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ABSTRACT

China has been adopting a "mercantilist" policy by lavishing massive government subsidies on Chinese firms. Using hand-collected subsidy data on Chinese listed companies, we find that firms receiving more subsidies tend to have a lower cost of debt. However, such firms fail to have superior financial performance. Instead, firms with more subsidies tend to be overstaffed, which demonstrates higher social performance. These results are mainly driven by non-tax-based subsidies rather than tax-based subsidies. Overall, our results suggest that the Chinese government uses non-tax-based subsidies to achieve its social policy objectives at the expense of firms' profitability.

***Keywords*:** Government subsidies; cost of debt; firm performance

***JEL classification*:** G32; G38; H25; H71

1. Introduction

During the past decade of the 21st century, the Chinese economy has grown by leaps and bounds, overtaking the economies of Germany, UK, Japan and other developed countries to become the second largest in the world, with a GDP of 74.4 trillion Chinese yuan (US$10.8 trillion) in 2016, just behind the United States. This Chinese phenomenon has sparked considerable interest among academics and practitioners concerning the factors driving such growth in China's economy. Instead of the free-market economic model adopted in most developed economies, China has been implementing a government-planned economic model, which has so far proven to be a "superior economic model" (Brandt and Rawski, 2008; Grove, 2010; Stern, 2011). One of the key features of the government-planned economic model is that the Chinese government makes five-year plans and offers favorable policies to sponsored industries.

Government subsidies are a form of policy instrument for the Chinese government to direct financial resources to industries and enterprises that it supports. In response to the government's subsidies for Chinese enterprises, competitors have threatened retaliation for what they view as unfair trade practices. For example, a report published by the European Council on Foreign Relations claims that Chinese "state-owned enterprises receive massive state subsidies and can therefore compete unfairly with European companies" (Godement et al., 2011, p.5). Robert Hormats, the Under Secretary for Economic, Energy and Agricultural Affairs at the U.S. State Department, argued that some "Chinese state-owned enterprises and state-supported enterprises enjoy financial support, regulatory privileges and immunities not generally available to their privately-owned competitors" (Hormats, 2011). Additionally, in a report issued by the Information Technology and Innovation Foundation, Atkinson

(2012) stated that "it is time for policymakers in the United States and other countries to begin responding to today's reality, for Chinese *mercantilism* represents a fundamental threat to not only the U.S. economy, but to the entire system of market and rules-based globalization."[1]

This paper examines how government subsidies affect a firm's cost of debt and its subsequent performance. Prior studies have investigated the relationships between cost of debt and various political factors, including political connections (Li et al., 2008), political rights (Qi et al., 2010), state ownership (Borisova and Megginson, 2011; Borisova et al., 2012), policy risk (Bradley et al., 2012) and national five-year plans (Chen et al., 2013). However, as far as we are aware, there have been very few studies that specifically examine how government subsidies affect a firm's cost of debt. This is largely because the firm-level subsidy data is not publicly available in most countries. Our study overcomes this obstacle by using a unique set of hand-collected data on Chinese government subsidies, and contributes to the literature on the economic consequences of government subsidies.

We first investigate the effect of government subsidies on firms' cost of debt. On the one hand, subsidies may lead to higher cost of debt, if they create moral hazards for managers who wish to accumulate more cash than necessary through taking excess loans and therefore incurring higher cost of debt. On the other hand, subsidies may lead to lower cost of debt if the subsidies serve as a substitute for more expensive debt financing. Lenders often view subsidies as either explicit or implicit government guarantees, which reduce the probability of default by the borrowers. In addition, subsidies may result in increased cash flows that benefit debt-holders more than

[1] Mercantilism is an economic theory and practice that was dominant in Europe from the 16th to the 18th centuries. This practice promotes governmental regulation of a nation's economy to augment state power at the expense of rival national powers. Common mercantilist policies include high tariffs and government subsidies on domestic manufacturing and exports.

equity holders, because debt-holders are the first claimants upon the dissolution of a firm. Taken altogether, the association between subsidies and the cost of debt remains an empirical question.

Our results lend support to the latter argument that subsidies are beneficial to firms by reducing their cost of debt. However, such benefit appears not to translate into superior financial performance. We find that government subsidies are not significantly associated with Tobin's Q, contradicting the widespread belief that subsidies are an extra source of income to the recipient firms, which can boost their financial performance and encourage them to engage in unfair competition. Instead, we find a negative association between government subsidies and firms' operating profitability. We believe that this lack of improvement in financial performance is partly because subsidies can encourage managers to become complacent, which may in turn lead to lower efficiency and wasted resources. In the subsequent analysis, we also find that firms receiving more subsidies are more likely to be overstaffed, consistent with Chinese government imposing unprofitable social and political goals on recipient firms, which impair the firms' profitability.

Government subsidies granted to Chinese firms are typically provided in two forms: tax-based and non-tax-based subsidies. The government offers tax-based subsidies to firms that fulfill established criteria, which are based on the national industrial or regional development policies. While local governments used to extensively offer tax incentives to subsidize the local firms, this has been abolished since 2007 (Lee et al., 2017). As a result, the decisions to offer tax incentives are largely concentrated in the hands of the central government, and the local governments have to resort to non-tax-based subsidies, including direct financial support to firms. In general, non-tax-based subsidies are granted on a more subjective

basis, and such subsidies are prone to the influence of political connections or government officials' discretion (Lee et al., 2014). Consistent with these arguments, we find that non-tax-based subsidies have a greater influence on the cost of debt and social performance than do tax-based subsidies.

One concern in our study is that our results may be affected by endogeneity because government subsidies are likely to be endogenous to other firm characteristics that could simultaneously influence the cost of debt and firm performance. To alleviate this concern, we apply a two-stage least squares regression and a propensity score matching approach. Our findings remain qualitatively unaffected.

Finally, we provide evidence on the heterogeneous effects of government subsidies on cost of debt and firm performance. Our results show that the negative (positive) effect of subsidies on cost of debt (overstaffing) is moderated among politically connected firms and loss-making firms.

The remaining sections of the paper are organized as follows. Section 2 describes the institutional setting of China's government subsidies. In Section 3, we review the literature and develop the hypotheses. We explain the research design and describe the sample and data in Sections 4 and 5, respectively. The empirical results are described in Section 6, and Section 7 concludes.

2. China's "Mercantilist" Government Subsidies

In recent years, the Chinese government has been accused of offering numerous subsidies that result in an unfair competitive advantage for Chinese firms in the global market. Haley and Haley (2013) conservatively estimate that between 1985 and 2005, China spent over $300 billion (in nominal terms) to support the biggest state-owned

enterprises (SOEs). They also estimate the amounts of subsidies to some key industries. For example, auto-parts businesses received subsidies worth $28 billion from 2001 to 2011 in the form of heavily subsidized inputs such as low-cost glass, steel and technology. The government has promised an additional $10.9 billion in subsidies to this industry by 2020. China's "mercantilist" policy on government subsidies has also been criticized by international politicians and think-tanks (e.g., Godement et al., 2011; Hormats, 2011; Atkinson, 2012). Recently, the United States challenged the Chinese government in the World Trade Organization (WTO) over its extensive export subsidy program, given that WTO rules prohibit members from offering export subsidies (Donnan and Hornby, 2015). As Rodrik (2013) commented, "Although China phased out many of its explicit export subsidies as a condition of membership in the WTO (which it joined in 2001), *mercantilism*'s support system remains largely in place."

Government subsidies have been used as a policy tool by many countries. From an economic perspective, there are at least three reasons why governments may decide to use subsidies as a policy instrument (see the literature review in Schwartz and Clements, 1999). Governments use subsidies to *offset various market imperfections*, because the "invisible hand" of the free market is not sufficient to allocate resources in the most efficient way. Governments may also use subsidies to *obtain economies of scale in production* if some important industries are small in scale, and cannot compete with larger and more mature competitors in the global market. The third reason could be that governments attempt to use subsidies to *accomplish their social policy objectives*, such as more equitable distributions of consumption or income, or a lower unemployment rate.

The Chinese government has sought to achieve all of these objectives by offering massive subsidies to favored industries and enterprises. Allen et al. (2005) suggest that government subsidies are one of the four most important sources of financing for Chinese firms, along with bank loans, self-funding and foreign direct investment. Chinese government subsidies are pervasive and persistent, because China's industrial development is directed and managed by the central government through its five-year plans, which started in 1953. Issued by the Central Committee of the Communist Party of China and approved by China's National People's Congress, the five-year plans establish the broad parameters of the economy, defining which industries, enterprises and products should be targeted for preferential government support. For example, the 12th Five-Year Plan, covering 2011 to 2015, proposed to address rising inequality and create an environment for greater sustainable growth by prioritizing more equitable wealth distribution, increased domestic consumption, improved social infrastructure and better social safety nets (KPMG, 2011).

Both the central and local governments may subsidize firms. Since the 1980s, the authority for allocating government subsidies has been increasingly delegated to local governments. Although the local governments are guided by central government policies, they have been given considerable discretion to determine the amounts of subsidies granted to firms. The rationale is that the local governments have greater awareness concerning their own regions' development needs than the central government. The central government then evaluates the performance of local government officials, based on the economic and social performance of local firms in their respective regions. This mode of performance evaluation, coupled with the delegation of authority to local governments, leads to competition among the local officials to boost economic growth, and to do this by assisting both firms in distress

and promising firms by offering them subsidies. The government subsidies granted to listed firms in distress can also contribute to earnings manipulation as these firms seek to avoid delisting (e.g., Chen and Li, 2001; Chen et al., 2008; Zhu and Chen, 2009).

Government subsidies are provided in various forms. All of the seven types of government subsidies categorized by Schwartz and Clements (1999) have been used by the Chinese government to support various industries.[2] For example, the subsidies granted to the steel industry include direct cash grants, energy and raw material grants, land grants, credit subsidies in the form of debt-equity swaps, debt forgiveness, tax incentives, preferential loans and directed credit from state-owned banks (Price et al., 2006). Most subsidies are reported quite openly, but the total amount of subsidies is unobservable, because a fraction of the subsidies is granted in the form of non-monetary supports such as price subsidies or land grants, which typically go unreported in company financial statements. Hence, our subsidy variables are likely to be underestimated, which could induce a bias against finding significant results. In other words, we would probably find greater use of subsidies without the downward bias in the means of measurement.

In the Chinese context, our research focuses on the observable forms of government subsidies, which have been reported under "other income" in the firms' financial statements since 2007. Prior to 2007, subsidies were reported as a separate line item in the income statements. According to prior literature (Zou and Adams, 2008; Lee et al., 2014, 2017), China's government subsidies can be classified into two broad categories: tax-based and non-tax-based subsidies. The tax-based subsidies are

[2] The seven categories of government subsidies given by Schwartz and Clements (1999) are direct government payments to producers or consumers (cash subsidies), government guarantees and interest subsidies to enterprises (credit subsidies), reductions of specific tax liabilities (tax subsidies), government equity participation (equity subsidies), government provisions of goods and services at below-market prices (in-kind subsidies), government purchases of goods and services at above-market prices (procurement subsidies) and government regulatory actions that change market prices or market access (regulatory subsidies).

generally offered in response to China's industrial and regional development policies. These subsidies are often given to firms located in special economic zones, or those that invest in projects and/or operate in sectors favored by the government. In general, tax-based subsidies are granted on a less subjective basis, as their allocation must be anchored on established guidelines and policies. In contrast, non-tax-based subsidies are granted more subjectively, at the discretion of government officials, and these subsidies are subject to the influence of political connections. Lee et al. (2014) use both interviews and archival data to reveal that Chinese tax-based subsidies are more transparent than non-tax-based subsidies.

The criticisms of Chinese government subsidies motivate us to examine the economic consequences of the subsidies received by Chinese listed firms. Our study aims to investigate how government subsidies affect firms' cost of debt and firm performance in both financial and social terms. We also inquire if the tax-based subsidies and non-tax-based subsidies have different effects, by virtue of their different nature.

3. Prior Literature and Hypotheses Development

Debt financing is crucial to the development and growth of Chinese firms. Allen et al. (2005) find that the Chinese banking sector (which is predominantly state-owned) is much larger than its financial market, and this dominance of banks over markets is greater than in many Western countries. Although non-state firms are typically discriminated against by the state banking sector, there are alternative channels for debt financing such as the non-state banking sector, venture capital, or reputation-based and relationship-based financing. The use of alternative informal financing channels may help to explain the findings of Guariglia et al. (2011) that

non-state firms do not experience efficiency losses from credit constraints in the formal banking sector. However, Ayyagari et al. (2010) find that Chinese firms with bank financing grow faster than firms without bank financing, and these authors question whether reputation- and relationship-based financing is responsible for the performance of the fastest-growing non-state firms in China. Furthermore, Chen et al. (2013) show that the firms in government-supported industries enjoy faster growth in equity and debt financing, with lower cost of capital than firms that are not in government-supported industries. These studies demonstrate that debt financing is crucial to Chinese firms, and that government support can influence the terms of debt financing. These findings provide us with a reason to study the effects that subsidies (as a form of government support) have on firms' cost of debt, and consequently on firm performance.

We draw on the prior literature concerning various forms of government support to hypothesize how government subsidies may affect both the cost of debt and firm performance. Government support may provide either explicit or implicit government guarantees to creditors, because governments are reluctant to allow the companies they support to default, which would cause unemployment and loss of control over vital industries. Therefore, debt-holders expect governments to bail out struggling government-supported companies, which could result in a lower cost of debt. Borisova and Megginson (2011) examine government ownership as a means of government support. They find that on average, across 60 European partially privatized SOEs, a one-percentage-point decrease in government ownership is associated with an increase of three-quarters of a basis point in credit spread.

In contrast, Stiglitz (1993) warns that the reluctance of governments to allow firms to fail is likely to increase managerial moral hazard. Borisova et al. (2012) use a

sample of 43 countries and find that government ownership is positively associated with the cost of debt in non-crisis years, but negatively associated with the cost of debt in crisis years. They argue that there are two opposing effects of government ownership on the cost of debt. On the one hand, government ownership leads to managerial moral hazard and reduces investor monitoring. On the other hand, government ownership offers implicit guarantees that the government will provide support to avoid firm insolvencies, for the sake of maintaining social and political stability. During the non-crisis period, managerial moral hazard dominates over the government guarantees effect. However, during the crisis period, the government guarantees become relatively more important in reducing the cost of debt.

We view government subsidies as a substitute form of government support or ownership, and we apply the same argument concerning the effects of government subsidies on the cost of debt. Hence, there may be two major effects of government subsidies on the cost of debt. Government subsidies provide financial support to recipient firms, and could be regarded as government guarantees by creditors. Hence firms with more government subsidies may have a lower cost of debt. However, creditors may be concerned that government subsidies will increase managerial moral hazard through complacency on the part of firm managers, who may aggressively take on greater debt and mismanage their firms. Both the moral hazard and increased leverage can enhance the possibility of firm default, and consequently debt investors may charge firms that receive subsidies higher rates for debt. Moreover, subsidies imply greater policy risks, as the recipient firms have to respond to the needs of the governments that provide them with those subsidies. Greater policy risks can lead to a higher cost of debt for the firm concerned (Bradley et al., 2012). Our null hypothesis, therefore, is formulated as follows:

H1a: Government subsidies have no effect on firms' cost of debt

Following Lee et al. (2014), we identify two main forms of government subsidies: tax-based and non-tax-based subsidies. Tax-based subsidies are granted for the industrial sectors or projects favored by the government, according to prescribed tax policies and regulations. Firms have little discretion on how these tax-based subsidies are granted. Thus, there is a low probability of obtaining tax-based subsidies through political favoritism or other opportunistic channels. Also, investors may not view tax-based subsidies as signals of implicit government guarantees. The interview findings of Lee et al. (2014) reveal that tax-based subsidies are granted on a more objective basis, and are less likely to be influenced by the discretion of government officials.

Non-tax-based subsidies, however, are subject to greater discretion than tax-based subsidies. This increased discretion leads to greater moral hazard and a higher possibility of wasteful activities. Consequently, greater non-tax-based subsidies could imply more political favoritism and enhanced government support or guarantees for the firms receiving such subsidies. One of the comments highlighted by Lee et al. (2014) is that "because the fiscal resources of local governments can be limited, firms eligible for non-tax subsidies must be further selected and this process can involve a certain degree of subjectivity." Whether the effects of non-tax-based subsidies and tax-based subsidies on the cost of debt are similar is an empirical question. Our null hypothesis is as follows:

H1b: Tax-based and non-tax-based subsidies have no differential effects on firms' cost of debt.

Firm performance is a function of the firm managers' ability to run their firms efficiently and profitably, according to the available investment opportunities and financing cost. There may be opposing effects of subsidies on firm performance.

Government subsidies are a direct form of support that the government provides to recipient firms. The competitors of Chinese firms allege that government subsidies provide China-based firms with an unfair competitive advantage (Schuman, 2012). If government subsidies are utilized well by the recipient firms, as means to improve their operational processes, to enhance their research and development capabilities, or to upgrade their marketing strategies, then these subsidies would lead to improved firm performance. Jacob et al. (2016) find that fund performance decreased substantially following the phase-out of tax subsidies for Canadian Labor-Sponsored Venture Capital Corporations, indicating that government subsidies in Canada has a positive effect on firm performance. In addition, if government subsidies result in a lower cost of debt, then the savings in interest and reduced cost of raising capital should also have a positive impact on firm performance.

However, if government subsidies create moral hazards and lead to complacency on the part of managers, such subsidies may lead to worsened firm performance. This theory follows prior literature, which suggests a positive relationship between government ownership and cost of debt, due to managerial moral hazard and monitoring gaps (Borisova et al., 2012). Another possibility is that there may be conditions attached to the subsidies. The firms receiving subsidies may be obligated to fulfill social and political objectives imposed by the Chinese government, for

example, by providing greater employment to the community or protecting the environment. These objectives may reduce firm efficiency and lead to poorer firm performance. We therefore state the second null hypothesis as follows.

H2a: Government subsidies have no effect on firm performance

Lee et al. (2014) find that tax-based subsidies are more value-relevant than non-taxed-based subsidies, because "the transparency of tax based subsidies renders them more predictable to investors, which in turn facilitates the incorporation of this information into their valuation decisions." However, tax-based subsidies do not contribute toward the firms' operating profits before tax. Hence, a reduction in taxes through tax-based subsidies is not expected to cause better firm performance (as measured by operating profit before tax) even though tax-based subsidies increase the net income after tax. Whether tax-based subsidies improve firm performance depends on how the managers use the saved resources in their firms' operations. The same argument applies to the non-tax-based subsidies. Hence, it is of interest to investigate whether tax-based and non-tax-based subsidies have different effects on firm performance. This leads to the following hypothesis:

H2b: Tax-based and non-tax-based subsidies have no differential effects on firm performance.

4. Research Design

4.1. Government subsidies and firms' cost of debt

We estimate the following equation to test the relationship between government subsidies and the cost of debt:

$$COD_{i,t+1} = \alpha + \beta_1 Subsidy_{i,t} + \sum Control\ variables_{i,t} + \varepsilon_{i,t} \quad (1)$$

In Equation (1), *i* and *t* denote firm and year, respectively. The dependent variable is the cost of debt (*COD*). Following Zou and Adams (2008), we measure the cost of debt as interest expenses reported in the income statement plus capitalized interest, scaled by total debt. The independent variable of interest is government subsidies, which includes total subsidies (*SUB*), non-tax-based subsidies (*NTSUB*) and tax-based subsidies (*TSUB*). *SUB* is calculated as the sum of subsidies excluding credit subsidies, scaled by total assets.[3] *NTSUB* (*TSUB*) is calculated as the non-tax-based (tax-based) subsidies excluding credit subsidies, scaled by total assets. Specifically, the tax-based subsidies include the rebates of various taxes, such as the value-added tax, consumption tax or export tax, and the non-tax-based subsidies are largely provided through direct cash grants or debt forgiveness.

We follow prior research by including several determinants for cost of debt. Larger firms generally have lower default risk, and therefore may bear lower interest costs than smaller firms (Petersen and Rajan, 1994). Thus, firm size (*SIZE*) is included as a control variable. The pre-subsidy return on assets (*PROA*) can be used to proxy for earnings management incentives. A higher value of *PROA* is indicative of a lower likelihood of earnings management, and hence a lower cost of debt. *PROA* is calculated as the difference between net income and total government subsidies, scaled by total assets. Moreover, we control for capital structure, which is measured as the ratio of total debt to total assets (*LEV*). Higher borrowings may indicate that the borrower can finance with lower cost of debt. On the other hand, higher leverage beyond a certain level increases default risk and cost of debt. The effect of *LEV* on the

[3] We exclude credit subsidies from the total amounts of government subsidies because credit subsidies are closely related to cost of debt. Our results are qualitatively the same when we include all subsidies in the empirical tests.

cost of debt is therefore an empirical question. In addition, younger firms tend to be riskier and have a higher rate of failure than long-established firms (Leeth and Scott, 1989). As a result, younger firms may have higher cost of debt than mature firms. We measure the firm age (*AGE*) using the natural logarithm of the number of years since the firm's inception.

As Zou and Adams (2008) indicate, the influence of state ownership on the cost of debt is unknown *ex ante*. On the one hand, state ownership may expose lenders to higher credit risks, and therefore the lenders may require a higher interest rate than normal. On the other hand, a government shareholder may use its influence to help a firm secure favorable bank loans. Hence, we include state ownership (*SOE*) as a control variable in the model. *SOE* is a dummy variable, which takes the value of 1 if the firm is ultimately controlled by government agencies and 0 otherwise. Likewise, we control for political connection (*POLICON*), which is a dummy variable that equals 1 if the CEO or chairman is a current or former (1) government official, (2) military official, (3) member of the People's Congress or (4) member of the People's Political Consultative Conference.

Firms with more tangible assets may be able to provide more collateral, which reduces the risk faced by the lenders. Therefore, we expect an inverse relation between tangible assets ratio (*TANGIBLE*) and cost of debt. We define tangible asset intensity as the sum of fixed assets and inventory, scaled by total assets. In the same vein, sales growth (*SG*) is also expected to be negatively associated with the cost of debt (Petersen and Rajan, 1994). The sales growth is computed as the year-on-year growth in sales revenue. Additionally, firms with a higher interest coverage ratio (*COVER*) are more capable of repaying their debts than those with lower interest coverage. The interest coverage ratio is defined as earnings before interest and tax

(*EBIT*) divided by interest charges.

Corporate governance is also an important factor in determining a firm's cost of debt. Anderson et al. (2004) find that board independence and board size are negatively associated with the cost of debt, because these corporate governance mechanisms may improve the transparency of financial information. Board size (*BSIZE*) is measured as the natural logarithm of the number of board members, and board independence (*INDPT*) is calculated as the proportion of independent directors on a board. The variable definitions are provided in Appendix 1.

4.2. Government subsidies and firm performance

To further examine the effect of government subsidies on firm performance, we estimate the following equation:

$$PERF_{i,t+1} = \alpha + \beta_1 Subsidy_{i,t} + \sum Control\ variables_{i,t} + \varepsilon_{i,t} \quad (2)$$

where three measures are used to proxy for firm performance variables, including *Q*, *OPROFIT* and *EXC_EMP*. *Q* is widely used in the prior literature to measure market performance, and this variable is calculated as follows: (market value of common equity + book value of long-term debt and current liabilities) / book value of total assets. *OPROFIT* is a commonly used measure for financial profitability, which is calculated as operating profit divided by total assets. The *OPROFIT* measure may also eliminate the potential confounding effect of government subsidies, which are reported as non-operating profit in a firm's income statements. *EXC_EMP* is a measure of excess employment.

It has been well recognized in the prior literature that despite China's move toward a market-oriented economy, local government officials still have strong incentives to boost employment by forcing local enterprises to limit layoffs and

increase job opportunities. The reason for these incentives is that social harmony and regional employment remain the primary objectives of local governments, and improvements in these areas constitute important promotion criteria for local officials (Lin and Li, 2004; Chen et al., 2013). This pattern of incentives is corroborated by the example provided by Tian and Estrin (2008).[4] Following previous literature (Zeng and Chen, 2006; Chen et al., 2013; Wang and Wang, 2013), we use the following model to estimate excess employment:

$$EMP_{i,t} = \alpha + \beta_1 SIZE_{i,t} + \beta_2 AG_{i,t} + \beta_3 SG_{i,t} + \beta_4 FA_{i,t} + \varepsilon, \quad (3)$$

where *EMP* is the number of employees divided by total assets, *SIZE* is the logarithm of total assets, *AG* is the growth ratio of total assets, *SG* is the growth ratio of sales, and *FA* is fixed assets divided by total assets. We estimate the above cross-section regression by industry-year with at least 10 observations. The estimated residuals are our proxy for excess employment.

The main independent variable in Equation (2) is also government subsidies, as defined in Equation (1). We include a few control variables which may also affect firm performance. Firm size (*SIZE*) has been shown to be an important determinant of performance. On the one hand, large firms have specialized managerial and financial resources, and they enjoy economies of scale in production and greater formation. On the other hand, large firms tend to have more layers of management and long-standing barriers between functional departments. Therefore, the relation between firm size and performance is not clear. Firm age (*AGE*) is also regarded as a critical factor affecting performance. As George (2005) indicates, resource slack is time-dependent in both its accumulation and deployment, so that younger firms have less slack than more

[4] The *Sinopec Shanghai Petrochemical Company Limited* employed 38,000 people for its core business in 1998. When it attempted to lay off more than 17,000 employees in subsequent years, its government shareholder prevented the layoffs, and forced the firm to seek alternative solutions.

established firms. This situation puts the more established firms at a disadvantage in terms of future performance.

Capital structure (*LEV*) is another widely accepted determinant of firm performance. On the one hand, debt financing exerts pressure on managers to perform, thereby reducing the moral hazard-related activities of managers (Jensen, 1986). On the other hand, higher leverage means higher agency cost due to divergence of interests between shareholders and debt-holders. Thus, the overall effect of leverage on firm performance remains unknown.

Trueman (1986) suggests that the level of capital expenditure (*CAPX*) may serve to signal information about a project's future returns, with a higher level of expenditure signaling more favorable information. Thus, we expect a positive relation between capital expenditure and firm value. We define the capital expenditure intensity as the annual expenditure in acquiring fixed and intangible assets, divided by total assets. Similarly, as faster growing firms tend to have higher valuation, we also expect a positive relation between sales growth (*SG*) and firm value.

Wei et al. (2005) document a negative association between state ownership (*SOE*) and firm value. In addition the influence of political connections (*POLICON*) on firm performance is contingent on which measure of performance is used. Using ROA and ROE as the performance measures, Li et al. (2008) find evidence that political connections tend to enhance firm value. However, drawing on market measures of performance such as stock returns, Fan et al. (2007) find that political connections destroy firm value for IPO firms. Both state ownership and political connection are included to control for the effects of government intervention on firm performance.

Finally, we consider the influence of board attributes on firm performance. In particular, the board size (*BSIZE*) effect has been widely discussed in prior literature.

There are two opposing views. Some studies find that as the board size increases, there are greater difficulties with communication and coordination, which can limit firm value (Eisenberg et al., 1998). However, Dalton et al. (1999) conduct a meta-analysis of 131 firms which documents a significantly positive relation between board size and financial performance. In addition, board independence (*INDPT*) is believed to have an effect on firm performance (e.g., Baysinger et al., 1985; Rosenstein and Wyatt, 1990; Dalton et al., 1999). Thus, both board size and board independence are included as control variables.

To address the potential reverse causality issues that could arise from estimating a contemporaneous relation between government subsidies and the dependent variables, we apply a lead-lag approach in which the dependent variables in Equations (1) and (2) are one year ahead of the independent and control variables. In addition, to control for year and industry fixed effects, we include the year and industry dummy variables.

5. Sample and Data

We manually collect data on government subsidies, including the total subsidies, credit subsidies, tax-based and non-tax-based subsidies. In addition, the data on political connections and the characteristics of provincial leaders are hand-collected from multiple sources, including annual reports and the websites of local governments. The remaining data used in this study are obtained from the China Securities Markets and Accounting Research Database (CSMAR).

We begin our sample selection with all firms listed on the Shanghai and Shenzhen stock exchanges from 2007 to 2011. Our sample period begins in 2007 because this was the first year in which all Chinese listed firms were mandated to adopt a new set of accounting standards under which the recognition and measurement of government

subsidies are different from those under the old Chinese GAAP.[5] As the tests of our hypotheses require that the dependent variables are one year ahead of the independent variables, the data collection period ends in 2012 rather than 2011. Of the 9,312 non-financial firm-year observations available for the sample period, we eliminate 1,692 observations with missing values on subsidies, 754 observations with missing values on the cost of debt and 2,713 observations with insufficient data on other variables. This leaves us with a final sample of 4,153 firm-year observations (1,239 unique firms) to test the hypotheses throughout the study. Panel A of Table 1 summarizes our sample selection process.

Panel B of Table 1 presents the distribution of firm-years across industries, which are classified according to China Securities Regulatory Commission (CSRC) categories. The five industries with the highest percentage of subsidized firms include Timber and Furnishing (100%), Electronics (97.81%), Agriculture, Forestry and Fishery (95.40%), Communication and Culture (94.00%), and Information Technology (93.97%). This pattern is generally consistent with the prioritized industries as designated in China's 11th Five-year Plan (2006-2010).

[Insert Table 1]

Table 2 provides the descriptive statistics of variables used in the main analyses. The average percentages of government subsidies over total assets, non-tax-based subsidies over total assets, and tax-based subsidies over total assets in the sample are 0.4%, 0.4% and 0.1%, respectively. Unreported data reveal that the average

[5] In the old Chinese GAAP, the government subsidies were largely recognized as subsidy income. The accounting method under new Chinese GAAP is based on whether the government subsidy is related to income or to assets. Subsidies that are related to income (assets) should be recognized as profit or loss (deferred income, and amortized to profit or loss on a straight-line basis over the useful life of the asset).

percentage of government subsidies over total sales is 1.3%. The sample firms have an average cost of debt of 9.3%, leverage of 23.2% and average PROA of 2.5%. More than half (65.9%) of the firms in the sample are SOEs and 17.2% are politically connected.

[Insert Table 2]

6. Empirical Results

6.1 Main analyses

This subsection presents the main empirical results on the effects that government subsidies have on firms' cost of debt and firm performance. Table 3 reports the results concerning the relationship between government subsidies and the firms' cost of debt. In general, government subsidies have a negative effect on firms' cost of debt. Column (1) reveals that the estimated coefficient on *SUB* is -0.622, with a statistical significance level at the 5%. The other three columns indicate that this negative association exists largely for non-tax-based subsidies. These results are consistent with the argument that government subsidies, especially non-tax-based subsidies, provide government support for these firms to enhance their credit standings, reduce the credit risks for lenders to these firms, and thus reduce the firms' cost of debt. These results are also consistent with prior evidence that government support through government ownership, government control and/or political connections is negatively related to the cost of debt (Borisova and Megginson, 2011; Houston et al., 2014). The estimated coefficients on the control variables show that firms with higher pre-subsidy ROA (*PROA*) and higher leverage (*LEV*) incur lower cost of debt.

[Insert Table 3]

Table 4 shows the effects of government subsidies on the firms' market performance (measured by Tobin's Q) and accounting performance (measured by operating profit). Panel A shows that neither the non-tax-based nor the tax-based subsidies have a significant effect on the firms' market performance. Panel B shows the regression results for the firms' accounting performance. As shown in Column (5), there is a statistically significantly negative relation between government subsidies and *OPROFIT*. The significance of the coefficient of non-tax-based subsidies (*NTSUB*) remains when we decompose *SUB* into tax-based and non-tax-based subsidies. In contrast, the relation between tax-based subsidies and accounting performance is significantly positive, as shown in Columns (7) and (8). Overall, government subsidies have a mixed effect on firms' financial performance.

Regarding the control variables, the results are also inconsistent. Panel A reveals that larger firms, firms with lower capital expenditures, and firms with fewer independent directors have lower future Tobin's Q. Nevertheless, in Panel B, the above firms have higher future operating profits.

[Insert Table 4]

In addition to the financial performance, we use the excess employment measure to assess the firms' social performance. The effects of government subsidies on firm social performance are reported in Table 5. There is a statistically significant association between government subsidies and social performance. The estimated coefficient on *SUB* reported in Column (1) is 4.307, with a *t*-statistic of 2.102 and a significance level of 5%. This result indicates that firms with more government subsidies tend to hire more employees than necessary, which is consistent with

Chinese government imposing social objectives when offering government subsidies to firms. The excess employment may be detrimental to firm financial performance, which helps to explain the inconsistent results observed in Table 4. In the same vein, we decompose government subsidies into tax-based and non-tax-based subsidies. The positive effect of government subsidies on the firms' excess employment only appears with non-tax-based subsidies, as shown in Columns (2) and (4). This set of results is consistent with the notion that non-tax-based subsidies are more subjective and more at the discretion of the government.

[Insert Table 5]

6.2. Robustness Tests

6.2.1. Instrumental variable estimation

Thus far in our main empirical tests, we assume that government subsidies are exogenously determined. However, the decisions of Chinese governments (central and local) on whether and how to subsidize firms in their jurisdictions may depend on a number of additional factors, which could bias the coefficient estimates in the main regressions. To enhance the robustness of our results, we apply a two-stage least squares (2SLS) estimation, and then repeat our main analyses.

In the first stage, we examine possible determinants of government subsidies, i.e., what kind of firms are more likely to receive subsidies. We follow the existing literature to identify the determinants of government subsidies in China, and use the following equation to empirically test those determinants:

$$SUB_{i,t+1} = \alpha + \beta_1 SIZE_{i,t} + \beta_2 PROA_{i,t} + \beta_3 LEV_{i,t} + \beta_4 AGE_{i,t} + \beta_5 SOE_{i,t} + \beta_6 POLICON_{i,t} + \beta_7 TANGIBLE_{i,t} + \beta_8 SG_{i,t} + \beta_9 COVER_{i,t} + \beta_{10} BSIZE_{i,t} + \beta_{11} INDPT_{i,t} + \beta_{12} PRO\_LOCAL_{i,t} + \beta_{13} PROB\_SUB_{i,t} + \varepsilon_i$$

(4)

where *i* and *t* denote the sample firm and year, respectively. We explain each of the determinants as follows:

Firm size: Large firms tend to receive more subsidies, because these firms are more important to the economy than small firms in terms of economic benefit and employment. Thus, both central and local governments are more concerned about large firms when they face financial difficulties.

Pre-subsidy ROA: Prior studies (Chen et al., 2008; Lee et al., 2014) suggest that local governments are likely to assist the listed firms in their jurisdictions to engage in earnings management. This is done to circumvent the central government's regulations over firm profitability. Thus, local governments may help firms with lower pre-subsidy ROA through giving more subsidies.

Leverage: The subsidies that a firm receives can be viewed as substitutes to external debt. A firm that is less dependent on and obtains less external debt may receive more subsidies.

Firm Age: The level of subsidies may depend on the age of the firms if the government policy is to support young start-up firms with more subsidies.

State ownership: Zhu and Chen (2009) predict that state shareholdings should facilitate access to subsidies, as governments may provide financial assistance to firms in which they retain large stakes (Wei et al., 2005). However, Zhu and Chen (2009) fail to find empirical support for this view.

Political connection: Prior literature consistently suggests that political connections facilitate connected firms to gain preferential treatment, to lessen financial constraints, and to reduce the transaction cost involved in searching for and complying with regulatory or licensing procedures (Srinidh et al., 2011; Chaney et al.,

2011). Both Qin (2011) and Feng et al. (2015) provide evidence suggesting a positive association between political connections and government subsidies in the Chinese context.

Tangibility: This variable measures the fixed asset/inventory intensity of firms. Firms with more fixed assets/inventory may obtain more government support in subsidies.

Sales growth: The government may provide greater subsidies to support firms that have higher sales growth.

Interest cover: Firms that have lower interest coverage ratios may be in greater need of government subsidy support.

Again, *Board size* and *percentage of independent directors* are used as measures of firm corporate governance.

The last two variables (*PRO_LOCAL* and *PROB_SUB*) are instrumental variables (IVs) employed in the 2SLS tests, which are selected based on prior literature (Lee et al., 2017; He, 2016). *PRO_LOCAL* is a dummy variable that equals one if the provincial leader was promoted from a lower position within the same province. Provincial leaders who have been promoted from within the same province tend to favor local firms by offering government subsidies. *PROB_SUB* is the median percentage of subsidized firms in each industry-year-region group. Subsidies are likely to be higher when the proportion of subsidized firms in an industry-year-region is higher. Neither of these IVs is likely to have a direct effect on the cross-sectional variation in the firm-level cost of debt. For testing the effects of subsidies on firm performance, we keep *PROB_SUB*, but replace *PRO_LOCAL* with *PROTECT_IND*, which is a dummy variable that equals 1 for protected industries (i.e., high tech, agriculture and public utilities). We drop *PRO_LOCAL* because the promotion of

provincial leaders is expected to be positively associated with the local employment rate and firm profitability. However, firms in protected industries receive more fiscal support without such obligations. Thus, we believe that *PROTECT_IND* is a valid IV in these cases. Nevertheless, we acknowledge that there may be imperfections in the IVs, which may affect the dependent variables in ways that we did not envisage.

Table 6 presents the results for the 2SLS regressions, where the endogenous variables, *SUB*, *NTSUB* and *TSUB*, are evaluated separately. Panel A reports the results of regressing the cost of debt on government subsidies. In the second stage regressions, the results suggest that subsidies, especially their non-tax-based components, significantly reduce the cost of debt, consistent with the results reported in Table 3. In the first stage regression, *PRO_LOCAL* and *PROB_SUB* are positively associated with government subsidies, which is in line with our predictions. Moreover, the Kleibergen-Paap Wald *F*-statistics range from 62.4 to 72.9, and are statistically significant at the 1% levels, which indicate that the models are not subject to weak instrument problems.

Panel B and C present the results on the effects of subsidies on financial performance and social performance, respectively. In the interest of space, we report the second stage results only. Similar to the results reported in Table 4, we find in Panel B mixed impact of subsidies on financial performance. Column (3) of Panel B shows a negative association between tax-based subsidies and Tobin's Q but Column (6) reports a positive association with firm's operating profit. In line with the results reported in Table 5, we find in Panel C a positive effect of subsidies on social performance, and especially so in the case of non-tax-based subsidies. Again, both instruments have their predicted signs, and the diagnostic tests suggest that the IVs are valid.

[Insert Table 6]

6.2.2. Propensity score matching

As a further robustness check, we use a propensity score matching (PSM) procedure, which allows us to identify a control group of firms that are not subsidized, and test if there are observable differences in the characteristics of non-subsidized firms relative to firms that are subsidized. Matching observable firm characteristics aims to mitigate (but not to eliminate) concerns over non-random selection. The propensity score is calculated by projecting the probability of a firm being subsidized on the determinants identified in Equation (4). To ensure that the firms in the control group are sufficiently similar to those in the treatment group, we perform a radius matching with the common support required. Panel A of Table 7 reveals that after matching, the treatment and control groups appear to be largely indistinguishable in terms of the characteristics mentioned above. This test further confirms the validity of our matching strategy. The results based on the PSM sample are presented in Table 7 Panel B, and they provide additional evidence that our main findings are robust to alternative model specifications.

[Insert Table 7]

6.2.3. Market-based debt versus government debt

There is a possibility that Chinese banks, especially state-owned banks, may offer credit subsidies to preferred companies and hence the negative relation between government subsidies and cost of debt is mechanical among firms with loans from state-owned banks. Relative to state-owned banks, non-state-owned banks tend to

make lending decisions on a more commercial basis. The negative relation between government subsidies and cost of debt might be weaker among firms that borrow from non-state-owned banks. This is a lesser issue in our sample period of 2007-2011 because prior literature (e.g., Firth et al., 2009; Chen et al., 2013) suggests that China's recent banking reforms such as commercialization and privatization lead to lending decisions being made on a more commercial basis. Moreover, our subsidy variable excludes credit subsidies from the government subsidies.

Nonetheless, we carry out further robustness test by identifying whether the major creditors are state-owned or non-state-owned banks. The lender information is obtained from the CSMAR database. However, since only a few companies disclosed relevant information in their annual reports, we have to use a reduced sample for this robustness test. Since a majority of the firms borrowed from both state-owned and non-state-owned banks, we classify the firms based on the share of loans from state-owned versus non-state-owned banks. For instance, if the loans from state-owned (non-state-owned) banks account for more than 50% of a firm's total borrowing, we classify the firm's lenders as state-owned (non-state-owned) banks. Table 8 reports the results regarding the effects of government subsidies on cost of debt, disaggregated into state-owned and non-state-owned banks. For both types of loans, the results are consistent with cost of debt being negatively associated with government subsidies, in particular non-tax subsidies. This indicates that our main results are not affected by the sources of loans.

[Insert Table 8]

6.2.4. Impact of subsidies on firm performance: change model specification

In the analysis of subsidy impact on firm financial performance, if the subsidies are provided to bailout firms in financial distress, the recipients are naturally characterized with lower Q and poorer performance relative to other firms. Similarly, regarding social performance, the heavily staffed firms, especially SOEs, are more likely to receive subsidies. Given the stability of employees, it is natural to observe excessive employment in the future. It is however unlikely that the situation can be reversed in one year after it has received subsidies.

Hence, we carried out a further analysis on Table 4 by using the change in Q and change in operating profit, and on Table 5 by using the change in social performance. The results are reported in Table 9. In Panel A, the change in subsidy and change in non-tax-based subsidy coefficients are negative and statistically significant when the dependent is the change in Q, and not statistically significant when the dependent variable is the change in operating profit. In Panel B, the change in subsidy and change in non-tax-based subsidy coefficients are positive and statistically significant when the dependent variable is the change in social performance. These results are consistent with the results reported in Tables 4 and 5.

[Insert Table 9]

6.2.5. Political connection and financial health interactions with subsidies

We examine further the variations in the impact of subsidies on cost of debt and performance. The impact of subsidies may vary across the level of political connections as well as financial health of firms. The variables *POLICON* and *LOSS* are interacted with *SUB*, *NTSUB* and *TSUB* in Panels A and B of Table 10,

respectively. *LOSS* is a dummy variable that equals one if pre-subsidy net income is below zero, and otherwise zero.

Table 10 shows that the subsidy (specifically non-tax-based subsidy) effect (without interactions with *POLICON* and *LOSS*) on cost of debt remains negative and statistically significant. In the first column of Panel A (B), the negative coefficient of *SUB* indicates that 1% increase in scaled government subsidies corresponds with 8.0% (12.1%) decline in cost of debt. The interactions of *SUB* and *NTSUB* with *POLICON* and *LOSS* are positive and statistically significant. In the first column of Panel A (B), the negative coefficient of *SUB* interaction with *POLICON* (*LOSS*) shows that for 1% increase in government subsidies, the decline in cost of debt is relatively smaller by 7.4% (11.3%) for politically connected (loss-making) firms. This indicates that the subsidy effects on cost of debt are substantially weaker for politically connected or loss-making firms.

When financial performance is used as the dependent variable, the results remain mixed. The coefficients of *SUB* and *NTSUB* are positive and statistically significant in the case when *OPROFIT* is used as the dependent variable, but not statistically significant when *Q* is used as the dependent variable. When social performance becomes the dependent variable, the coefficients of *SUB* and *NTSUB* are positive and statistically significant, while the interactions of *SUB* and *NTSUB* with *POLICON* are negative and statistically significant. This shows that the effects of subsidy on social performance are weaker for politically connected firms.

In Panel B, when *OPROFIT* is used as the dependent variable, the coefficients of *SUB, NTSUB* and *TSUB* are positive and statistically significant. The interactions of *SUB* and *NTSUB* with *LOSS* are negative and statistically significant. This shows that the positive effects of subsidies on operating profit only apply for profitable firms. In

the case when *Q* and *EXC_EMP* are used as the dependent variables, the coefficients of *SUB* and *NTSUB,* and their interactions with *LOSS* are not statistically significant. These results provide evidence that the effects of subsidies on cost of debt and firm performance are not solely driven by political connections and financial health of firms.

[Insert Table 10]

6.2.6. Alternative measures for government subsidies

We also apply alternative measures for government subsidies, such as the natural logarithm of subsidies and subsidies scaled by total sales. The untabulated results suggest that our main findings remain qualitatively unaffected.

7. Conclusion

In the past three decades, the Chinese economy has experienced unusually high growth, and has emerged as the second largest economy in terms of GDP, just behind the United States. However, the international economic community has criticized the Chinese government for offering pervasive "mercantilist" government subsidies to the various industries it supports. This research provides a comprehensive examination of the effects of government subsidies on the sample firms' cost of debt and their performance in both financial and social terms.

Using hand-collected information on government subsidies to 1,239 Chinese companies listed on the Shanghai and Shenzhen stock exchanges, we investigate the economic consequences of government subsidies on the firms' cost of debt and on firm performance. We find that government subsidies, especially the non-tax-based subsidies, lead to lower cost of debt, because debt investors view non-tax-based

subsidies as implicit government guarantees, which reduce the probability of default by the borrowers.

However, the lower cost of debt does not always translate into improved firm performance. We find limited evidence that financial performance improves as a result of receiving government subsidies. This result contradicts the common belief that subsidies are additional income to the recipient firms, which enables them to compete by reducing the prices of their products or by enlarging their market share. We argue that the observed lack of improvement in financial performance is caused by the social and political goals imposed by the Chinese government. We find that firms with higher non-tax-based government subsidies demonstrate higher social performance in terms of excess employment. Overall, our results are robust to tests on endogeneity in the relations between government subsidies, cost of debt, and firm performance.

References

Allen, F., Qian, J., Qian, M., 2005. Law, finance, and economic growth in China. *Journal of Financial Economics* 77, 57-116.

Anderson, R. C., Mansi, S. A., Reeb, D. M., 2004. Board characteristics, accounting report integrity, and the cost of debt. *Journal of Accounting and Economics* 37 (3), 315-342.

Atkinson, R. D., 2012. Enough is enough: Confronting Chinese innovation mercantilism. *The Information Technology and Innovation Foundation*. Downloadable from http://www.itif.org/publications/2012/02/28/enough-enough-confronting-chinese-innovation-mercantilism

Ayyagari, M., Demirguc-Kunt, A., Maksimovic, V., 2010. Formal versus informal finance: Evidence from China. *Review of Financial Studies* 23, 3048-3097.

Baysinger, B. D., Butler, H. N., 1985. Corporate governance and the board of directors: Performance effects of changes in board composition. *Journal of Law, Economics, & Organization* 1 (1), 101-124.

Borisova, G., Fotak, V., Holland, K., Megginson, W. L., 2015. Government ownership and the cost of debt: Evidence from government investments in publicly traded firms. *Journal of Financial Economics* 118 (1), 168-191.

Borisova, G., Megginson, W. L., 2011. Does government ownership affect the cost of debt? Evidence from privatization. *Review of Financial Studies* 24, 2693-2737.

Bradley, D., Pantzalis, C., Yuan, X., 2016. Policy risk, corporate political strategies, and the cost of debt. *Journal of Corporate Finance* 40, 254-275.

Brandt, L., Rawski, T. G., 2008. *China's Great Economic Transformation*, Cambridge University Press.

Chaney, P. K., Faccio, M., Parsley, D., 2011. The quality of accounting information in politically connected firms. *Journal of Accounting and Economics* 51 (1), 58-76.

Chen, D., Li, O. Z., Xin, F., 2013. Five-year plans, China finance and their consequences. Working paper, Available at SSRN: http://ssrn.com/abstract=2259388 or http://dx.doi.org/10.2139/ssrn.2259388

Chen, X., Lee, C. J., Li, J., 2008. Government assisted earnings management in China. *Journal of Accounting and Public Policy* 27, 262-274.

Chen, X., Li, J., 2001. Exploring the role of local government fiscal supports in accounting performance of the listed companies. *Kuaiji Yanjiu* (*Journal of Accounting Research*) 12, 20-28 (in Chinese).

Dalton, D. R., Daily, C. M., Johnson, J. L., Ellstrand, A. E., 1999. Number of directors and financial performance: A meta-analysis. *Academy of Management Journal* 42 (6), 674-686.

Donnan, S., Hornby, L., 2015. US challenges 'illegal' Chinese export subsidies. *The Financial Times*, February 11, 2015.

Eisenberg, T., Sundgren, S., Wells, M. T., 1998. Larger board size and decreasing firm value in small firms, *Journal of Financial Economics* 48 (1), 35-54.

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.

Feng, X., Johansson, A., Zhang, T., 2015. Mixing business with politics: Political participation by entrepreneurs in China. *Journal of Banking & Finance* 59, 220-235.

Firth, M., Lin, C., Liu, P., & Wong, S. M., 2009. Inside the black box: Bank credit allocation in China's private sector. *Journal of Banking & Finance* 33 (6), 1144-1155.

George, G., 2005. Slack resources and the performance of privately held firms. *Academy of Management Journal* 48 (4), 661-676.

Godement, F, Parello-Plesner, J., Richard, A., 2011. China's scramble for Europe. *European Council on Foreign Relations*. Available at: http://www.ecfr.eu/page/-/ECFR37_Scramble_For_Europe_AW_v4.pdf

Grove, A., 2010. How America can create jobs. *Businessweek*. July 1, 2010. Available at http://www.bloomberg.com/bw/magazine/content/10_28/b4186048358596.htm

Guariglia, A., Liu, X., Song, L., 2011. Internal finance and growth: Microeconometric evidence on Chinese firms. *Journal of Development Economics* 96, 79-94.

Haley, U., Haley G., 2013. *Subsidies to Chinese Industry: State Capitalism, Business Strategy and Trade Policy*. Oxford University Press.

He, G., 2016. Fiscal support and earnings management. *The International Journal of Accounting* 51(1), 57-84.

Hormats, R. D., 2011. *Addressing the Challenges of the China Model. U.S. Department of State*. Available at: http://www.state.gov/e/rls/rmk/20092013/2011/157205.htm

Houston, J. F., Jiang, L., Lin, C., Ma, Y., 2014. Political connections and the cost of bank loans, *Journal of Accounting Research* 52 (1), 193-243.

Jacob, M., S. Johan, D. Schweizer, F. Zhan, 2016. Corporate finance and the governance implications of removing government support programs. *Journal of Banking & Finance* 63, 35-47.

Jensen, M. C., 1986. Agency cost of free cash flow, corporate finance, and takeovers. *American Economic Review* 76 (2), 323-329.

KPMG, 2011. *China's 12th Five Year Plan: Overview*. Available at http://www.kpmg.com/cn/en/issuesandinsights/articlespublications/publicationseries/5-years-plan/Pages/default.aspx

Lee, E., Walker, M., Zeng, C., 2014. Do Chinese government subsidies affect firm value? *Accounting, Organizations and Society* 39 (3), 149-169.

Lee, E., Walker, M., Zeng, C., 2017. Do Chinese state subsidies affect voluntary corporate social responsibility disclosure? *Journal of Accounting and Public Policy* 36 (3), 179-200.

Leeth, J. D., Scott, J. A., 1989. The incidence of secured debt: Evidence from the small business community. *Journal of Financial and Quantitative Analysis* 24 (3), 379-394.

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

Lin, J. Y., Li, Z., 2004. Policy burden, moral hazard and soft budget constraint. *Economic Research Journal* 2, 17-27 (in Chinese).

Petersen, M. A., Rajan, R. G., 1994. The benefits of lending relationships: Evidence from small business data. *Journal of Finance* 49 (1), 3-37.

Price, A., Weld, C., Nance, D., Zucker, P., 2006. *The China Syndrome: How Subsidies and Government Intervention Created the World's Largest Steel Industry*. Wiley Rein & Fielding LLP.

Qi, Y., Roth, L., Wald, J. K., 2010. Political rights and the cost of debt. *Journal of Financial Economics* 95, 202-226.

Qin, B., 2011. Political Connection, Government patronage and firm performance: Evidence from Chinese manufacturing firms. Working paper, University of Hong Kong.

Rodrik, D., 2013. *The New Mercantilist Challenge.* Project Syndicate. Available at http://www.project-syndicate.org/commentary/the-return-of-mercantilism-by-dani-rodrik

Rosenstein, S., Wyatt, J. G., 1990. Outside directors, board independence, and shareholder wealth. *Journal of Financial Economics* 26 (2), 175-191.

Schuman, M., 2012. Are China's big state companies a big problem for the global economy? *Time*. February 15

Schwartz, G., Clements, B., 1999. Government subsidies. *Journal of Economic Surveys* 13 (2), 119-147.

Srinidh, B., Zhang, H., Zhang, T., 2011. Transparency in politically connected firms: Evidence from private sector firms in China. Working paper, City University of Hong Kong.

Stern, A., 2011. China's superior economic model. *The Wall Street Journal*. December 1, 2011. Available at http://www.wsj.com/articles/SB10001424052970204630904577056490023451980

Stiglitz, J. E., 1993. The role of the state in financial markets. *Proceedings of the World Bank Annual Conference on Development Economics*, 19-61.

Tian, L., Estrin, S., 2008. Retained state shareholding in Chinese PLCs: Does government ownership always reduce corporate value? *Journal of Comparative Economics* 36 (1), 74-89.

Trueman, B., 1986. The relationship between the level of capital expenditures and firm value. *Journal of Financial and Quantitative Analysis* 21 (2), 115-129.

Wang, X., Wang, S., 2013. Chairman's government background, excess employment and government subsidies: Evidence from Chinese local state-owned enterprises. *China Journal of Accounting Research* 6 (1), 51-74.

Wei, Z., Xie, F., Zhang, S., 2005. Ownership structure and firm value in China's privatized firms: 1991–2001. *Journal of Financial and Quantitative Analysis* 40 (1), 87-108.

Zeng, Q., Chen, X., 2006. State stockholder, excessive employment and labor cost. *Economic Research Journal* 5, 74-86 (in Chinese).

Zhu, S., Chen, Y. S., 2009. Government subsidy decisions, earnings management incentives, and loss reversals of listed firms. *China Accounting and Finance Review* 11 (3), 115-140.

Zou, H., Adams, M. B., 2008. Debt capacity, cost of debt, and corporate insurance. *Journal of Financial and Quantitative Analysis* 43 (2), 433-466.

APPENDIX 1: Variable Definitions

Variables	Definition
Dependent variables	
COD	(Interest expenses + capitalized interest)/total debt
Q	(Market value of common equity + book value of long-term debt and current liabilities)/book value of total assets
OPROFIT	Operating profit/total assets
EXC_EMP	Residuals estimated from the following equation: $EMP_{i,t} = \alpha + \beta_1 SIZE_{i,t} + \beta_2 AG_{i,t} + \beta_3 SG_{i,t} + \beta_4 FA_{i,t} + \varepsilon$ where *EMP* is the number of employees divided by total assets, *SIZE* is the logarithm of total assets, *AG* is the growth ratio of total assets, *SG* is the growth ratio of sales, and *FA* is fixed assets divided by total assets.
Independent variables	
SUB	Total government subsidies excluding credit subsidies, scaled by total assets
NTSUB	Non-tax-based government subsidies excluding credit subsidies, scaled by total assets
TSUB	Tax-based government subsidies, scaled by total assets
Control variables	
SIZE	Natural logarithm of total assets
PROA	Pre-subsidy ROA, measured as (net income – subsidies)/total assets
ROS	Sales revenue/total assets
LEV	Total debt divided by total assets
AGE	Natural logarithm of the number of years since the firm's inception
SOE	= 1 for firms ultimately controlled by government agencies, and otherwise 0
POLICON	= 1 if a CEO or a chairman is defined as politically connected, i.e., if he or she is a current or former (1) government official, (2) military official, (3) member of the People's Congress or (4) member of the People's Political Consultative Conference
CAPX	Annual expenditure in acquiring fixed assets and intangible assets divided by total assets
TANGIBLE	The sum of fixed assets and inventory, scaled by total assets
COVER	*EBIT* scaled by interest charges (interest expense + capitalized interest)
SG	(Current sales revenue-last year's sales revenue)/last year's sales revenue
BSIZE	Natural logarithm of the number of board members
INDPT	The percentage of independent directors in a board

Table 1: Sample Selection

Panel A: Sample selection process	Observations
Initial firm-year sample	9,312
Less:	
Observations with missing total or classified subsidies	1,692
Observations with missing values on cost of debt	754
Observations with missing values on other variables	2,713
Final sample	4,153

Panel B: Distribution of firm-years by industry

Industry	CSRC code	# of firm-years	% of subsidized firm-years
Agriculture, Forestry & Fishery	A	87	95.40
Mining	B	117	80.34
Food & Drink	C0	178	92.13
Textiles & Apparel	C1	149	89.93
Timber & Furnishings	C2	8	100.00
Paper & Printing	C3	64	89.06
Petrochemicals	C4	420	93.10
Electronics	C5	184	97.81
Metals & Non-metals	C6	380	90.53
Machinery	C7	637	92.46
Pharmaceuticals	C8	273	93.77
Other Manufacturing	C9	24	83.33
Utilities	D	237	82.70
Construction	E	80	86.25
Transportation	F	176	72.73
Information Technology	G	199	93.97
Wholesale & Retail Trade	H	321	80.06
Real Estate	J	356	60.67
Social Services	K	50	66.00
Communication & Culture	L	50	94.00
Comprehensive	M	163	88.96
Total		4,153	86.64

Table 2: Summary Statistics

This table presents summary statistics of variables used in the main analyses. The variables are defined in Appendix 1. All variables except dummy variables are winsorized at the 1% and 99% levels.

	Mean	Std.	p25	p50	p75
COD_{t+1}	0.093	0.116	0.048	0.068	0.095
Q_{t+1}	1.954	1.217	1.213	1.540	2.191
$OPROFIT_{t+1}$	0.026	0.070	0.005	0.028	0.059
EXC_EMP_{t+1}	0.244	0.567	0.000	0.000	0.181
SUB_t	0.004	0.008	0.000	0.002	0.005
$NTSUB_t$	0.004	0.007	0.000	0.001	0.004
$TSUB_t$	0.001	0.003	0.000	0.000	0.000
$SIZE_t$	21.951	1.228	21.096	21.859	22.698
ROS_t	0.000	0.000	0.000	0.000	0.000
$PROA_t$	0.025	0.064	0.007	0.027	0.052
LEV_t	0.232	0.151	0.113	0.218	0.331
$COVER_t$	6.325	53.400	2.444	5.185	11.536
$TANGIBLE_t$	0.462	0.180	0.331	0.463	0.595
SG_t	19.311	39.320	0.632	14.486	31.375
$CAPX_t$	0.319	0.204	0.159	0.294	0.464
AGE_t	15.663	4.235	12.000	15.000	18.000
$POLICON_t$	0.172	0.377	0.000	0.000	0.000
SOE_t	0.659	0.474	0.000	1.000	1.000
$BSIZE_t$	2.201	0.204	2.197	2.197	2.303
$INDPT_t$	0.365	0.050	0.333	0.333	0.375

Table 3: Government Subsidies and the Cost of Debt

This table presents OLS regression results regarding the effect of government subsidies in year *t* on cost of debt in year *t*+1. The variables are defined in Appendix 1. All variables except dummy variables are winsorized at the 1% and 99% levels. The numbers reported in parentheses are *t*-statistics corrected for heteroskedasticity and clustered by firm. ***, ** and * indicate significant differences at the 1%, 5% and 10% levels, based on two-tailed *t*-tests.

	Dependent = COD_{t+1}			
	(1)	(2)	(3)	(4)
SUB_t	-0.622**			
	(-2.442)			
$NTSUB_t$		-0.653**		-0.641**
		(-2.113)		(-2.074)
$TSUB_t$			-0.830*	-0.752
			(-1.656)	(-1.502)
$SIZE_t$	-0.000	-0.000	-0.000	-0.000
	(-0.052)	(-0.028)	(-0.019)	(-0.049)
$PROA_t$	-0.246***	-0.248***	-0.231***	-0.247***
	(-5.002)	(-4.980)	(-4.829)	(-4.964)
LEV_t	-0.127***	-0.127***	-0.124***	-0.127***
	(-5.199)	(-5.206)	(-5.136)	(-5.203)
AGE_t	0.001	0.001	0.001	0.001
	(1.041)	(1.093)	(1.030)	(1.033)
SOE_t	-0.003	-0.003	-0.003	-0.003
	(-0.539)	(-0.571)	(-0.587)	(-0.541)
$POLICON_t$	-0.005	-0.005	-0.005	-0.005
	(-1.046)	(-1.092)	(-1.086)	(-1.040)
$TANGIBLE_t$	-0.016	-0.016	-0.017	-0.016
	(-0.940)	(-0.945)	(-1.003)	(-0.941)
SG_t	-0.000	-0.000	-0.000	-0.000
	(-0.595)	(-0.754)	(-0.470)	(-0.551)
$COVER_t$	0.000	0.000	0.000	0.000
	(0.827)	(0.859)	(0.823)	(0.823)
$BSIZE_t$	-0.000	-0.000	0.000	0.000
	(-0.013)	(-0.033)	(0.039)	(0.000)
$INDPT_t$	-0.058	-0.059	-0.056	-0.059
	(-1.594)	(-1.620)	(-1.538)	(-1.601)
Constant	0.083	0.081	0.079	0.083
	(1.530)	(1.500)	(1.458)	(1.523)
YEAR	Y	Y	Y	Y
INDUSTRY	Y	Y	Y	Y
Observations	4,153	4,153	4,153	4,153
Adjusted R^2	0.045	0.045	0.044	0.045

Table 4: Government Subsidies and Financial Performance

This table presents OLS regression results regarding the effect of government subsidies in year *t* on financial performance (Tobin's Q in Panel A and operating profit in Panel B) in year *t*+1. The variables are defined in Appendix 1. All variables except the dummy variables are winsorized at the 1% and 99% levels. The numbers reported in parentheses are *t*-statistics corrected for heteroskedasticity and clustered by firm. ***, ** and * indicate significant differences at the 1%, 5% and 10% levels, based on two-tailed *t*-tests.

	Panel A: Dependent = Q_{t+1}				Panel B: Dependent = $OPROFIT_{t+1}$			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SUB_t	1.917				-0.381**			
	(0.667)				(-2.061)			
$NTSUB_t$		2.942		3.027		-0.729***		-0.746***
		(0.917)		(0.945)		(-3.814)		(-3.875)
$TSUB_t$			-6.655	-6.961			1.334***	1.410***
			(-0.923)	(-0.975)			(2.818)	(3.041)
$SIZE_t$	-0.446***	-0.445***	-0.447***	-0.446***	0.013***	0.013***	0.013***	0.013***
	(-16.098)	(-16.124)	(-16.193)	(-16.112)	(8.926)	(8.878)	(9.146)	(8.952)
AGE_t	0.010	0.010	0.009	0.009	-0.001	-0.000	-0.000	-0.000
	(1.435)	(1.419)	(1.367)	(1.371)	(-1.356)	(-1.300)	(-1.071)	(-1.095)
LEV_t	-0.110	-0.109	-0.114	-0.110	-0.145***	-0.145***	-0.144***	-0.145***
	(-0.566)	(-0.560)	(-0.583)	(-0.563)	(-13.013)	(-13.039)	(-12.953)	(-13.028)
$CAPX_t$	0.405**	0.401**	0.419**	0.404**	-0.035***	-0.034***	-0.038***	-0.034***
	(2.336)	(2.321)	(2.440)	(2.336)	(-3.338)	(-3.224)	(-3.629)	(-3.281)
SG_t	-0.000***	-0.000***	-0.000***	-0.000***	0.000	0.000	0.000	0.000
	(-5.865)	(-5.759)	(-5.473)	(-5.363)	(1.478)	(1.080)	(0.551)	(0.205)
SOE_t	-0.217***	-0.218***	-0.214***	-0.216***	-0.010***	-0.010***	-0.010***	-0.010***
	(-4.117)	(-4.119)	(-4.036)	(-4.087)	(-3.044)	(-3.007)	(-3.251)	(-3.106)
$POLICON_t$	-0.022	-0.022	-0.019	-0.019	0.010***	0.010***	0.010***	0.010***
	(-0.380)	(-0.371)	(-0.315)	(-0.326)	(3.029)	(3.022)	(2.798)	(2.857)
$BSIZE_t$	0.076	0.077	0.078	0.080	-0.003	-0.003	-0.003	-0.004
	(0.607)	(0.619)	(0.623)	(0.644)	(-0.330)	(-0.376)	(-0.381)	(-0.454)
$INDPT_t$	0.961**	0.966**	0.963**	0.971**	-0.070**	-0.071**	-0.070**	-0.072**
	(2.259)	(2.271)	(2.257)	(2.278)	(-2.446)	(-2.504)	(-2.464)	(-2.549)
Constant	12.298***	12.289***	12.343***	12.301***	-0.180***	-0.176***	-0.189***	-0.178***
	(20.268)	(20.311)	(20.351)	(20.295)	(-5.236)	(-5.162)	(-5.516)	(-5.251)
YEAR	Y	Y	Y	Y	Y	Y	Y	Y
INDUSTRY	Y	Y	Y	Y	Y	Y	Y	Y
Observations	4,153	4,153	4,153	4,153	4,153	4,153	4,153	4,153
Adjusted R^2	0.371	0.371	0.371	0.371	0.199	0.202	0.199	0.205

Table 5: Government Subsidies and Social Performance

This table presents OLS regression results on the effect of government subsidies in year *t* on social performance in year *t*+1. The variables are defined in Appendix 1. All variables except the dummy variables are winsorized at the 1% and 99% levels. The numbers reported in parentheses are *t*-statistics corrected for heteroskedasticity and clustered by firm. ***, ** and * indicate significant differences at the 1%, 5% and 10% levels, based on two-tailed *t*-tests.

	Dependent = EXC_EMP_{t+1}			
	(1)	(2)	(3)	(4)
SUB_t	4.307**			
	(2.102)			
$NTSUB_t$		4.636**		4.610**
		(2.048)		(2.040)
$TSUB_t$			2.582	2.118
			(0.461)	(0.381)
$SIZE_t$	-0.109***	-0.109***	-0.112***	-0.109***
	(-7.204)	(-7.211)	(-7.310)	(-7.218)
LEV_t	-0.180*	-0.181*	-0.186*	-0.180*
	(-1.668)	(-1.672)	(-1.725)	(-1.671)
AGE_t	0.007	0.007	0.007	0.007
	(1.618)	(1.551)	(1.574)	(1.581)
$TANGIBLE_t$	0.122	0.120	0.121	0.121
	(1.415)	(1.391)	(1.395)	(1.395)
ROS_t	5.975**	5.920**	5.955**	5.939**
	(2.115)	(2.105)	(2.083)	(2.109)
SG_t	-0.000***	-0.000***	-0.000***	-0.000***
	(-2.884)	(-2.660)	(-2.857)	(-2.650)
$CAPX_t$	0.146	0.149	0.169	0.147
	(1.434)	(1.469)	(1.639)	(1.454)
SOE_t	0.046	0.047	0.049	0.046
	(1.530)	(1.558)	(1.623)	(1.545)
$POLICON_t$	-0.032	-0.030	-0.030	-0.031
	(-1.101)	(-1.042)	(-1.057)	(-1.082)
$BSIZE_t$	0.039	0.041	0.036	0.040
	(0.505)	(0.526)	(0.466)	(0.514)
$INDPT_t$	0.042	0.049	0.035	0.047
	(0.164)	(0.191)	(0.138)	(0.184)
Constant	2.243***	2.254***	2.318***	2.249***
	(6.261)	(6.287)	(6.376)	(6.285)
YEAR	Y	Y	Y	Y
INDUSTRY	Y	Y	Y	Y
Observations	4,153	4,153	4,153	4,153
Adjusted R^2	0.101	0.101	0.097	0.100

Table 6: Controlling for Endogeneity of Government Subsidies

This table presents the results for the two-stage least squares regressions. *Pro_Local* is a dummy variable that equals one if the provincial leader is promoted from a lower position within the same province, and otherwise zero. *Prob_Sub* is the median percentage of subsidized firms in each industry-year-region group. *Protect_Ind* is a dummy variable that equals one for protected industries (i.e., high tech industry, agriculture, and public utilities), and zero otherwise. All other variables are defined in Appendix 1. The numbers reported in the parentheses are *t*-statistics clustered by firm. ***, ** and * indicate significant differences at the 1%, 5% and 10% levels, based on two-tailed *t*-tests.

Panel A: The effect of subsidies on cost of debt

	1st Stage SUB_t	2nd Stage COD_{t+1}	1st Stage $NTSUB_t$	2nd Stage COD_{t+1}	1st Stage $TSUB_t$	2nd Stage COD_{t+1}
SUB_t		-8.069**				
		(-2.029)				
$NTSUB_t$				-8.618**		
				(-2.120)		
$TSUB_t$						-5.118
						(-1.542)
$SIZE_t$	-0.000***	-0.002	-0.000*	-0.001	-0.000***	-0.000
	(-2.663)	(-0.607)	(-1.879)	(-0.375)	(-2.584)	(-0.143)
$PROA_t$	-0.024***	-0.420***	-0.025***	-0.445***	0.001	-0.227***
	(-11.619)	(-3.542)	(-13.817)	(-3.547)	(1.413)	(-4.850)
LEV_t	-0.003***	-0.153***	-0.003***	-0.156***	0.000	-0.124***
	(-3.820)	(-4.679)	(-4.428)	(-4.723)	(0.170)	(-5.148)
AGE_t	-0.000**	0.000	-0.000	0.001	-0.000***	0.001
	(-2.399)	(0.327)	(-0.360)	(0.995)	(-3.673)	(0.718)
SOE_t	0.001**	0.002	0.000	0.000	0.000**	-0.002
	(2.435)	(0.372)	(1.631)	(0.049)	(2.272)	(-0.411)
$POLICON_t$	0.001**	0.001	0.000	-0.002	0.000***	-0.004
	(2.503)	(0.146)	(1.490)	(-0.358)	(3.454)	(-0.756)
$TANGIBLE_t$	0.002**	-0.001	0.002***	-0.002	0.000	-0.017
	(2.574)	(-0.070)	(2.634)	(-0.102)	(0.828)	(-0.977)
SG_t	0.000	0.000	-0.000	-0.000	0.000***	0.000
	(0.553)	(0.547)	(-0.365)	(-1.111)	(2.781)	(0.583)
$COVER_t$	-0.000	0.000	-0.000	0.000	-0.000**	0.000
	(-1.214)	(0.317)	(-0.312)	(0.726)	(-2.519)	(0.610)
$BSIZE_t$	-0.000	-0.002	-0.000	-0.005	0.000*	0.002
	(-0.286)	(-0.163)	(-0.802)	(-0.392)	(1.648)	(0.227)
$INDPT_t$	-0.001	-0.074	-0.003	-0.087*	0.001	-0.053
	(-0.572)	(-1.616)	(-1.289)	(-1.862)	(0.769)	(-1.429)
Pro_Local_t	0.001		0.001**		-0.000*	
	(1.571)		(2.522)		(-1.725)	
$Prob\_Sub_t$	0.004***		0.003***		0.002***	
	(7.055)		(7.245)		(15.585)	
Constant	0.006	0.249***	0.003	0.233***	0.002	0.163***
	(0.782)	(3.095)	(0.424)	(3.118)	(0.951)	(3.005)
Underidentification Test: Kleibergen-Paap rk LM statistic (p-value)	98.24 (0.000)		102.81 (0.000)		133.68 (0.000)	
Weak Instrument Test: Kleibergen-Paap Wald rk F statistic (p-value)	62.365 (0.000)		62.687 (0.000)		72.897 (0.000)	
YEAR	Y	Y	Y	Y	Y	Y
INDUSTRY	Y	Y	Y	Y	Y	Y
Observations	4,153	4,153	4,153	4,153	4,153	4,153
Adjusted R^2	0.106		0.105		0.132	
Wald Chi^2		223.01		231.64		388.34

Panel B: The effect of subsidies on financial performance

	Q_{t+1}			$OPROFIT_{t+1}$		
	(1)	(2)	(3)	(4)	(5)	(6)
SUB_t	-18.997			1.219		
	(-1.266)			(1.177)		
$NTSUB_t$		-21.119			1.774	
		(-1.162)			(1.434)	
$TSUB_t$			-69.692***			3.979**
			(-2.687)			(2.391)
$SIZE_t$	-0.457***	-0.456***	-0.450***	0.014***	0.014***	0.013***
	(-22.206)	(-21.984)	(-23.635)	(11.041)	(10.976)	(12.572)
AGE_t	-0.141	-0.140	-0.119	-0.142***	-0.142***	-0.144***
	(-0.989)	(-0.979)	(-0.849)	(-16.138)	(-15.900)	(-16.640)
LEV_t	0.008*	0.009**	0.006	-0.000	-0.000*	-0.000
	(1.730)	(2.110)	(1.276)	(-1.322)	(-1.659)	(-0.928)
$CAPX_t$	0.523***	0.518***	0.447***	-0.044***	-0.046***	-0.039***
	(3.469)	(3.425)	(3.502)	(-4.450)	(-4.577)	(-4.927)
SG_t	-0.000***	-0.000***	-0.000***	0.000	0.000**	-0.000
	(-7.350)	(-6.541)	(-2.707)	(1.362)	(2.218)	(-0.796)
SOE_t	-0.199***	-0.202***	-0.202***	-0.011***	-0.011***	-0.011***
	(-5.362)	(-5.513)	(-5.532)	(-4.675)	(-4.697)	(-4.754)
$POLICON_t$	-0.009	-0.016	0.005	0.009***	0.010***	0.009***
	(-0.222)	(-0.411)	(0.134)	(3.570)	(3.778)	(3.344)
$BSIZE_t$	0.067	0.060	0.106	-0.002	-0.001	-0.004
	(0.797)	(0.708)	(1.247)	(-0.356)	(-0.219)	(-0.745)
$INDPT_t$	0.933***	0.904***	1.008***	-0.068***	-0.065***	-0.072***
	(2.869)	(2.751)	(3.122)	(-3.140)	(-2.936)	(-3.406)
Constant	11.541***	11.532***	11.311***	-0.202***	-0.207***	-0.186***
	(22.423)	(22.028)	(26.361)	(-6.365)	(-6.368)	(-7.257)
Underidentification Test: Kleibergen-Paap rk LM statistic (p-value)						
	99.813	103.994	134.074	99.813	103.994	134.074
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Weak Instrument Test: Kleibergen-Paap Wald F statistic (p-value)						
	63.51	63.758	73.077	63.51	63.758	73.077
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YEAR	Y	Y	Y	Y	Y	Y
INDUSTRY	Y	Y	Y	Y	Y	Y
Observations	4,153	4,153	4,153	4,153	4,153	4,153
Wald Chi^2	4233.52	4290.20	4134.66	1148.02	1124.90	1166.39

Panel C: The effect of subsidies on social performance			
	EXC_EMP_{t+1}	EXC_EMP_{t+1}	EXC_EMP_{t+1}
	(1)	(2)	(3)
SUB_t	13.431*		
	(1.694)		
$NTSUB_t$		18.852**	
		(2.008)	
$TSUB_t$			-7.436
			(-0.615)
$SIZE_t$	-0.071***	-0.071***	-0.080***
	(-5.366)	(-5.503)	(-6.397)
LEV_t	-0.152**	-0.147**	-0.172**
	(-2.108)	(-2.024)	(-2.458)
AGE_t	0.007***	0.006***	0.005**
	(2.835)	(2.635)	(2.378)
$TANGIBLE_t$	0.128**	0.122**	0.123**
	(2.372)	(2.215)	(2.252)
ROS_t	6.066***	5.880***	5.872***
	(3.749)	(3.664)	(3.560)
$CAPX_t$	0.074	0.063	0.158**
	(0.926)	(0.796)	(2.345)
SG_t	-0.000***	-0.000***	-0.000***
	(-4.510)	(-3.092)	(-2.947)
SOE_t	0.042**	0.042**	0.055***
	(2.158)	(2.152)	(2.927)
$POLICON_t$	-0.034*	-0.030	-0.023
	(-1.685)	(-1.492)	(-1.155)
$BSIZE_t$	0.036	0.044	0.034
	(0.812)	(0.987)	(0.758)
$INDPT_t$	0.030	0.062	0.020
	(0.173)	(0.354)	(0.116)
Constant	1.337***	1.320***	1.613***
	(4.118)	(4.189)	(5.491)
Underidentification Test: Kleibergen-Paap rk LM statistic (p-value)			
	111.58 (0.000)	112.86 (0.000)	130.94 (0.000)
Weak Instrument Test: Kleibergen-Paap Wald F statistic (p-value)			
	69.319 (0.000)	68.175 (0.000)	70.984 (0.000)
YEAR	Y	Y	Y
INDUSTRY	Y	Y	Y
Observations	4,153	4,153	4,153
Wald Chi²	809.77	822.45	822.86

Table 7: Propensity Score Matching

This table presents the results of propensity score matching (PSM). Panel A reports the covariate mean differences before and after the matching. Panel B reports the PSM results for cost of debt, financial performance and social performance, respectively. The variables are defined in Appendix 1. ***, ** and * indicate significant differences at the 1%, 5% and 10% levels, based on a two-tailed *t*-tests.

Panel A: Covariate balance diagnostics

	Pre-matching			***Post-matching***		
	With subsidy	Without Subsidy	Difference in Means (t-statistic)	With subsidy	Without Subsidy	Difference in Means (t-statistic)
SIZE	22.00	21.44	10.74***	21.48	21.44	0.56
PROA	0.03	0.02	3.05***	0.02	0.02	1.24
LEV	0.232	0.232	-0.08	0.229	0.232	-0.41
AGE	15.50	16.06	-3.06	15.87	16.06	-0.71
SOE	0.68	0.56	5.48***	0.56	0.56	-0.11
POLICON	0.17	0.16	0.59	0.15	0.16	-0.47
TANGIBLE	0.46	0.48	-2.34**	0.48	0.48	0.37
SG	62.26	28.72	0.35	24.90	28.72	-0.56
COVER	6.47	7.68	-0.51	5.14	7.68	-0.65
BSIZE	2.20	2.18	2.93***	2.19	2.18	1.24
INDPT	0.36	0.37	-0.30	0.36	0.37	-0.26
	With non-tax-subsidy	Without non-tax-subsidy	Difference in Means (t-statistic)	With non-tax-subsidy	Without non-tax-subsidy	Difference in Means (t-statistic)
SIZE	22.00	21.51	9.85***	21.57	21.51	0.81
PROA	0.03	0.02	2.56**	0.02	0.02	0.90
LEV	0.232	0.230	0.30	0.232	0.230	0.21
AGE	15.55	15.76	-1.21	15.45	15.76	-1.25
SOE	0.67	0.59	4.38***	0.57	0.59	-0.59
POLICON	0.17	0.16	0.58	0.15	0.16	-0.88
TANGIBLE	0.46	0.48	-2.66***	0.48	0.48	0.27
SG	62.09	33.84	0.31	28.13	33.84	-0.63
COVER	6.33	8.27	-0.86	7.05	8.27	-0.34
BSIZE	2.20	2.19	1.94*	2.20	2.19	1.04
INDPT	0.36	0.37	-0.46	0.36	0.37	-0.28
	With tax-subsidy	Without tax-subsidy	Difference in Means (t-statistic)	With tax-subsidy	Without tax-subsidy	Difference in Means (t-statistic)
SIZE	22.20	21.79	10.51***	22.20	22.17	0.66
PROA	0.03	0.02	2.67***	0.03	0.03	0.51
LEV	0.233	0.232	0.32	0.233	0.235	-0.31
AGE	15.32	15.69	-2.73***	15.32	15.42	-0.62
SOE	0.70	0.64	3.91***	0.70	0.71	-0.46
POLICON	0.19	0.16	2.43**	0.19	0.19	-0.05
TANGIBLE	0.45	0.47	-3.18***	0.45	0.45	-0.10
SG	131.55	23.47	1.49	24.82	22.32	0.56
COVER	5.53	7.18	-0.93	5.53	8.01	-1.22
BSIZE	2.22	2.19	4.11***	2.22	2.22	-0.14
INDPT	0.37	0.36	2.15**	0.37	0.37	0.27

Panel B: Effects of subsidies on the cost of debt, financial performance and social performance

Outcome variable = COD_{t+1}	Mean	Difference	*t*-statistics
Subsidized	0.079	-0.014	-2.10**
Unsubsidized	0.093		
With non-tax-based subsidies	0.078	-0.015	-2.39**
Without non-tax-based subsidies	0.093		
With tax-based subsidies	0.083	-0.003	-0.69
Without tax-based subsidies	0.086		
Outcome variable = Q_{t+1}	Mean	Difference	*t*-statistics
Subsidized	1.886	-0.246	-3.04***
Unsubsidized	2.132		
With non-tax-based subsidies	1.880	-0.201	-2.77***
Without non-tax-based subsidies	2.081		
With tax-based subsidies	1.859	-0.085	-1.96*
Without tax-based subsidies	1.944		
Outcome variable = $OPROFIT_{t+1}$	Mean	Difference	*t*-statistics
Subsidized	0.028	0.014	3.19***
Unsubsidized	0.014		
With non-tax-based subsidies	0.026	0.010	2.44**
Without non-tax-based subsidies	0.016		
With tax-based subsidies	0.031	0.004	1.54
Without tax-based subsidies	0.027		
Outcome variable = EXC_EMP_{t+1}	Mean	Difference	*t*-statistics
Subsidized	0.342	0.095	2.49**
Unsubsidized	0.247		
With non-tax-based subsidies	0.323	0.093	2.73***
Without non-tax-based subsidies	0.230		
With tax-based subsidies	0.205	0.012	0.64
Without tax-based subsidies	0.193		

Table 8: Lending from State-owned and Non-state-owned Banks

This table presents OLS regression results regarding the effect of government subsidies in year *t* on cost of debt in year *t*+1. The variables are defined in Appendix 1. All variables except dummy variables are winsorized at the 1% and 99% levels. The numbers reported in parentheses are *t*-statistics corrected for heteroskedasticity and clustered by firm. ***, ** and * indicate significant differences at the 1%, 5% and 10% levels, based on two-tailed *t*-tests.

Panel A: Non-state-owned banks

	Dependent = COD_{t+1}			
	(1)	(2)	(3)	(4)
SUB_t	-0.798***			
	(-3.396)			
$NTSUB_t$		-0.811***		-0.800***
		(-2.991)		(-2.909)
$TSUB_t$			-0.633	-0.575
			(-1.380)	(-1.227)
Control variables	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	916	916	916	916
Adjusted R^2	0.059	0.058	0.052	0.057

Panel B: State-owned banks

	Dependent = COD_{t+1}			
	(1)	(2)	(3)	(4)
SUB_t	-0.747***			
	(-2.850)			
$NTSUB_t$		-0.891**		-0.885**
		(-2.384)		(-2.379)
$TSUB_t$			-0.726	-0.694
			(-1.553)	(-1.531)
Control variables	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	489	489	489	489
Adjusted R^2	0.022	0.021	0.014	0.020

Table 9: Subsidies and Firm Performance: Change Specification

This table presents OLS regression results regarding the effect of the change in government subsidies on the change in financial performance (in Panel A), and the change in social performance (in Panel B). All continuous variables are measured in changes and are winsorized at the 1% and 99% levels. The variables are defined in Appendix 1. The numbers reported in parentheses are *t*-statistics corrected for heteroskedasticity and clustered by firm. ***, ** and * indicate significant differences at the 1%, 5% and 10% levels, based on two-tailed *t*-tests.

Panel A: Impact of subsidies on financial performance

	Dependent=Δ*Q*		Dependent=Δ*OPROFIT*	
	(1)	(2)	(3)	(4)
Δ*SUB*	-1.092*		0.027	
	(-1.93)		-0.4	
Δ*NTSUB*		-1.185**		0.004
		(-1.97)		(0.05)
Δ*TSUB*		-2.8801		0.260
		(-0.64)		(0.63)
Control variables	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	4,055	4,055	4,055	4,055
Adjusted R-squared	0.424	0.424	0.041	0.041

Panel B: Impact of subsidies on social performance

	Dependent=Δ*EXC_EMP*	
	(1)	(2)
Δ*SUB*	0.459*	
	(1.72)	
Δ*NTSUB*		0.545*
		(1.91)
Δ*TSUB*		-2.297
		(-1.23)
Control variables	Yes	Yes
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Observations	4,055	4,055
Adjusted R-squared	0.087	0.087

Table 10: Cross-sectional Variations in Political Connection and Financial Health

This table presents 2SLS regression results regarding the effects of government subsidies on cost of debt, financial and social performance conditional on political connection (in Panel A) and financial health (in Panel B). *POLICON* is a dummy variable that equals one if a CEO or a chairman is defined as politically connected, i.e., if he or she is a current or former (1) government official, (2) military official, (3) member of the People's Congress or (4) member of the People's Political Consultative Conference. *Loss* is a dummy variable that equals one if pre-subsidy net income is below zero, and otherwise zero. Other variables are defined in Appendix 1. All continuous variables are winsorized at the 1% and 99% levels. The numbers reported in parentheses are *t*-statistics corrected for heteroskedasticity and clustered by firm. ***, ** and * indicate significant differences at the 1%, 5% and 10% levels, based on two-tailed *t*-tests.

Panel A: Conditional on political connection

	COD_{t+1}			Q_{+1}			$OPROFIT_{t+1}$			EXC_EMP_{t+1}		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SUB	-7.975**			-24.175			4.850***			15.133*		
	(-1.975)			(-0.942)			(2.768)			(1.667)		
NTSUB		-9.228**			-25.425			5.524***			22.117*	
		(-2.020)			(-0.847)			(2.771)			(1.934)	
TSUB			-6.707			-83.280**			6.496**			-4.593
			(-1.626)			(-2.146)			(2.575)			(-0.320)
POLICON	-0.034**	-0.032**	-0.009	-0.101	-0.109	-0.052	0.032***	0.031***	0.014***	0.042	0.059	-0.031
	(-2.043)	(-2.052)	(-1.470)	(-0.782)	(-0.842)	(-0.804)	(3.983)	(4.033)	(3.747)	(0.986)	(1.327)	(-1.415)
POLI_SUB	7.438**			19.769			-5.135***			-15.944*		
	(1.980)			(0.788)			(-2.957)			(-1.813)		
POLI_NTSUB		8.586**			25.072			-6.043***			-24.019**	
		(2.005)			(0.841)			(-3.009)			(-2.161)	
POLI_TSUB			6.964*			64.000*			-6.743***			7.459
			(1.684)			(1.653)			(-2.608)			(0.509)
Control variables	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	4,153	4,153	4,153	4,153	4,153	4,153	4,153	4,153	4,153	4,153	4,153	4,153
Wald chi2	170.21	181.00	302.98	131.84	136.27	224.38	529.23	514.63	632.93	976.83	948.09	1100.90

Panel B: Conditional on financial health

	COD_{t+1}			Q_{+1}			$OPROFIT_{t+1}$			EXC_EMP_{t+1}		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SUB	-12.140*			-31.891			7.025***			16.184		
	(-1.791)			(-0.834)			(2.793)			(0.839)		
NTSUB		-13.255*			-28.325			7.629***			24.454	
		(-1.924)			(-0.676)			(2.775)			(1.028)	
TSUB			-5.638			-76.287*			5.779**			-15.727
			(-1.372)			(-1.931)			(2.341)			(-0.763)
Loss	-0.024	-0.022	0.011	0.104	0.114	0.162***	-0.006	-0.009	-0.035***	0.059	0.084	0.019
	(-0.907)	(-0.926)	(1.314)	(0.673)	(0.822)	(2.634)	(-0.618)	(-0.929)	(-8.700)	(0.737)	(1.042)	(0.522)
Loss_SUB	11.256*			25.309			-7.377***			-11.201		
	(1.700)			(0.673)			(-2.959)			(-0.587)		
Loss_NTSUB		12.398*			24.077			-8.211***			-20.295	
		(1.830)			(0.580)			(-2.992)			(-0.858)	
Loss_TSUB			4.494			23.157			-4.215			30.120
			(1.090)			(0.607)			(-1.585)			(1.507)
Control variables	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	4,153	4,153	4,153	4,153	4,153	4,153	4,153	4,153	4,153	4,153	4,153	4,153
Wald chi2	156.93	180.12	323.84	2537.28	2706.07	2478.54	597.82	598.93	752.89	401.46	379.06	377.71