

Liao, Xinxin; Liu, Yunguo

## Article

# Local fiscal distress and investment efficiency of local SOEs

China Journal of Accounting Research

## Provided in Cooperation with:

Sun Yat-sen University

*Suggested Citation:* Liao, Xinxin; Liu, Yunguo (2014) : Local fiscal distress and investment efficiency of local SOEs, China Journal of Accounting Research, ISSN 1755-3091, Elsevier, Amsterdam, Vol. 7, Iss. 2, pp. 119-147,  
<https://doi.org/10.1016/j.cjar.2013.07.002>

This Version is available at:

<https://hdl.handle.net/10419/187593>

### Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

### Terms of use:

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<https://creativecommons.org/licenses/by-nc-nd/3.0/>



## Local fiscal distress and investment efficiency of local SOEs ☆☆☆

Xinxin Liao<sup>1</sup>, Yunguo Liu\*

School of Business, Sun Yat-sen University, China

### ARTICLE INFO

#### Article history:

Received 4 September 2012

Accepted 20 July 2013

Available online 11 November 2013

#### Keywords:

Local government

Fiscal distress

Local state-owned enterprises

Overinvestment

### ABSTRACT

In this paper, we use A-share listed firms between 2002 and 2010 to investigate the relationship between local fiscal distress and the investment efficiency of local SOEs, along with the effect of corporate tax payments on this relationship. We find a positive relationship between the extent of local SOEs' overinvestment and the fiscal distress of the corresponding local government where the enterprise and this relationship become stronger for firms that pay fewer taxes. The pattern of underinvestment among local SOEs was in contrast, and these relationships do not exist for non-SOEs or central SOEs. Moreover, we find that expanding a firm's investment scale leads to an increase in total taxes paid, including income and turnover taxes, which further result in more local fiscal revenue. Overall, we conclude that local governments have an incentive to increase fiscal revenue when faced with fiscal distress by raising the investment scale of local SOEs and that the incentives and effects of such interventions appear to be stronger among firms that contribute less to local fiscal revenue.

© 2013 Production and hosting by Elsevier B.V. on behalf of China Journal of Accounting Research. Founded by Sun Yat-sen University and City University of Hong Kong.

\* Corresponding author. Mobile: +86 186 6608 0107.

E-mail addresses: [lxinx10086@gmail.com](mailto:lxinx10086@gmail.com) (X. Liao), [sysulyg@gmail.com](mailto:sysulyg@gmail.com) (Y. Liu).

<sup>1</sup> Mobile: +86 159 2047 9605.



☆ This Study was supported by the Major Project of the National Natural Science Foundation of China (No. 71032006), the General Project of Ministry of the Education of Humanities and Social Science (No. 11YJA790094) and the General Project of the National Natural Science Foundation of China (No. 71372150).

☆☆ We acknowledge the helpful comments and suggestions provided by Professor Weiqiang Tang in Hong Kong Baptist University, the anonymous reviewers and the other participants of the Annual Meeting of China Academic Accounting Association in 2012 and the Symposium of China Journal of Accounting Research in November, 2012.

## 1. Introduction

Investment efficiency has long been a hot topic in accounting research (Jensen and Meckling, 1976; Jensen, 1986; Stulz, 1990; Wei and Liu, 2007), with Jensen (1986) initially investigating the problem using the agency theory framework, followed by Narayanan (1988) and Malmendler and Tate (2005) exploring the issue from the perspectives of information asymmetry and managerial overconfidence, respectively. The three main causes of enterprises' overinvestment are found to be agency problems, information asymmetry, and managerial overconfidence. Subsequently, Fazzari et al. (1988), Aggarwal and Samwick (2006), Tang et al. (2007), Xin et al. (2007) and Jiang et al. (2009) separately conduct in-depth assessments of the problem from the perspectives of financing constraints, management incentives, cash dividends, executive compensation, and management background, based on the theories of agency conflicts and information asymmetry.

The studies listed above restrict their focus to firm-level factors, which certainly do not cover all of China. State-owned enterprises (SOEs) in China are controlled by either the central or the local governments at different levels. The agency conflicts between the government, which is the biggest shareholder in most circumstances, and external minority shareholders are quite different from the common conflicts between managers and shareholders and between shareholders and bondholders (La Porta et al., 1999; Jensen and Meckling, 1976). Yang and Hu (2007), Cheng et al. (2008) and Chen et al. (2011) investigate the investment efficiency problem from the perspectives of the specific institutional environment and government intervention in China. They find that the institutional environment in China and government intervention influence the relationship between the factors of firms' free cash flow, debt financing, cash dividends, management compensation, and corporate governance and the level of corporate overinvestment, creating a non-negligible factor that leads to firms' overinvestment.

Controlled by the government, SOEs are endowed with the responsibility for assisting the corresponding regional government in achieving various goals, such as the economic, social, and political goals of boosting regional economic growth; facilitating increases in regional tax revenues and employment rates; maintaining social stability; and ensuring that investments in emerging industries flourish. This decreases the focus on the elementary goal of effective operations, compared to non-SOEs (Chen et al., 2011; Wei and Liu, 2007). SOEs bear heavy policy burdens that can lead to multiple targets and inefficient operations. Thus, SOEs may suffer from low investment and decreased operational efficiency, in addition to low pay performance sensitivity (PPS) among executives. Studies find that there have been incentives for local governments to boost their regional GDP by forcing the local SOEs under their control to overinvest (Tang et al., 2010) and that such activity has been an important approach for local bureaucrats to obtain promotions. Moreover, Xue and Bai (2008) and Chen et al. (2012) both find that local governments have an incentive to lift the local employment rate through overemployment in local SOEs.

Following China's decentralization reform in the 1980s, the planned economy has disintegrated gradually, providing local governments with extensive autonomous rights, including the right to control tax revenue. As a result, local governments acquire financial incentives to compete with each other (Jin et al., 2005; Young, 2000). After the 1994 reform of the tax system, tax revenue became a crucial source of local fiscal revenue and fiscal health became a core economic and social objective of local governments (Chen et al., 2011), together with the goal of regional economic development. In addition, it became an important approach to help local governments to implement their government functions and maintain social stability, along with the goal of regional employment. Each social and political goal is an important incentive for the local government to press political interventions into the operation of local SOEs and the firms that bear policy burdens from the government should behave differently from those without. However, studies on local fiscal and financial conditions' influence over the operation of local SOEs are rare, and this paper aims to fill this gap in the literature.

The State Council of China issued the *Decision of the State Council to Implement Tax Distribution Financial Management System* on December 15, 1993. It announced that every province, including provincial-level autonomous regions and municipalities, should abandon the present local fiscal responsibility system and switch to the tax distribution financial management system on January 1, 1994. The tax categories would

be unified under the following categories: central tax, local tax, and central-local shared tax. Likewise, a standardized system of tax returns and transfers from the central to local governments would be gradually established,<sup>2</sup> which is called the reform of tax system. Under the newly established tax distribution system, tax returns from the central government constitute a certain portion of local fiscal expenditures, ensuring sufficient supply for the needs of local fiscal expenditure.<sup>3</sup> The dependence on tax returns and transfers from the central government varies greatly across regions, based on their different levels of economic development. According to the financial statistics of each province (including provincial-level autonomous regions and municipalities), approximately 12.41–86.34% of local fiscal revenue comes from tax returns and transfers from the central government, and the levels of each province's deficit (the gap between fiscal revenue and expenditure) vary from 4.91% to 94.7%,<sup>4</sup> indicating that tax returns and transfers from the central government constitute a large, non-negligible portion of local fiscal revenue that reflects local government's demand for funds. Thus, we define a situation in which a provincial local government faces a deficit based on their corresponding fiscal revenue and expenditure, which requires the assistance of funds from tax returns and transfers from the central government to pay the post-deficit expenditures prompted by local fiscal distress. The level of the deficit and the ratio of tax returns and transfers from the central government on the local government's total revenue can then be used as proxies for the measurement of local fiscal distress.

Based on the decentralization reform in the 1980s and the 1994 tax system reform, in this paper, we investigate the relationship between the level of local fiscal distress and the investment efficiency of local SOEs, along with the influence of total taxes paid by the firm on the above relationship, using the data of all A-share listed firms between 2002 and 2010. The sample is classified into local SOEs, non-SOEs, and central SOEs for robustness checks, with Richardson's (2006) overinvestment model, adjusted based on China's economic regions and different development levels, measuring the extent of investment distortions. The results show that the level of local SOEs' overinvestment (underinvestment) is positively (negatively) related to the extent of corresponding local governments' fiscal distress and that paying lower corporate taxes enhances the positive (negative) relationship between the extent of local fiscal distress and firms' overinvestment (underinvestment). These patterns do not exist for non-SOEs. Moreover, following further study, we also find that raising firms' investment scales leads to an increase in total corporate taxes paid, including both income and turnover taxes, which further results in higher local fiscal revenue. Underinvested firms should increase their investment level directly, whereas those that have already overinvested should adjust their production, operation, and capital structures to match the present investment level before expanding their investment scale. In addition, we perform robustness checks with a sample of central SOEs, rather than local SOEs, to rule out alternative explanations, such as the existence of abundant investment opportunities or other factors unrelated to government intervention or political promotion tournaments, and with 2SLS instead of OLS to rule out the potential for reverse causality between the dependent and the independent variables. Pearson correlation tests of corporate taxes paid on adjusted/unadjusted BTD and ETR are used to rule out the alternative approach of increasing tax revenue through stronger tax enforcement instead of forcing local SOEs to invest more, with tax intensity rather than the level of corporate tax paid to rule out the competitive explanation that firms pay fewer taxes, thereby preserving more money, which can lead to overinvestment. Basu's (1997) accounting conservatism model is also used to rule out the possibility of the government helping hand hypothesis.

This paper makes at least four contributions. First, prior studies such as Tang et al. (2010), Zhou (2004), Xue and Bai (2008) and Chen et al. (2012) study the effect of political burdens on the behavior of SOEs from the perspectives of economic growth and employment rates, whereas we investigate the effect of government's social and political goals on SOEs' operational behavior from a financial perspective, which supplements the literature on the political burdens from the government that result in firms' multiple objectives. Second, we find that local governments have an incentive to increase fiscal revenue by forcing local SOEs to expand their investment scale and that such intervention leads to local SOEs' overinvestment or a lowering of the level of underinvestment due to other reasons. Moreover, the local government's intervention can, to some extent,

<sup>2</sup> Refer to the *Decision of the State Council to Implement Tax Distribution Financial Management System*.

<sup>3</sup> Refer to the *Decision of the State Council to Implement Tax Distribution Financial Management System*.

<sup>4</sup> Each percentage is calculated based on statistics from the *Financial Year Book of China* (2003–2011), and the level of the deficit is calculated by the ratio of the absolute value of the deficit divided by the corresponding year's local expenditure.

result in what is expected by the local government, and that underinvestment leads to firms paying lower taxes. Based on the above finding, we provide theoretical bases and references for the ways in which local governments make fiscal policies and improve the supervisory roles they play in relation to local SOEs. Third, we provide empirical evidence of the government grabbing hand theory through the perspectives of local public finance and enterprise investment. Finally, we offer a new research perspective for the study of fiscal issues through firm-level aspects.

The remainder of this paper proceeds as follows: Section 2 reviews the literature and describes China's institutional background to develop the research hypotheses. Section 3 describes the research design and sample selection procedure. Descriptive statistics and empirical results, including robustness checks and further analysis, are in Section 4. Section 5 concludes the paper.

## 2. Literature, institutional background and hypotheses development

In the perfect world described by Modigliani and Miller (1958), enterprise investment depends on the net present value of the project and has nothing to do with other factors. In reality, scholars in financial fields find that Modigliani and Miller's perfect market theory does not effectively explain actual investment activities. In fact, some enterprises invest in projects of negative net present value (NPV) (Jensen, 1986; Aggarwal and Samwick, 2006). They confirm that factors such as agency problems (Jensen, 1986), information asymmetry (Myers and Majluf, 1984), and managerial overconfidence (Roll, 1986; Malmendler and Tate, 2005) affect firms' investment decisions. The mainstream view argues that agency problems affect the level of enterprise investment expenditure, further resulting in underinvestment or overinvestment (Jensen, 1986; Aggarwal and Samwick, 2006). The separation of ownership from management renders the interests of managers and shareholders inconsistent, and managers make decisions that distract from the shareholders' primary goal of value maximization for their own private interests. This results in overinvestment most of the time (Jensen and Meckling, 1976; Stulz, 1990). In contrast, the resources controlled by the manager generally increase with the free cash flow preserved in the firm, which brings them more private benefits and better reputations. As a result, managers have an incentive to engage in empire building (Chen et al., 2011), which results in overinvestment (Jensen, 1986). From another perspective, information asymmetry scholars suggest that overinvestment is most likely when insiders have more information than shareholders, especially regarding the value of present assets owned by the firm or the prospective cash flows of investment projects, in which the financing securities of the firm are probably overvalued or undervalued (Myers and Majluf, 1984). The theory of managers' overconfidence suggests that overinvestment may be due to managers' overconfidence in their ability or the firm's competitiveness, even though the manager is utterly loyal to shareholders' goal of value maximization (Malmendler and Tate, 2005).

The traditional agency theory suggests that agency conflicts mainly exist between shareholders and managers (Berle and Means, 1932; Jensen and Meckling, 1976) and between shareholders and bondholders (Myers, 1977). However, studies based on China's capital markets find that there exists a third agency conflict, namely that between the government and the minority shareholders. In most situations, the government is also the biggest shareholder (La Porta et al., 1999; Chen et al., 2011). On the one hand, the government is an owner of the enterprise and obtains benefits from its operational activities, as do other owners. On the other hand, the government simultaneously acts as society's administrator, responsible for boosting regional economic development (GDP growth) to facilitate increases in regional tax revenues and employment rates (Chen et al., 2011; Zhang and Wang, 2010). This leads to the multiple goals of SOEs, which usually differ from the primary goal of shareholders' value maximization (Zhang and Wang, 2010). Moreover, the government may act as the grabbing hand in pursuing its social and political goals (Frye and Shleifer, 1997), reducing the value of local SOEs by tunneling. To summarize, all of these activities conflict with the interests of minority shareholders.

The literature finds that local governments have an incentive to boost local GDP growth through overinvestment by local SOEs (Tang et al., 2010) and to help local bureaucrats succeed in political promotion tournaments – the main criterion for which is GDP growth (Li and Zhou, 2005). In addition, Jin et al. (2005), Young (2000) and Montinola et al. (1995) suggest that China's decentralization reform in the 1980s has created incentives not only for political promotion among local bureaucrats, but also for fiscal revenue. China's tax system reform, which began in 1994, specifies that both SOEs and non-SOEs should pay business and income taxes to the government, declaring an end to a history in which SOEs need not pay taxes under the

system of fiscal contract responsibility. Subsequently, tax revenue has become one of the most important sources of local fiscal revenue and local bureaucrats compete for both local economic growth and tax revenue (Zhou, 2004). Compared to the central government, local governments control fewer resources and thus have stronger incentives to seek help from the local SOEs under their control (Chen et al., 2011). Jin et al. (2005) also suggest that local governments have an incentive to increase local fiscal revenue by forcing local SOEs to increase their investment level.

Based on the financial statistics of each province (Table 1), income taxes constitute about 20% of local governments' tax revenue each year, with the remaining 80% represented by turnover taxes, which make up the vast majority of tax revenue. The objects of taxation for turnover taxes are the amount of transfers generated by the production and circulation procedures for commodities and the number of turnovers for non-commodities, so increasing a firm's investment level ought to result in transfer activities for commodities or turnover for non-commodities, leading to an increase in turnover taxes. In addition, increasing the investment level could help to expand a firm's scale, given a normal level of investment, thus improving its production capacity, further raising its profitability, and ultimately increasing the income taxes paid by the firm. In addition, Jian and Wong (2010) and Cheung et al. (2008) find that compared to central SOEs, it is more common for local SOEs to transport resources and interests to the local government under which they operate. In terms of non-SOEs, they are relatively free from the intervention of local governments and thus are less likely to invest in negative net present value projects for the sake of the government's social and political goals, such as local GDP growth, tax revenue, and employment rate factors. Therefore, as the ultimate controllers of local SOEs, local governments have an incentive to force local SOEs to raise their investment level – thereby achieving their goals of increasing fiscal revenue and the easing of financial crises when faced with financial distress, and continuous increases in investment, which inevitably leads to local SOEs' investment levels becoming mismatched with the present production, operation, and capital structures. This can result in an upward bias of investment scale and, eventually, in overinvestment. Furthermore, the probability and extent of such an upward bias should be higher when local governments have a stronger incentive to increase investments, leading to more severe overinvestment of local SOEs.

The above discussion leads to our first hypothesis:

**H1.** The level of overinvestment for local SOEs is positively related to the extent of local fiscal distress, whereas this relationship does not exist for non-SOEs.

From the perspective of the grabbing hand theory, the government has an incentive to exploit public firms. Thus, not only local governments have an incentive to raise fiscal revenue by forcing local SOEs under their control to raise their investment scales when the government faces financial distress, which supports H1, but also the motivation and effect of such intervention should be stronger for firms that contribute less to local finance.

Table 1  
Tax revenue structure of local government (provincial level).

Year	Income Tax (%)	Turnover Tax (%)	Turnover Tax			
			Value-added Tax (%)	Business Tax and surcharges		
				Business Tax (%)	Surcharges (%)	Sum (%)
2002	20.19	79.81	26.45	40.08	33.46	73.55
2003	16.19	83.81	27.71	39.95	32.33	72.29
2004	17.87	82.13	24.23	44.08	31.69	75.77
2005	18.21	81.79	28.41	42.57	29.01	71.59
2006	18.44	81.56	28.13	42.45	29.42	71.87
2007	19.51	80.49	27.01	42.26	30.73	72.99
2008	20.10	79.90	25.71	41.34	32.95	74.29
2009	18.49	81.51	21.84	43.47	34.69	78.16
2010	18.95	81.05	20.07	43.87	36.06	79.93
Total	19.82	80.18	25.80	41.95	32.25	74.20

Note: The data is based on statistics collected from the *Finance Year Book of China* (2003–2011).



In the years before the 1994 tax system reform, the profits generated by SOEs should have been totally or partially turned over to the government. After the 1994 reform, SOEs paid the government business and income taxes instead of profits for a long period of time. In December 2007, the Ministry of Finance and the State-owned Assets Supervision and Administration issued the *Transient management regulation of the profits generated by the state-owned capital of central SOEs*, which requires central SOEs to turn over the profits they generate. But, local SOEs are not included in this regulation. So based on the institutional background suggesting that local SOEs need only pay taxes as opposed to turning over their profits, tax revenue becomes one of the most important sources of local fiscal revenue and a vital factor in balancing local fiscal revenue and expenditures. Without turning over profits, the notion that paying fewer taxes is equivalent to that of contributing less to local fiscal revenue. As a consequence, local governments have an incentive to force local SOEs that contribute less to local finance to increase their investment level, leading once again to an upward bias of investment and, ultimately, overinvestment. These predictions are consistent with Brennan and Buchanan's (1980) belief that the government is always seeking to maximize tax revenue, and thus, our second hypothesis is as follows:

**H2.** Fewer taxes paid by local SOEs enhance the positive relationship between the level of overinvestment for local SOEs and the extent of local fiscal distress, whereas this relationship does not exist for non-SOEs.

The factors affecting corporate investment are complicated (Jensen, 1986; Myers and Majluf, 1984; Narayanan, 1988; Malmendler and Tate, 2005; Chen et al., 2011, etc.), and they usually behave interactively, resulting in overinvestment or underinvestment depending on the interaction effects. The grabbing hand theory suggests that the government extracts value from local SOEs for their social or political sakes through tunneling (Frye and Shleifer, 1997), and the *leviathan hypothesis* developed by Brennan and Buchanan (1980) defines government as an agent that maximizes tax revenue. Thus, local governments have an incentive to force local SOEs under their control into increasing their investment levels to achieve their goal of increasing fiscal revenue. This results in a relief of underinvestment for firms that have already underinvested due to other factors, and the effects of such intervention should be stronger for the firms that contribute less to local finance. Finally, we have our third hypothesis:

**H3.** For underinvested firms, the extent of the local government's fiscal distress mitigates the level of local SOEs' underinvestment, and this negative relationship is stronger for firms that pay fewer taxes, whereas this relationship does not exist for non-SOEs.

### 3. Research design

#### 3.1. Model construction and variable description

##### 3.1.1. Overinvestment model

We construct our overinvestment model following Richardson (2006) and adjust it based on regional economic effects, *LocalEco*, according to the striking differences in investment opportunities across regions, see Model (1):

$$\begin{aligned} Invest_{i,t} = & \beta_0 + \beta_1 Grow_{i,t-1} + \beta_2 Lev_{i,t-1} + \beta_3 Cash_{i,t-1} + \beta_4 Age_{i,t-1} + \beta_5 Size_{i,t-1} + \beta_6 Ret_{i,t-1} \\ & + \beta_7 Invest_{i,t-1} + \sum Industry + \sum Year + \sum LocalEco + \varepsilon \end{aligned} \quad (1)$$

In Model (1),  $Invest_{i,t}$  measures the investment level in year  $t$ , and the variables on the right are all measured in year  $t - 1$ , with  $Grow_{i,t-1}$  representing growth opportunities,  $Lev_{i,t-1}$  representing the debt-to-asset ratio,  $Cash_{i,t-1}$  representing cash flow,  $Age_{i,t-1}$  representing the time in years since the firm went public,  $Size_{i,t-1}$  representing corporate scale,  $Ret_{i,t-1}$  representing stock returns and  $Invest_{i,t-1}$  representing the investment level. We also use  $\sum Industry$ ,  $\sum Year$ , and  $\sum LocalEco$  to control for industry, year, and regional effects, respectively. The regions comprise the east coastal, central, and the western frontier areas,<sup>5</sup> representing the

<sup>5</sup> The east coastal areas include the provinces and provincial-level autonomous regions and municipalities of Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Chongqing, Guangdong, Guangxi and Hainan. The central areas comprise Shanxi, Inner Mongolia, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei and Hunan. The western frontier areas include Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang.

Table 2  
Variable definitions and descriptions.

Variable	Name	Definition and Description
<i>Panel A: Dependent Variables</i>		
$OverInv_{i,t}$ ( $UnderInv_{i,t}$ )	Overinvestment (Underinvestment)	The gap between the observed value and the predicted value of corporate investment
<i>Panel B: Independent Variables</i>		
$Distress1_{i,t-1}$	Financial distress of local government	$[(\text{Local Expenditure} - \text{Local Revenue}) / \text{Local Revenue}] \times 100\%$
$Distress1_{i,t-1} \times N\_Tax_{i,t-1}$	The interaction of $Distress1_{i,t-1}$ and $N\_Tax_{i,t-1}$	The interaction of financial distress and negative taxes paid
$Distress2_{i,t-1}$	Financial distress of local government	$(\text{Transfers from Central Government} / \text{Total Revenue}) \times 100\%$
$Distress2_{i,t-1} \times N\_Tax_{i,t-1}$	The interaction of $Distress1_{i,t-1}$ and $N\_Tax_{i,t-1}$	The interaction of financial distress and negative taxes paid
$N\_Tax_{i,t-1}$	Negative corporate taxes paid	Negative logarithm of the sum of Income Tax Expense and Business Tax and Surcharges on income statement
<i>Panel C: Control Variables</i>		
$Size_{i,t}$	Scale of the firm	Logarithm of total assets
$Roa_{i,t}$	Return on total assets	Ratio of firm's net profit to total assets
$Fcf_{i,t}$	Free cash flow	Ratio of free cash flow to total assets
$Dual_{i,t}$	Duality	One if the board chairman is also the CEO of the corporation, otherwise zero
$Exeown_{i,t}$	Management stock ownership	Shareholding ratio of management
$Herf_{i,t}$	Ownership concentration	Sum of shareholdings of top three shareholders
$Divid_{i,t}$	Cash dividend per share	Ratio of cash dividends on total shares outstanding
$Debt_{i,t}$	Long-term debt ratio	$(\text{Long-term loan} + \text{Long-term bonds payable} + \text{Long-term account payable}) / \text{Total assets}$
$Salary_{i,t}$	Executive salary	Logarithm of the sum of top three managers' salaries
$GDPgth_t$	GDP growth	GDP growth rate compared to the previous year
$GovIntvn_t$	Index of reducing government intervention to enterprises	The item "1c reducing government intervention to enterprises" in Fan Gang marketization index
<i>Industry</i>	<i>Industry</i>	Industry dummy variables
<i>Year</i>	<i>Year</i>	Year dummy variables

three economic regions of China. The residual  $\varepsilon$  in the model refers to the level of overinvestment or underinvestment, with positive or negative values, respectively. We define overinvestment as  $OverInv_{i,t}$  and the absolute value of underinvestment as  $UnderInv_{i,t}$  with a larger value to represent a more severe underinvestment situation.

Finally, regarding the model's systematic errors, there must be some difference between the predicted value and the corresponding observed value, and not all of the gaps between these two values are necessarily overinvestment or underinvestment. Therefore, we select the observations that are larger than the tenth percentile of  $OverInv_{i,t}$  and  $UnderInv_{i,t}$  as our research sample.

### 3.1.2. The empirical model

We construct Model (2) to test H1 and Model (3) to test H2 and H3. The definitions and descriptions of the variables are presented in Table 2. We perform cluster treatments on provincial effects.

$$\begin{aligned}
 OverInv_{i,t}(UnderInv_{i,t}) = & \beta_0 + \beta_1 Distress_{i,t-1} + \beta_2 Size_{i,t} + \beta_3 Roa_{i,t} + \beta_4 Fcf_{i,t} + \beta_5 Dual_{i,t} + \beta_6 Exeown_{i,t} \\
 & + \beta_7 Herf_{i,t} + \beta_8 Divid_{i,t} + \beta_9 Debt_{i,t} + \beta_{10} Salary_{i,t} + \beta_{11} GDPgth_t \\
 & + \beta_{12} GovIntvn_t + \sum Industry + \sum Year + \varepsilon
 \end{aligned} \quad (2)$$

In Model (2), we construct two proxies for the measurement of local fiscal distress. In measuring corporate financial distress, Wu and Lu (2001) define a firm being ST or PT as an indicator of financial distress. Dahiya et al. (2003) define financial distress as a firm being unable to pay its matured debt with sufficient cash flow.



Liao and Chen (2007) classify financial distress as a firm's *EBITDA* being less than interest expense for two consecutive years, or becoming insolvent. One of the common features of these corporate financial distress criteria is that the firm cannot make end meet. Similarly, government finance includes fiscal revenue and expenditure, with a fiscal expenditure larger than the revenue referred to as a fiscal deficit. Regarding the determination of corporate financial distress, we define the existence of a fiscal deficit to be the criterion of government fiscal distress. Moreover, the extent of fiscal distress is considered more severe if the government has more fiscal expenditures than their counterparts with the same fiscal deficit. As a result, we use the percentage of fiscal deficit on *Local Expenditure* of the local government to measure the extent of local fiscal distress, defined as *Distress1*. From the perspective of fiscal revenue alone, in addition to *Taxes* and *Non-tax revenue*, the item of local *Total Revenue* also consists of *Transfers from Central Government (Including Tax Returns)*, *Revenue of Loans from National Debt*, and *Balance Revenue of Last Year*, etc., comprising the *Total Revenue* – the amount equivalent to that of *Total Expenditure*, comprising *Local Expenditure* and other items such as *Transfers to Central Government* and *Added Budgetary Revolving Fund*. *Transfers from Central Government (Including Tax Returns)* generally constitutes a great portion (from 12.41% to 86.34%) of the government's *Total Revenue*, which serves as supplementary funds when the local government cannot make ends meet. Therefore, we argue that the ratio of *Transfers from Central Government (Including Tax Returns)* on *Total Revenue* is a good proxy for the local government's fiscal distress, demonstrated as *Distress2*.

As Table 1 demonstrates, the objects of taxation for turnover taxes, which constitute 80% of local revenue, are the amount of transfers generated by the commodity production and circulation procedures and the amount of turnovers for non-commodities. Thus, it increases with corporate investment. In terms of income taxes, it is paid only after operating profits are generated, so there is usually a time lag between the increase in corporate investment and the corresponding payment of income taxes. However, since income tax comprises only 20% of total tax revenue for the local government, the problem of the time lag is not severe, and only 1 year lagged values of *Distress* are needed.

Incorporating the interaction term of local fiscal distress and corporate taxes paid into Model (2), we obtain Model (3).

$$\begin{aligned} OverInv_{i,t}(UnderInv_{i,t}) = & \beta_0 + \beta_1 Distress_{i,t-1} + \beta_2 Distress_{i,t-1} \times N\_Tax_{i,t-1} + \beta_3 N\_Tax_{i,t-1} + \beta_4 Size_{i,t} \\ & + \beta_5 Roa_{i,t} + \beta_6 Fcf_{i,t} + \beta_7 Dual_{i,t} + \beta_8 Exeown_{i,t} + \beta_9 Herf_{i,t} + \beta_{10} Divid_{i,t} \\ & + \beta_{11} Debt_{i,t} + \beta_{12} Salary_{i,t} + \beta_{13} GDPgth_t + \beta_{14} GovIntvn_t + \sum Industry \\ & + \sum Year + \varepsilon \end{aligned} \quad (3)$$

Feltenstein and Iwata (2005) argue that all tax revenue is collected by the local government and then shared between the local and the central governments, so local governments in China have an incentive to reduce their efforts on the types of tax they must share with the central government under China's tax distribution system established after 1994. Wu et al. (2011) demonstrate that income taxes from enterprises, business taxes from sales and services and personal income taxes constitute local governments' major tax revenue. Under China's tax law, *Business Tax*, *Urban Maintenance and Construction Tax*, *Contract Tax*, *Housing Property Tax*, *Vehicle and Vessel Usage Tax*, *Stamp Tax*, *Tax on the Use of Arable Land*, *Tobacco Tax*, *Land Value-added Tax*, and *Urban Land Using Tax*, etc., comprise local governments' regular revenue – 100% of which is turned over to local governments along with *Resource Tax*, whereas *Income Tax* and *Value-added Tax* should be shared between local and central governments with 40% and 25%, respectively, taken away by the central government. In terms of the income statement, *Business Tax and Surcharges* consist of all tax items belonging to local governments' regular revenue, and *Income Tax* refers to the income taxes currently paid by the firm. Although the content of *Value-added Tax* is not provided in the income statement, it is not significant in this study because *Business Tax and Surcharges* account for 75% of the total turnover taxes, which constitute 80% of total local tax revenue, leaving the remaining 25% to be *Value-added Tax*.

Consequently, the *Business Tax and Surcharges* on the income statement, to some extent, could be a good proxy for turnover taxes with the sum of *Business Tax and Surcharges* and *Income Tax* properly measuring the taxes paid by the firm. The amount of taxes actually paid by the firm is usually affected by items such as *Deferred Income Tax Assets*, *Deferred Income Tax Liabilities*, and *Tax Returns*, etc., with *Tax Payments* on

the income statement consisting of *Payment of Previous Period Due*, *Payable Tax*, and *Prepaid Tax*. Thus, it is not appropriate to measure the amount of corporate taxes paid with *Tax Payable* on the balance sheet or with *Tax Payments* on the income statement. The sum of *Income Tax Expense* and *Business Tax and Surcharges* on the income statement appropriately measures the current taxes paid by the firm, and we use its negative logarithm value as a proxy for corporate taxes paid, denoted by *N\_Tax*, to properly demonstrate the relationship in H2. Hence, we have a higher value of *N\_Tax* with lower corporate taxes paid and vice versa.

For details regarding the selection of the control variables in Models (2) and (3), please refer to the Introduction.

### 3.2. Data source and sample procedure

We collect our financial data from the *Finance Year Book of China* (2003–2011) and all other firm-level data from the *China Stock Market and Accounting Research* database (CSMAR). Our sample comprises all A-share firms between 2002 and 2010, eliminating observations that are as follows: (i) attributed to the financial industry, (ii) listed less than 1 year, or (iii) have missing data. Finally, we obtain 10244 firm-year observations and winsorize the sample at the 1% and 99% levels.

## 4. Results

### 4.1. Descriptive statistics

Table 3 shows the descriptive statistics for local government fiscal distress. The minimum and maximum values for *Distress1* are 4.91% and 94.70%, respectively, and those for *Distress2* are 12.41% and 86.34%, respectively. The results show that there is no great difference between the two proxies of *Distress1* and *Distress2*.

Table 4 displays descriptive statistics for all of the variables. Tables 5 and 6 provide descriptive statistics for the subsamples of firm-years with overinvestment and underinvestment and for the subsamples of local SOEs and non-SOEs, respectively.

The results of the two-tailed *t*-tests shown in Table 5 reveal that the majority of variables for overinvested firms are significantly different from that for their underinvested counterparts and that overinvested firms are more concentrated in regions with more severe fiscal distress, compared to underinvested firms. The results of the two-tailed *t*-tests shown in Table 6 display that each variable for local SOEs is significantly different from that for non-SOEs, except for GDP growth. Likewise, local SOEs are more concentrated in regions with more severe fiscal distress, compared to non-SOEs.

Table 7 provides the Pearson correlation matrix for all of the variables. The results show that the absolute values of the correlations between most of the control variables are less than 0.3, which suggests that there are no collinearity problems between the control variables. Moreover, the correlation between the two proxies of

Table 3  
Descriptive statistics for local fiscal distress.

Year	Obs	Distress1 (%)					Distress2 (%)				
		Mean	Median	S.D	Min	Max	Mean	Median	S.D	Min	Max
2002	898	38.75	31.36	18.87	15.02	94.70	37.18	27.55	13.98	20.17	85.16
2003	988	38.27	32.63	17.51	18.58	94.41	36.79	28.15	13.76	21.23	84.77
2004	1062	39.19	35.45	17.49	17.12	92.51	38.52	31.70	15.06	19.94	86.34
2005	1118	35.93	26.81	19.48	13.14	93.51	33.83	26.77	16.15	16.58	84.31
2006	1093	34.56	26.03	20.79	11.80	92.73	34.02	26.98	16.70	16.01	78.59
2007	1061	34.35	25.93	22.74	4.91	92.69	34.77	25.98	18.32	13.69	77.92
2008	1046	34.43	27.64	23.33	6.22	93.46	32.95	26.94	18.81	12.41	75.27
2009	1387	38.67	32.72	22.29	12.61	93.60	34.20	30.13	18.20	14.18	79.02
2010	1591	36.46	32.07	21.61	13.00	93.35	32.44	28.63	17.16	15.21	76.59
Total	10244	36.73	32.07	20.79	4.91	94.70	34.76	28.63	16.80	12.41	86.34

Table 4  
Descriptive statistics for all variables.

Variable	Obs	Mean	Median	S.D	Min	Max
Distress1	10,244	36.73	32.07	20.79	4.91	94.70
Distress2	10,244	34.76	28.63	16.80	12.41	86.34
Size	10,244	21.42	21.32	1.05	19.07	24.60
Roa	10,244	0.03	0.03	0.07	-0.29	0.20
Fcf	10,216	0.04	0.06	0.15	-0.63	0.36
Dual	10,244	0.13	0.00	0.34	0.00	1.00
Exeown	9124	1.03	0.00	4.70	0.00	32.98
Herf	9346	50.04	50.76	15.04	16.40	84.55
Divid	9305	0.19	0.15	0.17	0.00	0.90
Debt	10,109	0.07	0.03	0.10	0.00	0.45
Salary	10,154	13.31	13.35	0.86	11.16	15.30
GDPgth	10,244	15.56	16.70	6.69	0.00	34.05
GovIntvn	10,244	6.19	6.85	3.05	-12.95	10.13

Table 5  
Descriptive statistics for all variables for overinvestment and underinvestment groups.

Variable	OverInv				UnderInv				Two-tailed
	Obs	Mean	Median	S.D	Obs	Mean	Median	S.D	t-test
Distress1	3369	37.25	32.72	20.74	6875	36.48	32.05	20.80	1.7570*
Distress2	3369	35.24	29.65	16.71	6875	34.52	28.63	16.83	2.0465**
Size	3369	21.19	21.11	1.00	6875	21.54	21.44	1.06	-15.9115***
Roa	3369	0.04	0.04	0.07	6875	0.03	0.03	0.06	5.2949***
Fcf	3357	0.04	0.07	0.17	6859	0.04	0.06	0.14	0.0616
Dual	3369	0.15	0.00	0.35	6875	0.13	0.00	0.33	2.7432***
Exeown	2955	1.35	0.00	5.51	6169	0.88	0.00	4.26	4.5184***
Herf	3033	50.04	50.96	14.68	6313	50.04	50.69	15.21	0.0088
Divid	3020	0.18	0.14	0.16	6285	0.20	0.15	0.18	-5.1693***
Debt	3338	0.07	0.03	0.10	6771	0.07	0.03	0.10	0.3471
Salary	3343	13.22	13.27	0.82	6811	13.35	13.39	0.87	-6.7039***
GDPgth	3369	14.92	16.24	6.77	6875	15.87	17.02	6.64	-6.7828***
GovIntvn	2630	6.21	6.85	3.00	5670	6.18	6.85	3.08	0.8599

p-Values in parentheses.

\*  $p < 0.1$ .

\*\*  $p < 0.05$ .

\*\*\*  $p < 0.01$ .

*Distress1* and *Distress2* is 0.9864, statistically significant at the 0.01 level, indicating that these two proxies are consistent measures of the same variable.

#### 4.2. Empirical results

Table 8 shows the regression results for local fiscal distress and the extent of overinvestment among local SOEs and non-SOEs. The findings suggest that the coefficients of *Distress1* and *Distress2* for local SOEs are positive and statistically significant at the 0.01 level, whereas those for non-SOEs are not significant at all, which is consistent with H1.

Table 9 reports the results of the effect of corporate taxes paid on the positive relationship between local fiscal distress and the level of overinvestment demonstrated in Table 8. The results show that the coefficients of *Distress1*  $\times$  *N\_Tax* and *Distress2*  $\times$  *N\_Tax* for local SOEs are positive and statistically significant at the 0.05 and 0.01 levels, respectively, indicating that lower taxes paid by local SOEs strengthens the positive relationship between local fiscal distress and the extent of their overinvestment, while those for non-SOEs are not significant at all, which is consistent with H2.

Table 6  
Descriptive statistics for all variables for local SOE and non-SOE groups.

Variable	Local SOEs				Non-SOEs				Two-tailed
	Obs	Mean	Median	S.D	Obs	Mean	Median	S.D	t-test
Distress1	4284	38.06	34.46	20.46	4016	35.19	26.03	20.78	6.3549***
Distress2	4284	35.99	34.21	16.44	4016	33.26	26.95	16.92	7.4721***
Size	4284	21.61	21.53	1.01	4016	21.08	21.01	0.94	24.8201***
Roa	4284	0.03	0.03	0.06	4016	0.03	0.03	0.08	1.9943**
Fcf	4275	0.06	0.06	0.13	8275	0.03	0.06	0.17	8.3922***
Dual	4284	0.11	0.00	0.31	4016	0.19	0.00	0.40	-11.0027***
Exeown	3792	0.12	0.00	1.27	3597	2.43	0.00	7.09	-19.7046***
Herf	3868	51.27	52.33	15.14	3701	47.29	47.35	14.65	11.6081***
Divid	3856	0.21	0.16	0.18	3681	0.17	0.13	0.15	9.5336***
Debt	4225	0.08	0.04	0.10	3975	0.06	0.01	0.09	10.5959***
Salary	4245	13.29	13.35	0.84	3989	13.26	13.27	0.87	1.8752*
GDPgth	4284	15.47	16.76	6.85	4016	15.58	16.94	6.51	-0.7570
GovIntvn	4284	6.06	6.58	3.05	4016	6.47	6.91	3.18	-5.9001***

p-Values in parentheses.

\*  $p < 0.1$ .

\*\*  $p < 0.05$ .

\*\*\*  $p < 0.01$ .

Table 7  
The Pearson correlation matrix for all variables.

	Distress1	Distress2	Size	Roa	Fcf	Dual	Exeown	Herf	Divid	Debt	Salary	GDPgth	GovIntvn
Distress1	1.000												
Distress2	0.986***	1.000											
Size	-0.063***	-0.049***	1.000										
Roa	-0.007	-0.009	0.113***	1.000									
Fcf	0.009	0.012	0.074***	-0.051***	1.000								
Dual	-0.037***	-0.041***	-0.071***	0.000	-0.012	1.000							
Exeown	-0.116***	-0.132***	-0.124***	0.017	0.000	0.242***	1.000						
Herf	-0.024**	-0.026**	0.116***	0.023**	0.071***	-0.037***	0.039***	1.000					
Divid	-0.017	-0.016	0.466***	0.036***	0.091***	-0.059***	-0.015	0.130***	1.000				
Debt	0.089***	0.081***	0.322***	-0.001	-0.057***	-0.056***	-0.080***	0.036***	0.287***	1.000			
Salary	-0.282***	-0.294***	0.411***	0.063***	0.021*	0.041***	0.085***	-0.049***	0.255***	0.069***	1.000		
GDPgth	0.061***	0.068***	-0.067***	-0.010	0.016	0.006	0.019*	-0.040***	0.052***	-0.007	0.017	1.000	
GovIntvn	-0.738***	-0.727***	0.039***	0.006	-0.006	0.028**	0.107***	-0.022*	0.043***	-0.078***	0.256***	0.007	1.000

p-Values in parentheses.

\*  $p < 0.1$ .

\*\*  $p < 0.05$ .

\*\*\*  $p < 0.01$ .

Table 10 presents the results of the relationship between local fiscal distress and the extent of underinvestment for local SOEs, and the effect of corporate taxes paid on this relationship. The results show that the coefficients of *Distress1* and *Distress2* in columns 1 and 2 and *Distress1* × *N\_Tax* and *Distress2* × *N\_Tax* in columns 3 and 4 for local SOEs are all negative and statistically significant, whereas those for non-SOEs shown in columns 5–8 are not significant at all, indicating that local fiscal distress helps mitigate the extent of underinvestment for underinvested local SOEs and that this effect is stronger for the firms that pay fewer taxes, whereas this pattern does not exist for non-SOEs, which is consistent with H3.

In summary, the results shown in Tables 8–10 suggest that local fiscal distress is positively related to the extent of local SOEs' overinvestment and that this relationship is stronger when lower taxes are paid by local SOEs. Meanwhile, local fiscal distress is negatively related to the extent of local SOEs' underinvestment, and this negative relationship is also stronger when lower taxes are paid by local SOEs. However, the above rela-

Table 8  
Local Fiscal distress and corporate overinvestment.

Variable	(1) Local SOEs	(2) Local SOEs	(3) Non-SOEs	(4) Non-SOEs
_cons	-0.8585** (0.029)	-0.8335** (0.030)	-0.3104 (0.341)	-0.2981 (0.356)
<b>Distress1<sub>t-1</sub></b>	<b>0.0021*** (0.007)</b>		<b>0.0002 (0.704)</b>	
<b>Distress2<sub>t-1</sub></b>		<b>0.0022*** (0.009)</b>		<b>0.0001 (0.879)</b>
Size <sub>t</sub>	0.0512*** (0.005)	0.0504*** (0.005)	0.0287** (0.049)	0.0288** (0.049)
Roa <sub>t</sub>	0.3599 (0.129)	0.3641 (0.122)	-0.0834 (0.603)	-0.0837 (0.602)
Fcf <sub>t</sub>	0.1768 (0.202)	0.1795 (0.195)	0.0715* (0.084)	0.0714* (0.085)
Dual <sub>t</sub>	0.0057 (0.844)	0.0059 (0.838)	-0.0063 (0.666)	-0.0067 (0.649)
Exeown <sub>t</sub>	-0.0004 (0.844)	-0.0006 (0.770)	0.0001 (0.907)	0.0001 (0.926)
Herf <sub>t</sub>	0.0041*** (0.001)	0.0041*** (0.001)	0.0027** (0.017)	0.0027** (0.017)
Divid <sub>t</sub>	-0.1249 (0.206)	-0.1250 (0.206)	0.0835 (0.383)	0.0833 (0.384)
Debt <sub>t</sub>	0.3644*** (0.003)	0.3694*** (0.002)	0.1295 (0.285)	0.1297 (0.282)
Salary <sub>t</sub>	-0.0423*** (0.007)	-0.0426*** (0.007)	-0.0285** (0.019)	-0.0289** (0.018)
GDPgth <sub>t</sub>	0.0041 (0.119)	0.0042 (0.111)	0.0049** (0.049)	0.0050** (0.045)
GovIntvn <sub>t</sub>	0.0018 (0.676)	0.0001 (0.982)	-0.0043 (0.257)	-0.0050 (0.206)
Industry	Y	Y	Y	Y
Year	Y	Y	Y	Y
N	1134	1134	977	977
adj. R <sup>2</sup>	0.137	0.135	0.074	0.074

*p*-Values in parentheses.

\* *p* < 0.1.

\*\* *p* < 0.05.

\*\*\* *p* < 0.01.

tionships do not exist for non-SOEs. Therefore, we conclude from the empirical results that there is a positive relationship between the level of local fiscal distress and the extent of local SOEs' investment expenditure, such that local governments have an incentive to boost tax revenue by forcing the local SOEs under their control to raise investment scales. Local governments also have an incentive to exert greater pressure on the firms that contribute less to local fiscal revenue (those who pay fewer taxes), whereas the investment behavior of non-SOEs is of no relevance to local finances.

#### 4.3. Further analysis

Based on the grabbing hand theory, local governments faced with fiscal distress have an incentive to increase fiscal revenue by forcing local SOEs to raise their investment expenditure, and the motivation and effect of such intervention are stronger among firms that contribute less to local finances – in line with previously stated logic. However, lower investment efficiency due to overinvestment or underinvestment would theoretically lower a firm's profitability, leading to less income tax paid by the firm. Turnover taxes, which make up local governments' major tax revenue, are affected by the amount of transfers generated by the commodity

Table 9  
Effect of corporate taxes paid on local fiscal distress and corporate overinvestment.

Variable	(1) Local SOEs	(2) Local SOEs	(3) Non-SOEs	(4) Non-SOEs
_cons	-1.7517*** (0.000)	-1.8504*** (0.000)	-0.7797* (0.079)	-0.7163 (0.106)
<b>Distress1<sub>t-1</sub></b>	<b>0.0131***</b> <b>(0.005)</b>		<b>0.0023</b> <b>(0.519)</b>	
<b>Distress1<sub>t-1</sub> × N_Tax<sub>t-1</sub></b>	<b>0.0007**</b> <b>(0.011)</b>		<b>0.0001</b> <b>(0.509)</b>	
<b>Distress2<sub>t-1</sub></b>		<b>0.0170***</b> <b>(0.004)</b>		<b>0.0005</b> <b>(0.898)</b>
<b>Distress2<sub>t-1</sub> × N_Tax<sub>t-1</sub></b>		<b>0.0009***</b> <b>(0.007)</b>		<b>0.0000</b> <b>(0.876)</b>
N_Tax <sub>t-1</sub>	0.0701*** (0.000)	0.0638*** (0.000)	0.0494*** (0.009)	0.0532*** (0.004)
Size <sub>t</sub>	0.1331*** (0.000)	0.1328*** (0.000)	0.0772*** (0.007)	0.0779*** (0.006)
Roa <sub>t</sub>	0.9235*** (0.001)	0.9354*** (0.001)	0.1514 (0.464)	0.1514 (0.466)
Fcf <sub>t</sub>	0.2296* (0.079)	0.2319* (0.075)	0.0692 (0.131)	0.0710 (0.119)
Dual <sub>t</sub>	0.0131 (0.634)	0.0127 (0.646)	-0.0068 (0.640)	-0.0074 (0.610)
Exeown <sub>t</sub>	0.0001 (0.971)	-0.0001 (0.983)	0.0000 (0.980)	0.0000 (0.992)
Herf <sub>t</sub>	0.0038*** (0.001)	0.0038*** (0.001)	0.0025** (0.011)	0.0026** (0.011)
Divid <sub>t</sub>	-0.0518 (0.565)	-0.0524 (0.559)	0.1318 (0.187)	0.1317 (0.189)
Debt <sub>t</sub>	0.2982*** (0.005)	0.3040*** (0.004)	0.1261 (0.291)	0.1266 (0.287)
Salary <sub>t</sub>	-0.0263** (0.044)	-0.0265** (0.042)	-0.0132 (0.269)	-0.0137 (0.250)
GDPgth <sub>t</sub>	0.0058** (0.011)	0.0060*** (0.009)	0.0053** (0.045)	0.0052** (0.043)
GovIntvn <sub>t</sub>	0.0015 (0.723)	0.0001 (0.974)	-0.0043 (0.241)	-0.0048 (0.198)
Industry	Y	Y	Y	Y
Year	Y	Y	Y	Y
N	1134	1134	977	977
adj. R <sup>2</sup>	0.224	0.223	0.117	0.117

*p*-Values in parentheses.

\* *p* < 0.1.

\*\* *p* < 0.05.

\*\*\* *p* < 0.01.

production and circulation procedure and the number of turnovers for non-commodities. However, a decline in profitability leads to a reduction in free cash flow and even financial distress, which impairs firms' commodity production, distribution, and operations to finally reduce local turnover revenue. Therefore, it is doubtful that local governmental intervention has achieved the prospective goal of increasing fiscal revenue by forcing local SOEs to raise their investment level, resulting in overinvestment or a reduction in underinvestment, given that intervention induces a bad effect on corporate performance. The following section addresses these issues.

We construct a set of nested models (Model (4)) and perform *F*-tests to examine whether there is a significant difference between the effects of actual and normal corporate investment levels on the taxes paid to the government. The effect of the normal investment level on corporate taxes paid is significantly greater than that of the actual level if the coefficient  $\alpha_2$  is significantly larger than  $\alpha_1$  in Model (4.1). Similarly, Model (5) is



Table 10  
Local Fiscal Distress, Corporate Underinvestment and the Effect of Corporate Taxes Paid.

Variable	(1) Local SOEs	(2) Local SOEs	(3) Local SOEs	(4) Local SOEs	(5) Non-SOEs	(6) Non-SOEs	(7) Non-SOEs	(8) Non-SOEs
_cons	0.1960*** (0.000)	0.2442*** (0.000)	0.1995*** (0.000)	0.2629*** (0.000)	0.3827*** (0.000)	0.3571*** (0.000)	0.3835*** (0.000)	0.3666*** (0.000)
<b>Distress1<sub>t-1</sub></b>	<b>-0.0001*</b> <b>(0.061)</b>	<b>-0.0015***</b> <b>(0.003)</b>			<b>0.0000</b> <b>(0.884)</b>	<b>-0.0001</b> <b>(0.944)</b>		
<b>Distress1<sub>t-1</sub> × N_Tax<sub>t-1</sub></b>		<b>-0.0001***</b> <b>(0.006)</b>				<b>-0.0000</b> <b>(0.929)</b>		
<b>Distress2<sub>t-1</sub></b>			<b>-0.0002**</b> <b>(0.030)</b>	<b>-0.0020***</b> <b>(0.001)</b>			<b>0.0000</b> <b>(0.929)</b>	<b>-0.0004</b> <b>(0.743)</b>
<b>Distress2<sub>t-1</sub> × N_Tax<sub>t-1</sub></b>				<b>-0.0001***</b> <b>(0.003)</b>				<b>-0.0000</b> <b>(0.736)</b>
N_Tax <sub>t-1</sub>		0.0032 (0.121)		0.0041* (0.059)		0.0041* (0.058)		0.0047** (0.045)
Size <sub>t</sub>	-0.0028 (0.164)	-0.0024 (0.392)	-0.0028 (0.168)	-0.0024 (0.402)	-0.0125*** (0.000)	-0.0089*** (0.003)	-0.0125*** (0.000)	-0.0088*** (0.003)
Roa <sub>t</sub>	-0.0479* (0.054)	-0.0494* (0.059)	-0.0477* (0.055)	-0.0494* (0.058)	-0.0110 (0.621)	-0.0064 (0.766)	-0.0110 (0.620)	-0.0064 (0.765)
Fcf <sub>t</sub>	-0.1321*** (0.000)	-0.1322*** (0.000)	-0.1321*** (0.000)	-0.1324*** (0.000)	-0.1347*** (0.000)	-0.1345*** (0.000)	-0.1347*** (0.000)	-0.1347*** (0.000)
Dual <sub>t</sub>	-0.0020 (0.707)	-0.0018 (0.743)	-0.0019 (0.717)	-0.0017 (0.749)	0.0000 (0.995)	-0.0007 (0.877)	0.0000 (0.997)	-0.0007 (0.870)
Execown <sub>t</sub>	0.0017 (0.118)	0.0017 (0.134)	0.0017 (0.121)	0.0017 (0.135)	-0.0010*** (0.000)	-0.0010*** (0.001)	-0.0010*** (0.000)	-0.0010*** (0.001)
Herf <sub>t</sub>	-0.0000 (0.897)	-0.0000 (0.958)	-0.0000 (0.866)	-0.0000 (0.936)	-0.0001 (0.442)	-0.0001 (0.495)	-0.0001 (0.441)	-0.0001 (0.496)
Divid <sub>t</sub>	0.0010 (0.911)	0.0009 (0.919)	0.0011 (0.904)	0.0011 (0.904)	0.0218* (0.090)	0.0260** (0.041)	0.0218* (0.090)	0.0259** (0.041)
Debt <sub>t</sub>	0.0409** (0.042)	0.0400* (0.051)	0.0407** (0.043)	0.0394* (0.054)	0.0441 (0.148)	0.0430 (0.163)	0.0441 (0.148)	0.0430 (0.162)
Salary <sub>t</sub>	-0.0051** (0.020)	-0.0051** (0.016)	-0.0052** (0.015)	-0.0053** (0.011)	-0.0038 (0.142)	-0.0029 (0.270)	-0.0038 (0.142)	-0.0029 (0.266)
GDPgth <sub>t</sub>	0.0001 (0.795)	0.0001 (0.888)	0.0001 (0.811)	0.0001 (0.908)	0.0007 (0.145)	0.0008* (0.088)	0.0007 (0.142)	0.0008* (0.088)
GovIntvn <sub>t</sub>	0.0001 (0.830)	0.0001 (0.835)	0.0000 (0.904)	0.0001 (0.894)	-0.0001 (0.888)	-0.0001 (0.872)	-0.0001 (0.834)	-0.0001 (0.833)
Industry	Y	Y	Y	Y	Y	Y	Y	Y
Year	Y	Y	Y	Y	Y	Y	Y	Y
N	2190	2190	2190	2190	1961	1961	1961	1961
adj. R <sup>2</sup>	0.136	0.136	0.136	0.137	0.158	0.160	0.158	0.160

*p*-Values in parentheses.

\* *p* < 0.1.

\*\* *p* < 0.05.

\*\*\* *p* < 0.01.

constructed to determine whether there is a significant difference between the effects of actual and normal corporate investment levels on corporate performance. We construct three measurements of taxes in Model (4). One is for total taxes paid *Tax<sub>total</sub>*, which is identical to that in Model (3), and the other two are for the levels of turnover *Tax<sub>turnover</sub>* and income *Tax<sub>income</sub>* taxes, with *Business Tax and Surcharges* and *Income Tax Expense* on the income statement as the proxies, respectively. Corporate performance in Model (5) has two proxies: return on assets (*Roa*) and operating profit margin (*Opr*), respectively.

The independent variables in the two sets of nested models are the level of actual corporate investment (*Inv<sub>act</sub>*) and that of normal investment (*Inv<sub>nor</sub>*) along with their sum (*Inv<sub>act</sub> + Inv<sub>nor</sub>*), in which the normal investment level is calculated with the overinvestment model, namely Model (1). The control variables in the two sets of nested models are as follows: firm size (*Size*), return on total assets (*Roa*), financial leverage

ratio (*Lev*), capital intensity (ratio of fixed assets on total assets, *CapInt*), inventory intensity (ratio of inventory on total assets, *InvInt*), intangible asset intensity (ratio of intangible assets on total assets, *IntInt*), investment opportunities (ratio of corporate market value on corporate book value, *MB*), ownership concentration (the shareholding of the first majority shareholder, *Herf*), CEO duality (*Dual*), corporate growth opportunities (*Growth*), and free cash flow (*Fcf*). Our selection of the control variables follows Zimmerman (1983), Derashid and Zhang (2003), Porcano (1986) and Gupta and Newberry (1997). Given the endogeneity problem between the control variables, we use 1-year lagged values of firm size, return on total assets and financial leverage ratios instead of current values.

$$\left\{ \begin{array}{l} Tax = \alpha_0 + \alpha_1 Inv_{act} + \alpha_2 Inv_{nor} + \alpha_3 L\_Size + \alpha_4 L\_Roa + \alpha_5 L\_Lev + \alpha_6 CapInt \\ \quad + \alpha_7 InvInt + \alpha_8 IntInt + \alpha_9 MB + \sum Industry + \sum Year + \varepsilon \end{array} \right. \quad (4.1) \quad (4)$$

$$\left\{ \begin{array}{l} Tax = \beta_0 + \beta_1 (Inv_{act} + Inv_{nor}) + \beta_2 L\_Size + \beta_3 L\_Roa + \beta_4 L\_Lev + \beta_5 CapInt \\ \quad + \beta_6 InvInt + \beta_7 IntInt + \beta_8 MB + \sum Industry + \sum Year + \varepsilon \end{array} \right. \quad (4.2)$$

$$\left\{ \begin{array}{l} Roa(Opr) = \alpha_0 + \alpha_1 Inv_{act} + \alpha_2 Inv_{nor} + \alpha_3 L\_Size + \alpha_4 L\_Roa + \alpha_5 L\_Lev \\ \quad + \alpha_6 Herf + \alpha_7 Dual + \alpha_8 Growth + \alpha_9 Fcf + \alpha_{10} CapInt + \alpha_{11} MB + \sum Industry + \sum Year + \varepsilon \end{array} \right. \quad (5.1) \quad (5)$$

$$\left\{ \begin{array}{l} Roa(Opr) = \beta_0 + \beta_1 (Inv_{act} + Inv_{nor}) + \beta_2 L\_Size + \beta_3 L\_Roa + \beta_4 L\_Lev + \beta_5 Herf \\ \quad + \beta_6 Dual + \beta_7 Growth + \beta_8 Fcf + \beta_9 CapInt + \beta_{10} MB + \sum Industry + \sum Year + \varepsilon \end{array} \right. \quad (5.2)$$

Table 11 demonstrates the difference in the effect of the level of actual investment and that of normal investment, as calculated with the overinvestment model (Model (1)), on corporate taxes paid. Due to this paper's length constraints, Table 11 only shows the empirical results of Model (4.1).

Table 11 reveals the following details. The coefficients of *Inv<sub>act</sub>* in the whole sample and two subsamples are all significantly positive, indicating that an increase in actual investment does lead to an increase in both income and turnover taxes paid by the firm. For the turnover taxes (*Tax<sub>turnover</sub>*) in each sample, none of the coefficients for *Inv<sub>nor</sub>* are statistically significant, while those for *Inv<sub>act</sub>* are all significantly larger than those for *Inv<sub>nor</sub>*, with *F*-values of 8.74, 4.24, and 5.08, respectively, and *p*-values of 0.0031, 0.0395, and 0.0242, respectively. This suggests that turnover taxes paid by firms increase as actual corporate investment increases, but are irrelevant in relation to corporate investment efficiency. For income taxes (*Tax<sub>income</sub>*) in the whole sample and the underinvestment subsample, the coefficients for *Inv<sub>nor</sub>* are all significantly larger than those for *Inv<sub>act</sub>*, with *F*-values of 3.51 and 5.36, respectively, and *p*-values of 0.0612 and 0.0206, respectively. The coefficients for *Inv<sub>nor</sub>* and *Inv<sub>act</sub>* in the overinvestment subsample are not significantly different, with an *F*-value of 0.04 and a *p*-value of 0.8477, indicating that the income taxes paid by underinvested firms are significantly lower than those paid by their normally invested counterparts with the same investment scale and that overinvested firms do not pay more income taxes than their normally invested counterparts with the same investment scale.

These empirical results suggest that a higher investment level generally helps increase both income and turnover taxes paid by firms, but investment efficiency greatly influences corporate taxes paid. Specifically, for total taxes and income taxes, overinvestment does not induce more tax paid to the government than the normal level, whereas underinvested firms pay fewer income taxes than their normally invested counterparts with the same investment scale. Turnover taxes are positively related to the actual investment level but unrelated to the normal investment level, consistent with the theoretical analysis that the turnover taxes generated by a firm are irrelevant to its investment efficiency, but positively related to the level of actual investment.

Table A1 presents the differences in the effects of actual and normal investment levels on corporate performance. Due to length restrictions, Table A1 only shows the empirical results for Model (5.1).

Table A1 shows that the coefficients of *Inv<sub>act</sub>* and *Inv<sub>nor</sub>* are all positive and statistically significant in each group, and the coefficients for each *Inv<sub>nor</sub>* are all significantly larger than those for the corresponding *Inv<sub>act</sub>*. The results suggest that although an increase in the levels of actual and normal investment both lead to improvements in corporate performance, the performance improvements in underinvested firms are significantly smaller than those observed in normal-level firms with the same investment scale. The results also

Table 11  
Differences in the Effects of Actual and Normal Investment Levels on Corporate Taxes Paid (Model (4.1)).

Variable	The Whole Sample			Overinvestment Subsample			Underinvestment Subsample		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Tax_total	Tax_turnover	Tax_income	Tax_total	Tax_turnover	Tax_income	Tax_total	Tax_turnover	Tax_income
_cons	-6.8820*** (0.000)	-8.4032*** (0.000)	-6.9658*** (0.000)	-6.7846*** (0.000)	-8.0523*** (0.000)	-7.3977*** (0.000)	-7.0492*** (0.000)	-8.6716*** (0.000)	-6.7707*** (0.000)
Inv <sub>act</sub>	<b>1.0399***</b> (0.000)	<b>0.6228***</b> (0.000)	<b>1.2301***</b> (0.000)	<b>1.0800***</b> (0.000)	<b>0.6636***</b> (0.000)	<b>1.3212***</b> (0.000)	<b>1.0111***</b> (0.000)	<b>0.6073***</b> (0.000)	<b>1.1734***</b> (0.000)
Inv <sub>nor</sub>	<b>0.9475***</b> (0.007)	<b>-0.6406</b> (0.119)	<b>2.1731***</b> (0.000)	<b>0.3464</b> (0.550)	<b>-0.7975</b> (0.239)	<b>1.1618</b> (0.143)	<b>1.1572***</b> (0.009)	<b>-0.6047</b> (0.242)	<b>2.6430***</b> (0.000)
Size	1.0273*** (0.000)	1.0343*** (0.000)	0.9973*** (0.000)	1.0182*** (0.000)	1.0200*** (0.000)	1.0186*** (0.000)	1.0368*** (0.000)	1.0457*** (0.000)	0.9875*** (0.000)
Roa	5.2680*** (0.000)	3.0863*** (0.000)	8.0375*** (0.000)	5.5818*** (0.000)	3.1417*** (0.000)	8.4548*** (0.000)	4.9908*** (0.000)	3.0021*** (0.000)	7.7049*** (0.000)
Lev	-0.2300*** (0.000)	0.1765** (0.016)	-0.4723*** (0.000)	0.0757 (0.470)	0.4780*** (0.000)	-0.2155 (0.150)	-0.3960*** (0.000)	0.0234 (0.799)	-0.6062*** (0.000)
CapInt	0.1133 (0.128)	0.5703*** (0.000)	-0.2411** (0.020)	0.3225** (0.015)	0.5686*** (0.000)	0.1422 (0.435)	0.0305 (0.738)	0.5535*** (0.000)	-0.4015*** (0.002)
InvInt	1.6678*** (0.000)	2.2889*** (0.000)	1.2053*** (0.000)	1.4639*** (0.000)	2.0239*** (0.000)	1.2081*** (0.000)	1.7620*** (0.000)	2.3918*** (0.000)	1.2259*** (0.000)
IntInt	-0.3024 (0.149)	0.7017*** (0.004)	-1.2248*** (0.000)	0.0741 (0.847)	0.9686** (0.031)	-0.1442 (0.788)	-0.4791* (0.056)	0.5487* (0.061)	-1.6874*** (0.000)
MB	0.1265*** (0.000)	0.0627*** (0.001)	0.1553*** (0.000)	0.0858*** (0.001)	-0.0011 (0.971)	0.1315*** (0.000)	0.1530*** (0.000)	0.1058*** (0.000)	0.1744*** (0.000)
Industry	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year	Y	Y	Y	Y	Y	Y	Y	Y	Y
N	8599	8571	8258	2935	2920	2824	5664	5651	5434
adj. R <sup>2</sup>	0.623	0.560	0.501	0.611	0.555	0.490	0.631	0.563	0.508
F	<b>0.06</b>	<b>8.74***</b>	<b>3.51*</b>	<b>1.46</b>	<b>4.24**</b>	<b>0.04</b>	<b>0.10</b>	<b>5.08**</b>	<b>5.36**</b>
porb > F	<b>0.8007</b>	<b>0.0031</b>	<b>0.0612</b>	<b>0.2266</b>	<b>0.0395</b>	<b>0.8477</b>	<b>0.7506</b>	<b>0.0242</b>	<b>0.0206</b>

*p*-Values in parentheses.

\* *p* < 0.1.

\*\* *p* < 0.05.

\*\*\* *p* < 0.01.

indicate that the performances of overinvested and underinvested firms are worse than those of normally invested firms with the same investment scale.

Raising a firm's investment scale increases local fiscal revenue by increasing the taxes paid by firms, and it results in improved corporate performance. Specifically, turnover taxes are not affected by corporate investment efficiency, whereas total and income taxes are greatly affected by corporate investment efficiency. Underinvested firms pay much fewer income taxes than their normal-level counterparts, but there is no significant difference between the income taxes paid by overinvested firms and those paid by normal-level invested firms with the same investment scale. This suggests that local governments should increase their tax revenue by increasing the investment scales of underinvested firms to normal levels and by helping overinvested firms adjust their production, operation, and capital structures to match the present investment level before expanding their investment scales.

#### 4.4. Robustness checks

##### 4.4.1. Alternative explanation of abundant investment opportunities

In addition to the political intervention of local governments and political promotion tournaments (Zhou, 2004), overinvestment in local SOEs may also be driven by abundant investment opportunities or other factors unrelated to such intervention or promotion. To rule out this alternative explanation, we rerun the above

empirical tests using the central SOEs subsample and present the results in Table A2 in the Appendix. The results show that almost every coefficient of *Distress1*, *Distress2*, *Distress1* × *N\_Tax*, and *Distress2* × *N\_Tax* is not statistically significant, in either the overinvestment or the underinvestment subsamples, which is definitely different from the results gained from the local SOEs subsample.

Central SOEs are confronted with the same investment opportunities experienced by local SOEs operating within the same province, but the former are almost free of local governmental intervention. Therefore, the results in Table A2 rule out the possibility that the overinvestment of local SOEs is driven by abundant investment opportunities or other factors unrelated to government intervention or political promotion tournaments, indirectly enhancing support for the perspective that local governments have an incentive to boost tax revenue by forcing local SOEs to raise their investment scales and to exert greater pressure on firms that contribute less to local fiscal revenue.

4.4.2. The probability of reverse causality between dependent and independent variables

Based on the grabbing hand theory, we assert that local governments have an incentive to boost tax revenue by forcing the local SOEs under their control to raise their investment scales and to exert greater pressure on firms that contribute less to local fiscal revenue. Our assertions are supported by the aforementioned empirical results. We also determine from the empirical findings in the Further Analysis section (Section 4.3) that a larger investment scale could help to increase fiscal revenue by increasing both the income and turnover taxes paid by the firm, which effectively rules out the potential reverse causality of the overinvestment of local SOEs leading to local fiscal distress. Finally, we perform Hausman tests on the dependent and two independent variables and get  $\chi^2$  values of 0.00 and 0.05, respectively, and a *p*-value of 1.0000 for each, suggesting that only OLS is theoretically needed in this paper. However, in the interests of robustness, we perform 2SLS robustness checks of the aforementioned empirical tests.

$$\begin{cases} \text{OverInv}_{i,t}(\text{UnderInv}_{i,t}) = \beta_0 + \beta_1 \text{Distress}_{i,t-1} + \beta_2 \text{Size}_{i,t} + \beta_3 \text{Roa}_{i,t} + \beta_4 \text{Fcf}_{i,t} \\ \quad + \beta_5 \text{Dual}_{i,t} + \beta_6 \text{Exeown}_{i,t} + \beta_7 \text{Herf}_{i,t} + \beta_8 \text{Divid}_{i,t} + \beta_9 \text{Debt}_{i,t} + \beta_{10} \text{Salary}_{i,t} \\ \quad + \beta_{11} \text{GDPgth}_t + \beta_{12} \text{GovIntvn}_t + \sum \text{Industry} + \sum \text{Year} + \varepsilon \end{cases} \quad (6.1) \quad (6)$$

$$\text{Distress}_{i,t} = \gamma_0 + \gamma_1 \text{GovIntvn}_t + \gamma_2 \text{GDP}_t + \gamma_3 \text{Earthquake}_t + \sum \text{Year} + \varepsilon \quad (6.2) \quad (6.2)$$

$$\begin{cases} \text{OverInv}_{i,t}(\text{UnderInv}_{i,t}) = \beta_0 + \beta_1 \text{Distress}_{i,t-1} + \beta_2 \text{Distress}_{i,t-1} \times \text{N\_Tax}_{i,t-1} \\ \quad + \beta_3 \text{N\_Tax}_{i,t-1} + \beta_4 \text{Size}_{i,t} + \beta_5 \text{Roa}_{i,t} + \beta_6 \text{Fcf}_{i,t} + \beta_7 \text{Dual}_{i,t} + \beta_8 \text{Exeown}_{i,t} + \beta_9 \text{Herf}_{i,t} + \beta_{10} \text{Divid}_{i,t} \\ \quad + \beta_{11} \text{Debt}_{i,t} + \beta_{12} \text{Salary}_{i,t} + \beta_{13} \text{GDPgth}_t + \beta_{14} \text{GovIntvn}_t + \sum \text{Industry} + \sum \text{Year} + \varepsilon \end{cases} \quad (7.1) \quad (7)$$

$$\text{Distress}_{i,t} = \gamma_0 + \gamma_1 \text{GovIntvn}_t + \gamma_2 \text{GDP}_t + \gamma_3 \text{Earthquake}_t + \sum \text{Year} + \varepsilon \quad (7.2) \quad (7.2)$$

Models (6) and (7) are the 2SLS models. Models (6.1) and (7.1) are the same as Models (2) and (3) in Section 3, respectively, and the instrument variables (IVs) in Models (6.2) and (7.2) are three provincial-level variables: the index of reducing government intervention to enterprises in the Fan Gang marketization index, the logarithm of the local GDP, and the number of earthquakes in the current year. We chose these three variables as IVs because the local governments with fiscal distress are likely to be those with poor governance and severe intervention into enterprises; because local governmental finance is generally highly correlated with local GDP, as the better developed regions usually have sufficient fiscal revenue, with low probability of being immersed in fiscal distress, and because earthquakes are strongly destructive, infrequent, and unpredictable natural disasters that significantly influence local finance. We perform a Pearson correlation analysis on the proxies of local fiscal distress and the IVs and present the results in Table 12.

As Table 12 reveals, the two proxies of local fiscal distress and the three IVs are all significantly correlated at the 0.01 level, which satisfies the basic assumptions for IVs. The results of 2SLS for local SOEs are presented in Table 13.

Table 13 shows that except for *Distress1*<sub>*t*-1</sub> × *N\_Tax*<sub>*t*-1</sub>, the results of 2SLS for local SOEs do not differ greatly from those using OLS (Tables 8–10), suggesting the robustness of the results. Moreover, the 2SLS results rule out the potential reverse causality of the dependent and independent variables, supporting the grabbing hand theory. Due to length constraints, the 2SLS results for non-SOEs and central SOEs are

Table 12  
Correlations of proxies for local fiscal distress and the IVs.

	Distress1	Distress2	GovIntvn	GDP	Earthquake
Distress1	1.0000				
Distress2	0.986*** (0.0000)	1.0000			
GovIntvn	-0.735*** (0.0000)	-0.726*** (0.0000)	1.0000		
GDP	-0.563*** (0.0000)	-0.604*** (0.0000)	0.545*** (0.0000)	1.0000	
Earthquake	0.327*** (0.0000)	0.343*** (0.0000)	-0.211*** (0.0000)	-0.185*** (0.0000)	1.0000

*p*-Values in parentheses, \* *p* < 0.1, \*\* *p* < 0.05.  
\*\*\* *p* < 0.01.

Table 13  
Results of 2SLS for local SOEs.

Variable	(1) OverInv	(2) OverInv	(3) OverInv	(4) OverInv	(5) UnderInv	(6) UnderInv	(7) UnderInv	(8) UnderInv
Main Results								
_cons	-0.8392*** (0.002)	-1.0052 (0.348)	-0.8264*** (0.002)	-1.8494*** (0.000)	0.1989*** (0.000)	0.2290 (0.278)	0.2011*** (0.000)	0.2645*** (0.000)
Distress1 <sub>t-1</sub>	0.0017*** (0.009)	-0.0050 (0.844)			-0.0002* (0.061)	-0.0011 (0.843)		
Distress1 <sub>t-1</sub> × N_Tax <sub>t-1</sub>		-0.0004 (0.804)				-0.0001 (0.866)		
Distress2 <sub>t-1</sub>			0.0020*** (0.001)	0.0169*** (0.004)			-0.0002** (0.014)	-0.0020** (0.017)
Distress2 <sub>t-1</sub> × N_Tax <sub>t-1</sub>				0.0009*** (0.009)				-0.0001** (0.033)
N_Tax <sub>t-1</sub>		0.1111* (0.060)		0.0633*** (0.000)		0.0022 (0.856)		0.0040* (0.082)
Size <sub>t</sub>	0.0514*** (0.000)	0.1349*** (0.000)	0.0506*** (0.000)	0.1331*** (0.000)	-0.0028* (0.092)	-0.0025 (0.275)	-0.0028* (0.094)	-0.0024 (0.271)
Roa <sub>t</sub>	0.3556* (0.099)	0.8667*** (0.000)	0.3589* (0.095)	0.9300*** (0.000)	-0.0479** (0.013)	-0.0488** (0.021)	-0.0476** (0.014)	-0.0494** (0.013)
Fcf <sub>t</sub>	0.1758** (0.015)	0.2204*** (0.002)	0.1776** (0.014)	0.2298*** (0.001)	-0.1323*** (0.000)	-0.1323*** (0.000)	-0.1322*** (0.000)	-0.1325*** (0.000)
Dual <sub>t</sub>	0.0058 (0.841)	0.0141 (0.612)	0.0064 (0.824)	0.0132 (0.628)	-0.0020 (0.627)	-0.0019 (0.667)	-0.0020 (0.640)	-0.0017 (0.679)
Exeown <sub>t</sub>	-0.0004 (0.959)	0.0001 (0.988)	-0.0005 (0.945)	0.0000 (0.995)	0.0017 (0.187)	0.0017 (0.183)	0.0017 (0.190)	0.0017 (0.185)
Herf <sub>t</sub>	0.0041*** (0.000)	0.0039*** (0.000)	0.0041*** (0.000)	0.0038*** (0.000)	-0.0000 (0.930)	-0.0000 (0.966)	-0.0000 (0.895)	-0.0000 (0.953)
Divid <sub>t</sub>	-0.1245** (0.040)	-0.0555 (0.345)	-0.1246** (0.040)	-0.0519 (0.368)	0.0010 (0.914)	0.0009 (0.918)	0.0010 (0.907)	0.0010 (0.907)
Debt <sub>t</sub>	0.3633*** (0.000)	0.2901*** (0.002)	0.3694*** (0.000)	0.3042*** (0.001)	0.0410*** (0.010)	0.0401** (0.012)	0.0406*** (0.010)	0.0394** (0.013)
Salary <sub>t</sub>	-0.0423*** (0.004)	-0.0291** (0.042)	-0.0428*** (0.003)	-0.0268** (0.049)	-0.0051** (0.017)	-0.0051** (0.026)	-0.0052** (0.012)	-0.0053** (0.011)
GDPgth <sub>t</sub>	0.0040 (0.190)	0.0052* (0.082)	0.0042 (0.171)	0.0059** (0.041)	0.0001 (0.797)	0.0001 (0.877)	0.0001 (0.812)	0.0000 (0.917)
Industry	Y	Y	Y	Y	Y	Y	Y	Y
Year	Y	Y	Y	Y	Y	Y	Y	Y
<i>N</i>	1134	1134	1134	1134	2190	2190	2190	2190

*p*-Values in parentheses.  
\* *p* < 0.1.  
\*\* *p* < 0.05.  
\*\*\* *p* < 0.01.

provided in Tables A3 and A4, which are also nonsignificantly different from those using OLS (Tables 8–10 and A2).

#### 4.4.3. The alternative approach of tax enforcement

Our H2 argues that governments generate their fiscal revenue through taxes and that the incentive to extract from enterprises is stronger in the firms that make fewer contributions to local finance, following the grabbing hand theory, such that lower taxes paid by local SOEs enhances the positive relationship described by H1 between local fiscal distress and the overinvestment of local SOEs. However, in addition to the investment approach, local governments could achieve their finance goal by enhancing their tax enforcement or directly consulting with the enterprises under control. Theoretically, firms that pay fewer taxes are probably more aggressive when it comes to tax avoidance, so enhancing the tax enforcement of aggressive tax-avoiding firms may be a more effective way to generate local fiscal revenue than extracting from local SOEs.

Two frequently used proxies for the aggressiveness of tax avoidance are the Book-Tax difference (BTD) (Mills, 1998; Desai, 2003; Wilson, 2009) and the Effective Tax Rate (ETR) (Zimmerman, 1983; Gupta and Newberry, 1997; Wilson, 2009). However, tax preferences in China vary, which makes the measurement complex. Some tax preferences in China are linked to the tax basis, by reducing or exempting taxes on firms' operating results. For example, R&D expenditures could be additionally deducted or amortized at the 50% level,<sup>6</sup> and the production of high-tech enterprises is exempt from income taxes in the initial 2 years and must only pay half in the initial 8 years.<sup>7</sup> Other tax preferences are based on tax rates, such as the income tax rate for transitional firms in special zones and the high-tech enterprise certificate applicable tax rate.<sup>8</sup> The amount of tax reduction due to tax preferences cannot be totally viewed as the result of tax avoidance because for firms, the desire for self-development is more intense than that for tax avoidance, so most tax preferences are the side benefits of business strategies. For example, the main purpose of R&D activities should be innovation demands to increase firms' profitability, not for the tax savings from the additional 50% deduction or amortization. Moreover, some earnings management activities based on these accounting standards also serve the goal of tax deduction (Desai and Dharmapala, 2009; Hanlon and Heitzman, 2010).

Based on the above analysis, we construct Model (8), in which the residual ( $\varepsilon_{i,t}$ ) represents the aggressiveness of corporate tax avoidance, following Desai and Dharmapala (2006, 2009). *BTD* in Model (8) represents the Book-Tax difference scaled by the 1-year lagged value of firm size. *TA* represents total accruals, including the change in (1) *Current Assets*, (2) *Current Liabilities*, (3) *Cash and Short-Term Investments*, and (4) *the Level in Depreciation and Amortization*, scaled by the 1-year lagged value of firm size following Desai and Dharmapala (2009).  $\mu_{i,t}$  represents firm fixed effects. In addition, we incorporate the level of *R&D Expenditure*, also scaled by the 1-year lagged value of firm size, based on China's institutional environment. Finally, the residual  $\varepsilon_{i,t}$  is defined as the portion of the Book-Tax difference that could not be explained by corporate earnings management or R&D activities, namely the aggressiveness of tax avoidance (Desai and Dharmapala, 2006, 2009), represented by *BTD1* (see Table 14).

In considering robustness, we also measure the level of earnings management with the Jones model of discretionary accruals, denoting *BTD11*, *BTD12*, *BTD21*, and *BTD22* as the discretionary accruals with operating profit under the Jones model, net profit under the Jones model, operating profit under the modified Jones model, and net profit under the modified Jones model, respectively. Panel A in Table 14 shows the Pearson correlation matrix of corporate taxes paid and tax avoidance aggressiveness for the sample between 2002 and 2010, in which *Tax\_total* is calculated by the logarithm of corporate total taxes paid, including both income and turnover taxes, and *Tax\_income* is calculated by the logarithm of income taxes.

Public firms in China did not disclose detailed nominal tax rate and tax preferences in the footnotes to financial statements of their annual reports until 2007, so we calculate the level of corporate tax avoidance in the 2007–2010 subsample in Model (9), in which *Tax\_base* is a dummy variable representing the tax preferences linked to the tax basis, that takes the value one if there is an exemption or reduction in income taxes

<sup>6</sup> See details in *The tax law of the People's Republic of China* and *Accounting Standards for Business Enterprises*.

<sup>7</sup> See details in *The tax law of the People's Republic of China* and *Accounting Standards for Business Enterprises*.

<sup>8</sup> See details in *The tax law of the People's Republic of China* and *Accounting Standards for Business Enterprises*.



Table 14  
Pearson correlations of corporate taxes paid with BTD and ETR.

Variable	Tax_total	Tax_income	BTB	BTB1	BTB11	BTB12	BTB21	BTB22
<i>Panel A</i>								
Tax_total	1.0000							
Tax_income	0.8842***	1.0000						
BTB	<b>0.0379***</b>	<b>0.0561***</b>	1.0000					
BTB1	<b>0.0277*</b>	<b>0.0486***</b>	0.8574***	1.0000				
BTB11	<b>0.0517***</b>	<b>0.0726***</b>	0.9891***	0.8384***	1.0000			
BTB12	<b>0.0198</b>	<b>0.0606***</b>	0.7071***	0.6399***	0.7364***	1.0000		
BTB21	<b>0.0517***</b>	<b>0.0707***</b>	0.9822***	0.8347***	0.9946***	0.7220***	1.0000	
BTB22	<b>0.0179</b>	<b>0.0574***</b>	0.6975***	0.6327***	0.7274***	0.9895***	0.7232***	1.0000
<i>Panel B</i>								
Tax_total	1.0000							
Tax_income	0.9003***	1.0000						
BTB	<b>0.0589***</b>	<b>0.0692***</b>	1.0000					
BTB1	<b>0.0346**</b>	<b>0.0458***</b>	0.8549***	1.0000				
BTB11	<b>0.0581***</b>	<b>0.0704***</b>	0.9881***	0.8351***	1.0000			
BTB12	<b>0.0283*</b>	<b>0.0578***</b>	0.7004***	0.6302***	0.7300***	1.0000		
BTB21	<b>0.0580***</b>	<b>0.0685***</b>	0.9812***	0.8313***	0.9945***	0.7151***	1.0000	
BTB22	<b>0.0263*</b>	<b>0.0541***</b>	0.6904***	0.6226***	0.7206***	0.9889***	0.7162***	1.0000
Variable	Tax_total	Tax_income	ETB	ETB1	ETB11	ETB12	ETB21	ETB22
<i>Panel C</i>								
Tax_total	1.0000							
Tax_income	0.8842***	1.0000						
ETB	<b>0.0080</b>	<b>0.0113</b>	1.0000					
ETB1	<b>0.0106</b>	<b>0.0136</b>	0.9993***	1.0000				
<i>Panel D</i>								
Tax_total	1.0000							
Tax_income	0.9003***	1.0000						
ETB	<b>0.0015</b>	<b>0.0030</b>	1.0000					
ETB2	<b>0.0026</b>	<b>0.0040</b>	0.9939***	1.0000				

*p*-Values in parentheses.

\* *p* < 0.1.

\*\* *p* < 0.05.

\*\*\* *p* < 0.01.

mentioned in the footnotes to financial statements, and zero otherwise. The other variables are identical to those in Model (8), and the Pearson correlation matrix of corporate tax paid and tax avoidance aggressiveness is presented in Panel B of Table 14.

$$BTB_{i,t} = \beta_0 + \beta_1 TA_{i,t} + \beta_2 R\&D_{i,t} + \mu_{i,t} + \varepsilon_{i,t} \quad (8)$$

$$BTB_{i,t} = \beta_0 + \beta_1 TA_{i,t} + \beta_2 R\&D_{i,t} + \beta_3 Tax\_base_{i,t} + \mu_{i,t} + \varepsilon_{i,t} \quad (9)$$

$$ETB_{i,t} = \beta_0 + \beta_1 Speczone_{i,t} + \beta_2 Hightec_{i,t} + \mu_{i,t} + \varepsilon_{i,t} \quad (10)$$

$$ETB_{i,t} = \beta_0 + \beta_1 Speczone_{i,t} + \beta_2 Tax\_rate_{i,t} + \mu_{i,t} + \varepsilon_{i,t} \quad (11)$$

Models (10) and (11) use the effective tax rate (ETB) to measure the level of tax avoidance. The theory is basically the same as that for Models (8) and (9), with ETB represented by the item *Effective Tax Rate* disclosed in the operating capacity file of financial reports. *Speczone* is a dummy variable representing special economic zones in China, equal to one if the corporation operates in the five special zones of Shenzhen, Zhuhai, Shantou, Xiamen, and Hainan, and zero otherwise. *Hightec* is a dummy variable that takes the value of one if the firm is a high-tech firm or if it applies a transitional income tax rate of 25%, and such is stated in the footnotes to financial statements, and zero otherwise. For the same reasons given for the models using BTB, we apply the 2002–2010 and 2007–2010 samples to Models (10) and (11), respectively, with the residuals  $\varepsilon_{i,t}$  representing the level of corporate tax avoidance, denoted by *ETB1* and *ETB2*, respectively. The Pearson

correlation matrices of corporate tax paid and tax avoidance aggressiveness are presented in Panels C and D of Table 14, respectively.

As Panels A and B of Table 14 show, the BTD modified by earnings management and tax preferences (*BTDI* and *BTDI1–BTDI22*) or the unmodified BTD (*BTDI*) is positively related or unrelated to corporate total taxes or income taxes paid, indicating no statistical evidence supporting the point of view that firms that pay fewer taxes exhibit more aggressive tax avoidance.

In Panels C and D, neither the ETR modified by tax preferences (*ETRI* and *ETRI2*) nor the unmodified ETR (*ETRI*) are correlated with corporate total taxes or income taxes paid, indicating no statistical evidence supporting the point of view that firms that pay fewer taxes exhibit more aggressive tax avoidance.

The results from Panels A–D provide no evidence to support the point of view that firms that pay fewer taxes exhibit more aggressive tax avoidance, furthering the assertion that governments increase tax revenue by enhancing their tax enforcement on the firms that pay fewer taxes, which indirectly supports H2.

#### 4.4.4. The mediation of free cash flow

Jensen (1986) argues that high free cash flow triggers agency problems that result in overinvestment, but this problem could be mitigated by raising debt, which reduces firms' free cash flow – an argument supported by Tang et al. (2007). Wei and Liu (2007) and Tang et al. (2007) indirectly determine the positive relationship between corporate free cash flow and overinvestment by examining how cash dividends restrain the level of overinvestment. Therefore, to rule out the potential explanation that firms that pay fewer taxes are generally faced with the problem of overinvestment in response to their high free cash flow preserved in the firm due to tax saving activities, we scale total taxes paid (the sum of *Income Tax Expense* and *Business Tax and Surcharges* on the income statement) with total assets, denote corporate tax intensity and rerun the empirical tests in Table 9 with corporate tax intensity, represented by *N\_TaxI*, instead of corporate taxes paid. The results presented in Table A5 show that none of the coefficients for the interaction terms of *Distress1* × *N\_TaxI* and *Distress2* × *N\_TaxI* and for *N\_TaxI* are statistically significant, suggesting that corporate tax intensity has no effect on firms' overinvestment. Combined with the results in Table 9, our findings suggest that the positive effect that low corporate taxes paid has on the relationship between local fiscal distress and corporate overinvestment is triggered by the political intervention of local governments, thus ruling out the possibility of a mediating effect through free cash flow.

#### 4.4.5. An alternative explanation for H2 – the helping hand theory

We have a potential competing theory for H2 – the helping hand theory. Local governments and local SOEs have innumerable links through funds and personnel issues, and local governments always have a tendency to protect and support the local SOEs under their control, which is generally called paternalism (Hu, 2001). Local governments may offer a helping hand by serving as an invisible underwriter to help local SOEs lessen financing constraints when applying for bank loans (Zhu and Li, 2008) or by seeking investment projects for local SOEs to help them out of dilemmas prompted by operational or financial problems, which results in overinvestment by local SOEs. The firms with low operating and financial performance generally have low profitability, with both low turnover taxes based on corporate operations and low income taxes based on profits, indicating their limited contribution to local finance.

While such governmental helping hands can decrease financing constraints in the loan application process or discover investment projects for local SOEs, the latter (discovering investment projects for local SOEs) is difficult to observe. However, both activities should exist simultaneously in capital markets and satisfy a certain distribution that will allow us to deduce the existence or even the intensity of governmental helping hands by observing the activities of the former (decreasing financing constraints in local SOEs' loan application process). Given the ubiquitous soft budget constraints of local SOEs, banks' requirements for accounting conservatism on SOEs are much lower than those for non-SOEs, which is clearly a reflection of the government's helping hand. Another type of soft budget constraint is for governments to serve as invisible underwriters by helping SOEs to lessen their financing constraints when applying for bank loans. Consequently, following Basu (1997), we construct a model of accounting conservatism to help rule out the competitive explanation of paternalism by investigating the effect of 1-year lagged values of corporate taxes paid on banks' requirements for accounting conservatism.

Model (12) is the model constructed by Basu (1997), with  $EPS_{it}$  as a firm's earnings per share in year  $t$ ,  $P_{it-1}$  as the stock closing price in year  $t - 1$ ,  $Ret_{it}$  as the annual stock returns in year  $t$  and  $Dr_{it}$  as a dummy variable, that takes the value of one if  $Ret_{it} < 0$ , and zero otherwise. The coefficient of  $Ret_{it} \times Dr_{it}$ ,  $\beta_3$ , determines the extent of accounting conservatism.

$$EPS_{it}/P_{it-1} = \beta_0 + \beta_1 Dr_{it} + \beta_2 Ret_{it} + \beta_3 Ret_{it} \times Dr_{it} + \varepsilon \quad (12)$$

Models (13)–(15) measure the effects of the interactions of other variables with corporate accounting conservatism by incorporating interaction terms into Basu's (1997) basic model. Model (13) adds the interactions of corporate liability levels  $N_t$  and other variables in year  $t$  on the basis of Model (12), representing the total debt-to-asset ratio  $Lev$ , the ratio of long-term debt on total assets  $Ldebt$  and the ratio of short-term debt on total assets  $Sdebt$ , respectively. Hence, the coefficient of  $Ret_t \times Dr_t \times N_t$ ,  $\beta_7$  represents the effect of corporate capital structure on accounting conservatism.

Table 15  
Corporate tax payment, capital structure and accounting conservatism for local SOEs.

Variable	(1)	(2)	(3)	(4)
		Lev <sub>t</sub>	Ldebt <sub>t</sub>	Sdebt <sub>t</sub>
_cons	0.0351*** (0.000)	0.0616*** (0.000)	0.0371*** (0.000)	0.0518*** (0.000)
Dr <sub>t</sub>	0.0072 (0.113)	-0.0098 (0.391)	0.0058 (0.303)	-0.0052 (0.437)
Ret <sub>t</sub>	0.0183*** (0.000)	0.0053 (0.226)	0.0159*** (0.000)	0.0158*** (0.000)
Low <sub>t-1</sub>	-0.0351*** (0.000)	-0.0273*** (0.000)	-0.0331*** (0.000)	-0.0257*** (0.000)
Ret <sub>t</sub> × Dr <sub>t</sub>	0.0235** (0.021)	0.0312 (0.284)	0.0291** (0.028)	0.0231 (0.135)
Ret <sub>t</sub> × Low <sub>t-1</sub>	-0.0144*** (0.000)	-0.0004 (0.926)	-0.0095*** (0.000)	-0.0141*** (0.000)
Dr <sub>t</sub> × Low <sub>t-1</sub>	0.0005 (0.927)	-0.0163 (0.159)	-0.0021 (0.761)	-0.0045 (0.570)
<b>Ret<sub>t</sub> × Dr<sub>t</sub> × Low<sub>t-1</sub></b>	<b>0.0301** (0.043)</b>	-0.0308 (0.337)	0.0094 (0.603)	-0.0066 (0.751)
N <sub>t</sub>		-0.0422*** (0.000)	0.0113 (0.693)	-0.0864*** (0.000)
Ret <sub>t</sub> × N <sub>t</sub>		0.0199** (0.014)	0.0137 (0.497)	-0.0059 (0.694)
Dr <sub>t</sub> × N <sub>t</sub>		0.0172 (0.449)	-0.0246 (0.635)	0.0439 (0.254)
Ret <sub>t</sub> × Dr <sub>t</sub> × N <sub>t</sub>		-0.0169 (0.753)	-0.0532 (0.632)	0.0246 (0.774)
N <sub>t</sub> × Low <sub>t-1</sub>		-0.0438*** (0.000)	-0.1766*** (0.000)	-0.0944*** (0.000)
Ret <sub>t</sub> × N <sub>t</sub> × Low <sub>t-1</sub>		-0.0087 (0.318)	-0.0085 (0.754)	0.0422** (0.021)
Dr <sub>t</sub> × N <sub>t</sub> × Low <sub>t-1</sub>		0.0649*** (0.004)	0.1867*** (0.007)	0.0966** (0.021)
<b>Ret<sub>t</sub> × Dr<sub>t</sub> × N<sub>t</sub> × Low<sub>t-1</sub></b>		<b>0.0887 (0.111)</b>	<b>0.2546* (0.088)</b>	<b>0.1149 (0.230)</b>
Industry	Y	Y	Y	Y
Year	Y	Y	Y	Y
N	5142	5142	5118	5142
Adj. R-sq	0.131	0.184	0.139	0.185

*p*-Values in parentheses.

\* *p* < 0.1.

\*\* *p* < 0.05.

\*\*\* *p* < 0.01.

$$EPS_{it}/P_{it-1} = \beta_0 + \beta_1 Dr_{it} + \beta_2 Ret_{it} + \beta_3 N_{it} + \beta_4 Ret_{it} \times Dr_{it} + \beta_5 Ret_{it} \times N_t + \beta_6 Dr_t \times N_t + \beta_7 Ret_t \times Dr_t \times N_t + \varepsilon \tag{13}$$

Model (14) adds the interactions of a low level of corporate taxes paid and other variables to Model (12), in which  $Low_{t-1}$  is a dummy variable that takes the value of one if the taxes paid by the firm in year  $t - 1$  are lower than the median value of the total SOE subsample in the corresponding year, and zero otherwise. Thus, the coefficient of  $Ret_t \times Dr_t \times Low_{t-1}$ ,  $\beta_7$  represents the effect of low corporate taxes paid on accounting conservatism.

$$EPS_{it}/P_{it-1} = \beta_0 + \beta_1 Dr_{it} + \beta_2 Ret_{it} + \beta_3 Low_{it-1} + \beta_4 Ret_{it} \times Dr_{it} + \beta_5 Ret_{it} \times Low_{it-1} + \beta_6 Dr_t \times Low_{t-1} + \beta_7 Ret_t \times Dr_t \times Low_{t-1} + \varepsilon \tag{14}$$

$$EPS_{it}/P_{it-1} = \beta_0 + \beta_1 Dr_{it} + \beta_2 Ret_{it} + \beta_3 Low_{it-1} + \beta_4 Ret_{it} \times Dr_{it} + \beta_5 Ret_{it} \times Low_{it-1} + \beta_6 Dr_t \times Low_{t-1} + \beta_7 Ret_t \times Dr_t \times Low_{t-1} + \beta_8 N_t + \beta_9 Ret_t \times N_t + \beta_{10} Dr_t \times N_t + \beta_{11} Ret_t \times Dr_t \times N_t + \beta_{12} N_t \times Low_{t-1} + \beta_{13} Ret_t \times N_t \times Low_{t-1} + \beta_{14} Dr_t \times N_t \times Low_{t-1} + \beta_{15} Ret_t \times Dr_t \times N_t \times Low_{t-1} + \varepsilon \tag{15}$$

Table A1  
Differences in the effects of actual and normal investment levels on corporate performance (Model (5.1)).

Variable	The whole sample		Overinvestment subsample		Underinvestment subsample	
	(1) Roa	(2) Opr	(3) Roa	(4) Opr	(5) Roa	(6) Opr
_cons	-0.0826*** (0.000)	-0.3796*** (0.000)	-0.0850** (0.019)	-0.4046*** (0.002)	-0.1075*** (0.000)	-0.4232*** (0.000)
Inv <sub>act</sub>	<b>0.0299***</b> (0.000)	<b>0.1386***</b> (0.000)	<b>0.0422***</b> (0.000)	<b>0.1857***</b> (0.000)	<b>0.0224***</b> (0.001)	<b>0.1085***</b> (0.000)
Inv <sub>nor</sub>	<b>0.2854***</b> (0.000)	<b>0.7469***</b> (0.000)	<b>0.2572***</b> (0.000)	<b>0.5619***</b> (0.000)	<b>0.2840***</b> (0.000)	<b>0.8039***</b> (0.000)
L_Size	0.0035*** (0.001)	0.0219*** (0.000)	0.0040** (0.020)	0.0270*** (0.000)	0.0047*** (0.001)	0.0225*** (0.000)
L_Lev	-0.0642*** (0.000)	-0.3734*** (0.000)	-0.0488*** (0.000)	-0.3449*** (0.000)	-0.0729*** (0.000)	-0.3912*** (0.000)
Herf	0.0003*** (0.000)	0.0008*** (0.000)	0.0003*** (0.000)	0.0007** (0.026)	0.0004*** (0.000)	0.0009*** (0.000)
Dual	-0.0028 (0.205)	-0.0192** (0.013)	-0.0061* (0.084)	-0.0276** (0.033)	-0.0008 (0.780)	-0.0139 (0.149)
Growth	0.0231*** (0.000)	0.0704*** (0.000)	0.0172*** (0.000)	0.0508*** (0.000)	0.0264*** (0.000)	0.0820*** (0.000)
Fcf	0.0600*** (0.000)	0.1006*** (0.000)	0.0358*** (0.000)	-0.0139 (0.654)	0.0772*** (0.000)	0.1819*** (0.000)
CapInt	-0.0496*** (0.000)	-0.1183*** (0.000)	-0.0440*** (0.000)	-0.0993*** (0.001)	-0.0493*** (0.000)	-0.1218*** (0.000)
MB	0.0131*** (0.000)	-0.0036 (0.344)	0.0142*** (0.000)	0.0003 (0.964)	0.0118*** (0.000)	-0.0084* (0.097)
Industry	Y	Y	Y	Y	Y	Y
Year	Y	Y	Y	Y	Y	Y
N	7082	7082	2475	2475	4607	4607
adj. R <sup>2</sup>	0.200	0.225	0.168	0.187	0.216	0.250
F	<b>89.74***</b>	<b>40.44***</b>	<b>23.42***</b>	<b>5.27**</b>	<b>58.56***</b>	<b>34.21***</b>
porb > F	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.022</b>	<b>0.000</b>	<b>0.000</b>

p-Values in parentheses.

\* p < 0.1.

\*\* p < 0.05.

\*\*\* p < 0.01.

Table A2

Local fiscal distress, corporate overinvestment and the effect of corporate taxes paid for central SOEs.

Variable	(1) OverInv	(2) OverInv	(3) OverInv	(4) OverInv	(5) UnderInv	(6) UnderInv	(7) UnderInv	(8) UnderInv
_cons	0.4295 (0.372)	0.4032 (0.399)	0.3387 (0.519)	0.2143 (0.735)	0.1327** (0.032)	0.1322** (0.034)	0.1266* (0.076)	0.1265* (0.083)
<b>Distress1<sub>t-1</sub></b>	<b>-0.0013*</b> <b>(0.085)</b>		<b>-0.0082</b> <b>(0.115)</b>		<b>0.0001</b> <b>(0.366)</b>		<b>0.0015*</b> <b>(0.063)</b>	
<b>Distress1<sub>t-1</sub> × N_Tax<sub>t-1</sub></b>			<b>-0.0004</b> <b>(0.240)</b>				<b>0.0001*</b> <b>(0.086)</b>	
<b>Distress2<sub>t-1</sub></b>		<b>-0.0014</b> <b>(0.108)</b>		<b>-0.0057</b> <b>(0.479)</b>		<b>0.0001</b> <b>(0.365)</b>		<b>0.0015*</b> <b>(0.098)</b>
<b>Distress2<sub>t-1</sub> × N_Tax<sub>t-1</sub></b>				<b>-0.0002</b> <b>(0.626)</b>				<b>0.0001</b> <b>(0.133)</b>
N_Tax <sub>t-1</sub>			0.0494** (0.026)	0.0415* (0.083)			-0.0074*** (0.007)	-0.0072*** (0.008)
Size <sub>t</sub>	0.0090 (0.553)	0.0090 (0.554)	0.0430** (0.021)	0.0410** (0.024)	-0.0005 (0.854)	-0.0005 (0.859)	-0.0051 (0.142)	-0.0050 (0.155)
Roa <sub>t</sub>	0.1832 (0.384)	0.1806 (0.388)	0.3134 (0.120)	0.3016 (0.132)	-0.1209** (0.021)	-0.1209** (0.021)	-0.1320** (0.012)	-0.1320** (0.012)
Fcf <sub>t</sub>	0.1335 (0.105)	0.1329 (0.109)	0.1586** (0.037)	0.1586** (0.040)	-0.1628*** (0.000)	-0.1629*** (0.000)	-0.1677*** (0.000)	-0.1674*** (0.000)
Dual <sub>t</sub>	0.0034 (0.923)	0.0035 (0.920)	0.0006 (0.987)	0.0009 (0.981)	0.0011 (0.824)	0.0010 (0.836)	0.0013 (0.787)	0.0013 (0.783)
Exeown <sub>t</sub>	0.0017 (0.357)	0.0017 (0.351)	0.0021 (0.155)	0.0020 (0.208)	-0.0019 (0.376)	-0.0019 (0.383)	-0.0021 (0.310)	-0.0021 (0.318)
Herf <sub>t</sub>	0.0001 (0.903)	0.0002 (0.862)	-0.0000 (0.988)	0.0000 (0.975)	0.0000 (0.883)	0.0000 (0.888)	-0.0000 (0.952)	-0.0000 (0.964)
Divid <sub>t</sub>	0.1716 (0.149)	0.1700 (0.150)	0.1774 (0.135)	0.1732 (0.144)	-0.0006 (0.943)	-0.0007 (0.942)	-0.0024 (0.787)	-0.0024 (0.791)
Debt <sub>t</sub>	0.1765* (0.080)	0.1728* (0.083)	0.1520 (0.129)	0.1579 (0.119)	0.0477** (0.022)	0.0475** (0.023)	0.0544*** (0.008)	0.0541*** (0.009)
Salary <sub>t</sub>	-0.0412* (0.067)	-0.0400* (0.079)	-0.0347 (0.196)	-0.0323 (0.236)	-0.0062** (0.046)	-0.0062** (0.043)	-0.0069** (0.027)	-0.0069** (0.024)
GDPgth <sub>t</sub>	0.0039* (0.091)	0.0035 (0.114)	0.0026 (0.300)	0.0024 (0.312)	0.0007 (0.447)	0.0007 (0.432)	0.0007 (0.440)	0.0007 (0.437)
GovIntvn <sub>t</sub>	-0.0162* (0.066)	-0.0151* (0.058)	-0.0176* (0.063)	-0.0164* (0.051)	0.0004 (0.687)	0.0004 (0.699)	0.0006 (0.605)	0.0006 (0.617)
Industry	Y	Y	Y	Y	Y	Y	Y	Y
Year	Y	Y	Y	Y	Y	Y	Y	Y
N	505	505	505	505	973	973	973	973
adj. R <sup>2</sup>	0.074	0.072	0.086	0.083	0.173	0.173	0.176	0.175

p-Values in parentheses.

\*  $p < 0.1$ .\*\*  $p < 0.05$ .\*\*\*  $p < 0.01$ .

Model (15) adds the interactions of  $Low_{t-1}$  and other variables to Model (13), so the coefficient of  $Ret_t \times Dr_t \times N_t \times Low_{t-1}$ ,  $\beta_{15}$  represents the effect of low corporate taxes paid on the relationship between corporate capital structure and accounting conservatism.

The results for the effect of low corporate taxes paid on the relationship between corporate capital structure and accounting conservatism are presented in Table 15 and reveal that the coefficient of  $Ret_t \times Dr_t \times Low_{t-1}$  in column (1) is positive and statistically significant, indicating that banks raise their requirements for accounting conservatism on those local SOEs with low operating and financial performance.  $N_t$  in columns (2), (3) and (4), respectively, represents  $Lev_t$ ,  $Ldebt_t$  and  $Sdebt_t$ , in which the coefficients of  $Ret_t \times Dr_t \times N_t \times Low_{t-1}$  in columns (2) and (4) are positive, but statistically insignificant while that in column (3) is significantly positive, indicating that the low taxes paid by local SOEs have no effect on the relationship between total liabilities and short-term debt and accounting conservatism. They do, however, raise banks' requirements for the accounting

Table A3  
Results of 2SLS for non-SOEs.

Variable	(1) OverInv	(2) OverInv	(3) OverInv	(4) OverInv	(5) UnderInv	(6) UnderInv	(7) UnderInv	(8) UnderInv
Main results								
_cons	-0.3516 (0.136)	-0.6661 (0.411)	-0.3417 (0.144)	-0.7559*** (0.006)	0.3816*** (0.000)	0.4274* (0.055)	0.3817*** (0.000)	0.3655*** (0.000)
<b>Distress1<sub>t-1</sub></b>	<b>0.0007</b> <b>(0.127)</b>	<b>-0.0021</b> <b>(0.930)</b>			<b>0.0000</b> <b>(0.963)</b>	<b>-0.0022</b> <b>(0.729)</b>		
<b>Distress1<sub>t-1</sub> × N_Tax<sub>t-1</sub></b>		<b>-0.0002</b> <b>(0.910)</b>				<b>-0.0001</b> <b>(0.730)</b>		
<b>Distress2<sub>t-1</sub></b>			<b>0.0008</b> <b>(0.124)</b>	<b>0.0009</b> <b>(0.848)</b>			<b>0.0000</b> <b>(0.904)</b>	<b>-0.0004</b> <b>(0.687)</b>
<b>Distress2<sub>t-1</sub> × N_Tax<sub>t-1</sub></b>				<b>0.0000</b> <b>(0.950)</b>				<b>-0.0000</b> <b>(0.673)</b>
N_Tax <sub>t-1</sub>		0.0608 (0.259)		0.0541*** (0.000)		0.0090 (0.549)		0.0048* (0.071)
Size <sub>t</sub>	0.0288*** (0.006)	0.0794*** (0.000)	0.0287*** (0.006)	0.0783*** (0.000)	-0.0125*** (0.000)	-0.0082** (0.011)	-0.0125*** (0.000)	-0.0088*** (0.000)
Roa <sub>t</sub>	-0.0788 (0.592)	0.1563 (0.289)	-0.0768 (0.602)	0.1580 (0.283)	-0.0108 (0.473)	-0.0055 (0.722)	-0.0108 (0.471)	-0.0062 (0.680)
Fcf <sub>t</sub>	0.0727 (0.120)	0.0757 (0.149)	0.0734 (0.117)	0.0731 (0.110)	-0.1347*** (0.000)	-0.1356*** (0.000)	-0.1347*** (0.000)	-0.1347*** (0.000)
Dual <sub>t</sub>	-0.0053 (0.790)	-0.0068 (0.736)	-0.0054 (0.787)	-0.0062 (0.749)	0.0000 (0.999)	-0.0011 (0.797)	0.0000 (0.997)	-0.0007 (0.850)
Exeown <sub>t</sub>	0.0002 (0.913)	0.0001 (0.965)	0.0001 (0.940)	0.0000 (0.985)	-0.0010*** (0.004)	-0.0010*** (0.007)	-0.0010*** (0.004)	-0.0010*** (0.006)
Herf <sub>t</sub>	0.0027*** (0.000)	0.0026*** (0.000)	0.0026*** (0.000)	0.0025*** (0.000)	-0.0001 (0.312)	-0.0001 (0.348)	-0.0001 (0.311)	-0.0001 (0.357)
Divid <sub>t</sub>	0.0812 (0.152)	0.1289** (0.021)	0.0803 (0.157)	0.1287** (0.021)	0.0214* (0.082)	0.0250** (0.049)	0.0215* (0.081)	0.0256** (0.039)
Debt <sub>t</sub>	0.1352 (0.143)	0.1335 (0.140)	0.1388 (0.131)	0.1351 (0.132)	0.0443** (0.025)	0.0438** (0.029)	0.0443** (0.024)	0.0432** (0.027)
Salary <sub>t</sub>	-0.0289** (0.017)	-0.0144 (0.254)	-0.0293** (0.014)	-0.0141 (0.232)	-0.0038* (0.082)	-0.0032 (0.186)	-0.0038* (0.079)	-0.0029 (0.179)
GDPgth <sub>t</sub>	0.0051** (0.045)	0.0053** (0.039)	0.0052** (0.040)	0.0055** (0.027)	0.0007 (0.180)	0.0007 (0.156)	0.0007 (0.176)	0.0008 (0.125)
Industry	Y	Y	Y	Y	Y	Y	Y	Y
Year	Y	Y	Y	Y	Y	Y	Y	Y
N	977	977	977	977	1961	1961	1961	1961

*p*-Values in parentheses.

\* *p* < 0.1.

\*\* *p* < 0.05.

\*\*\* *p* < 0.01.

conservatism of local SOEs on long-term debt. In summary, the results suggest that there is no evidence that banks lessen their requirements for accounting conservatism on local SOEs with low operating and financial performance. Local governments never offer a helping hand on this issue, thus ruling out the possibility that the paternalism of local governments politically intervenes in the investment activities of local SOEs, resulting in a greater extent of overinvestment for those SOEs with lower taxes paid.

#### 4.4.6. Systematic errors of the overinvestment model

Given the systematic errors of the overinvestment model, there must be a different predicted value from the corresponding observed value, and not all gaps between these two values are necessarily overinvestment or underinvestment, so we select the observations that are larger than the tenth percentile of  $OverInv_{i,t}$ , and  $UnderInv_{i,t}$  to be our research sample and obtain the above empirical results. To determine the robustness of our sample selection procedure, we (1) expand the sample to include the whole sample with no percentile selection



Table A4  
Results of 2SLS for central SOEs.

Variable	(1) OverInv	(2) OverInv	(3) OverInv	(4) OverInv	(5) UnderInv	(6) UnderInv	(7) UnderInv	(8) UnderInv
Main results								
_cons	0.2809 (0.443)	-1.0418 (0.640)	0.2762 (0.437)	0.0819 (0.859)	0.1397** (0.014)	0.2522 (0.192)	0.1364** (0.012)	0.1322** (0.049)
<b>Distress1<sub>t-1</sub></b>	<b>0.0010</b> <b>(0.227)</b>	<b>0.0269</b> <b>(0.639)</b>			<b>-0.0000</b> <b>(0.943)</b>	<b>-0.0023</b> <b>(0.680)</b>		
<b>Distress1<sub>t-1</sub> × N_Tax<sub>t-1</sub></b>		<b>0.0015</b> <b>(0.651)</b>				<b>-0.0001</b> <b>(0.681)</b>		
<b>Distress2<sub>t-1</sub></b>			<b>0.0009</b> <b>(0.193)</b>	<b>-0.0029</b> <b>(0.708)</b>			<b>0.0000</b> <b>(0.766)</b>	<b>0.0013</b> <b>(0.247)</b>
<b>Distress2<sub>t-1</sub> × N_Tax<sub>t-1</sub></b>				<b>-0.0002</b> <b>(0.624)</b>				<b>0.0001</b> <b>(0.260)</b>
N_Tax <sub>t-1</sub>		-0.0369 (0.805)		0.0389* (0.072)		0.0014 (0.918)		-0.0072** (0.032)
Size <sub>t</sub>	0.0085 (0.516)	0.0250 (0.470)	0.0090 (0.489)	0.0392** (0.023)	-0.0005 (0.825)	-0.0038 (0.298)	-0.0005 (0.815)	-0.0050* (0.096)
Roa <sub>t</sub>	0.1966 (0.407)	0.2526 (0.422)	0.1986 (0.402)	0.3142 (0.189)	-0.1212*** (0.000)	-0.1352*** (0.000)	-0.1209*** (0.000)	-0.1320*** (0.000)
Fcf <sub>t</sub>	0.1260* (0.057)	0.1534* (0.058)	0.1195* (0.070)	0.1424** (0.031)	-0.1628*** (0.000)	-0.1640*** (0.000)	-0.1627*** (0.000)	-0.1671*** (0.000)
Dual <sub>t</sub>	0.0014 (0.972)	-0.0036 (0.941)	-0.0013 (0.975)	-0.0043 (0.915)	0.0011 (0.880)	0.0020 (0.788)	0.0011 (0.881)	0.0014 (0.845)
Exeown <sub>t</sub>	0.0024 (0.702)	0.0017 (0.827)	0.0024 (0.698)	0.0027 (0.661)	-0.0019 (0.709)	-0.0024 (0.650)	-0.0019 (0.708)	-0.0022 (0.673)
Herf <sub>t</sub>	0.0001 (0.863)	0.0000 (0.999)	0.0002 (0.817)	0.0001 (0.940)	0.0000 (0.881)	0.0000 (0.858)	0.0000 (0.872)	-0.0000 (0.985)
Divid <sub>t</sub>	0.1660** (0.010)	0.1524* (0.071)	0.1684*** (0.009)	0.1713*** (0.008)	-0.0008 (0.948)	-0.0010 (0.940)	-0.0007 (0.951)	-0.0025 (0.838)
Debt <sub>t</sub>	0.1878* (0.098)	0.2500 (0.218)	0.1792 (0.110)	0.1657 (0.142)	0.0486** (0.043)	0.0525** (0.034)	0.0478** (0.045)	0.0543** (0.023)
Salary <sub>t</sub>	-0.0424** (0.022)	-0.0242 (0.437)	-0.0428** (0.016)	-0.0358** (0.048)	-0.0062* (0.054)	-0.0075** (0.023)	-0.0061** (0.044)	-0.0068** (0.025)
GDPgth <sub>t</sub>	0.0044 (0.206)	0.0049 (0.325)	0.0046 (0.172)	0.0037 (0.274)	0.0007 (0.236)	0.0006 (0.358)	0.0007 (0.238)	0.0007 (0.230)
Industry	Y	Y	Y	Y	Y	Y	Y	Y
Year	Y	Y	Y	Y	Y	Y	Y	Y
N	505	505	505	505	973	973	973	973

*p*-Values in parentheses.

\* *p* < 0.1.

\*\* *p* < 0.05.

\*\*\* *p* < 0.01.

and (2) shrink it to include only observations that are larger than the twenty-fifth percentile of  $OverInv_{i,t}$ , and  $UnderInv_{i,t}$ . We rerun the previous empirical tests with these two samples and find that the results are consistent with those in Tables 8–10, ruling out the possibility of bias induced by the sample selection procedure.

## 5. Conclusion

Our empirical tests and robustness checks support the following conclusions. The extent of local SOEs overinvestment (underinvestment) is positively (negatively) related to the level of local fiscal distress, and the positive (negative) relationship is enhanced when fewer taxes are paid by local SOEs. There is no evidence that the investment behavior of non-SOEs or central SOEs is related to local finance or corporate taxes paid, with the results for non-SOEs demonstrating the existence of political intervention and the results of central SOEs ruling out the possibility of abundant investment opportunities. Increasing firms' investment scales

Table A5  
Effect of corporate tax intensity on local fiscal distress and corporate overinvestment.

Variable	(1) Local SOEs	(2) Local SOEs	(3) Non-SOEs	(4) Non-SOEs
_cons	-1.0098*** (0.001)	-1.0074*** (0.001)	-0.2926 (0.129)	-0.2872 (0.138)
<b>Distress1<sub>t-1</sub></b>	<b>0.0022***</b> <b>(0.006)</b>		<b>0.0005</b> <b>(0.315)</b>	
<b>Distress1<sub>t-1</sub> × N_TaxI<sub>t-1</sub></b>	<b>0.0236</b> <b>(0.419)</b>		<b>0.0011</b> <b>(0.952)</b>	
<b>Distress2<sub>t-1</sub></b>		<b>0.0026***</b> <b>(0.007)</b>		<b>0.0005</b> <b>(0.393)</b>
<b>Distress2<sub>t-1</sub> × N_TaxI<sub>t-1</sub></b>		<b>0.0324</b> <b>(0.366)</b>		<b>0.0000</b> <b>(1.000)</b>
N_Tax <sub>t-1</sub>	0.0988 (0.939)	-0.1679 (0.909)	-0.4874 (0.522)	-0.4491 (0.599)
Size <sub>t</sub>	0.0614*** 0.000	0.0607*** 0.000	0.0249*** (0.003)	0.0249*** (0.003)
Roa <sub>t</sub>	0.5622** (0.026)	0.5690** (0.025)	-0.0939 (0.316)	-0.0925 (0.323)
Fcf <sub>t</sub>	0.2093** (0.014)	0.2109** (0.014)	0.0566 (0.157)	0.0573 (0.151)
Dual <sub>t</sub>	0.0048 (0.882)	0.0052 (0.871)	-0.0100 (0.563)	-0.0100 (0.562)
Exeown <sub>t</sub>	0.0187 (0.712)	0.0186 (0.715)	0.0002 (0.886)	0.0001 (0.899)
Herf <sub>t</sub>	0.0046*** (0.000)	0.0046*** (0.000)	0.0019*** (0.000)	0.0018*** (0.000)
Divid <sub>t</sub>	-0.1182 (0.102)	-0.1181 (0.102)	0.0599 (0.262)	0.0588 (0.271)
Debt <sub>t</sub>	0.4231*** (0.000)	0.4285*** (0.000)	0.1383* (0.098)	0.1409* (0.091)
Salary <sub>t</sub>	-0.0502*** (0.003)	-0.0505*** (0.003)	-0.0226** (0.025)	-0.0230** (0.022)
GDPgth <sub>t</sub>	0.0029 (0.405)	0.0031 (0.373)	0.0048** (0.033)	0.0049** (0.030)
Industry	Y	Y	Y	Y
Year	Y	Y	Y	Y
N	1161	1161	1048	1048
adj. R <sup>2</sup>	0.130	0.129	0.052	0.051

*p*-Values in parentheses.

\* *p* < 0.1.

\*\* *p* < 0.05.

\*\*\* *p* < 0.01.

could help to increase the total taxes paid, including both income and turnover taxes, further resulting in higher local fiscal revenue. Turnover taxes paid by firms are not affected by corporate investment efficiency and the income taxes paid by underinvested firms are much lower than those paid by their normal-level counterparts. Local governments should increase their tax revenue by increasing the investment scales of underinvested firms to meet the normal levels and by helping overinvested firms to adjust their production, operation and capital structures to match the present investment level before expanding their investment scale. The empirical results suggest that local governments could achieve the goal of raising fiscal revenue by increasing the investment scales of local SOEs, which directly results in an increase in total taxes paid. Hausman tests and 2SLS with IVs also exclude the possibility that the overinvestment of local SOEs leads to local fiscal distress. There is no evidence supporting the assertion that local governments increase their tax revenue by enhancing their tax enforcement on firms who pay fewer taxes, thus indirectly supporting the hypothesis that local governments increase their tax revenue by forcing firms paying lower taxes to raise their investment scales. There

is no evidence that the tax intensity of local SOEs or non-SOEs influences the relationship between corporate overinvestment and local finance, thus ruling out the possibility that overinvestment induced by a difference in the amount of tax payment is mediated by changes in free cash flow. There is no evidence that governmental helping hands play a role in helping SOEs with low operating and finance performance, thus ruling out the possibility that local governments offer a helping hand by serving as an invisible underwriter to help local SOEs lessen financing constraints when applying for bank loans or by seeking investment projects for local SOEs. This also indirectly verifies that the intensifying effect of the lower contribution made by local SOEs to the positive relationship between local fiscal distress and the overinvestment of local SOEs is due to the political intervention of a local governmental grabbing hand.

Above all, we conclude that local governments have an incentive to increase fiscal revenue when faced with financial distress, by forcing the local SOEs under their control to raise their investment scales, resulting in either overinvestment or lowering the level of underinvestment due to other reasons. Likewise, the incentive and effect of such intervention appear to be stronger on firms that contribute less to local finance.

This study enriches the literature on government intervention and investment efficiency, providing empirical evidence of the grabbing hand theory through the perspectives of local public finance and enterprise investment, in addition to a new research perspective to apply to the problems of fiscal issues from the firm-level view. In practice, we discover a relationship between local public finance and the investment behavior of local SOEs, and provide theoretical bases and references for the ways in which local governments make fiscal policies and improve the supervisory roles they have over local SOEs.

## Appendix A

See [Tables A1–A5](#).

## References

- Aggarwal, R.K., Samwick, A.A., 2006. Empire-builders and shirkers: investment, firm performance, and managerial incentives. *Journal of Corporate Finance* 12, 489–515.
- Basu, S., 1997. The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics* 24, 3–37.
- Berle, A.A., Means, G.C., 1932. *The Modern Corporation and Private Property*. MacMillan, New York, NY.
- Brennan, G., Buchanan, J.M., 1980. *The Power to Tax: Analytical Foundations of a Fiscal Constitution*. Cambridge University Press, Cambridge.
- Chen, D.H., Shen, Y.J., Xin, F., Zhang, T.Q., 2012. Overemployment, executive pay-for-performance sensitivity and economic consequences: evidence from China. *China Journal of Accounting Research* 5 (1), 1–26.
- Chen, S., Sun, Z., Tang, S., Wu, D., 2011. Government intervention and investment efficiency: evidence from China. *Journal of Corporate Finance* 17, 259–271.
- Cheng, Z.M., Xia, X.P., Yu, M.G., 2008. Government intervention, pyramid structure and investment of local SOEs. *Management World* 9, 37–47.
- Cheung, Y.L., Rau, R., Stouraitis, A., 2008. The Helping Hand, the Lazy Hand, or the Grabbing Hand? Central vs. Local Government Shareholders in Publicly Listed Firms in China. Working Paper. City University of Hong Kong and Purdue University.
- Dahiya, S., Saunders, A., Srinivasan, A., 2003. Financial distress and bank lending relationships. *The Journal of Finance* 58 (1), 375–399.
- Derashid, C., Zhang, H., 2003. Effective tax rates and the “industrial policy” hypothesis: evidence from Malaysia. *Journal of International Accounting, Auditing and Taxation* 12, 45–62.
- Desai, M.A., 2003. *The Divergence between Book Income and Tax Income, Tax Policy and the Economy*, vol. 17. MIT press.
- Desai, A.M., Dharmapala, D., 2006. Corporate tax avoidance and high-powered incentives. *Journal of Financial Economics* 79, 145–179.
- Desai, M., Dharmapala, D., 2009. Corporate tax avoidance and firm value. *American Law & Economics Association Annual Meetings*, 1–32.
- Fazzari, S.M., Hubbard, R.G., Petersen, B.C., 1988. Financing constraints and corporate investment. *Brookings Papers on Economic Activity* 1, 141–195.
- Feltenstein, A., Iwata, S., 2005. Decentralization and macroeconomic performance in China: regional autonomy has its costs. *Journal of Development Economics* 76, 481–501.
- Frye, T., Shleifer, A., 1997. The invisible hand and the grabbing hand. *American Economic Review* 87, 354–358.
- Gupta, S., Newberry, K., 1997. Determinants of the variability in corporate effective tax rate: evidence from longitudinal data. *Journal of Accounting and Public Policy* 16, 1–39.
- Hanlon, M., Heitzman, S., 2010. A review of tax research. *Journal of Accounting and Economics* 50, 127–178.
- Hu, S.D., 2001. *The Relationship between the Central and Local Government: Research on China’s Fiscal System Change*. Shanghai Joint Publishing, Shanghai People’s Publishing House, Shanghai.

- Jensen, M.C., Meckling, W.H., 1976. Theory of the firm: managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics* 3, 305–360.
- Jensen, M.C., 1986. Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review* 76, 323–329.
- Jian, M., Wong, T.J., 2010. Propping through related party transactions. *Review of Accounting Studies* 15, 70–105.
- Jiang, F.X., Yi, Z.H., Su, F., Huang, L., 2009. Administrators background characteristics and Enterprise over-investment behavior. *Management World* 1, 130–139.
- Jin, H., Qian, Y., Weingast, B.R., 2005. Regional decentralization and fiscal incentives: federalism, Chinese style. *Journal of Public Economics* 89, 1719–1742.
- La Porta, R., Lopez de Silanes, F., Shleifer, A., 1999. Corporate ownership around the world. *Journal of Finance* 54, 471–518.
- Liao, G.M., Chen, Y., 2007. Government ownership, corporate characteristics and corporate performance in distress. *Accounting Research* 3, 33–41.
- Li, H., Zhou, L., 2005. Political turnover and economic performance: the incentive role of personnel control in China. *Journal of Public Economics* 89, 1743–1762.
- Malmendler, U., Tate, G., 2005. CEO overconfidence and corporate investment. *The Journal of Finance* 6, 2661–2700.
- Mills, L.F., 1998. Book-tax differences and internal revenue service adjustments. *Journal of Accounting Research* 36 (2), 343–356.
- Modigliani, F., Miller, M., 1958. The cost of capital, corporation finance and the theory of investment. *American Economic Review* 48, 261–297.
- Montinola, G., Qian, Y., Weingast, B., 1995. Federalism, Chinese style: the political basis for economic success in China. *World Politics* 48, 50–81.
- Myers, S., 1977. Determinants of corporate borrowing. *Journal of Financial Economics* 5, 147–175.
- Myers, S., Majluf, N.S., 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics* 13, 187–221.
- Narayanan, M., 1988. Debt versus equity under asymmetric information. *Journal of Financial and Quantitative Analysis* 23, 39–51.
- Porcano, T.M., 1986. Corporate tax rates: progressive, proportional or regressive. *Journal of the American Taxation Association* 7, 17–31.
- Richardson, S., 2006. Over-investment of free cash flow. *Review of Accounting Studies* 11, 159–189.
- Roll, R., 1986. The hubris hypothesis of corporate takeovers. *Journal of Business* 59, 197–216.
- Stulz, R., 1990. Managerial discretion and optimal financing policies. *Financial Economics* 26, 3–27.
- Tang, X.S., Zhou, X.S., Ma, R.J., 2007. Empirical research on over-investment behavior and its restriction systems in China's listed companies. *Accounting Research* 7, 44–52.
- Tang, X.S., Zhou, X.S., Ma, R.J., 2010. Government intervention, GDP growth and over-investment of local SOEs. *Journal of Financial Research* 8, 33–48.
- Wei, M.H., Liu, J.H., 2007. SOE dividends, governance factors and over-investment. *Management World* 4, 88–95.
- Wilson, R.J., 2009. An examination of corporate tax shelter participants. *The Accounting Review* 84 (3), 969–999.
- Wu, S.N., Lu, X.Y., 2001. A study of models for predicting financial distress in China's listed companies. *Economic Research Journal* 6, 46–55.
- Wu, W., Wu, C., Zhou, C., Wu, J., 2011. Political connections, tax benefits and firm performance: evidence from China. *Journal of Accounting and Public Policy*, 1–24.
- Xin, Q.Q., Lin, B., Wang, Y.C., 2007. Government control, executive compensation and capital investment. *Economic Research Journal* 8, 110–122.
- Xue, Y.K., Bai, Y.X., 2008. State ownership, redundant employees and corporate performance. *Management World* 10, 96–105.
- Yang, H.J., Hu, Y.M., 2007. Institutional environment and over investment of free cash flow. *Management World* 9, 99–116.
- Young, A., 2000. The razor's edge: distortions and incremental reform in the People's Republic of China. *Quarterly Journal of Economics* 115, 1091–1135.
- Zhang, H.H., Wang, Z.J., 2010. Government intervention, government object and state-owned listed companies' overinvestment. *Nankai Business Review* 13, 101–108.
- Zhou, L.A., 2004. The incentive and cooperation of government officials in the political tournaments: an interpretation of the prolonged local protectionism and duplicative investments in China. *Economic Research Journal* 6, 33–40.
- Zhu, C.F., Li, Z.W., 2008. State ownership and accounting conservatism. *Accounting Research* 5, 38–45.
- Zimmerman, J.L., 1983. Taxes and firm size. *Journal of Accounting and Economics* 5, 119–149.