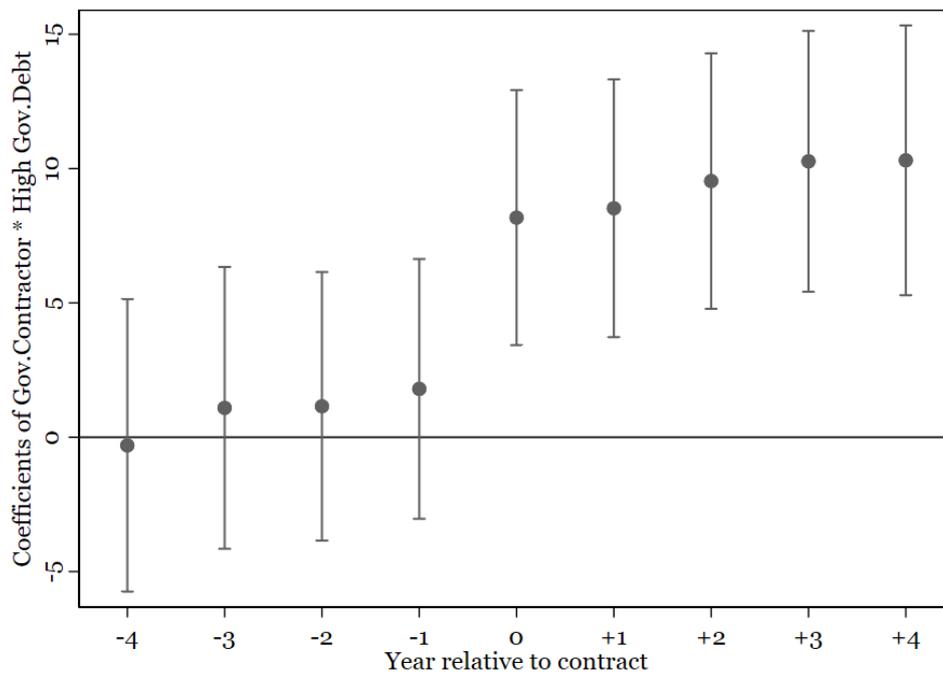
Panel B. Pre-supply, two fitted line.

**Figure 3. Parallel trend.**

Panel A. The account receivables by years



Panel B. The coefficients of constructor dummy and high gov. debt pressure dummy by years



**Table 1. Summary Statistics**

This table shows the summary statistics of the main variables in this study. The sample comprises 28,483 firm-year observations.

Variable	Mean	St. Dev.	P25	Median	P75
Panel A. Key variables					
Account receivable (% of Tot.Asset)	26.040	20.760	9.688	22.250	37.930
1[Gov. Supplier]	0.751	0.433	1	1	1
1[Gov. Pressure]	0.436	0.496	0	0	1
Panel B. Firm characteristics					
Tangible asset (% of Tot.Asset)	15.300	18.830	1.600	7.213	22.890
Cash (% of firm Tot.Asset)	22.690	21.500	6.583	15.570	32.200
Asset turnover	132.100	145.100	58.240	96.730	161.400
Leverage ratio	3.975	11.510	1.406	2.022	3.490
ROE	5.932	40.410	0.490	4.510	14.410
Tot. Sales (in Million RMB)	70.800	84.040	11.720	36.140	99.640
Fixed asset growth (%)	8.360	22.310	5.290	9.430	13.570
R&D (% of operating funds)	7.680	8.267	2.600	5.910	10.060
Contract amount	1.442	1.351	1	1	1
1[Reliant on government]	0.508	0.500	0	1	1
1[Corporation group]	0.655	0.475	0	1	1
1[Expanding]	0.215	0.411	0	0	0
1[SOE]	0.018	0.131	0	0	0
1[Connected]	0.000	0.018	0	0	0
1[Listed]	0.048	0.214	0	0	0
1[HighTech]	0.287	0.452	0	0	1
Interest cost	0.076	0.152	0.000	0.010	0.159
External-finance dependence	0.123	3.116	-2.104	0.093	1.248
Price of other contracts	31.3	736.5	0.783	2.516	8.411
Tax (% of Tot. Assets)	0.788	1.498	0.022	0.259	0.981
1[liquidated]	0.492	6.994	0	0	0
1[Sued]	0.319	5.643	0	0	0
Panel C. Procurement characteristics					
Procurement (Million RMB)	25.330	3206	0.500	0.720	1,580
1[Maturity >1 year]	0.000	0.016	0	0	0
Adj. Post Supply	0.751	0.433	1	1	1
1[Goods]	0.123	0.329	0	0	0
1[Service]	0.453	0.498	0	0	1
1[Construction]	0.361	0.48	0	0	1
Panel D. Government characteristics					
1[Corruption]	0.384	0.486	0	0	1

Gov. Expenditure (% of GDP)	40.250	90.790	1.690	5.206	24.240
Gov. Procurement (% of GDP)	0.382	1.253	0.003	0.023	0.220
Gov. debt (% of fiscal income)	71.700	84.260	11.220	54.490	77.730
GDP growth	-707.400	3791.000	0.984	8.186	90.290
Investment growth	8.362	22.310	5.293	9.428	13.570
Loan growth	13.000	4.642	9.610	12.800	15.600
Size of debt issuance	405.400	433.900	61.000	186.900	770.100
Average maturity of debt	3.524	1.433	2.656	3.200	4.400
1[Having higher leader]	0.005	0.072	0	0	0
1[Having higher leader 5 years ago]	0.046	0.209	0	0	0
1[Exclusive Government]	0.476	0.499	0	0	1
Average ETC	16.060	12.190	10.800	17.600	19.500
Property protection index	7.110	1.471	6.900	7.410	7.580

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**Table 2. Local debt pressure on supplier's account receivables**

This table reports regression coefficients of each firm's account receivables on government supplier indicators. The account receivables are scaled by total assets. Column (1) reports estimated coefficients of the interaction of post-becoming supplier dummy and government high debt pressure dummy with time-varying controls. Column (2) adds the firm, city and year fixed effects. Column (3) includes the interaction between the industry and year fixed effect to account for exogenous industry shocks. In Column (4) we created a quartile indicator on the degree of government pressure, with Q1 (Q4) indicating the smallest (greatest) government pressure. Control variables include firm tangibility, liquidity, leverage and profitability ratios. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Firms' account receivable			
	With Controls, Without FE (1)	controls and firm FE/city FE/year FE (2)	Controlling for industry Investment Opportunity (3)	Intensity of indebtedness (4)
1[Supplier] * 1[High Pressure]	6.849*** (0.595)	1.735*** (0.390)	1.983*** (0.435)	
1[Supplier] * 1[High Pressure(Q2)]				-0.242 (0.412)
1[Supplier] * 1[High Pressure(Q3)]				-0.362 (0.442)
1[Supplier] * 1[High Pressure(Q4)]				1.943*** (0.566)
Control	Yes	Yes	Yes	Yes
Firm FE	No	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes
Industry x year FE	No	Yes	Yes	Yes
City x year FE	No	No	Yes	Yes
Observations	28484	27913	22167	22167
R2	0.22	0.78	0.78	0.78

**Table 3. Robustness checks for alternative specifications**

This table reports regression coefficients of a variety of robustness checks. In Column (1), we control for the amount of the procurement contracts received by each supplier. In Column (2) the firm is categorized as becoming supplier only after the due time to finish the project or good delivery. In Column (3) we include the control variables indicating the nature of the procurement contracts, e.g. infrastructure constructions projects or goods purchased. In Column (4) we include suppliers with only one contract with the government contract throughout our sample period. In Column (5) we exclude those procurement contract that finished during the local anti-corruption campaign period. In Column (6) we include the sample of standalone firms that are not affiliated to a corporation group. Control variables include firm tangibility, liquidity, leverage and profitability ratios. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Firms' account receivable					
	Control for contract amount	Outcome variable: Finished projects	Control for contract nature	Sample: Including only one procurement	Sample: excl. Anti- corruption period	Sample: firms not in a corporation group
	(1)	(2)	(3)	(4)	(5)	(6)
$\beta_1[\text{Supplier}] * \beta_1[\text{High Pressure}]$	8.450*** (0.551)	1.974*** (0.435)	1.963*** (0.433)	2.136*** (0.462)	1.494** (0.622)	2.056*** (0.513)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry x year FE	Yes	Yes	Yes	Yes	Yes	Yes
City x year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	22655	22165	22165	18858	12099	14984
R2	0.29	0.78	0.78	0.78	0.78	0.786

**Table 4. Dynamic specifications**

This table reports regression coefficients for firms before and after becoming the suppliers. We report the result without and with \ firm and year fixed effect in columns (1) and (2), respectively.

	Firms' account receivable	
	no FE (1)	FE (2)
1[Supplier] <sub>t-4</sub> * 1[High Pressure]	1.304 (2.059)	-0.304 (2.112)
1[Supplier] <sub>t-3</sub> * 1[High Pressure]	0.997 (2.093)	1.093 (2.035)
1[Supplier] <sub>t-2</sub> * 1[High Pressure]	1.932 (1.865)	1.151 (1.940)
1[Supplier] <sub>t-1</sub> * 1[High Pressure]	2.038 (1.795)	1.799 (1.876)
1[Supplier] <sub>t</sub> * 1[High Pressure]	6.820*** (1.764)	8.174*** (1.842)
1[Supplier] <sub>t+1</sub> * 1[High Pressure]	7.363*** (1.788)	8.523*** (1.862)
1[Supplier] <sub>t+2</sub> * 1[High Pressure]	7.588*** (1.788)	9.535*** (1.845)
1[Supplier] <sub>t+3</sub> * 1[High Pressure]	8.086*** (1.809)	10.270*** (1.884)
1[Supplier] <sub>t+4</sub> * 1[High Pressure]	8.365*** (1.833)	10.307*** (1.949)
Firm FE	No	Yes
Year FE	No	Yes
Industry x year FE	No	Yes
Observations	28483	28483
R2	0.01	0.01

**Table 5. Endogenous concerns**

Panel A reports the balance tests of the contract feature and supplier characteristics associated with those indebted and non-indebted governments. The leverage is defined as the total asset over total equity. Panel B reports the coefficients when control for all the interactions between the firm index and the year dummy ( $\sum_T T_t X_{it}$ ), and the interactions between the contract index and year dummy ( $\sum_T T_t C_{it}$ ). Panel C reports the coefficients of the interactions with the dummy variable indicating firms' procurement amount accounting for a high share of the total sales and the dummy variable indicating that firms have been expanding over the last years. Panel D considers the potential impact of the local economy by 1) controlling for indicators of the local economy (1[Low GDP growth]) and fiscal stimulus ( 1[local fiscal expenditure growth]) and 2) using the sample of firms with procurement contracts only from non-local governments. Panel E considers the possibility that the endogenous reactions of the local indebted governments in cutting procurements and fiscal expenditures. Control variables include firm tangibility, liquidity, leverage and profitability ratios. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Balanced test				
	Supplier of low Gove Debt		Supplier of high Gove Debt	
	Mean	Std. dev	Mean	Std. dev
Characteristics of the firms before contract				
Total Sales (in Million RMB)	67.695	(1.328)	62.974	(1.323)
Total Asset (in Million RMB)	96.901	(2.517)	85.86	(2.507)
Leverage	3.493	(0.148)	3.611	(0.148)
Account receivable (in Million RMB)	22.091	(0.606)	18.474	(0.604)
Account payable (in Million RMB)	13.47	(0.517)	12.874	(0.516)
Profitability	8.09	(0.625)	9.239	(0.622)
Age	10.214	(0.156)	9.61	(0.156)
SOE	0.021	(0.002)	0.015	(0.002)
Industry_construction	0.053	(0.002)	0.055	(0.002)
Industry_manufactory	0.132	(0.003)	0.174	(0.003)
Industry_hightech	0.285	(0.004)	0.288	(0.004)
Characteristics of the contract				
Amount (in Million RMB)	7.395	(12.715)	23.505	(14.458)
1[Maturity >1 year]	0	(0.000)	0	(0.000)
Type_construction	0.349	(0.004)	0.376	(0.004)
Type_goods	0.113	(0.003)	0.137	(0.003)
Type_services	0.479	(0.004)	0.42	(0.004)

Panel B: self-selection of the firms			
Dep. Var.	Firms' account receivable		
	Controlling for time x	Controlling for time x	
	firm index	contract index	
	(1)	(2)	
1[Supplier] * 1[High Pressure]	1.706*** (0.426)	1.979*** (0.435)	
Control	Yes	Yes	
FE: Firm Year, Industry x Year, City x year	Yes	Yes	
Observations	22165	22165	
R2	0.784	0.778	
Panel C: Contracts from the private firms			
Dep. Var.	Firms' account receivable		
	1[Firms with High	1[Firms expanding]	
	shares of government	procurement]	
	(1)	(2)	
1[Supplier] * 1[High Pressure]	0.865 (0.590)	1.608*** (0.458)	
1[Supplier] * 1[High Pressure] * Key indicator	2.096** (0.844)	1.066 (0.958)	
Control	Yes	Yes	
FE: Firm Year, Industry x Year, City x year	Yes	Yes	
Observations	22165	22165	
R2	0.778	0.779	
Panel D: Controlling for effects of local economy			
	Firms' account receivable		
	1[Low GDP growth]	1[Low fiscal expenditure	Different cities
		growth]	
	(1)	(2)	(3)
1[Supplier] * 1[High Pressure]	1.915*** (0.441)	2.069*** (0.664)	2.491*** (0.618)
1[Supplier] * 1[Low GDP growth]	0.212 (0.342)		
1[Supplier] * 1[Low fiscal expenditure growth]		-1.357** (0.539)	
Control	Yes	Yes	Yes
FE: Firm Year, Industry x Year	Yes	Yes	Yes
Observations	19785	8882	11804
R2	0.77	0.79	0.78

Panel E: Impact over local government				
Dependent variable.	Gov. Procurement		Gov. Expenditure	
	(1)	(2)	(3)	(4)
1[High Pressure] <sub>t-1</sub>	-0.020 (0.100)		3.708 (9.664)	
Gov. Debt <sub>t-1</sub>		0.000 0.000		-0.028 (0.048)
Year FE	YES	YES	YES	YES
City FE	YES	YES	YES	YES
Observations	652	652	610	610
R-squared	0.337	0.337	0.301	0.301

**Table 6. IV regressions: Relevant test, the 2SLS and the placebo test**

This table shows the relevant test and placebo tests for instrument variable, a dummy variable indicating a connected leader in the local government between 2008 and 2012. Column (1) of Table A reports the coefficients of the first stage regression where the high government debt pressure dummy is regressed to a connected leader dummy which equals to 1 if the city leaders (either secretary or mayor) had any political connections with the provincial government in 2008-2012 period. The reduced form and the 2 stage SLS regression results are reported in columns (2) and (3) respectively. Panel B shows that the instrumental variable is not correlated with various firm and city features today, e.g., debt maturity, local GDP growth and leaders' political connections. 1<sup>st</sup> stage regressions include city and year fixed effects, and standard errors are clustered by city. 2<sup>nd</sup> stage includes control variables, firm, year and industry\*year fixed effects, and standard errors are clustered by firm. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A First and second stage						
Dep. Var.	1st stage: OLS		Reduced form		2SLS	
	1[High Pressure]		Firms' account receivable			
	(1)		(2)		(3)	
1[connected leaders] <sub>2008-2012</sub>	0.414***		0.669			
	(0.051)		(1.027)			
1[Supplier]			1.824***		5.382*	
x 1[High Pressure]			(0.397)		(3.235)	
City dummy	Yes		Yes		No	
Year dummy	Yes		Yes		Yes	
Industry*year dummy	Yes		Yes		Yes	
Observations	27912		27912		28483	
R2	0.686		0.834			
F-stat	88.47***					
Panel B: placebo test						
	The maturity of the debt	Size of debt issuance	GDP growth of firms' city	Infrastructure growth of the firm's city	Investment growth of firms' city	Having connected leaders Now
	(2)	(3)	(4)	(5)	(4)	(5)
Having connected leaders	0.389	82.146	0.028	0.011	0.086	-0.039*
	(0.436)	(60.651)	(0.099)	(0.019)	(0.708)	(0.021)
City dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Observations	28,411	28,476	24,694	22,729	9,313	28,476
R2	0.695	0.908	0.232	0.877	0.571	0.379

**Table 7. Mechanism analysis: cost of capital, reciprocal and proper rights violations**

This table shows results of the mechanism analysis. Panel A explores the influence of supplier's cost of capital on the supplier's high account receivables. We use 1) the industry average cost of capital and 2) an indicator of external finance reliance industry as measures for high cost of capital. Panel B explores the influence of other benefits enjoyed by the suppliers to justify its high account receivables as a return to governments' favors. We use the values of follow up contracts and the taxation as proxies for the favorable treatment received by suppliers. Panel C investigates the possibility that the high account receivables result from property rights violations. We use the proper rights protection index by Fan et al (2003) and the ETC measure by Cai et al (2011) to capture the local governments' willingness to protect property rights. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: low cost of capital		
key indicators	Measure 1: average cost of the industry (1)	Measure 2: external-finance dependent industry (2)
1[Supplier] * 1[High Pressure] * key indicator	7.004 (5.248)	-0.043 (0.178)
Control variable	Yes	Yes
FE: Firm Year, Industry x Year	Yes	Yes
Observations	15620	21820
R2	0.230	0.264
Panel B: Reciprocal actions		
key indicators	Value of follow-up finished procurement (3)	Taxation (4)
1[Supplier] * 1[High Pressure] * key indicator	-0.001 (0.001)	-0.264 (0.306)
Control variable	Yes	Yes
FE: Firm Year, Industry x Year	Yes	Yes
Observations	14408	28422
R2	0.270	0.244
Panel C: The property rights violations		
key indicators	Property protection index (1)	Expropriation index, Measured by average ETC (2)
1[Supplier] * 1[High Pressure] * key indicator	-1.587* (0.812)	0.229*** (0.078)
Control variable	Yes	Yes
FE: Firm Year, Industry x Year	Yes	Yes
Observations	4418	15425
R2	0.222	0.251

**Table 8. Heterogeneity tests: SOE, connected, listed and high tech firms**

This table explores the linkage between local governments' high debt pressure and its suppliers account receivables for various heterogeneous firm samples: SOEs, connected firms, listed firms and high tech firms. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dep. Var. key indicators	Firms' account receivable			
	SOE (1)	Connected (2)	Listed (3)	High tech (4)
1[Supplier] * 1[High Pressure]	8.342*** (0.524)	8.174*** (0.517)	8.331*** (0.540)	9.767*** (0.665)
1[Supplier] * 1[High Pressure] * key indicator	-12.341*** (2.907)	-10.398*** (0.662)	-2.923* (1.702)	-4.908*** (1.062)
Control variable	Yes	Yes	Yes	Yes
City dummy	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes
Industry x Year dummy	Yes	Yes	Yes	Yes
Observations	23,183	23,183	23,183	23,183
R2	0.308	0.308	0.308	0.309

**Table 9. Implications for firms survivorship, R&D, cash-holding and governments expenditures**

Panel A explores the impact of firms' high account receivables on the likelihood of its being sued and its deregistration from the local commerce bureau. Panel B investigates the impact over firms' R&D expenditure and cash-holdings. Panel C explores the impact of the high government debt on local government's procurement and fiscal expenditures. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Impact over the survivorship				
	Likelihood of being sued		Likelihood of deregistered	
	OLS (3)	IV (4)	OLS (1)	IV (2)
Firms' account receivable <sub>t-1</sub>	0.006* (0.003)	0.016** (0.008)	0.014** (0.006)	0.014** (0.007)
Control Variables	Yes	Yes	Yes	Yes
City Dummy	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes
Yearind Dummy	Yes	Yes	Yes	Yes
Observations	23,183	23,183	23,183	23,183
R2	0.118	-	0.0586	-
Panel B: Impact over firms' behavior				
	R& D expenditures		Cash holding	
	OLS (1)	IV (2)	OLS (3)	IV (4)
Firms' account receivable <sub>t-1</sub>	0.021 (0.015)	-0.434*** (0.156)	-0.015*** (0.001)	-0.107*** (0.004)
Control Variables	Yes	Yes	Yes	Yes
City Dummy	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes
Yearind Dummy	Yes	Yes	Yes	Yes
Observations	4,072	4,072	23,183	23,183
R2	0.175	-0.556	0.231	-0.930
Panel C: Impact over local government				
Dependent variable.	Gov. Procurement		Gov. Expenditure	
	(1)	(2)	(3)	(4)
1[High Pressure] <sub>t-1</sub>	-0.020 (0.100)		3.708 (9.664)	
Gov. Debt <sub>t-1</sub>		0.000 0.000		-0.028 (0.048)
Year FE	YES	YES	YES	YES
City FE	YES	YES	YES	YES
Observations	652	652	610	610
R-squared	0.337	0.337	0.301	0.301

## A. Appendix

### A.1 Variable Definition

Variable	Description
<b>Panel A. Key variables</b>	
Account receivable (% of Tot.Asset)	Firms account receivable
Supplier	1 after the firm became the supplier of the government
Gov. Pressure	1 if both the maturing debt (% of fiscal income) and average spread are higher than all city governments' year median level.
<b>Panel B. Firm characteristics</b>	
Tangible asset (% of Tot.Asset)	Tangible asset
Cash (% of firm Tot.Asset)	Cash
Asset turnover (%)	Asset turnover, sales/tot.asset
Leverage ratio (%)	Leverage ratio, debt/tot. asset
ROE (%)	Return on equity
Tot. Sales (Million RMB)	Tot. Sales, in million RMB
Fixed Asset Growth	The growth rate of fixed assets
R&D (% of operating funds)	R&D expense
Contract amount	Number of total contracts between the firm and government
1[Reliant on government]	1 if percentage of procurement price in sales is above the median.
1[Corporation group]	1 if the firm is in a corporation group
1[Expanding]	1 if firm sales growth is above 50%.
1[SOE]	1 if the firm is state-owned
1[Connected]	1 if any politician worked in the firm
1[Listed]	1 if the firm is listed
1[HighTech]	1 if the firm is in the high-tech industry
Interest cost	the average interest cost of industry
External-finance dependence	average capex not funded by operating funds
Price of other contracts	the average price of other contracts with the same government
Tax (% of Tot. Assets)	Tax paid
1[liquidated]	1 if firm being liquidated
1[Sued]	1 if firm being sued for not repaying
<b>Panel C. Procurement characteristics</b>	
Procurement (Million RMB)	Amount of procurement contract
1[Maturity>1 year]	1 if contract maturity is larger than 1 year
Adj. Post Supply	1 after the firm finished procurement contract
1[Goods]	1 if goods procurement
1[Service]	1 if service procurement
1[Construction]	1 if construction procurement

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Panel D. Government characteristics

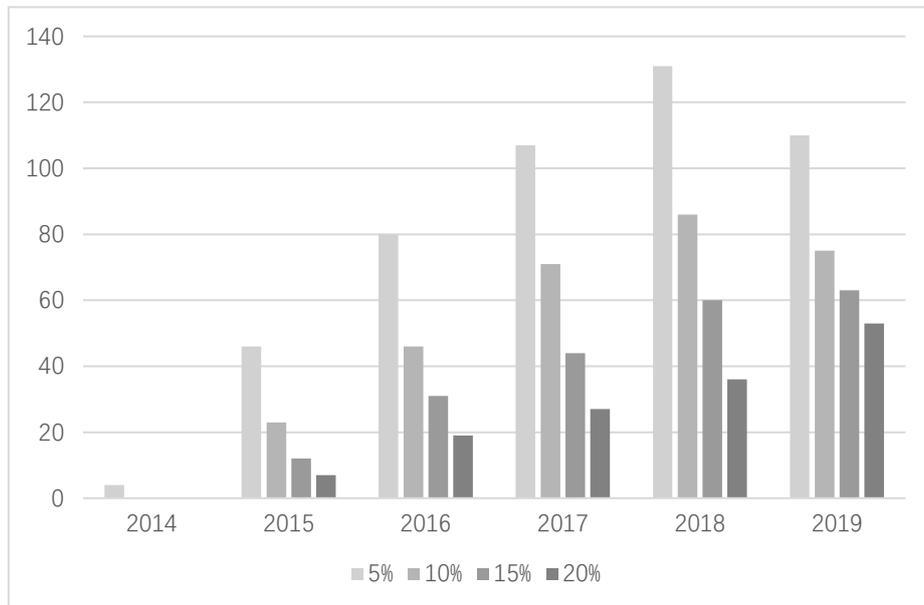
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1[Corruption]	1 if corruption events being reported.
Gov. Expenditure (% of GDP)	Fiscal expenditure as a percentage of GDP
Gov. Procurement (% of GDP)	Total procurement amount as a percentage of GDP
Gov. debt (% of fiscal income)	Maturing debt as a percentage of fiscal income
GDP growth	GDP growth
Investment growth	Investment growth
Loan growth	Loan growth
Size of debt issuance	Size of debt issuance
Average maturity of debt	The average maturity of debt
1[Having higher leader]	1 if local leader is connected to higher leader who promoted exogenously either during the 5-year shuffling or due to predecessor retirement
1[Having higher leader 5 years ago]	5th lag of 1[Having higher leader]
1[Exclusive Government]	1 if government signs more than 40% of the contract with local firms
Average ETC	Average ETC of local listed firms, measuring government expropriation
Property protection index	Property protection index by Fan et al. (2018)

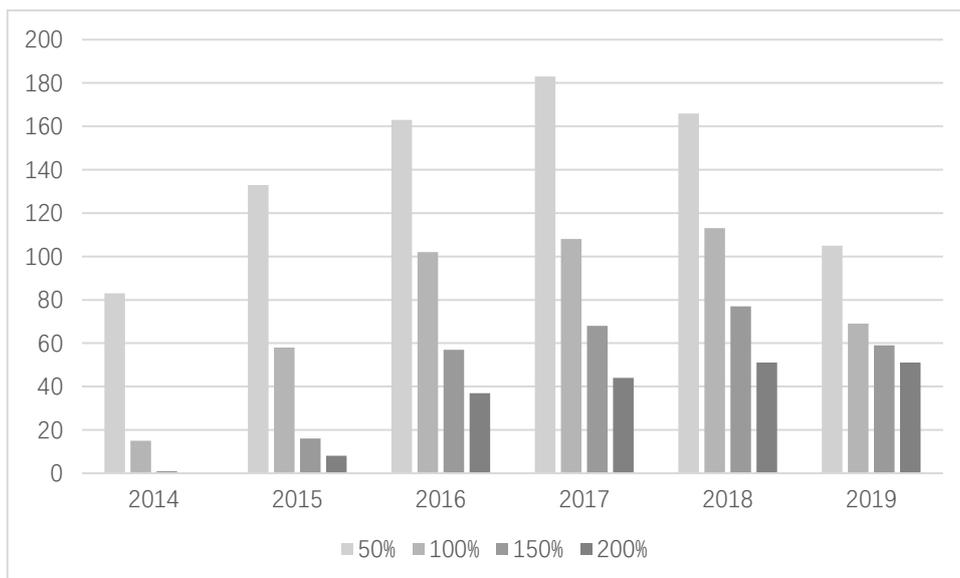
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**Figure A.3. Local government debt accumulation over 2014-2019.**

Panel A. Number of cities with percentage of maturing debt to fiscal income higher than certain thresholds.  
(Total: 295 cities)

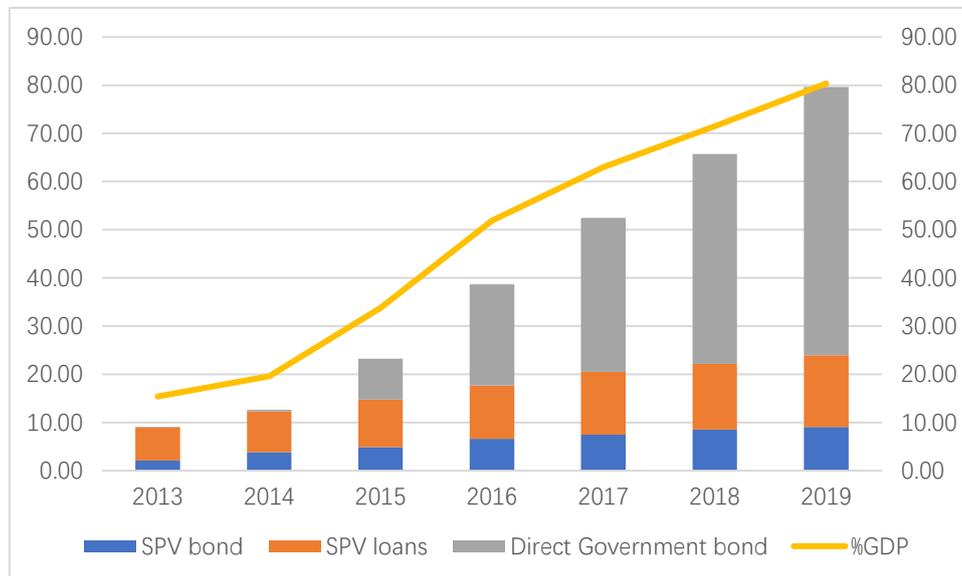


Panel B. Number of cities with percentage of outstanding debt to fiscal income higher than certain thresholds.  
(Total: 295 cities)

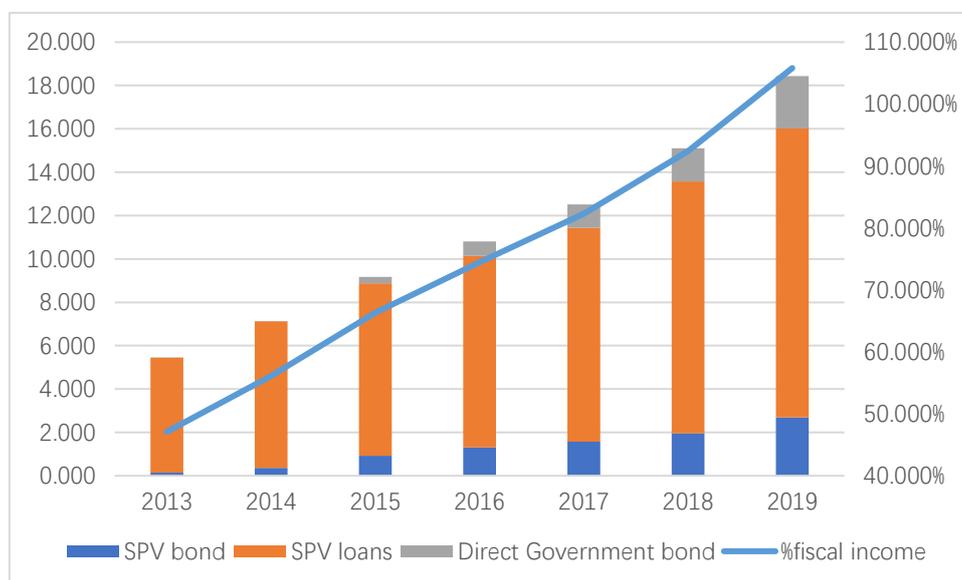


**Figure A.4. Outstanding and maturing debt components and as percentage of total GDP.**

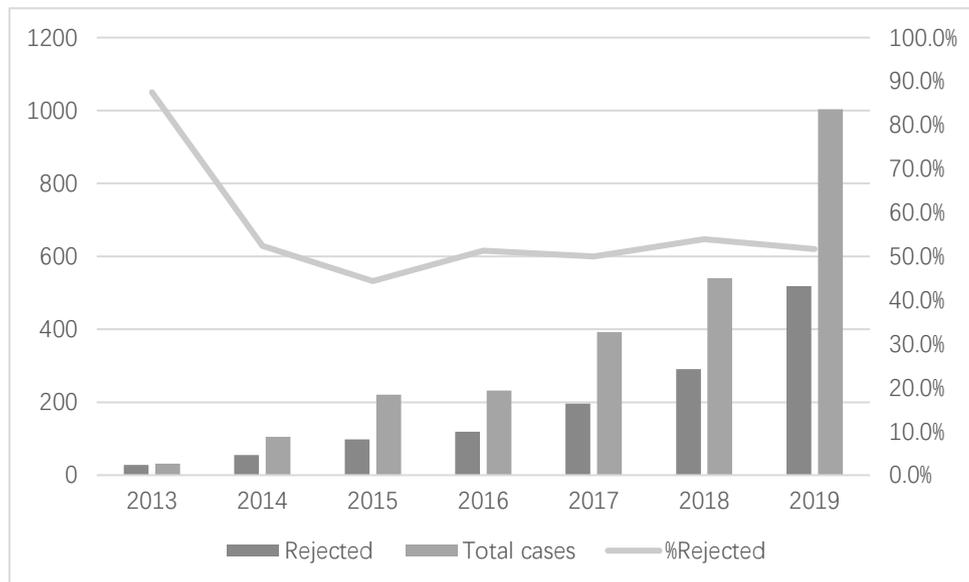
Panel A: Outstanding debt components and as percentage of fiscal income



Panel B. Maturing debt and as percentage of fiscal income.



**Figure A.5. This figure listed total number of cases related to a procurement contract between government entity and firm, and the number and percentage of cases rejected by the court.**



**Figure A.6. Number and value of government procurement contracts, 2013-2019**



**Figure A.7 One procurement contract published by local governments**

公告信息:			
采购项目名称	国家税务总局曲阜市税务局综合业务办公用房维修改造项目		
品目	工程/修缮工程/房屋修缮, 工程/装修工程		
采购单位	国家税务总局曲阜市税务局		
行政区域	曲阜市	公告时间	2019年07月29日 10:23
本项目招标公告日期	2019年07月03日	中标日期	2019年07月26日
评审专家名单	杜峻、骆雅琳、桑志华、韩宝进、刘元涛		
总中标金额	¥288.398838 万元 (人民币)		
联系人及联系方式:			
项目联系人	许永刚		
项目联系电话	13355188817		
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采购单位地址	山东省曲阜市春秋路4号		
采购单位联系方式	孔科长 0537-4692188		
代理机构名称	山东省鲁成招标有限公司		
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