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Why do the Enterprises Engage in Inefficient Investment in China? Evidence from the Government's Grabbing Hand

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Abstract

This paper theoretically and empirically explores the reason why Chinese enterprises engage in inefficient investment from the government's grabbing hand perspective on a large sample of 8501 firm-year observations between 2003 and 2011. The results suggest that influenced by the grabbing hand of local officials, private enterprises exhibit significantly higher investment distortion and inefficiency in terms of overinvestment and underinvestment than the enterprises controlled by the governments at all levels. Moreover, the negative association between the government's grabbing hand and the investment efficiency of private enterprises shows no signs of easing over time. Further analyses reveal that underinvestment and overinvestment, respectively, adversely affects one year ahead future market value and return on assets of private enterprises, but there is little evidence indicating that underinvestment and overinvestment have a negative impact on one year ahead future market value and return on assets of the enterprises controlled by the governments at all levels. Finally, I find that while the government's grabbing hand also imposes a significantly inverse effect on one year ahead future market value and return on assets of the enterprises, yet it doesn't further exacerbate the adverse impact of underinvestment and overinvestment on the market value and return on assets of the enterprises in the following year. The policy implications of this paper is that the Chinese central government should rethink profoundly its rule for selection and promotion of local officials based on relative economic performance under the political centralization, and fundamentally improve the governance structure of local governments.

JEL classification numbers: G38, G21, G14
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1 Introduction

Whether an enterprise's investment in China is rational and effective has become a central issue that many Chinese scholars are exploring in recent years (Qin and Song, 2003; Yi and Lin, 2003; Shen and Sun, 2004). Though the existing research has analyzed the causes of why Chinese enterprises undertake inefficient investment mainly from the perspective of the asymmetric information, agency conflict and government control (Ma, Li and Wang, 2008; Lian and Su, 2009; Qu, Xie and Ye, 2011; Liu, 2012; Zhang and Zheng, 2012), relatively few papers have directly studied the effect of the government's grabbing hand of each region in China, a more fundamental and important institutional factor in reality reflecting Chinese government officials' behavior and incentives, on the investment efficiency of an enterprise and its economic consequence. Since Chinese government launched the market-oriented economic reforms in 1978, China's economy has been maintaining a relatively rapid growth rate over a longer period through investments. Nevertheless, the rapid economic growth in China is most often accompanied by the problems of the investment efficiency of the enterprise continually declining (such as "high investment versus low efficiency" and "good macro versus bad micro") (Yi and Lin, 2003). Though the reasons why Chinese enterprise investments lack efficiency are closely related to the higher information asymmetry and transaction costs in the emerging capital markets of China as well as more serious agency problems caused by the lag of the establishment of the modern enterprise system, the motives of private benefits and political performance of local government officials at all levels hidden behind the state ownership and the government's grabbing hand might be a nonnegligible reason that leads to an enterprise's investment lack of efficiency. In the process of gradual economic transition in China, the central government adopted Chinese style decentralization mode characterized by "political centralization" which is tightly combined with "economic decentralization" with an attempt to improve the enthusiasm of the local government officials developing the economy (Chen, Li and Yu, 2009). At the same time, the "yardstick competition" of political promotion based on the relative economic performance in the context of "political centralization" has become a basic source of incentive of local government officials during the transitional period, which has made the selection and promotion rule of Chinese local officials changing from the past pure political conformity criterion to the economic performance criterion dominated by the local GDP growth rate and other competence-related indicators, and the Chinese central government assesses local government officials based primarily on their achieved relative economic performance (Li and Zhou, 2005). "Promotion championship" among local officials accords local governments at all levels much stronger incentives to pursue higher economic growth during their tenure, which thus results in local officials across regions in China to compete fiercely for higher rankings of GDP (Li and Zhou, 2005). "Economic decentralization" then endows the local governments with the necessary control over resources such as the administrations of economic affairs and the authorities of fiscal revenues and expenditures within their respective jurisdictions to ensure the effectiveness of the above incentives (Chen, Li and Yu, 2009). The aforementioned Chinese type local officials' political promotion and economic performance evaluation rule formed in the process of transition of China has determined it very difficult for the local governments at all levels to be "invisible hand" in the economic development, even if they wouldn't act as the "grabbing hand" (Zhang and Chen, 2012).

However, under the present system of the "political centralization and economic

decentralization", when investments have become one of the most important factors driving economic growth in China, a region's economic development and its level of GDP as well as fiscal revenues will largely depend on the investment willingness and enthusiasm of the enterprises within their respective jurisdictions (La Porta, Lopez-de-Silanes and Shleifer, 1999; Xin, 2009). Therefore, based on the considerations of fiscal revenues and political promotion, the local governments in China are all strongly motivated by the intrinsic desire to expand further the scale of local economies by resorting to the investments of the enterprises within their respective jurisdictions. Consequently, although local governments are forced to delegate some of the investment decision rights to state-owned enterprises controlled by them due to the market-oriented reforms, they can utilize the control over state-owned enterprises and the power to dismiss and appoint the senior executives to intervene in the enterprise's business activities, and require these enterprises to invest more to realize their own political promotion and private benefit goals (Wei and Liu, 2007). On the other hand, because the investments made by other enterprises within the jurisdiction which are not founded by the local governments, such as private enterprises, also contribute to the region's economic development, social stability and the tax increases, and realize the goals of the political promotion and private benefits of the local government officials, the local governments with intrinsic investment impulses also have incentives to influence the investment decisions of other enterprises not controlled by them within the jurisdiction. But due to the constraints of property rights, this intervention of the local government officials in the investment activities of other enterprises within the jurisdiction are usually carried out by utilizing their leverages over public resources and regulatory authorities delegated by the central government (Che, 2002).

Given the fact that an enterprise's growth and development is inseparable from the institutional environment created by the government, and to a larger extent is subject to the institutional environment created by the government of the region in which the enterprise is located (Xia and Fang, 2005; Cheng, Xia and Yu, 2008), thus, for Chinese enterprises in the period of economic transition, when government officials intervene in the investment activities of the enterprises within the jurisdictions based on the motives of political promotion and private benefits, their behavior will inevitably give rise to an adverse impact on the enterprises' investment decisions and operating performance (La Porta, Lopez-de-Silanes, Shleifer and Vishny, 1999; Xin, 2009), which will bring about the expropriation effect of government (Pan and Yu, 2011). In other words, "economic decentralization" under the "political centralization" will exacerbate the behavior of the grabbing hand of the local governments pursuing private benefits (Chen, Li and Yu, 2009). Though some of Chinese scholars have investigated the influence of government control arising from state ownership on investment efficiency of the enterprises (Xin, Lin and Wang, 2007; Cheng, Xia and Yu, 2008), unfortunately to date, little has been done in the literature examining the role of the government's grabbing hand in the formation of the inefficient investments of the enterprises. Seeing that the mechanisms of government control intervening in the enterprise investment activities are significantly different from those of the government's grabbing hand, as a result, when studying the impact of the motives of political promotion and private benefits of local government officials at all levels on the investment efficiency of the enterprise, it is very appropriate to distinguish between the effect of government control and the government's grabbing hand. Only thus can the underlying cause of why Chinese enterprises engage in inefficient investment be better found.

Based on the above analysis, I will mainly delve into the following questions in this paper. First, as one of the most commonly used ways for the government to intervene in the enterprise investment activities, is the government's grabbing hand an important reason that leads Chinese enterprise's investment to be inefficient and distorted? Second, since the powers that government officials at all levels enjoy as well as the political promotion pressures faced by them are entirely different in China, the problem connected therewith, is the influence of the government's grabbing hand on the magnitude and forms of inefficient investments (underinvestment and overinvestment) significantly different amongst enterprises controlled by the central government, local governments (province, city and county) and private entities. Third, if the above negative effect of the government's grabbing hand on the investment efficiency can be eventually reflected in the enterprise's operating performance, what economic consequences will it give rise to?

The primary tests of this paper show that, whether in overinvestment or underinvestment, private enterprises both exhibit much higher investment distortion and inefficiency than the enterprises controlled by the governments at all levels. Further analysis reveals that the relatively higher overinvestment and underinvestment of private enterprises is largely driven by the government's grabbing hand of the region. In contrast, under the influence of the government's grabbing hand, the occurrence of underinvestment for the enterprises controlled by provincial governments is much smaller. However, no significant relation is found between the government's grabbing hand and the investment efficiency of the enterprises controlled by the central or city (county) governments. Meanwhile, the finding on the negative effect of the government's grabbing hand on the investment efficiency of private enterprises doesn't show a reduced sign over time. In terms of the consequences of inefficient investment, I find that underinvestment and overinvestment, respectively, adversely affects one year ahead future market values and return on assets of private enterprises, but there is little evidence indicating that underinvestment and overinvestment impose a negative impact on one year ahead future market values and return on assets of the enterprises controlled by the governments at all levels. In addition, though the government's grabbing hand also gives rise to a negative effect on one year ahead future market values and return on assets of the enterprises to some extent, yet it doesn't further aggravate the adverse impact of underinvestment and overinvestment on the enterprise's one year ahead future market values and return on assets. The above results together imply that apart from the capital market imperfections and corporate agency problems, the grabbing hand of local officials might also be an important factor that causes the investments of private enterprises to be inefficient and distorted in China. Given the fact that Chinese government is vigorously making the strategic adjustment of economic structure and is radically transforming its economic growth pattern, the policy implications of this study for regulators and practitioners is that the Chinese central government should rethink profoundly the criteria for selection and promotion of local officials on the basis of their relative economic performance under the political centralization, which thus brings about the dysfunctional behavior of the grabbing hand of local officials seeking private benefits, and make a fundamental reform to the governance structure of local governments, and strive to play a major role in the protection of private property rights.

This paper contributes to the literature on investment efficiency and political economics in several important dimensions. First, I explore how the government's grabbing hand of each region influences the investment efficiency of the Chinese enterprises, an important factor that can more accurately capture the motivations and behavior of local officials at

all levels and yet has not been empirically examined in previous studies, and find it is the grabbing hand of local government officials that leads the overinvestment and underinvestment of private enterprises significantly higher than those of the enterprises controlled by the governments at all levels. This paper offers some insights into a growing theoretical literature emphasizing the role of political motivations of local government officials in boosting a region's economic growth by demonstrating that local government officials' grabbing hand can adversely affect investment efficiency of the enterprise, and thus enriches and extends existing document on inefficient investment and political economics.

Second and more important, given the large amount of investment expenditures by the enterprises in China each year, I argue that studying the implication of the incentives of political promotion and private benefits of local officials for the investment efficiency of the enterprise from the government's grabbing hand perspective will help understand and clarify the relation between government and enterprises, and analyze the maladies of the government departments, and thus deeply reveal the true reasons that cause the investment activities of Chinese enterprises to be inefficient and distorted and put forward much more pragmatic proposals for improving the investment efficiency of the enterprise. Therefore, the research results of this paper have an important theoretical value and the realistic significance for policy-makers and practitioners. Meanwhile, it also has major significance for further deepening the reform of state-owned enterprises of China.

The remainder of this paper is organized as follows. Section 2 is the theoretical analysis and associated hypotheses which are put forward based on the institutional background of Chinese transitional economy. In section 3 I provide a brief description of the sample selection, the variables definition and methodology specification. The main results and additional analysis are reported in section 4. The final section summarizes findings of this paper and discusses some policy implications.

2 Institutional Background, Theoretical Analysis and Research Hypotheses

2.1 The Government's Grabbing Hand and the Enterprise Investment Efficiency

According to the theory of the government's grabbing hand, in the modern society, the government has a dual identity. Namely, it is not only an economic entity, but also a mandatory institution (Wang, 2007). As an economic entity, the government has its own interest preference and demand.[2] The government's own interest includes both the public interest and the private interest of the government officials as well as the small group benefits represented by each department etc.

[2]Shleifer and Vishny (1993) point out that the government is composed of politicians and officials with private interests and it is thus difficult to avoid nepotism and corruption of government officials.

Therefore, the government's behavior not only reflects a variety of economic, social and political goals, but also implicitly involves the private goals of the government officials.[3] On the other hand, in order to achieve their political, social and economic goals as well as private interest, the government officials frequently intervene in the operating activities of the enterprises within the jurisdiction by resorting to the powers delegated by laws. Regardless of what motivation of their rents-seeking from the enterprises is, for the government officials, intervening the investment activities of the enterprises is undoubtedly a very effective way to achieve the economic, social, political goals and even individual private benefits. However, the influence of government behavior on the consequences of the investment decisions of the enterprises depends to a large extent on the motives of the government officials intervening in the enterprises' investment activities. When the government officials hold out the grabbing hand to the enterprises in the jurisdiction, it ultimately has a negative effect on the investment efficiency of the enterprises. With regard to the enterprises founded by the governments at all levels, because the government is de facto the controlling shareholder of the enterprises, the government officials easily incorporate their own goals into the operational activities of the enterprises by virtue of the control over enterprises and personnel powers to appoint and dismiss senior executives of the enterprises, and thus treat these enterprises as a good tool for achieving the higher political goals and pursuing private interests. As a consequence, it is very likely that the investment activities of an enterprise reflect more the willingness of the controlling shareholder, namely, the government officials.[4] In the case of the enterprises in the jurisdiction created by other governments, such as the central government and other local governments, or private entities, due to lack of legitimacy by virtue of ownership to intervene in the enterprises' investment activities, utilizing their regulatory powers for the government officials to integrate the economic, social, political goals and private benefits that they wish to achieve into the investment activities of these enterprises has become an important channel.

However, in China, the powers and functions of governments at each level of political hierarchy delegated by the Constitution are quite different, which has resulted in that there exist significant distinctions in the ability and the scope that the government officials at different administrative hierarchy influence the investment decision of the enterprises. In China's existing five layers of state administration framework of the center, provinces, cities, counties and townships, according to the Constitution, the central government has the highest administrative powers, followed by the provincial governments, and the administrative powers of the city, county and township (town) governments are, respectively, ranked third, fourth and last. On the basis of the powers delegated by the Constitution, within their respective jurisdiction, a certain administrative level of

[3]As a legal fiction, the government itself is incapacitated, and so the government's behavior is more reflective of the willingness and appeal of the specific government officials.

[4]Tenev, Zhang and Brefort (2002) argue that in China's state-owned enterprises, one of the most important implications for the dominance of state ownership is that government ultimately decides the appointment and incentive mechanisms of top management of the enterprises, and thereby influences and interferes with the operational activities of the enterprises. The vast majority of managers of state-owned enterprises are still eager to acquire corresponding administrative ranks and are concerned about how regulators of political and administrative departments, such as state asset management bureaus, evaluate their work performance.

government officials usually have a relatively higher influence over the operational activities of the enterprises founded by them or the lower level governments as well as private enterprises, but their impacts on the operational activities of the enterprises sponsored by the higher level governments are relatively smaller. Therefore, the behavior and motives of the central government officials will affect the operational activities of both the central state-owned enterprises and those controlled by provincial, city, county governments as well as private entities. Since provinces rank the second level at China's political hierarchy, therefore, the administrative powers of the government officials at the provincial level are higher than those of city and county government officials, and their behavior and motives will have a major impact on the operational activities of the enterprises controlled by provincial, city, county governments and private entities. Though the administrative powers of the city and county government officials are lower than those of the provincial government officials, they are superior to private entities and thus can intervene in the operational activities of the enterprises founded by city, county governments and private entities in the jurisdiction. In contrast, private enterprises are more likely to be the objects plundered by the government officials at all levels due to their founders lack of the necessary administrative powers, and are hence politically in a relatively weak position. In recent years, the phenomenon of "guo jin min tui" (namely, the state-owned sector advances, and the private sector retreats) and the arbitrary interference of the local government officials in the operational activities and the property rights of private enterprises are the real reflection and portrayal of the political status of private enterprises.

Because the central government usually has a higher power, and is at the top of China's political hierarchy and the focus of attention, the government officials at the central level will pay more attention to their own image and maintain their reputation and credibility, and are thus less likely to hand out "grabbing hand" to the enterprises, especially private enterprises. In the case of local governments such as provincial, city and county governments, under the present circumstances where the opportunities of political promotion for Chinese bureaucrats largely depend on the will of the higher-level government officials and are closely linked to the level (speed) of local economy development, their officials are all confronted with the problems of how to acquire economic performance over their tenure to seek political promotion. Consequently, in order to win the recognition from the higher-level government officials to obtain more political promotion opportunities and space, the local government officials are strongly motivated to intervene in the operational activities of the enterprises within the jurisdiction and require these enterprises to invest more to realize their goals of political promotion and private benefits. More seriously, in order to promote the growth of local GDP and thus raise the probability of the political promotion, the existing research has found that the local government officials in China often show a strong interest in the investment projects with low efficiency or loss (Wang and Qin, 2007). Furthermore, because compared to the higher-level government officials, the pressures of political promotion faced by the lower-level government officials are usually much greater, hence, the lower-level government officials have much stronger incentives and an increased likelihood to reach out the grabbing hand to the enterprises within the jurisdiction. To put it differently, the behavior of the grabbing hand is mainly from the local government officials, especially city and county government officials, and relatively less from central government officials. The predatory actions of the government officials not only give rise to the wealth redistribution, but also engender tremendous loss of efficiency. As a result,

when the local government officials integrate their goals into the enterprises' operational decisions for the realization of political promotion and private benefits, and thus reach out the grabbing hand to the enterprises within the jurisdiction, their behavior will lead an enterprise's investment decisions to deviate from the principles of value maximum, which hence makes the enterprise investment expenditures to be inefficient and distorted. Since the purpose of local government officials intervening in the investment decisions of the enterprises within the jurisdiction is to make the enterprises engage in more investments rather than no investment or less investments, as a result, the effect of the government's grabbing hand on the investment efficiency mainly occurs in overinvestment, however, its impact on the underinvestment is relatively weaker (Cheng, Xia and Yu, 2008).

It is worth noting that the theoretical analysis above only discusses the influence of the grabbing hand on the investment efficiency of the enterprises owned by the governments at all levels and private entities from the perspective of government officials, and doesn't take into account the enterprises' response to the behavior of the grabbing hand of the government officials, namely, the enterprises might adopt the coping strategies or measures. Given that the grabbing hand is mainly made by local government officials, therefore, due to the restrictions of the lower administrative powers, the investment activities of the central state-owned enterprises are less affected by the grabbing hand of local government officials. As regards the enterprises founded by the local governments, the unclear and incomplete state-owned property rights and soft budget constrain in the transitional economy of China have made that the managers of the enterprises needn't bear the loss arising from poor investment decisions, but can enjoy the benefits that the investments bring about. Hence, the managers of state-owned enterprises controlled by local governments are strongly motivated to engage in the huge investment projects, which thus leads to the total investments of the enterprises continually expanding and inefficient (Qin and Song, 2003). Moreover, when the managers of state-owned enterprises are mainly selected and appointed by government officials, what they care most about is not the maximization of the enterprise's operating performance and shareholder value, but how to cater to the preference of government officials who determine their career prospect. Therefore, when the political incentives which are endogenous in the decentralization reforms of China motivate local government officials to have a higher overinvestment impulse, satisfying and realizing the private interests of local government officials will become tasks which the managers of the enterprises controlled by local governments must fulfill.

On the contrary, because private enterprises' investments are mainly made with the intention of earning a financial return, thus, if the threat of the grabbing hand of local government officials to private enterprises is too serious, then private enterprises would choose to give up the investment or make investment elsewhere, which will harm the interests of both local government officials and private enterprises. In addition, private enterprises can bypass the predatory behavior of local government officials by bribing them (Xin, 2009). So, the negative impact of the government's grabbing hand on the investment efficiency of private enterprises seems to be lower. Nevertheless, since the articles of law don't exist or are not enforceable (Johnson, McMillan and Woodruff, 2002), China's economic transition is basically implemented under the environment where the rule of law can't effectively prevent the government officials at all levels from expropriating the interests of private enterprises. As a result, the role of laws in protecting private property rights and enforcing contracts is still relatively limited in China (Walder, 1995). Moreover, constrained by the traditional ideology, the government (administrative

power) is still in a strong position in the entire political system of China, and controls a large amount of economic resources. Meanwhile, the government regulation on the economy constitutes an important feature in the process of China's economic transition, and the development of private enterprises can't be independent of the influence of the behavior of government officials at all (Zhao, 2010). The government (administrative power) not only has a major effect on private enterprises institutionally, but also directly affects the enterprise's operations through the behavior of government officials. Consequently, respecting and obeying the will of the government authorities is of primary importance for private enterprises to maintain a good business relationship. At the same time, in the current China, the public powers are increasingly swelling and being abused by many of government officials; the problems of "guo jin and min tui" aggravate, and survival space for private enterprises is increasingly narrowing; the government's macroeconomic policy is changeable, and the production and investment of the enterprises lack stable expectations; the living environment faced by private enterprises is sharply worsening (Feng, 2013). Therefore, the impact of the government's grabbing hand on the investment efficiency of private enterprises is only a matter of degree (more or less) rather than a problem of whether it exists or not. Based on the above analysis, the first hypothesis of this paper could be stated as follows:

H1: The government's grabbing hand is significantly negatively related to the investment efficiency of the enterprises, and this negative association is mainly reflected in overinvestment instead of underinvestment and the strongest in private enterprises but the weakest in the central enterprises.

2.2 The Government's Grabbing Hand, Inefficient Investment and the Operating Performance of the Enterprises

The theoretical analysis above indicates that in the process of economic transition in China, the improper intervention of local government officials in the investment decisions of the enterprises within the jurisdiction for the realization of their political promotion and private benefits results in the deviation of the actual investment expenditures of an enterprise from its optimal level of investment, and thus gives rise to underinvestment or overinvestment. The underinvestment, on one hand, means that the enterprises abandon some of investment projects with net positive present value, on the other hand, the overinvestment indicates that the enterprises engage in some projects with net negative present value. Given that the market value of the enterprise will usually achieve its maximum at the optimal level of investment, as a result, when an enterprise invests more or less relative to its optimal level of investment, the future operating performance of the enterprise will be adversely affected. Furthermore, based on the fact that the investments of the enterprises founded by local governments are more likely to be inefficient and distorted to cater to the needs of political promotion and private benefits of local officials, and that the stronger the government's grabbing hand, the higher the possibility of the distortion and inefficiency of the investment of the enterprises caused by the improper intervention of local government officials, I thus expect that the negative effect of inefficient investment, especially overinvestment, on the future operating performance of the enterprises is much more serious in the enterprises owned by local governments as well as the regions where the behavior of the government's grabbing hand prevails. Hence, based on the above analysis, this can lead to the following hypotheses:

H2: Both underinvestment and overinvestment are significantly negatively associated with the future operating performance of the enterprises, and ceteris paribus, this negative

relation is much more profound for the enterprises controlled by local governments or in the regions where the government's grabbing hand prevails.

3 Sample Selection and Research Design

3.1 An Accounting-based Framework to Measure the Inefficient Investment (Underinvestment and Overinvestment)

The existing literature indicates that there are two common used approaches to measure inefficient investment. The first approach is to use the sensitivities of investment to availability of internal cash flows as a proxy for enterprise inefficient investment, which is based on the asymmetric information theory or agency theory. In other words, whenever the enterprise's investment behaviors are distorted and inefficient due to capital market imperfections or agency problems, investment expenditures of the enterprise would be much more sensitive to the availability of its internal cash flows (Myers and Majluf, 1984; Fazzari, Hubbard and Petersen, 1988). However, cash flow sensitivity of investment only confirms whether a enterprise's investment is distorted or inefficient, yet it can't identify the specific forms of the inefficient investment. Namely, cash flow sensitivity of investment doesn't indicate whether the specific form of the inefficient investment is underinvestment or overinvestment, and is also difficult to quantitatively estimate the magnitude of the enterprise inefficient investment caused by both financing constraints in the capital markets and agency conflicts between insiders and external investors.

The second approach is to use Richardson's (2006) investment expectation model to decompose actual investment expenditure of an enterprise into an expected (non-discretionary) portion and an unexpected (discretionary) portion. The expected portion represents the desirable level of investment of an enterprise, but the unexpected portion reflects the degree of the deviation of actual investment expenditures of an enterprise from its expected investment. An overinvestment occurs whenever the unexpected investment expenditures are greater than zero. If the opposite is true, an underinvestment is obtained. Since the second method can not only identify whether the specific form of the inefficient investment of an enterprise is underinvestment or overinvestment, but also accurately estimate the magnitude of underinvestment and overinvestment, which will thus better satisfy the needs for the measure of the degree of underinvestment and overinvestment of an enterprise , and widely used by Chinese scholars in inefficient investment research (Xin, Lin and Wang, 2007; Cheng, Xia and Yu, 2008). As a result, I will use the second approach to estimate the level of an enterprise's investment inefficiency and anomaly in a given year.

In order to construct the measures of underinvestment and overinvestment, I follow the approach suggested by Richardson (2006) and first estimate a model that predicts expected investment of an enterprise and then use residuals from this model as proxies for inefficient investment. The model with some modifications is specified as follows:

$$I_{it} = \alpha_0 + \alpha_1 Gr_{it-1} + \alpha_2 Cash_{it-1} + \alpha_3 LnTA_{it-1} + \alpha_4 Roa_{it-1} + \alpha_5 Debt_{it-1} + \alpha_6 I_{it-1} + \alpha_7 LnAge_{it} + \Sigma Ind + \Sigma Year + \varepsilon_{it} \quad (1)$$

Where i is the sample enterprise and t denotes the year in the sample period, respectively; I is the enterprise's capital expenditures and measured as cash paid to acquire fixed assets, intangible assets and other long term assets minus net cash received from the sale of fixed assets, intangible assets and other long term assets in year t scaled by the book value of total assets as of the end of year t-1. The prior period's firm-level (lagged) investment is also included in model to capture non-modeled enterprise characteristics that could affect investing decisions (Richardson, 2006) and the acceleration effect of investment.

Gr is the enterprise's investment opportunities in year t-1. In empirical studies, the variables commonly used to measure the enterprise's investment opportunities are Tobin's q and growth ratio of sales, respectively. Tobin's q is usually defined as the ratio of the market value of the enterprise to its replacement cost. The enterprise's market value is the sum of the market value of the equity and the book values of short term debt, long term debt, preferred stock, and convertible securities. The replacement cost is measured as the book value of total assets. Tobin's q is a poor proxy for the enterprise's investment opportunities because it is an average value rather than marginal value (Hayashi, 1982; Lang, Stulz and Walking, 1991).[5] Moreover, marginal q itself is unobservable and difficult to measure, and the calculation of Tobin's q will use stock prices. Due to the inefficiency and functional fixation problems of stock markets of China, utilizing Tobin's q as a proxy for the enterprise's investment opportunities is problematic and will inevitably give rise to measurement errors. In addition, Alti (2003) has also confirmed that, since Tobin's q mainly reflects option value linking to an enterprise long term growth potential but doesn't offer information about investment opportunities in the near-term, Tobin's q performs as a noisy measure of short-term investment expectations. Thus, to control for possible measurement error in Tobin's q, I use growth ratio of sales as a proxy for an enterprise's investment opportunities to estimate the Model (1).

$Cash$ is the enterprise's cash and cash equivalent in year t-1 divided by book value of total assets as of the end of year t-1. $LnTA$ is the natural logarithm transformation of book value of total assets as of the end of t-1, used to control for the effect of enterprise size on the investment. Roa is return on assets in year t-1, equal to the ratio of the profit after tax to book value of total assets. Prior period's return on assets is included as an additional variable to capture growth opportunities not reflected in Gr. $Debt$ is debt-to-asset ratio in year t-1 and calculated as book value of total debt (the sum of short-term debt and long-term debt) divided by book value of total assets as of end of year t-1. $LnAge$ is the natural logarithm of the number of years the enterprise has been listed on the stock exchanges in China since the initial public offering (IPO). I take the natural logarithms to reduce the skewness in the distribution of the number of years listed on the stock exchanges. Firm level investment will be relatively lower when it is more difficult to raise additional funds to finance the new investment as captured by leverage, enterprise size, enterprise maturity and level of cash (Richardson, 2006).

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[5]Hayashi (1982) has showed that only under some strong assumptions does marginal q equal average q. Such assumptions or necessary and sufficient conditions that marginal q and average q are essentially the same include that the firm is a price-taker with constant returns to scale in both production and installation, and the production function and the installation function are both linearly homogeneous.

Finally, I include industry indicators, Ind, and year indicators, $Year$, since firm-level investment patterns may systematically vary with industry differences and are deeply affected by macro-economic fluctuations. For the purpose of industry classification, the Standard Industry Classification Code of China Securities Regulatory Commission (CSRC) is adopted. Based on Standard Industry Classification Code of China Securities Regulatory Commission (CSRC), I constructed 20 separate industry dummy variables, consistent with prior research, such as Xia and Fang (2005). ε is random error term.

The fitted value estimated from the Model (1) is defined as the expected (non-discretionary) component of investment (EI), and unexplained portion (or the error term) is the estimation of the unexpected (discretionary) investment (UI), which captures the degree of a enterprise's investment inefficiency or distortion in year t. That is to say, in this paper, I utilize the regression residuals of Model (1) to measure inefficient investment. If a regression residual is greater than 0 in a given year, it shows that the enterprise over-invests. On the contrary, if the regression residual is less than 0, it means that the enterprise under-invests. Both overinvestment and underinvestment are decreasing in investment efficiency (Biddle, Hilary and Verdi, 2009).

Free cash flow can be defined as the portion of cash flow beyond what is necessary to maintain assets in place and finance expected new investment (Richardson, 2006). Based on the above definition, after calculating the expected investment for a particular enterprise, free cash flow can be treated as the difference between the enterprise's net cash flows from operating activities and its expected investment (EI) estimated form Model (1), and thus obtained as follows:

$$FCF_{it} = OCF_{it} - EI_{it} \tag{2}$$

Where FCF_{it}, OCF_{it} and EI_{it} is the enterprise's free cash flow, net cash flows from operating activities and the expected investment in year t, respectively, and scaled by the beginning-of-year book value of total assets.

3.2 Sample Selection and Data Sources

As far as this paper is concerned, the initial sample are selected from all non-financial companies listed on Shanghai or Shenzhen stock exchanges in China during the period 2003 to 2011. To ensure the validity of the data gathered and simultaneously minimize the effect of other factors on the research results, I first exclude from my initial sample those companies whose main operational business has ever experienced substantial change. Also excluded are companies which have extreme outliers and those whose financial information is seriously inadequate or obviously misreported. At the same time, the privatized enterprises whose controlling private ownership came into being through the block transfer of state shares after IPO are also excluded. After these exclusions are made, I then obtain a pooled sample with 8501 firm-year observations in total over 9 years.

Note that either micro-level financial data or non-financial data used in this paper, such as investment expenditures, growth opportunities, return on assets, the book value of asset and equity, debt-to-asset ratio (total leverage), ownership of the largest shareholder, net cash flows from operating activities, cash and cash equivalent, age (the number of years

listed on stock exchanges after IPO), and the identity of an enterprise's ultimate controlling shareholder et al., are all obtained from the disclosure made in annual report of listed companies published by Shanghai Wind Information Co., Ltd. of China, a leading Bloomberg-style data provider in China, as well as the China Securities Markets and Accounting Research (CSMAR) database prepared by Shenzhen GTA Information Technology Enterprise Limited, another major data provider in China. However, the data used to calculate the index of the government's grabbing hand of each region (referred to Chinese provinces, autonomous regions and municipalities directly under the central government) of China are all manually selected from "China Statistical Yearbook" over the years.

3.3 Model Specification and Variable Definitions

(1) According to the above theoretic analysis of this paper, the basic regression model used to examine the hypothesis 1 that the government's grabbing hand will adversely affect the enterprise's investment efficiency takes the following form.

$$\begin{aligned}|UI_{it}| = {} & \phi_0 + \phi_1 \mathrm{Priv}_{it} + \phi_2 State_{it} + \phi_3 City_{it} + \phi_4 Grab_{t-1} + \phi_5 \mathrm{Priv}_{it} \times Grab_{t-1} + \phi_6 State_{it} \times Grab_{t-1} \\ & + \phi_7 City_{it} \times Grab_{t-1} + \phi_8 Grab_{t-1} \times t + \phi_9 \mathrm{Priv}_{it} \times Grab_{t-1} \times t + \phi_{10} State_{it} \times Grab_{t-1} \times t \\ & + \phi_{11} City_{it} \times Grab_{t-1} \times t + \phi_{12} Pos\_FCF_{it} + \phi_{13} Neg\_FCF_{it} + \phi_{14} Roa_{it-1} + \phi_{15} Asset\_turn_{it} \\ & + \phi_{16} L\mathrm{arg}_{it} + \phi_{17} LnAge_{it} + \Sigma Ind + \Sigma Year + \varepsilon_{it}\end{aligned} \tag{3}$$

In Model (3) subscript i and t denote the sample enterprise and the year in the sample period, respectively; $|UI|$ is the absolute value of the residual estimated from the Model (1) and used as a proxy for the enterprise's level of inefficient investment. Since the residuals include negative value reflecting underinvestment, therefore, I take them absolute value to better reveal the magnitude of inefficient investment and easily analyze the regression results in latter tests.

Priv, *State* and *City* are all dummy variables describing the identity of an enterprise's ultimate controller which take the value of 1 if the enterprise's ultimate controller is private entities (individuals), provincial or city (county) governments as well as their agencies at the time of the enterprise's IPO, and zero otherwise. The identity of the enterprise's ultimate controller is defined as follows: Whenever an enterprise's ultimate controller is the central, provincial or city (county) governments as well as their agencies including the bureaus of state assets management, finance bureaus and bureaus in charge of different industries or other government agencies et al., I regard it as the state-owned enterprises controlled by governments at the corresponding administrative level. On the contrary, if the enterprise's ultimate controller is private entities or individuals at the time of the enterprise's IPO, such as private entrepreneurs, townships and villages, and family or individual, it is accordingly treated as a private-controlled enterprise.

Grab is the index of the government's grabbing hand of a region (at the provincial level). Following Chen, Hillman and Gu (2002), I use the ratio of the government's incomes from fines and confiscation of each region to its fiscal revenues in a given year as a proxy. Typically, the higher the proportion of the government's penalty and confiscation incomes of a region to its fiscal revenues, the worse the legal protection for

private property rights in this region would be, and the stronger the behavior of the grabbing hand of local government officials.

$Grab$ and its interactions with $State$, $City$ and $Priv$, such as $State \times Grab$, $City \times Grab$ and $Priv \times Grab$, are, respectively, used to capture the impact of the grabbing hand of local government officials on the investment efficiency of the enterprises controlled by the central, provincial, city (county) governments and private entities. Positive and statistically significant coefficients on $Grab$, $State \times Grab$, $City \times Grab$ and $Priv \times Grab$ are consistent with the notion that the grabbing hand of local government officials adversely affect the investment efficiency of the enterprises controlled central, provincial, city (county) and private entities. Moreover, considering that the survival environment of private enterprises in China is rapidly deteriorating, to further estimate and analyze the evolutionary tendency that the grabbing hand the local government officials influences the investment efficiency of the enterprises controlled by governments at all levels and private entities over time, in Model (3) I add time tendency variable t and its interactions with $Grab$, $State$, $City$ and $Priv$. If the behavior of the grabbing hand the local government officials becomes increasingly serious as time passes, I can reasonably expect that the coefficients of interaction items, $Grab \times t$, $State \times Grab \times t$, $City \times Grab \times t$ and $Priv \times Grab \times t$ should be statistically significant and positive.

Pos_FCF (Neg_FCF) equals FCF if the values of FCF are positive (negative), and zero otherwise. FCF is free cash flow that an enterprise holds and measured as the difference between net cash flows from operating activities and the expected investment estimated from Model (1) scaled by book value of total assets as of the end of year t-1.

$Asset\_turn$ is the enterprise's total asset turnover in year t, calculated as the net sales divided by the book value of total assets, indicating the utilization efficiency of an enterprise's assets. $L\arg$ is the proportion of shares held by the first largest shareholder as of the end of year t. Other variables, such as Roa, $LnAge$, Ind and $Year$, are all defined the same as previously.

In addition, in order to systematically investigate the effect of the grabbing hand of local government officials on overinvestment and underinvestment of the enterprises, I further subdivide full sample into overinvestment and underinvestment subgroup, and in turn substitute $OverI$ (overinvestment) and $|UuderI|$ (the absolute value of underinvestment) for $|UI|$ and re-estimate the regression equation (3). Overinvestment and underinvestment are defined as follows: if the regression residual estimated from investment expectation Model (1) is positive in any given year, it is classified as overinvestment subsample, and as underinvestment subsample otherwise. Since the primary motivations for local government officials to intervene in the investment decisions of the enterprises within the jurisdiction are to induce them to make more investments to better realize their own political promotion and private benefits, thus, the negative impact of the government's grabbing hand on the overinvestment is expected to be much higher than underinvestment.

(2) The basic regression model used to test hypothesis 2, namely, the economic consequence of the effect of the government's grabbing hand on the investment efficiency

of the enterprises, is specified as follows:

$$\begin{aligned} Perf_{it+1} = {} & \beta_0 + \beta_1 \mathrm{Priv}_{i,t} + \beta_2 State_{it} + \beta_3 City_{it} + + \beta_4 EI_{it} + \beta_5 |UI_{it}| + \beta_6 \mathrm{Priv}_{it} \times |UI_{it}| + \beta_7 State_{it} \times |UI_{it}| \\ & + \beta_8 City_{it} \times |UI_{it}| + \beta_9 Grab_{t-1} + \beta_{10} \mathrm{Priv}_{it} \times Grab_{t-1} + \beta_{11} State_{it} \times Grab_{t-1} + \beta_{12} City_{it} \times Grab_{t-1} \\ & + \beta_{13} UI_{it} \times Grab_{t-1} + \beta_{14} \mathrm{Priv}_{it} \times |UI_{it}| \times Grab_{t-1} + \beta_{15} State_{it} \times |UI_{it}| \times Grab_{t-1} + \beta_{16} City_{it} \times |UI_{it}| \\ & \times Grab_{t-1} + \beta_{17} Gr_{it} + \beta_{18} LnTA_{it} + \beta_{19} L\mathrm{arg}_{it} + \beta_{20} Debt_{it} + \beta_{21} LnAge_{it} + \beta_{22} Asset\_turn_{it} \\ & + \Sigma Ind + \Sigma Year + \varepsilon_{it+1} \end{aligned} \tag{4}$$

In Model (4), $Perf$ is the enterprise's operating performance measures in year t+1. In an attempt to get a more complete picture of the impact of inefficient investment and its interactions with the government's grabbing hand on the future operating performance of the enterprises and ensure the reliability of research conclusions of this paper, following the existing literature, I choose two commonly used measures as proxies for future operating performance of the enterprises. The first is the natural logarithm of Tobin's q, $LnTobin's\ q$, where Tobin's q is computed as the enterprise value (defined as the market value of equity plus the book values of long-term debt, short-term debt, preferred stock, and convertible securities) divided by the ending book value of total assets. The second is return on asset, Roa. All other variable definitions are referred to those in Model (1) and (3).

$|UI|$ and its interactions with $State$, $City$ and Priv, namely $State \times |UI|$, $City \times |UI|$ and $\mathrm{Priv} \times |UI|$, are, respectively, employed to examine the negative effect of inefficient investment on the future operating performance of the enterprises controlled by the central, provincial, city (county) governments and private entities. The interaction terms, $Grab \times |UI|$, $State \times Grab \times |UI|$, $City \times Grab \times |UI|$ and $\mathrm{Priv} \times Grab \times |UI|$ are separately used to explore how the grabbing hand of local government officials affects the impact of inefficient investment on the future operating performance of the enterprises controlled by the central, provincial, city (county) governments and private entities. If the grabbing hand of local government officials further worsens the negative effect of inefficient investment on the future operating performance of the enterprises, the estimated coefficients of the above interaction terms are then expected to be statistically significantly negative.

Finally, in order to deeply investigate the negative influence of overinvestment and underinvestment on the enterprise's future operating performance as well as their differences, I further subdivide the inefficient investment into overinvestment and underinvestment categories, and replace $|UI|$ with $OverI$ and $|UuderI|$ to re-estimate Model (4). Since the government's grabbing hand has a higher effect on overinvestment than underinvestment, I expect that the estimated coefficients of the interaction items, $Grab \times |UI|$, $State \times Grab \times |UI|$, $City \times Grab \times |UI|$ and $\mathrm{Priv} \times Grab \times |UI|$, are all significantly greater in overinvestment subgroup rather than in underinvestment subgroup.

4 Results

4.1 Analysis of Investment Expectation Model

Table 1 reports the descriptive statistics for the variables used to estimate the investment expectation Model (1). The mean (median) enterprise in the year t engages in investment activities equal to 0.064 (0.048) of book value of total assets as of the end of year t-1, with the highest and lowest investment expenditures at 0.602 and -0.406 of total assets as of the end of year t-1, respectively, which are all significantly less than investment expenditures in the year t-1 in terms of absolute values. Gr_{it-1} has an average (median) equal to 0.178 (0.163) and ranges from -0.973 to 0.999, indicating that there exist major differences across enterprises in growth opportunities. The mean (median) value of the enterprise's operating performance, Roa_{it-1}, is 0.036 (0.035), showing that, on the whole, majority of enterprises performed poorly over the sample period and some of enterprises have suffered much more serious loss (the lowest operating performance is at -98.4 percent of total assets). The mean (median) cash and cash equivalent, $Cash_{it-1}$, across all firm-years stands at 0.181 (0.143) with the smallest at 0.001 and largest at 0.868 of book value of total assets as of the end of year t-1. The natural log transformation of sample enterprises average (median) size, $LnTA_{it-1}$, is 21.583 (21.424) with the minimum at 18.601 and maximum at 28.135. The average (median) enterprise has reported debt-to-asset ratio of 0.468 (0.477), and the highest debt-to-asset ratio is 0.996, indicating that this enterprise has fallen into serious financial distress over the study period. On average, sample enterprises have been listed for 7.82 years on the stock exchanges in China since IPO.

Table 1: Descriptive Statistics for the Investment Expectation Model (1)

Variables	Mean	Median	Min	25% percentile	75% percentile	Max	Std
I_{it}	0.064	0.048	-0.406	0.019	0.093	0.602	0.065
I_{it-1}	0.085	0.057	-0.421	0.022	0.116	0.938	0.096
Gr_{it-1}	0.178	0.163	-0.973	0.028	0.321	0.999	0.256
Roa_{it-1}	0.036	0.035	-0.984	0.014	0.062	0.457	0.062
$Cash_{it-1}$	0.181	0.143	0.001	0.085	0.236	0.868	0.136
$LnTA_{it-1}$	21.583	21.424	18.601	20.777	22.177	28.135	1.152
$Debt_{it-1}$	0.468	0.477	0.011	0.332	0.611	0.996	0.186
Age_{it}	7.82	8.00	1	4	11	21	4.506

Note: The sample period for investment expectation Model (1) is 2003-2011. For each variable, I report the number of firm-year observations, mean, median, minimum (min), 25% percentile, 75% percentile, maximum (max) and standard error (std), where I_{it} (I_{it-1}) is the enterprise's investment expenditures and measured as cash paid to acquire fixed assets, intangible assets and other long term assets minus net cash received from the sale of fixed assets, intangible assets and other long term assets in year t (t-1) scaled by book value of total assets as of the end of year t-1 (t-2). Gr_{it-1} is the enterprise's investment opportunities in year t-1 and proxied by growth ratio of sales. Roa_{it-1} is return on assets for enterprise i in year t-1, calculated as the ratio of the profit after tax to book value of

total assets. $Cash_{it-1}$ is the enterprise's cash and cash equivalent divided by book value of total assets as of the end of year t-1. $LnTA_{it-1}$ is the natural logarithm transformation of book value of total assets as of the end of year t-1, used to control for the effect of enterprise size on the investment. $Debt_{it-1}$ is debt-to-asset ratio and equal to the book value of total debt (the sum of short-term debt and long-term debt) divided by book value of total assets as of the end of year t-1. Age_{it} is the number of years that an enterprise has been listed on the stock exchanges in China since IPO.

Table 2 presents the multivariate regression results for the investment expectation Model (1) based on the 8501 firm-year observations between the year 2003 and 2011, in which the dependent variable is the enterprise's capital expenditures in year t. This model is used to determine both the expected investment and inefficient investment (underinvestment and overinvestment) of an enterprise. Namely, the fitted values and the regression residuals estimated from the Model (1) are, respectively, used as proxies for the expected investment (EI_{it}) and inefficient investment (UI_{it}), whereas underinvestment and overinvestment are then separately negative and positive regression residuals of Model (1). As shown in column (1) where the model of investment expenditures only includes investment opportunities which are measured as growth ratio of sales in year t-1 and industry and year fixed effects as independent variables, the estimated coefficient on Gr_{it-1} is 0.039 and statistically significant at the 1 percent level, suggesting that investment demand is an increasing function of growth opportunities faced by an enterprise, and this model explains 13.2% of the variation in investment expenditures. The model of investment expenditures in column (2) includes all control variables except for Gr_{it-1}, such as prior period's investment expenditures, cash and cash equivalent, enterprise size, debt-to-asset ratio, the natural logarithm transformation of the number of years listed on the stock exchanges in China and operating performance, and explains 37.7% of the variation in investment expenditures. However, when I include growth opportunities and all other control variables together to estimate the model of investment expenditures in column (3), it doesn't significantly increase explanatory power (the adjusted R-square is 37.8%) and the estimated coefficient and significance level of Gr_{it-1} have become much smaller, though the signs of all variables are the same as predicted. Nevertheless, in subsequent analyses I will depend on the regression results in column (3) of Table 2 as the baseline to decompose an enterprise's actual investment expenditures in a given year into expected and unexpected components.

Table 2: the Multivariate Regression Results of the Investment Expectation Model (1)

Variables	Predicted sign	Model (1)	Model (2)	Model (3)
Intercept	?	0.043***	-0.004	-0.003
		9.966	-0.331	-0.215
Gr_{it-1}	+	0.039***		0.007***
		14.368		2.977
$Cash_{it-1}$	+		0.024***	0.024***
			4.545	4.473
$LnTA_{it-1}$	+		0.002***	0.002***
			3.441	3.351
Roa_{it-1}	+		0.102***	0.093***
			9.768	8.512
$Debt_{it-1}$	-		-0.012***	-0.014***
			-3.083	-3.585
I_{it-1}	+		0.320***	0.318***
			48.560	47.980
$LnAge_{it-1}$	-		-0.005***	-0.004***
			-4.893	-4.681
Ind		Included	Included	Included
Year		Included	Included	Included
$AdjR^2$		0.132	0.377	0.378
F		45.382***	152.403***	148.439***
No. of obs		8501	8501	8501

Note: This table provides the regression results for the investment expectation Model (1):

$$I_{it} = \alpha_0 + \alpha_1 Gr_{it-1} + \alpha_2 Cash_{it-1} + \alpha_3 LnTA_{it-1} + \alpha_4 Roa_{it-1} + \alpha_5 Debt_{it-1} + \alpha_6 I_{it-1} + \alpha_7 LnAge_{it} + \Sigma Ind + \Sigma Year + \varepsilon_{i,t}$$

where I_{it} (I_{it-1}) is the enterprise's investment expenditures and measured as cash paid to acquire fixed assets, intangible assets and other long term assets minus net cash received from the sale of fixed assets, intangible assets and other long term assets in year t (t-1) scaled by book value of total assets as of the end of year t-1 (t-2). Gr_{it-1} is the enterprise's investment opportunities and proxied by growth ratio of sales in year t-1. $Cash_{it-1}$ is the enterprise i's cash and cash equivalent divided by book value of total assets as of the end of year t-1. $LnTA_{it-1}$ is the natural logarithm of book value of total assets as of the end of year t-1. Roa_{it-1} is return on assets in year t-1, calculated as the ratio of the profit after tax to the book value of total assets. $Debt_{it-1}$ is debt-to-asset ratio and equals total debt (the sum of short-term debt and long-term debt) divided by book value of total assets as of the end of year t-1. $LnAge_{it}$ is the natural logarithm transformation of the number of years an enterprise has been listed on the stock exchanges in China after IPO. Ind and $Year$ are a vector of industry and year indicator variables, respectively, which are used to control for year and industry fixed effect.

According to Standard Industry Classification Code of China Securities Regulatory Commission (CSRC), there are 20 industry dummy variables in the regression. ε is error term. Industry and year fixed effect are controlled for but not reported for the sake of space. T-statistics are presented below the estimated coefficients; ***, **, and * indicate two-tailed statistical significance at the 1%, 5%, and 10% level, respectively.

4.2 Analysis of the Effect of the Government's Grabbing Hand on the Enterprise Investment Efficiency (Underinvestment and Overinvestment)

4.2.1 Descriptive Statistics for the Variables and Univariate Test

Table 3 provides descriptive statistic information on the main variables used to estimate Model (3) and (4). As can be seen from the table, EI_{it} has an average (median) of 0.064 (0.057) of book value of total assets as of the end of year t-1 with the standard deviation, min and max value at 0.040, -0.099 and 0.351, respectively, indicative of the fact that there exists a substantial variation in the expected investment expenditures across enterprises over the sample period. The mean and median of UI_{it} are separately 0 and -0.007 of book value of total assets as of the end of year t-1, whereas $|UnderI_{it}|$ and $OverI_{it}$ have an average (median) of 0.028 (0.022) and 0.043 (0.027) of book value of total assets as of the end of year t-1, respectively. At the same time, the highest $|UnderI_{it}|$ stands at 0.420, while $OverI_{it}$ is, at the maximum, 0.517 of book value of total assets as of the end of year t-1. The above results indicate that the incidence of underinvestment is much greater than that of overinvestment, however, the magnitude of underinvestment is far below overinvestment.

The mean and median of $Tobin's\ q_{it+1}$ are 1.658 and 1.30 with the smallest and highest value standing at 0.369 and 14.914. Moreover, another performance measure, Roa_{it+1}, has a mean, median, minimum and maximum equal to 0.032, 0.030, -0.983 and 0.389, respectively. The distribution patterns of the above two performance indicators indicate that majority of enterprises performed very poorly over the sample period and some of them have been into serious operating difficulties.

The mean (median) enterprise in the sample has free cash flow (FCF_{it}) of -0.003 (-0.004), suggesting that most of enterprises are lack of surplus funds and thus more likely to be financially constrained over the study period. Pos_FCF_{it} and Neg_FCF_{it} have an average (median) of 0.066 (0.047) and -0.067 (-0.048), respectively. The highest positive free cash flow stands at 0.662, while the lowest negative free cash flow is at -0.817.

The mean (median) of ratio of net sales to total assets ($Asset\_turn_{it}$) is 0.721 (0.599) with the smallest at 0.011 and highest at 8.924. The ownership of the first largest shareholder ($L\arg_{it}$) averages 40.97 percent and ranges from 2.197 percent to 89.41 percent of total shares outstanding. Given the significant differences in the above enterprise characteristics, controlling for the effects of these attributes is very important in the following multivariate regression analyses.

The index of the government's grabbing hand of the region ($Grab_{t-1}$) has an average

(median) of 0.033 (0.032) with the minimum at 0.005 and maximum at 0.093, showing that although, taken as a whole, in China the level of local government officials intervening in the operating activities of the enterprise within the jurisdiction is relatively low, this intervention remains very serious in some regions.

Table 3: Descriptive Statistics for Main Variables Used to Estimate Model (3) and (4)

Variables	No. of obs	Mean	Median	Min	25% percentile	75% percentile	Max	Std
EI_{it}	8501	0.064	0.057	-0.099	0.037	0.084	0.351	0.040
UI_{it}	8501	0	-0.007	-0.420	-0.027	0.018	0.517	0.051
$\lvert UI_{it}\rvert$	8501	0.034	0.024	0.000	0.011	0.044	0.517	0.037
$OverI_{it}$	3413	0.043	0.027	0.000	0.011	0.058	0.517	0.048
$\lvert UnderI_{it}\rvert$	5088	0.028	0.022	0.000	0.011	0.038	0.420	0.027
$Tobin's\,q_{it+1}$	8501	1.658	1.304	0.369	1.032	1.865	14.914	1.073
Roa_{it+1}	8501	0.032	0.030	-0.983	0.010	0.058	0.389	0.068
FCF_{it}	8501	-0.003	-0.004	-0.817	-0.051	0.045	0.662	0.094
Pos_FCF_{it}	4046	0.066	0.047	0.000	0.022	0.090	0.662	0.066
Neg_FCF_{it}	4455	-0.067	-0.048	-0.817	-0.090	-0.022	-0.000	0.068
$Asset\_turn_{it}$	8501	0.721	0.599	0.011	0.390	0.889	8.924	0.533
$L\arg_{it}$	8501	0.409	0.402	0.021	0.285	0.527	0.894	0.158
$Grab_{t-1}$	279	0.033	0.032	0.005	0.021	0.043	0.093	0.016

Note: EI_{it}, UI_{it}, $OverI_{it}$ and $\lvert UnderI_{it}\rvert$ are, respectively, the expected investment, inefficient investment, overinvestment and the absolute value of underinvestment, which are all estimated from regression Model (1). $Tobin's\,q_{it+1}$ is the enterprise value (defined as the market value of equity plus the book values of long-term debt, short-term debt, preferred stock, and convertible securities) divided by book value of total assets as of the end of year t+1. Roa_{it+1} is the enterprise i's return on assets in year t+1, calculated as the ratio of profits after tax to the book value of total assets as of the end of year t+1. FCF_{it} is free cash flow that an enterprise holds in year t, measured as the difference between net cash flows from operating activities and the expected investment estimated from regression Model (1) scaled by book value of total assets as of the end of year t-1. Pos_FCF_{it} (Neg_FCF_{it}) is equal to FCF_{it} if the values of FCF_{it} are positive (negative) in a given year, and zero otherwise. $L\arg_{it}$ is the proportion of shares held by the first largest shareholder as of the end of year t. $Asset\_turn_{it}$ is the enterprise i's total asset turnover in year t, calculated as the net sales divided by total assets. $Grab_{t-1}$ is the index of the government's grabbing hand of a region in year t-1, proxied by the proportion of the government's incomes from fines and confiscation to its fiscal revenues.

Table 4 tabulates the results of the univariate tests of mean differences for main variables used to estimate Model (3) and (4) between the enterprises controlled by the governments at all levels and private entities partitioned by the underinvestment and overinvestment. As shown in Table 4, the mean values of the expected investment (EI_{it}) for private

enterprises in underinvestment and overinvestment subgroups are, respectively, 0.069 and 0.073, and both significantly greater than those of the enterprises controlled by the governments at all levels at the conventional statistical levels (the expected investment for the enterprises controlled by the central, provincial, city (county) governments in underinvestment (overinvestment) subgroup are 0.058 (0.065), 0.062 (0.069) and 0.057 (0.063)), suggesting that compared to enterprises controlled by the governments at all levels, on the whole, private enterprises have more investment opportunities. Similarly, the univariate analysis also finds that the mean values of underinvestment ($|UnderI_{it}|$) and overinvestment ($OverI_{it}$) for private enterprises are separately 0.030 and 0.045, whereas the corresponding statistics for the enterprises controlled by the central, provincial, city (county) governments are, respectively, 0.026148 and 0.039457, 0.029256 and 0.043, 0.028 and 0.043, indicating that, whether in underinvestment or overinvestment, private enterprises both exhibit relatively higher inefficiency and distortion than the enterprises controlled by the governments at all levels.[6]

The means of $Tobin's\ q_{it+1}$ (Roa_{it+1}) for private enterprises in underinvestment and overinvestment subgroups are separately 1.923 (0.040) and 1.789 (0.040), which are all greater than those achieved by the enterprises controlled by the governments at all levels (the corresponding statistics for the enterprises controlled by the central, provincial, city (county) governments are, respectively, 1.629 (0.028) and 1.703 (0.034), 1.602 (0.031) and 1.518 (0.031), 1.580 (0.023) and 1.508 (0.028)). To the extent that relatively higher (lower) $Tobin's\ q_{it+1}$ and Roa_{it+1} both capture good (poor) operating performance, the significant differences in the two measures of economic performance between private enterprises and the enterprises controlled by the governments at all levels imply that private enterprises outperform the enterprises controlled by the governments at all levels.

In terms of free cash flow, though the means of FCF_{it} for the enterprises controlled by the governments at all levels and private entities are all negative in underinvestment subgroup, indicating that the shortage of funds might be an important factor that results in the occurrence of underinvestment of an enterprise, private enterprises have much less free cash flow than the enterprises controlled by government at all levels. Likewise, in overinvestment subgroup, free cash flow of the enterprises controlled by the governments at all levels is all positive, however, it is negative for private enterprises. Moreover, t tests of mean differences reveal that the above differences in free cash flow between private enterprises and those controlled by the governments at all levels are statistically significant at the 1 percent levels. These findings are not surprising since the enterprises controlled by the government at all levels more easily get access to funds in Chinese formal financial markets and encounter with relatively lower financing constraints as

[6]In terms of significance level, on one hand, the difference in underinvestment between the enterprises controlled by the central and city (county) governments and private entities is statistically significant at the conventional levels, but the difference in underinvestment between the enterprises controlled by provincial governments and private entities is statistically insignificant. On the other hand, as regards overinvestment, private enterprises statistically significantly differs from the enterprises controlled by the central government, yet aren't substantially different from the enterprises controlled by provincial and city (county) governments.

evidenced below by their longer number of years listed on the stock exchanges (Age_{it}).

The means of $Grab_{t-1}$ are, respectively, 0.030 and 0.031 for private enterprises in underinvestment and overinvestment subgroups, whereas the corresponding statistics for the enterprises controlled by the central, provincial, city (county) governments are 0.029 and 0.029, 0.032 and 0.031, and 0.038 and 0.397, showing that the government's grabbing hand is the most serious in the regions where the enterprises controlled by the city (county) governments are located, followed by the regions where the enterprises controlled by the provincial governments, private entities, and central government in that order. The comparison result of $Grab_{t-1}$ coupled with $|UI_{it}|$ and FCF_{it} gives a question, namely, if the investment by private enterprises is rational and mainly made based on financial return, then, what's the reason of causing the investment efficiency of private enterprises (underinvestment and overinvestment) significantly lower than that of the enterprises controlled by the governments at all levels?

Finally, Table 4 also shows that, compared to the enterprises controlled by the governments at all levels, private enterprises have much higher growth ratio of sales ($Growth_{it}$), but have smaller size ($LnTA_{it}$), lower total asset turnover ($Asset\_turn_{it}$) and ownership of ultimate controlling shareholder ($L\arg_{it}$), less debt-to-asset ratio ($Debt_{it}$), and shorter time listed on the stock exchanges ($LnAge_{it}$). Furthermore, the mean differences of the variables outlined above are all statistically significant at the conventional levels.

In a nutshell, though the above univariate analysis of mean differences provides partial supports to the hypotheses developed in this paper, they only show binary correlations without controlling for other potential determinants. In the next section, I attempt to extend my analysis by more rigorously examining whether the evidence on these hypotheses holds in a multivariate regression framework.

Table 4: Univariate Analysis of Mean Differences for Variables between the Enterprises Controlled by the Governments at all Levels and Private Entities Partitioned by Underinvestment and Overinvestment

Variables	Underinvestment				Overinvestment			
	Center	Province	City	Private	Center	Province	City	Private
EI_{it}	0.058	0.062	0.057	0.069	0.065	0.069	0.063	0.073
$\|UI_{it}\|$	0.026	0.029	0.028	0.030	0.039	0.043	0.043	0.045
$Tobin's\ q_{it+1}$	1.629	1.602	1.580	1.923	1.703	1.518	1.508	1.789
Roa_{it+1}	0.028	0.031	0.023	0.040	0.034	0.031	0.028	0.040
FCF_{it}	-0.004	-0.000	-0.008	-0.027	0.010	0.014	0.012	-0.010
$Asset\_turn_{it}$	0.792	0.783	0.692	0.683	0.735	0.764	0.662	0.677
$Grab_{t-1}$	0.029	0.032	0.038	0.030	0.029	0.032	0.397	0.031
Gr_{it}	0.170	0.159	0.143	0.172	0.190	0.185	0.186	0.198
$L\arg_{it}$	0.445	0.450	0.391	0.374	0.449	0.446	0.382	0.363
$LnTA_{it}$	21.999	21.942	21.587	21.274	22.195	22.064	21.564	21.289
$Debt_{it}$	0.490	0.491	0.506	0.413	0.499	0.516	0.529	0.422
Age_{it}	8.22	8.76	8.83	5.59	7.98	9.03	8.74	5.27

Note: This table presents the results for univariate tests for all regression variables used in

Model (3) and (4) between the enterprises controlled by the governments at all levels and private entities partitioned by underinvestment and overinvestment. Out of 5088 (3413) firm-year observations of underinvestment (overinvestment), the enterprises controlled by the central, provincial, city (county) governments and private entities account for 1004 (697), 1212 (806), 1602 (1009), and 1270 (901) of observations, respectively. For each variable, I report the variable means for the enterprises controlled by the central, provincial, city (county) governments and private entities by underinvestment and overinvestment subgroups. Center, Province, City and Private refer to the enterprises controlled by the central, provincial, city (county) governments and private entities. If at the time of the IPO, the ultimate controller of an enterprise is the central, provincial or city (county) governments and their agencies such as the bureaus of state assets management, finance bureaus and bureaus in charge of different industries or other government agencies et al., it is regarded as the enterprises controlled by the government at the corresponding level, and private enterprises otherwise. All variable definitions appear in Table 3.

4.2.2 Analysis of Correlation Coefficients

Table 5 reports Pearson correlation coefficients between the variables used to estimate Model (3). Below and above the main diagonal are, respectively, presented Pearson correlation coefficients for underinvestment and overinvestment subgroups. In overinvestment subgroup, it is worthwhile noting that a statistically significantly positive association exists between $OverI_{it}$ and $Grab_{t-1}$ (Pearson correlation coefficient between the two variables equals 0.058, and significance level is less than 1 percent), indicating that the government's grabbing hand of a region in China might aggravate the overinvestment of the enterprises within the jurisdiction. Similarly, in underinvestment subgroup, Pearson correlation coefficient between $|UnderI_{it}|$ and $Grab_{t-1}$ is 0.032, and also statistically significant at the 5 percent level, suggesting that the government's grabbing hand of the region has a negative impact on the underinvestment of the enterprises within the jurisdiction as well. The above findings on Pearson correlation coefficients between $Grab_{t-1}$ and $OverI_{it}$, $|UnderI_{it}|$ offer preliminary support for the hypothesis 1.

In addition, I also find that the overinvestment variable ($OverI_{it}$) is significantly positively associated with free cash flow (FCF_{it}), prior period's operating performance (Roa_{it-1}), and significantly negatively related to the ratio of total asset turnover ($Asset\_turn_{it}$), the natural logarithm of the number of years listed on stock exchanges in China after IPO ($LnAge_{it}$), shedding light on the importance of explicitly controlling for these enterprise's attributes in the following multivariate regressions.

On the contrary, in underinvestment subgroup, Pearson correlation coefficients between $|UnderI_{it}|$ and FCF_{it} is -0.170, and significant at the 1 percent level, showing that the enterprises with higher free cash flow are less likely to under-invest. Pearson correlation coefficients between $|UnderI_{it}|$ and Roa_{it-1} and $L\arg_{it}$ are, respectively,

significantly positive at the 1 and 5 percent level, but the association between $|UnderI_{it}|$ and $Asset\_turn_{it}$, $LnAge_{it}$ are statistically significantly negative.

Finally, further analysis finds that Pearson correlation coefficients between independent variables are generally small, with the highest value of 0.196 between $LnAge_{it}$ and FCF_{it} in overinvestment subgroup, and the lowest being -0.198 between $LnAge_{it}$ and $L\arg_{it}$ in underinvestment subgroup, which thus eliminates my concerns that multicollinearity is possible spuriously responsible for the evidence on the hypotheses developed in this paper.

Table 5: Correlation Matrix between the Regression Variables (*p*-value, two tailed)

Variables	$\|UnderI_{it}\|$	FCF_{it}	$Asset\_turn_{it}$	Roa_{it-1}	$L\arg_{it}$	$LnAge_{it}$	$Grab_{t-1}$
$OverI_{it}$	(-)	0.062***	-0.107***	0.095***	0.016	-0.113***	0.058***
		(0.000)	(0.000)	(0.000)	(0.344)	(0.000)	(0.001)
FCF_{it}	-0.170***	(-)	0.138**	0.019	0.001	0.196***	0.027
	(0.000)		(0.000)	(0.268)	(0.967)	(0.000)	(0.113)
$Asset\_turn_{it}$	-0.065***	0.116***	(-)	0.096***	0.051***	0.022	-0.063***
	(0.000)	(0.000)		(0.000)	(0.003)	(0.203)	(0.000)
Roa_{it-1}	0.081***	0.122***	0.091***	(-)	0.116***	-0.181***	-0.074***
	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
$L\arg_{it}$	0.029**	0.011	0.060***	0.136***	(-)	-0.197***	0.027
	(0.039)	(0.420)	(0.000)	(0.000)		(0.000)	(0.118)
$LnAge_{it}$	-0.183***	0.183***	0.052***	-0.165***	-0.198***	(-)	-0.131***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		(0.000)
$Grab_{t-1}$	0.032**	-0.023*	-0.067***	-0.118***	0.007	-0.134***	(-)
	(0.024)	(0.095)	(0.000)	(0.000)	(0.594)	(0.000)	

Note: This table presents Pearson correlation coefficients for the variables used to estimate regression Model (3). Pearson correlation coefficients between variables for underinvestment and overinvestment subgroups are, respectively, reported below and above the main diagonal. P-values are outlined in the parenthesis below the correlation coefficients between the regression variables. ***, **, and * denote two-tailed statistical significance at the 1%, 5%, and 10% level, respectively. All variable definitions appear in Table 3.

4.2.3 Multivariate Analysis

(1) The government's grabbing hand and investment efficiency: test of hypothesis 1

Table 6 reports the multivariate regression results for the Model (3). The estimated model is a regression of inefficient investment on the index of the government's grabbing hand of a region, enterprise characteristics, and industry and year fixed effects. In column (1), (2) and (3), the dependent variables are separately $|UI_{it}|$, $OverI_{it}$, and $|UnderI_{it}|$ in year t. As seen from F-statistics, all regression equations are statistically significant at the 1 percent level, indicating that there exists a significant association between the dependent variable and independent variables. The adjusted R-square of model ranges from 7.5% to 12.9%, suggesting that variables used in Model (3), respectively, explain about 7.7, 7.5, and 12.9 percent of the variations in $|UI_{it}|$, $OverI_{it}$, and $|UnderI_{it}|$ for the sample enterprises.

Column (1) of Table 6 presents the multivariate regression results for the full sample

which use $|UI_{it}|$ as dependent variable. After controlling for other variables that might affect investment efficiency, such as free cash flow (Pos_FCF_{it} and Neg_FCF_{it}), ownership of ultimate controlling shareholder ($L\arg_{it}$), prior period's profitability (Roa_{it-1}), the natural logarithm of the number of years listed on stock exchanges ($LnAge_{it}$), as well as industry and year fixed effects, I find that the estimated coefficients on $Grab_{t-1}$ and its interactions with $State_{it}$ as well as $City_{it}$, $State_{it} \times Grab_{t-1}$ and $City_{it} \times Grab_{t-1}$ are, respectively, 0.042, -0.086 and -0.023, but none of them are statistically significant at the conventional level. However, the estimated coefficient for the interaction term, $\Pr iv_{it} \times Grab_{t-1}$, is 0.203 and statistically significant at the 1 percent level. The above findings suggest that the government's grabbing hand has an adverse influence on the investment efficiency of private enterprises. In contrast, the occurrence of inefficient investment of the enterprises controlled by the central, provincial and city (county) governments isn't affected by the government's "grabbing hand". Moreover, the estimated coefficients on $Grab_{t-1} \times t$, $\Pr iv_{it} \times Grab_{t-1} \times t$, $State_{it} \times Grab_{t-1} \times t$ and $City_{it} \times Grab_{t-1} \times t$ are all negative, yet none are statistically significant at the conventional levels, showing that over time, the effect of the government's grabbing hand on the investment efficiency of the enterprise hasn't changed.

Turning to the control variables in column (1), consistent with theoretical expectation, the estimated coefficients on Pos_FCF_{it} and Neg_FCF_{it} are, respectively, 0.050 and -0.043, and both are statistically significant at the 1 percent level. The above result indicates that an enterprise's investment is more likely to be inefficient and distorted when it has a positive free cash flow. Thus, reducing free cash flow held by an enterprise could effectively enhances the investment efficiency. A statistically significantly negative coefficient on $L\arg_{it}$ suggests that with the increase in ownership of the first largest shareholder, it will alleviate the magnitude of inefficient investment of an enterprise, showing that the governance role of the first largest shareholder is effective. Furthermore, I find that the estimated coefficient on $Asset\_turn_{it}$ is also negative and statistically significant at the 1 percent level. This result implies that the improvement of asset utilization efficiency of an enterprise can significantly restrain its inefficient investment. However, what is more surprising, Roa_{it-1} has a statistically significantly positive coefficient, showing that the investment of the enterprises with a higher prior year's operating performance is more likely to be inefficient and distorted in the subsequent year. Finally, $LnAge_{it}$ is significantly negatively associated with $|UI_{it}|$, showing that with the increase in the time listed on stock exchanges, an enterprise's investment will gradually become more rational.

In order to deeply investigate how the government's grabbing hand influences overinvestment and underinvestment, namely whether the impact of the government's grabbing hand on overinvestment significantly differs from underinvestment, I further subdivide the inefficient investment into overinvestment and underinvestment categories and the corresponding multivariate regression results for each subgroup are, respectively,

presented in column (2) and (3) of Table 6.

As shown in column (2) where $OverI_{it}$ is used as dependent variable, the estimated coefficients on $Grab_{t-1}$ and the interaction items, $State_{it} \times Grab_{t-1}$ and $City_{it} \times Grab_{t-1}$ remain statistically insignificant. However, the estimated coefficients on the interaction item, $\Pr iv_{it} \times Grab_{t-1}$ continues to be statistically significant at the 10 percent level. The above findings suggest that the government's grabbing hand aggravates the overinvestment of private enterprises, yet has no effect on the enterprises controlled by the governments at all levels. Similarly, in column (3) which reports the multivariate regression results for the underinvestment subsample, the estimated coefficients on the interaction item, $\Pr iv_{it} \times Grab_{t-1}$ is also statistically significant at the 10 percent level, showing that the government's grabbing hand adversely affects the underinvestment of private enterprises as well. However, though the estimated coefficients on $Grab_{t-1}$ and $City_{it} \times Grab_{t-1}$ are still statistically insignificant at the conventional levels, the estimated coefficient of $State_{it} \times Grab_{t-1}$ has become statistically significant negative at the 10 percent level, indicating that the government's grabbing hand reduce the magnitude of underinvestment of the enterprises controlled by the provincial governments. In other words, due to the influence of the government's grabbing hand, the occurrence of underinvestment for the enterprises controlled by the provincial governments is relatively lower. Furthermore, whether in overinvestment or underinvestment subgroup, the estimated coefficients on $Grab_{t-1} \times t$, $\Pr iv_{it} \times Grab_{t-1} \times t$, $State_{it} \times Grab_{t-1} \times t$ and $City_{it} \times Grab_{t-1} \times t$ remain statistically insignificant. Collectively, the above results provide some support for the hypothesis 1 empirically.

In addition, the estimated coefficient on Pos_FCF_{it} remains statistically significantly positive at the 1 percent level in column (2) overinvestment subgroup, however, in column (3) underinvestment model it has become insignificantly negative. The estimated coefficient of Neg_FCF_{it} is exactly the opposite. It has become insignificantly positive in column (2), but is still statistically significantly negative at 1 percent level in column (3). These results are consistent with prior studies which find that the enterprises with more free cash flow are motivated to over-invest (Jensen, 1986; Richardson, 2006) and less likely to under-invest (Richardson, 2006). In column (2) and (3), although the estimated coefficients for $L\arg_{it}$ remain negative, they are no longer statistically significant at the conventional level, indicating that the earlier finding on the governance role of the first largest shareholder in mitigating the inefficient investment of the enterprise is just an illusion. The remaining variables, such as $Asset\_turn_{it}$, Roa_{it-1} and $LnAge_{it}$, all exhibit the results and significance levels similar to those presented in column (1) of Table 6.

Table 6: Multivariate Results for the Government's Grabbing Hand and Investment Efficiency: Test of Hypothesis 1

Variables	Expected Direction	$\|UI\|$ (1)	$OverI$ (2)	$\|UnderI\|$ (3)
Intercept	?	0.045***	0.059***	0.032***
		10.942	6.970	8.884
Priv_{it}	?	-0.003	-0.005	-0.002
		-0.862	-0.676	-0.738
$State_{it}$	?	0.007**	0.006	0.008***
		2.552	1.017	3.158
$City_{it}$	?	0.004	0.006	0.007**
		1.285	0.860	2.478
$Grab_{t-1}$	+	0.042	0.110	0.040
		0.630	0.788	0.657
$\mathrm{Priv}_{it} \times Grab_{t-1}$	+	0.203***	0.288*	0.117*
		2.567	1.758	1.643
$State_{it} \times Grab_{t-1}$	+	-0.086	-0.035	-0.112*
		-1.230	-0.241	-1.774
$City_{it} \times Grab_{t-1}$	+	-0.023	-0.033	-0.102
		-0.337	-0.229	-1.627
$Grab_{t-1} \times t$	?	-0.013	-0.021	-0.021
		-0.822	-0.648	-1.410
$\mathrm{Priv}_{it} \times Grab_{t-1} \times t$	?	-0.014	-0.024	0.001
		-0.814	-0.707	0.071
$State_{it} \times Grab_{t-1} \times t$	?	-0.019	-0.021	-0.020
		-1.178	-0.652	-1.313
$City_{it} \times Grab_{t-1} \times t$	?	-0.012	-0.028	-0.006
		-0.767	-0.922	-0.428
Pos_FCF_{it}	+	0.050***	0.106***	-0.008
		6.422	6.892	-1.042
Neg_FCF_{it}	-	-0.043***	0.005	-0.076***
		-5.813	0.294	-12.180
Larg_{it}	?	-0.007**	-0.007	-0.004
		-2.485	-1.258	-1.519
$Asset\_Turn_{it}$	+	-0.007***	-0.012***	-0.003***
		-7.703	-6.678	-3.288
Roa_{it-1}	+	0.037***	0.050***	0.037***
		5.431	4.119	5.195
$LnAge_{it}$	?	-0.006***	-0.007***	-0.005***
		-9.352	-5.329	-8.248
Ind		Included	Included	Included
$Year$		Included	Included	Included
$AdjR^2$		0.077	0.075	0.129
F		16.777***	7.179***	17.697**
No. of obs		8501	3413	5088

Note: This table provides the main empirical results of the association between the index of the government's grabbing hand of a region in China and inefficient investment (overinvestment and underinvestment). The corresponding regression equation is specified as follows:

$$|UI_{it}|(OverI_{it}, |UnderI_{it}|) = \phi_0 + \phi_1 \mathrm{Priv}_{it} + \phi_2 State_{it} + \phi_3 City_{it} + \phi_4 Grab_{t-1} + \phi_5 \mathrm{Priv}_{it} \times Grab_{t-1} + \phi_6 State_{it} \times Grab_{t-1}$$
$$+ \phi_7 City_{it} \times Grab_{t-1} + \phi_8 Grab_{t-1} \times t + \phi_9 \mathrm{Priv}_{it} \times Grab_{t-1} \times t + \phi_{10} State_{it} \times Grab_{t-1} \times t + \phi_{11} City_{it} \times Grab_{t-1} \times t$$
$$+ \phi_{12} Pos\_FCF_{it} + \phi_{13} Neg\_FCF_{it} + \phi_{14} Roa_{it-1} + \phi_{15} Asset\_turn_{it} + \phi_{16} \mathrm{Larg}_{it} + \phi_{17} LnAge_{it} + \Sigma Ind + \Sigma Year + \varepsilon_{it}$$

Where $|UI_{it}|$, $OverI_{it}$ and $|UnderI_{it}|$ are, respectively, the absolute value of inefficient investment, overinvestment and the absolute value of underinvestment in year t, which are all estimated from Model (1). $Grab_{t-1}$ is the index of the government's grabbing hand of a region in year t-1, proxied by the proportion of the government's incomes from fines and confiscation to its fiscal revenues. t is the time tendency variable which takes the value of 0, 1, ……, 8 for 2003, 2004,……, 2011, respectively. $\mathrm{Pr}iv$, $State$ and $City$ are all dummy variables describing the identity of an enterprise's ultimate controller which take the value of 1 if the enterprise's ultimate controller is private entities (individuals), provincial or city (county) government as well as their agencies, such as the bureaus of state assets management, finance bureaus and bureaus in charge of different industries or other government agencies et al., at the time of the enterprise's IPO, and zero otherwise. Pos_FCF_{it} is equal to FCF_{it} if the values of FCF_{it} are positive in a given year, and zero otherwise. The opposite is true for Neg_FCF_{it}. FCF_{it} is free cash flow that an enterprise holds in year t, measured as the difference between net cash flows from operating activities and the expected investment estimated from Model (1) scaled by book value of total assets as of the end of year t-1. $L\mathrm{arg}_{it}$ is the proportion of shares held by the first largest shareholder as of the end of year t. $Asset\_turn_{it}$ is the enterprise's total asset turnover in year t, calculated as the net sales divided by total assets. Roa_{it-1} is the return on assets in year t-1, measured as the profit after tax divided by book value of total assets. $LnAge_{it}$ is the natural logarithm transformation of the number of years that an enterprise has been listed on the stock exchanges in China since IPO. Ind and $Year$, are respectively industry and year indicators. ε is error term. Industry and year fixed effects are controlled for but not reported for the sake of space. An enterprise is classified as overinvestment subgroup if the regression residual estimated from investment expectation Model (1) is positive in a given year, and underinvestment subgroup otherwise. T-statistics are reported below the estimated coefficients; ***, **, and * denote two-tailed statistical significance at the 1%, 5%, and 10% level, respectively.

(2) The government's grabbing hand, inefficient investment and firm performance: test of hypothesis 2

Table 7 tabulates the multivariate regression results for Model (4) which employs the natural logarithm of Tobin's q in year t+1, $LnTobin'sq_{it+1}$, a commonly used performance measure in academic literature, as dependent variable in an attempt to formally test hypothesis 2 whether the government's grabbing hand of the region in China further aggravates the negative effect of inefficient investment (overinvestment and underinvestment) on the future operating performance of the enterprises within the jurisdiction.

As shown in column (1) which reports the multivariate regression results for the full sample, the estimated coefficient on EI_{it} is 0.341 and statistically significant at the 1 percent level, indicating that on average, the expected investment has a positive effect on

one year ahead future market value of an enterprises. The estimated coefficients of $|UI_{it}|$, $State_{it} \times |UI_{it}|$ and $City_{it} \times |UI_{it}|$ are all statistically insignificant at the conventional level, however, the estimated coefficient of $\Pr iv_{it} \times |UI_{it}|$ is statistically significantly negative at the 10 percent level. The above findings suggest that the inefficient investment adversely affects one year ahead future market value of private enterprises rather than the enterprises controlled by the central, provincial, city (county) governments. Meanwhile, the estimated coefficient of $Grab_{t-1}$ is also statistically significantly negative (t-statistic = -2.786), but the estimated coefficients on interaction items, $\Pr iv_{it} \times Grab_{t-1}$, $State_{it} \times Grab_{t-1}$ and $City_{it} \times Grab_{t-1}$ are all statistically insignificant at the conventional level (t-statistics = -0.900, 1.199 and 0.732, respectively), indicative of the fact that the government's grabbing hand has a negative effect on one year ahead future market value of the enterprise, and there exist no significant differences in this effect amongst enterprises controlled by the central, provincial, city governments and private entities. In contrast, none of the estimated coefficients on $|UI_{it}| \times Grab_{t-1}$, $\Pr iv_{it} \times |UI_{it}| \times Grab_{t-1}$, $State_{it} \times |UI_{it}| \times Grab_{t-1}$, and $City_{it} \times |UI_{it}| \times Grab_{t-1}$ are statistically significant at the conventional level, indicating that on average, the government's grabbing hand of the region doesn't further aggravates the adverse impact of inefficient investment on one year ahead future market value of the enterprises, especially private enterprises.

Turning to the test variables, the estimated coefficients for Gr_{it}, $Asset\_turn_{it}$ and $LnAge_{it}$ are all statistically significantly positive (t-statistics = 6.353, 2.546 and 14.856, respectively). However, the estimated coefficients of $LnTA_{it}$, $L\arg_{it}$ and $Debt_{it}$ are statistically significantly negative (t-statistic = -38.548, -2.387 and -10.092, respectively). The above results show that the enterprise with more growth opportunities, higher total asset turnover, or longer time listed on the exchange stocks usually has a relative higher market value in year t+1. On the contrary, the performances of stock prices for small enterprises might be superior to large enterprises in stock markets, which has resulted in the market value for the former in year t+1 much higher than the latter. Meanwhile, with the increase in ownership of the first largest shareholder or the debt-to-asset ratio, both of them would give rise to a negative effect on one year ahead future market value of the enterprises, suggesting that the governance function of the first largest shareholder and debt financing for the enterprises might be ineffective.

Column (2) and (3), respectively, represents the multivariate regression results for the overinvestment and underinvestment subsamples. Note that in column (2), the estimated coefficient on EI_{it} has become negative, though statistically insignificant at the conventional level. However, in column (3), the estimated coefficient on EI_{it} remains statistically significantly positive at the 1 percent level (t-statistic = 3.666), indicating that the earlier finding in column (1) that the expected investment is positively linked to one year ahead future market value of the enterprise only exists in the underinvestment subgroup, yet it has no effect on one year ahead future market value of the enterprises in the overinvestment subsample. Likewise, the estimated coefficient on interaction item,

$\mathrm{Priv}_{it} \times |UI_{it}|$, is no longer statistically significant in column (2), but it continues to be statistically significantly negative at the 1 percent level (t-statistic = -2.673) in column (3). This result suggests that it is underinvestment rather than overinvestment that has a negative influence on one year ahead future market values of private enterprises. In column (2) and (3), the estimated coefficients on $Grab_{t-1}$ are separately -2.288 and -1.487, and statistically significant at the 5 and 10 percent level, respectively, whereas the estimated coefficients of interaction items, $\mathrm{Priv}_{it} \times Grab_{t-1}$, $State_{it} \times Grab_{t-1}$, and $City_{it} \times Grab_{t-1}$ all remain statistically insignificant, showing that the government's grabbing hand adversely affects the market value of the enterprises in both overinvestment and underinvestment subgroups, and this effect is indifferent across enterprises controlled by the central, provincial, city (county) governments and private enterprises. Similar to the regression results for full sample in column (1), whether in overinvestment or underinvestment subgroup, none of the estimated coefficients on $|UI_{it}| \times Grab_{t-1}$, $\mathrm{Priv}_{it} \times |UI_{it}| \times Grab_{t-1}$, $State_{it} \times |UI_{it}| \times Grab_{t-1}$, and $City_{it} \times |UI_{it}| \times Grab_{t-1}$ are statistically significant. This finding means that the government's grabbing hand of the region doesn't further aggravate the negative impact of overinvestment and underinvestment on one year ahead future market value of the enterprises within the jurisdiction.

Finally, as seen previously, the regression results and significance levels for the control variables as well as their effects on $LnTobin's\ q_{it+1}$ are highly similar to those appearing in column (1) in Table 7 with the exception of $L\mathrm{arg}_{it}$ and $Asset\_turn_{it}$ with statistically insignificant estimated coefficients in column (3).

Table 7: Multivariate Results for the Government's Grabbing Hand, Inefficient Investment and Firm Performance: Test of Hypothesis 2 (Dependent variable= $LnTobin's\ q_{it+1}$)

Variables	Expected Direction	$\|UI\|$ (1)	*OverI* (2)	$\|UnderI\|$ (3)
Intercept	?	3.213***	3.158***	3.304***
		37.855	24.675	28.795
$Priv_{it}$	+	0.014	-0.080*	0.100**
		0.442	-1.653	2.148
$State_{it}$	-	-0.088***	-0.145***	-0.045
		-3.019	-3.262	-1.097
$City_{it}$	-	-0.119***	-0.138***	-0.108**
		-3.775	-2.871	-2.473
EI_{it}	+	0.341***	-0.014	0.655***
		2.670	-0.073	3.666
$\|UI_{it}\|$	-	-0.691	-0.754	-0.528
		-1.454	-1.383	-0.579
$Priv_{it} \times \|UI_{it}\|$	-	-1.298*	-0.033	-3.261***
		-1.927	-0.042	-2.673
$State_{it} \times \|UI_{it}\|$	-	0.661	1.018	0.392
		1.066	1.361	0.354
$City_{it} \times \|UI_{it}\|$	-	1.002	1.018	1.082
		1.557	1.291	0.962
$Grab_{t-1}$	-	-1.731***	-2.288**	-1.487*
		-2.786	-2.457	-1.660
$Priv_{it} \times Grab_{t-1}$	-	-0.833	0.952	-1.969
		-0.900	0.686	-1.502
$State_{it} \times Grab_{t-1}$	-	0.989	1.375	0.866
		1.199	1.096	0.739
$City_{it} \times Grab_{t-1}$	-	0.603	0.804	0.739
		0.732	0.646	0.639
$\|UI_{it}\| \times Grab_{t-1}$	-	14.400	10.010	26.607
		1.042	0.625	1.030
$Priv_{it} \times \|UI_{it}\| \times Grab_{t-1}$	-	29.989	14.975	37.317
		1.600	0.675	1.114
$State_{it} \times \|UI_{it}\| \times Grab_{t-1}$	-	-21.667	-19.108	-34.851
		-1.226	-0.908	-1.084
$City_{it} \times \|UI_{it}\| \times Grab_{t-1}$	-	-17.671	-12.947	-32.395
		-1.035	-0.630	-1.066
Gr_{it}	+	0.096***	0.110***	0.096***
		6.353	4.790	4.815
$LnTA_{it}$	?	-0.149***	-0.138***	-0.159***
		-38.548	-23.894	-30.556
$Larg_{it}$	?	-0.060**	-0.099***	-0.037
		-2.387	-2.615	-1.124
$Asset\_Turn_{it}$	+	0.019**	0.042***	0.008
		2.546	3.533	0.806
$Debt_{it}$	+	-0.221***	-0.255***	-0.194***
		-10.092	-7.257	-6.874
$LnAge_{it}$	?	0.090***	0.070***	0.105***
		14.856	7.855	12.936
Ind		Included	Included	Included
Year		Included	Included	Included
$AdjR^2$		0.515	0.527	0.514
F		181.480***	77.004***	108.554**
No. of obs		8501	3413	5088

Note: This table reports the main empirical results for the effects on $LnTobin's\ q_{it+1}$ of the enterprises of inefficient investment (overinvestment and underinvestment) and the government's grabbing hand as well as their interactions. The corresponding regression equation is specified as follows:

$$LnTobin's\ q_{it+1} = \beta_0 + \beta_1 \mathrm{Priv}_{it} + \beta_2 State_{it} + \beta_3 City_{it} + +\beta_4 EI_{it} + \beta_5 |UI_{it}| + \beta_6 \mathrm{Priv}_{it} \times |UI_{it}| + \beta_7 State_{it} \times |UI_{it}| + \beta_8 City_{it} \times |UI_{it}| + \beta_9 Grab_{t-1} + \beta_{10} \mathrm{Priv}_{it} \times Grab_{t-1} + \beta_{11} State_{it} \times Grab_{t-1} + \beta_{12} City_{it} \times Grab_{t-1} + \beta_{13} |UI_{it}| \times Grab_{t-1} + \beta_{14} \mathrm{Priv}_{it} \times |UI_{it}| \times Grab_{t-1} + \beta_{15} State_{it} \times |UI_{it}| \times Grab_{t-1} + \beta_{16} City_{it} \times |UI_{it}| \times Grab_{t-1} + \beta_{17} Gr_{it} + \beta_{18} LnTA_{it} + \beta_{19} \mathrm{Larg}_{it} + \beta_{20} Debt_{it} + \beta_{21} LnAge_{it} + \beta_{22} Asset\_turn_{it} + \Sigma Ind + \Sigma Year + \varepsilon_{it+1}$$

Where $LnTobin's\ q_{it+1}$ is the natural logarithm of $Tobin's\ q$ for the enterprise i in year t+1. $Tobin's\ q$ equals the enterprise value (defined as the market value of equity plus the book values of long-term debt, short-term debt, preferred stock, and convertible securities) scaled by the ending book value of total assets. EI_{it} is the expected investment for the enterprise i in year t estimated from Model (1). Gr_{it} is the enterprise's investment opportunities in year t and proxied by growth ratio of sales. $LnTA_{it}$ is the natural logarithm transformation of book value of total assets as of the end of year t. $Debt_{it}$ is the debt-to-asset ratio and measured as the book value of total debt (the sum of short-term debt and long-term debt) divided by book value of total assets as of the end of year t. See Table 3 for other variable definitions. T-statistics are presented below the estimated coefficients; ***, **, and * denote two-tailed statistical significance at the 1%, 5%, and 10% level, respectively.

Table 8 reports the multivariate regression results that utilize return on assets in year t+1, Roa_{it+1}, another performance measure broadly used by researchers in academic study, as dependent variable to estimate Model (4). As shown in column (1) through (3), the estimated coefficients on EI_{it} are, respectively, 0.237, 0.212 and 0.281, and all statistically significant at the 1 percent levels (t-statistics = 9.826, 7.120 and 7.701), indicating that no matter whether the specific form of inefficient investment is overinvestment or underinvestment, the expected investment has a positive effect on one year ahead future return on assets, Roa_{it+1}. The estimated coefficients on $|UI_{it}|$, $State_{it} \times |UI_{it}|$, and $City_{it} \times |UI_{it}|$ are all statistically insignificant in column (1) through (3), however, $\mathrm{Priv}_{it} \times |UI_{it}|$ has a statistically significantly negative estimated coefficient in column (1) and (2), though its estimated coefficient is statistically insignificant either in column (3). The above findings suggest that neither overinvestment nor underinvestment is linked to one year ahead future return on assets of the enterprises controlled by the central, provincial and city (county) governments, but overinvestment imposes a negative effect on the private enterprises' return on assets in year t+1. Furthermore, in column (1) through (3), the estimated coefficients on $Grab_{t-1}$ and $State_{it} \times Grab_{t-1}$ are all statistically insignificant, on the contrary, both $\mathrm{Priv}_{it} \times Grab_{t-1}$ and $City_{it} \times Grab_{t-1}$ have statistically significantly negative coefficients, suggesting that the government's grabbing hand of the region adversely influences on one year ahead future return on assets of the enterprises controlled by the city (county) governments and private entities, and this effect is independent of whether the specific form of inefficient investment is overinvestment or underinvestment, however, it has no effect on one year ahead future return on assets of the enterprises controlled by

the central and provincial governments. In addition, similar to the regression results in Table 7 which uses $LnTobin's\ q_{it+1}$ as a proxy for the enterprise's operating performance, I find that the estimated coefficients on $|UI_{it}| \times Grab_{t-1}$, $State_{it} \times |UI_{it}| \times Grab_{t-1}$, $State_{it} \times |UI_{it}| \times Grab_{t-1}$ continue to be statistically insignificant. These results show that the government's grabbing hand doesn't further aggravate the negative effect of the inefficient investment (overinvestment and underinvestment) on one year ahead future return on assets of the enterprises controlled by the central, provincial, city (county) governments and private entities. In summary, the findings from Table 7 and 8 provide partial empirical support for hypothesis 2.

Finally, I find that, in column (1) through (3), growth ratio of sales (Gr_{it}), enterprise size ($LnTA_{it}$), the ownership of the first largest shareholder ($L\arg_{it}$) and total asset turnover ($Asset\_turn_{it}$) are all significantly positively associated with the Roa_{it+1}. In contrast, the estimated coefficient of $Debt_{it}$ is still statistically significantly negative at the 1 percent level. However, the estimated coefficients of $LnAge_{it}$ is no longer statistically significant at the conventional level. These results imply that the enterprise with more growth opportunities or higher asset turnover might have a better one year ahead future return on assets. However, compared to small enterprises, large enterprises operate much better in year t+1, a result completely contrary to the relation between $LnTobin's\ q_{it+1}$ and $LnTA_{it}$ in Table7, indicating that though large enterprises' operating status is superior to small enterprise, but the market performance of their share prices is inferior to that of small enterprise. This might be linked to the fact that small enterprises usually have more growth opportunities than large enterprises. Another possible reason for the above inconsistency is that China's capital markets are still inefficient (namely haven't yet achieved the weak form efficiency), and large enterprises' better operating performance aren't reflected in their share prices in a timely fashion. Furthermore, the governance function of debt financing remains ineffective. What's more surprising, with the increase in ownership of the first largest shareholder, this moment the first largest shareholder has a positive effect on the return on assets of the enterprises in year t+1, and thus plays some governance role. This obviously is the opposite of the earlier findings on the negative association between $LnTobin's\ q_{it+1}$ and $L\arg_{it}$ in Table 7. A possible interpretation for the difference between the two might be that, since the capital markets in China are still lack of efficiency and the reputation mechanism yet fails to play a role up to now, the external investors often make negative evaluations on the governance function of the first largest shareholder with higher ownership in the enterprises, which thus adversely affects the performances of stock prices of the enterprises in the capital markets.

Table 8: Multivariate Results for the Government's Grabbing Hand, Inefficient Investment and Firm Performance: Test of Hypothesis 2 (Dependent variable= Roa_{it+1})

Variables	Expected Direction	$\lvert UI \rvert$ (1)	*OverI* (2)	$\lvert UnderI \rvert$ (3)
Intercept	?	-0.138***	-0.084***	-0.161***
		-8.602	-4.239	-6.853
$Priv_{it}$	+	0.042***	0.028***	0.047***
		6.769	3.788	4.972
$State_{it}$	-	0.000	0.005	-0.006
		0.051	0.761	-0.756
$City_{it}$	-	0.026***	0.022***	0.023***
		4.322	2.974	2.623
EI_{it}	+	0.237***	0.212***	0.281***
		9.826	7.120	7.701
$\lvert UI_{it} \rvert$	-	0.009	0.103	-0.150
		0.100	1.218	-0.804
$Priv_{it} \times \lvert UI_{it} \rvert$	-	-0.291**	-0.278**	-0.240
		-2.288	-2.253	-0.963
$State_{it} \times \lvert UI_{it} \rvert$	-	0.080	-0.052	0.318
		0.683	-0.452	1.403
$City_{it} \times \lvert UI_{it} \rvert$	-	0.025	0.015	0.145
		0.206	0.121	0.631
$Grab_{t-1}$	-	0.166	0.240	0.120
		1.417	1.364	0.654
$Priv_{it} \times Grab_{t-1}$	-	-1.027***	-0.619***	-1.213***
		-5.881	-2.876	-4.524
$State_{it} \times Grab_{t-1}$	-	0.020	-0.210	0.209
		0.131	-1.079	0.874
$City_{it} \times Grab_{t-1}$	-	-0.631***	-0.532***	-0.578***
		-4.059	-2.754	-2.443
$\lvert UI_{it} \rvert \times Grab_{t-1}$	-	-1.577	-3.498	-0.305
		-0.605	-1.406	-0.058
$Priv_{it} \times \lvert UI_{it} \rvert \times Grab_{t-1}$	-	8.931	8.768	7.138
		1.527	1.545	1.042
$State_{it} \times \lvert UI_{it} \rvert \times Grab_{t-1}$	-	-0.402	2.859	-4.579
		-0.121	0.875	-0.696
$City_{it} \times \lvert UI_{it} \rvert \times Grab_{t-1}$	-	2.089	2.630	-1.206
		0.649	0.824	-0.194
Gr_{it}	+	0.048***	0.037***	0.053***
		16.727	10.424	12.897
$LnTA_{it}$	?	0.007***	0.004***	0.008***
		9.831	5.005	7.861
$Larg_{it}$	?	0.020**	0.019***	0.020***
		4.314	3.300	3.005
$Asset\_Turn_{it}$	+	0.014**	0.012***	0.016***
		10.001	6.625	7.884
$Debt_{it}$	+	-0.106***	-0.098***	-0.110***
		-25.669	-17.891	-19.019
$LnAge_{it}$	?	0.001	0.002	0.001
		0.903	1.523	0.435
Ind		Included	Included	Included
Year		Included	Included	Included
$AdjR^2$		0.210	0.221	0.217
F		46.279***	20.361***	29.234**
No. of obs		8501	3413	5088

Note: This table provides the main empirical results for the effects on the enterprises' return on assets in year t+1, Roa_{it+1}, of the inefficient investment (overinvestment and underinvestment) and the government's grabbing hand as well as their interaction items. The corresponding regression equation is specified as follows:

$$Roa_{it+1} = \beta_0 + \beta_1 \mathrm{Priv}_{it} + \beta_2 State_{it} + \beta_3 City_{it} + + \beta_4 EI_{it} + \beta_5 |UI_{it}| + \beta_6 \mathrm{Priv}_{it} \times |UI_{it}| + \beta_7 State_{it} \times |UI_{it}| + \beta_8 City_{it} \times |UI_{it}| + \beta_9 Grab_{t-1} + \beta_{10} \mathrm{Priv}_{it} \times Grab_{t-1} + \beta_{11} State_{it} \times Grab_{t-1} + \beta_{12} City_{it} \times Grab_{t-1} + \beta_{13} |UI_{it}| \times Grab_{t-1} + \beta_{14} \mathrm{Priv}_{it} \times |UI_{it}| \times Grab_{t-1} + \beta_{15} State_{it} \times |UI_{it}| \times Grab_{t-1} + \beta_{16} City_{it} \times |UI_{it}| \times Grab_{t-1} + \beta_{17} Gr_{it} + \beta_{18} LnTA_{it} + \beta_{19} \mathrm{Larg}_{it} + \beta_{20} Debt_{it} + \beta_{21} LnAge_{it} + \beta_{22} Asset\_turn_{it} + \Sigma Ind + \Sigma Year + \varepsilon_{it+1}$$

Where Roa_{it+1} is the return on assets for the enterprise i in year t+1. Other variable definitions appear in Table 3 and 7. T-statistics are presented below the estimated coefficients; ***, **, and * denote two-tailed statistical significance at the 1%, 5%, and 10% level, respectively.

4.2.4 Sensitivity Tests

In order to ensure the reliability of research conclusions of this paper, I conducted the following robustness tests. Firstly, since Richardson's (2006) investment expectation model is usually based on the assumptions that on the whole, an enterprise's capital expenditures should be normal, and no systematic phenomenon of overinvestment or underinvestment exists in practice. However, if the above conditions are not well satisfied, when using regression residuals estimated from Richardson's (2006) investment expectation model to measure the magnitude of overinvestment and underinvestment, it is very likely that some of enterprises with better growth opportunities are improperly classified as those with poorer growth opportunities, and such errors will potentially bias the regression results against the hypotheses developed in this paper (Lang, Stulz and Walking, 1991). In order to alleviate the concern about the issue, following Xin, Lin and Wang (2007), I further subdivide the regression residuals estimated from Model (1) into three equal subgroups based on the magnitude of each residual, namely sorting in descending order, and then treat the subgroup with the largest (smallest) residuals as overinvestment (underinvestment) subsample, and re-run Model (3) and (4).

Secondly, the government's grabbing hand is more a description of an unfair and irrational institutional environment under which an enterprise's property rights are vulnerable to the infringement of government officials (Zhao, 2010). In this view, the government's grabbing hand also reflects a phenomenon of government officials utilizing their leverages over public resources and regulatory powers to generate and extract rents. According to the World Bank (2001), corruption is a behavior of abusing public power for private interests, and is a result of government officials deliberately creating regulations. Thus, in nature, the government's grabbing hand is a manifestation of corruption by government officials. As a result, in empirical research on the government's grabbing hand, some of scholars also employ the index of corruption of each region in China as a proxy for the government's grabbing hand (Chen, Li and Yu, 2009). In general, the higher the degree of corruption of a region, the more serious the predatory activities of local officials. At the same, high corruption also betokens a lower administrative efficiency of the government (Chen, Li and Yu, 2009). Following Chen, Li and Yu (2009), I use the number of persons related to corruption, bribery and dereliction of duty crime cases investigated by people's procuratorates of each region every year divided by its corresponding number of public officers disclosed in "China inspection Yearbook" and "China Law Yearbook" over the sample period to measure the behavior of the government's grabbing hand of a region and re-estimate Model (3) and (4).

Thirdly, I examine whether the results of this paper are robust to an alternative measure of free cash flow. Free cash flow is a concept innovatively put forward by Jensen (1986) to

study the market for corporate control. Unlike other cash flow definition, Jensen's free cash flow cannot be calculated directly using information from the financial statements, and it is hence difficult to be measured and used in empirical research (Shen and Shen, 2004). In order to overcome above weaknesses, Lang, Stulz and Walkling (1991) employ an earnings-based framework to measure free cash flow, in which they define free cash flow as the difference between operating income before depreciation and interest expense, taxes, preferred dividends, and dividends for the fiscal year scaled by book value of total assets as of the end of year t-1. I follow their study and use this alternative definition of free cash flow and re-estimated Model (3).

Finally, in addition to Tobin's q and return on assets used in this paper, other indicators that can be used to measure the operating performance of an enterprise in a given year also include sales profit margin and return on equity. In order to further investigate whether the research results of this paper are sensitive to the above operating performance indicators, I substitute sales profit margin and return on equity for Tobin's q and return on assets, respectively, and re-run Model (4). The regression results above remain qualitatively the same as the original results and indicate that my research conclusions are statistically robust. For space reason, these robustness test results are not tabulated.

5 Conclusions

Based on the institutional background of the "political centralization but economic decentralization" formed in the process of gradual transition in China which has made the central government to select and promote the local government officials primarily according to their achieved relative economic performance (Li and Zhou, 2005), this paper empirically investigates the effect of the grabbing hand of local government officials on the investment efficiency of the enterprises controlled by the central, provincial, city (county) and private entities along with their consequences using a large sample of 8501 firm-year observations over the period 2003 to 2011. By following the creative approach put forward by Richardson (2006) to measure the overinvestment and underinvestment of an enterprise, my research results show that whether in overinvestment or underinvestment, compared to the enterprises controlled by the governments at all levels, private enterprises both exhibit significantly higher investment anomaly and inefficiency. Further analysis reveals that the much higher overinvestment and underinvestment of private enterprises is largely caused by the government's grabbing hand of the region. On the contrary, under the influence of the government's grabbing hand, the enterprises controlled by the provincial governments have relatively smaller magnitude of underinvestment. However, the government's grabbing hand has no impact on the investment efficiency of the enterprises controlled by the central and city (county) governments. Moreover, the findings on the negative effect of the government's grabbing hand on the investment efficiency of private enterprises don't show a reduced sign over time. In terms of the consequences of inefficient investment, I find that underinvestment and overinvestment, respectively, adversely affects one year ahead future market value and return on assets of private enterprises, but there is little evidence indicating that underinvestment and overinvestment impose a negative impact on the market value and return on assets in the following year of the enterprises controlled by the governments at all levels. In addition, what's more interesting, though the government's grabbing hand also gives rise to a negative effect on one year ahead future market value

and return on assets of the enterprises to some extent, it doesn't yet further aggravate the adverse impact of underinvestment and overinvestment on one year ahead future market value and return on assets of the enterprises. These results together mean that besides the capital market imperfection and corporate agent problems, the grabbing hand of local officials might also be an important cause that results in the investment of private enterprises to be inefficient and distorted in China. Given the fact that when China's economic growth is mainly driven by the political competition amongst local officials as well as their private benefits, then, the allocation of resource is more distorted and the problem of inefficient investment of the enterprises will be much more serious (Wu, 2014), and that Chinese government is vigorously making the strategic adjustment of economic structure and is radically transforming its economic growth pattern, the policy implications of this paper is that the central government of China should rethink profoundly the criteria for the selection and promotion of local officials based on relative economic performance under the political centralization, which leads to the behavior of the grabbing hand of local government officials in pursuit of private benefits, and fundamentally change the governance mode of local government officials, and strive to play a major role in the protection of private property rights.

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