Are Paper Rights Worthless?

Institutional Reforms, Political Connections, and Corporate Policies[*]

Meng Miao
Renmin University of China
E-mail: miaomeng@ruc.edu.cn

Dragon Tang
The University of Hong Kong
E-mail: yjtang@hku.hk

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Abstract

Institutional structure is important to economic growth and social welfare. However, institutional reforms for improvements are gradual and do not affect all firms equally. In this paper, we show that, notwithstanding their connections with the government, state-owned enterprises (SOEs) are also prone to expropriation risk and holdout problem. We use an "urban renewal" experiment in China in which land titles are granted to firms that are already using the land. Such title granting gives legal protection to the user's properties solidifies the rights on paper and in reality subject to enforcement quality. We find that those affected SOEs increase investment and investment efficiency after the land title granting. Such effects are most pronounced when the managers of the SOEs can substantially benefit from the new investments. In contrast, we find no effect from such institutional reform on private firms which have fewer political connections and inferior legal enforcement. Our findings suggest that property rights protection is important to state-owned firms and holdout problem due to concerns of expropriation risk can explain the low and inefficient investments of SOEs in China.

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Abstract

Institutional structure is important to economic growth and social welfare. However, institutional reforms for improvements are gradual and do not affect all firms equally. In this paper, we show that, notwithstanding their connections with the government, state-owned enterprises (SOEs) are also prone to expropriation risk and holdout problem. We use an "urban renewal" experiment in China in which land titles are granted to firms that are already using the land. Such title granting gives legal protection to the user's properties solidifies the rights on paper and in reality subject to enforcement quality. We find that those affected SOEs increase investment and investment efficiency after the land title granting. Such effects are most pronounced when the managers of the SOEs can substantially benefit from the new investments. In contrast, we find no effect from such institutional reform on private firms which have fewer political connections and inferior legal enforcement. Our findings suggest that property rights protection is important to state-owned firms and holdout problem due to concerns of expropriation risk can explain the low and inefficient investments of SOEs in China.

1. Introduction

The fact that the political connection could increase the firms value is well documented in the literature (See Faccio 2006). In Chinese scenario, the focus is concentrated on how the government ownership can stop the "grabbing" hand from the government. Calomiris, Fisman, and Wang (2010) provide evidence that SOE firms are obtaining benefit from their state ownership. When the SOE firms are partially privatized, the stock market reaction is negative while it is positive when those firms are acquired by government. That is interpretive that indication that the authoritarian are more likely to expropriate the private firms than the SOEs. The merit of government ownership and political connection of SOE firms are further confirmed by anecdotal evidence. For instance, the founder of Yingli group, the largest solar material producer, once intentionally sold 51% of the total shares of his company to a SOEs in exchange for political connections and protections.

The strong political protection and weak legal protection makes Chinese political and economic develop "unique" compared with other countries. Indeed, as Allan, Qian and Qian (2005) put it: China is a significant counterexample to the findings of the existing literature on law, institutions, finance, and growth. This assertion makes sense considering Chinese's recent fast economic development and its still underdeveloped institutions. SOE sectors, which are endorsed by its political connection, grew at an even speed. For instant, the average growth rate of tax contribution of Central SOEs was 21.56% between 2002 and 2009. This high growth rate impose an important question for classic economic theory, that is, do Chinese SOEs, under all types of protections provided by its government, need property rights protection? That is, is property rights protection, the fundamental element behind all economic development[2] redundant in Chinese scenario?

We answer this question by exploiting a natural experiment from Shenzhen, the special economic zone and a "charter city" of China.[3] A land reform occurred in late 2009 when many land users were giving titles, at certain prices, to the land that they

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[2] See Williamson (1999) for a review of importance of various institutions on human society.

[3] Shenzhen is among the best example of urbanization in China. The city was established in March 1979 (then population was about 300,000). In August 1980, Shenzhen was approved as a "special economic zone". Paul Romer argues that Shenzhen is among the best examples of new cities.

have been using but without the formal paperwork. The title gives the previous land users legal protection against potential future disputes even though they are the de facto owners of the land. If the political connection is a perfect substitution of property rights, once would expect the impact of this title granting is at most zero. That is, those SOEs experience either no real impact as the property rights is redundant, or negative impact as the competition from other previous-expropriated private sectors.

However, we find that those SOE firms make significantly more investments post the title granting than other control firms. This finding suggests that the title granting indeed materially solidifies the property rights of the SOEs. Besides the investment level, we also find that investment efficiency also increases after the land title is granted. Our findings are consistent with the conjecture that, without the formal protection of property rights, even the mostly protected state-owned firms cannot put the properties into best use as they are still exposed to the risk of expropriation. The risk of expropriation is still formidable in today's China, even in the most advanced area (the special economic zone).

China enacted property law in 2006. While the law affects all firms, the 2009 event is not affecting all firms evenly. Such heterogeneity provides an advantage for our analysis. The affected firms are mostly local SOEs. The rule change may also affect the use of the land (e.g., industrial use now converted into real estate). Therefore, after the event, firms are better able to best use the land. Hence, they are likely to find some profitable project.

Indeed, we find that not only do the treated firms increase investments, the increase in investments is also positively correlated with the size of the land. Moreover, we find that the treated firms borrow new short-term debt (possibly using the land as collateral) and drain its cash pile to develop new project after the title granting. Furthermore, when the chairman of the firm is still relatively year and has many years in his future career, the effect of title granting on investment is more pronounced. This finding suggests that the incentives of top management matter to the response of investment opportunities.

China runs a state capitalism. Properties, especially those of state-owned firms, belong to the state. Hence, one may conjecture that property rights protection would not matter, especially to state-owned firms. However, we find that is not the case. Our

findings help to understand why SOEs grow slower than their full potential. While there are many reasons, we propose that the lack of property rights protection is hindering the growth of SOEs.

The rest of the paper proceeds as follows. We first describe the land title granting event in Section 2. The data for treated and control firms are presented in Section 3. Section 4 presents our main findings on the effects of land title granting on investment. We provide additional evidence to understand the effects in Section 5. Section 6 concludes.

2. Institutional Background

In this section we provide a description of institutional background. We demonstrate that the legal protection of property right for allocated land is extremely weak and the title-granting scheme, by offering legal protection to land users, presents an opportunity to solve this under-investment problem.

A. Pre-event Property Right Protection Situation

There is a large amount of lands in Shenzhen with no proper title attached to them. Those lands are called "allocated lands"[4]. An "allocated land" is a piece of land that is allocated by the government to SOEs by means of a fiat order. These allocated lands are a legacy of the central-planning economic system that dominated China before the 1990s. In this central-planning economy where all market-based land transactions were forbidden, direct distribution from the government to SOEs was the only method of conveying land to its user. The title status of allocated lands and corresponding weak property rights protection were mainly unchanged during the period of progressive land system reform from the 1990s to 2000s. By the end of 2009, the total area of allocated

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[4] Another form of <u>unentitled</u> land, squatted land in Shenzhen, also accounts for a large portion of land in Shenzhen. However it is irrelevant to our study.

land in Shenzhen was 113 square kilometers, almost ten percent of its non-agricultural land. Most of it is being used by SOEs or privatized SOEs[5].

Compared with a fully entitled land, an allocated land is exposed to a higher level of risk of being expropriated. Expropriation may come from either the government or other private individuals. Government expropriation is made possible by the out-dated legal status of allocated land and the absence of an extensible tenure system. By design, a allocated land is a state-owned land that is provided for firms to use for free. There is no legal mechanism to prohibit the government from taking back the allocated land[6]. As the land user does not have to make any payment for the usage, and accordingly, the government does not have pay any compensation to landholder when expropriating the land. Although the Shenzhen government stipulates a 30-year tenure[7] for all allocated land, most of those tenures, as they started in the 1980s, have expired or are approaching their expiration date. Moreover, there is no effective mechanism for land users to negotiate an extension to their tenure[8]. Allocated land without protection of tenure is especially vulnerable to government expropriation; cases of the government expropriating allocated land are very common. In the most recent case, the Shenzhen government took back 12 plots of allocated land in one campaign aiming at improving land-use efficiency during 2012[9].

Vulnerability to expropriation by other private citizens comes from the absence of a registration system for allocated land. The Shenzhen government does not have a unified registration bureau for title registrations, and all previous land distributions are not properly registered, especially for those allocated lands. A lack of registration undermines exclusiveness in the use of land and this issue is reflected at both the distribution stage and use stage. When land is being allocated, the lack of registration causes a "multiple allocations" problem. That is, different government departments, out

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[5] Data from Wang, Chen and Chen (2012), "some tips from Shenzhen City Renewal Program for western area", research on development, 05, 2012

[6] "Interim Regulations of the People's Republic of China Concerning the Assignment and Transfer of the Right to the Use of the State-owned Land in the Urban Areas", article 47 stipulates that the government has the authority to take back the allocated land without any compensation.

[7] In 2004, the Shenzhen government released the "Provisions of Shenzhen government on Real Estate expired land renewal" that specified the renewal fee for the land that expires. However no owner of the expired land actually handed in the renewal fee for land renewal.

[8] Provisional Regulations of Land Management for Shenzhen Special Economic Zone, 1981

[9] See Huaxia News, 16 March, 2013.

of self-interested motivations, issue multiple fiat orders to allocate the same piece of land to more than one land user. Naturally, this has caused many disputes about the legitimate right to the land. The dispute over the land also rises after the land is allocated. Although the transaction of the allocated land is explicitly forbidden, there are many illegal transactions in the form of "informal lease contracts"[10]. As there is no centralized registration bureau to record information regarding transactions over the land, one piece of land could be sold to multiple buyers, making it impossible to identify the legal user of the land. Numerous anecdotes illustrate the severity of this problem. A developer wished to demolish an existing building on a piece of land for a renewal project, but six separate individuals claimed that the land was allocated to them. Each of them could produce a *bona fide* certificate from various government officials and their total compensation amounted to ten times the value of the land itself. In the end, the developer was forced to abandon the renewal project[11].

B. Title-Granting Scheme

This lacking of protection and the under-investment problem is addressed by a title-granting scheme. On 13 November 2009, the Shenzhen government announced the "City Renewal Program". The core of this program is that all those allocated lands distributed many years ago are now allowed to obtain titles[12]. The risk of being expropriated either by the government or other private citizens dramatically declines with the endowment of the land titles. The newly entitled land has better-protected tenure and a registration system to ensure the exclusive right of its user. The new 30-year tenure is endorsed by a legal contract between the government and land use, rather

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[10] Under a 50-year lease contract, the current land user leases out the land to the buyer who pays all rental fees in a lump-sum.

[11] Interview Kaihong Li, the participants in Shenzhen urban planning, by Nanfang weekend. The problem of absence of registration is most severe for allocated land used by small-scaled firms. For the large-scaled firms that appear in the analysis of this paper, as the information of their allocated landholding is public available, this problem has no substantial impact to our study.

[12] Some requirements have to be met by the land user for obtaining the approval of government. Those requirements include: 1) the land owner should hand in a proposal for renovation of the buildings above the land, and it has to be approved by the government. 2) about 15% of the total area of the land should be handed to the government for public use.

than a fiat order. Expropriating the land before tenure expires requires that the government pay a large amount of compensation, measured by the market price of the land and constructions above it. A new file with user rights and a history of transactions, leasing and collateralization records was constructed in the registration bureau to ensure exclusivity and to avoid future disputes with other rights claimants. These measures greatly alleviated land users' concerns regarding land being expropriated and enhanced the incentives for investment.

Two other features of the title-granting scheme are worth emphasizing. Firstly, the title-granting scheme is exogenous in that the improvement of economic activity on the allocated land is not the main purpose of the policy. Without this exogenous characteristic, one might concern that the policy, which was designed to promote investment, was driven by other factors such as investment opportunities. The purpose of the title-granting scheme was to relax the previous tightening land supply by granting land titles to those "squatted lands" that account for a larger area than the allocated land. The squatted lands are those occupied by farmers' residences and the total area of squatted land is 330 square kilometers, almost three times that of the allocated land. As those lands are larger in area and lower in productivity, granting titles to those lands is prioritized relative to allocated land. Before the "City Renewal Program", there were a series of policies targeting an increasing land supply by releasing the squatted land[13].

Secondly, the title-granting scheme is universal in that all allocated lands are affected by this policy. Without this universal characteristic, one might concern that the improvement in economic activity is caused by a selection bias. Namely, those who have better investment opportunities are more likely to be included in the title-granting scheme. This is not the case in this title-granting scheme as all lands – as long as they are located within the jurisdiction of Shenzhen government – are automatically qualified for this title-granting scheme.

Two other conditions must be satisfied so that the title-granting scheme will have a significant impact over firms' behavior: (1) There must be a shortage of land supply in Shenzhen City and (2) the alternative method for those allocated land to receive titles must be limited. The violation of either of above conditions means that title-granting

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[13] Other measures, including a policy that promoted voluntary user right registration and granting the land user transaction rights launched in 2004, all ended with failures.

scheme is redundant. Firstly, Shenzhen is famous for its shortage of entitled land supply. As a Special Economic Zone, Shenzhen is not allowed to extend its boundary, as all other Chinese cities are, in order to prevent the favorable policy that was issued exclusively to Special Economic Zones from leaking to other areas. Any boundary changes need approval from the State Council, the highest administrative institute in China, and the boundary has remained unchanged in the last 30 years since Shenzhen was established[14]. As a result, Shenzhen is facing an extremely tight land supply, evidence in the highest construction area as percentage of total area in China, 46%, almost double the level of 24% of its populous neighbor, Hong Kong. By the end of 2008, it was reported that residual land available for transfer by the local government was less than 43 square kilometers. That was not enough to fulfill the requirement for construction for the next three years.

Secondly, the other channels for granting titles to allocated land are fairly restricted. The "direct conversion" of allocated land to entitled land is allowed by law, but in reality is prohibited by conflicts of interest with local government. The local government is allowed to "convert" an allocated land into an entitled land, by granting the land titles to its current user. However from the perspective of the government, this conversion is dominated by the "expropriation-auction" method, in which the government expropriates land and then auctions it to the highest bidder. The government prefers the latter since the "expropriation-auction" method, not only generates a higher transaction price by attracting the bidder with highest subjective value toward the land, but also grants the government a higher share of the proceeds. The government retains 100% of the proceeds from transaction while in the "conversion" method only 40% of total proceeds go to the government[15]. As a result, no firm is allowed to convert the allocated land into entitled land except for those about to initiate an IPO or M&A, as discussed in next section.

In summary, the City Renewal Policy is a unique method of dramatically strengthening the legal protection of previously allocated land. It takes place in a city with both a shortage of entitled land and a previously rigid land policy. Moreover, it is

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[14] On May 31, 2010, the boundary of Shenzhen was extended for the first time since its establishment in 1981. Its total area increased from 995 square kilometers to 1,948 square kilometers.
[15] That is, the land user receives 60% of the value of the land when it is converted into entitled land.

exogenous and universal so that it is not related to the investment opportunities of individual firms. While it is clear that the City Renewal Policy will grant more legal protection of the property rights to land users, there remains an empirical question as to the impact of this policy on stock prices and real-world performance of the land users, a question that will be explored in the next section.

3. Data and Sample Description

This section discusses how the sample is constructed and how it is segmented into the land holders and non land holding firms according to the information of allocated land under control. We illustrate the comparison between those land holders and the rest of firms in terms of various pre-event characteristics and no systematic difference appears. Then we show that there is a significant difference between the two in post-event responses, both in short-term stock market reaction and in long-term real investment.

A. Sample and Land Holding Firms

The key variable in this study is whether listed firms have allocated land that will receive titles in the City Renewal Program. The information came from self-disclosures of landholding firms, either via a special disclosure report or their annual report. There are 32 listed firms that disclosed their land position. The disclosure was partially compulsory: all listed companies on the Shenzhen stock exchange are required to make a special disclosure report when accumulated increases/decreases within the past three trading days reach a threshold of 20%[16]. There are 17 firms disclosing their land holdings via a special disclosure report. The rest voluntarily disclosed their landholding in their annual reports following the title-granting Scheme.

Although the regulation body does not require a particular format or specific information, most firms did provide sufficient detail. Indeed, we managed to find key details about the land belonging to these firms: their location, area, and current usage

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[16] See Regulations on Stock Listing in Shenzhen Stock Exchange.

and whether it was shared with other users. For example, SHENZHEN SEG CO. LTD disclosed that their firm has two pieces of land:

"... The first piece is located in Bagua Industry Park. It is now a three-floor factory with a construction area of 1,593 square kilometers. The tenure is from 1985 to 2015. Currently it is leased out with an annual rent of 600,000 RMBdots The second piece is controlled by our subsidiary, Sege Baohua Co. Ltd. It is in Huaqiangbei Industry Park. The total area is 2,213 square meters and with a construction area of 10,509 square meters. The tenure is from 1982 to 2012. Currently it is leased out with an annual rent of 25 million RMB..."

In order to ensure the precision of that information, we also cross-check our information with other resources. For instance, HuaChuang Securities, one of the top investment banks in China, released a Special Report about this title-granting scheme in Shenzhen and listed all the firms that could benefit from it. Our list has a large overlap with the HuaChuang Securities list of beneficiaries of the title-granting scheme.

We obtain the daily stock prices and financials information of listed firms from the China Securities Market and Accounting Research (CSMAR) database. It is the largest and most comprehensive database of its kind and contains all trading prices and financial statement data for listed firms trading on both the Shanghai and Shenzhen exchanges. For the financial statement data, we use data from the semi-annual report of 2009 as it is the last report released before the launch of the City Renewal Program on 13 November 2009. We also use land-price information in Shenzhen to estimate the value of a title when allocated land changed to public land. These land prices are found on the website of the "urban Planning Land and Resources Commission of Shenzhen Municipality", the government land agency, and "Soufan.com", the largest online land information provider in China.

B. Pre-event Characteristics of Land Holders and Non Land Holders

Table 1 illustrates the difference in observable characteristics between the land holders and non land holding firms.

Panel A provide the information about the area and the value of the land that is under control by those land holding firms. It is noticeable that those lands that are quite substantial in scales. The average area is 3.82 hectares, the size of 3 to 4 football fields. The average value is 1.22 Billion RMB (or 0.21 Billion USD) and it is one third of the total market capitalization of those listed firms. The fact that the land is quite large in size compared with those land holders is a prerequisite to induce any observable difference in post-event investments between land holders and non land holders.

The Panel B of Table 2 reports the characteristics of listed firms with and without land. Those firms with land are performing not better, if not worse, than the rest firms also listed in Shenzhen exchange. In two important measures of the firms, ROA and Tobin's Q, the firms with land are both lower than the rest firms. They are also smaller, more leveraged, with less cash and tangible asset than the average listed firms. The difference in tangibility between land holders and non land holders is significant, and this indicates that the lack of the entitled land could bring about the under-investment problem. In summary, this panel suggests that the land holding firms are not better than the rest before the land titles are granted, mitigating the concern that the potential out-performance of those land holders is merely a momentum effect.

C. Difference in Performance after the Event

On 25 November, the Shenzhen government announced that a "City Renewal Program" was about to be implemented[17]. This program was to distribute titles to the current occupiers of allocated land. Given that the legal protection of those lands with titles, the entitled land, is much stronger compared with those allocated land, we expect that this policy will have real economic impact over investment behaviors of those land holders.

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[17] On 13th Nov, 2009, the news that a title-granting scheme was about to launched appeared in some local newspapers in Shenzhen. However due to the limited influence and lack of credential of those papers, the news was ignored by the public until the government made a official announcement in a press conference on 25th November.

Figure 1 illustrates the investment change patterns of land holder and non land holders between 2004 and 2014, 11 years around the event year of 2009. For each year, the average investment level is plotted after being normalized by the level of 2009. It is evidenced that despite that there is no sharp difference in increment of investment between the land holders (the solid line) and the non land holders (the hollow line), a separating trend between the two is formed after 2011[18] and the difference is becoming larger and larger. This pattern suggests that the controlling the allocated land have a depressing effect over firms' investment and the title granting scheme have a real effect on the investment behaviors of those land holders.

The other evidence of the real effect of the title granting scheme is its impact over the stock market prices. As the land titles will induce investment and presumably those investments are efficient in terms of generating positive NPV, then the stock value of those land holders should jump instantaneously to the announcement of the title granting scheme. Figure 2 is the CAR of the land holders and non land holders within 60 trading days around the announcement of the policy. The CAR is estimated using the Fama-French (1992) three-factor model with a beta estimation window lasting from 250 to 40 trading days prior to the event. The difference in stock market reaction between land holders and non land holders is stark[19]. During the first two days after the event, the treatment group reacted to the news with a jump of over 15% with respect to the CAR, while the reaction of all other firms was unobservable. This is announcement effect is not coming from the momentum effect as there is no pre-existing difference between the two groups. The effect is also long-lasting: the difference remains very high even 30 days after the event.

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[18] Any investment carried out on those lands newly received titles usually take `
[19] One concern is that this stock market reaction could reflect a distribution effect as the land titles may be given to lands' currently users at a price lower than the market value. However as Shenzhen government have no incentive to subsidize those land users and in practice third party valuers are invited to estimate the land's value, there is no reason to believe that the fees charged by the government deviate too much from the market value.

4. Property Right Security and Firm Investment

A. Base-line Regression

In order to explore the relation between the land holding situation and investment, we estimate the following base-line cross-sectional regression:

$$\Delta\text{Investment}_i = \alpha + \beta_i 1[\text{land holding}] + \gamma X_i + \varepsilon_i$$

The dependent variable is the prior-/post- event difference in the average increase of investment. This variable is calculated using the average value of the investment growth in prior-event years, 2005-2009, netting off the average value of the investment growth in post-event years, 2010-2014. The parameter of interest is the interaction term between land holding dummy, which assign the value of 1 for those land holders and 0 for non-land holders. Control variables consist of the prior-event characteristics of those firms that include total assets, book leverage ratio, ROA, tangible asset ratio, cash holding ratio. The regression results are illustrated in Table 2. Column (1) is the regression result for regression only includes land holding dummy. The coefficient is positive and statistically significant. It means that on average those land holders, compared with non-landholders are associated with a 14% extra increase in investment for the next few years after the title is granted. In column (2) and (3) we report the result when the control and fixed effect variables are included. The sign and significant level of the coefficient of land holder dummy remains.

B. Subsample Analysis: Value of Land relative to Total Asset

One concern about above result that those land holders are associated with a higher level of investment increment is that whether those investments are taking place on the land for which they receive land titles. The direct method to establish the linkage

between the land and investment is the see whether those firms with lands of relatively larger size, either measured by land area or land value, is associated with a higher level of investment increment.

As we mentioned before, the average size of those allocated lands about to receive land titled in the title granting scheme is relatively large, compared to the size of those listed companies. The average market value of those lands, if the land titles have been granted, is 1.22 Billion RMB, while the total book asset of those land holding firms is 3.39 Billion RMB. Measured by the stock market price at the end of 2009, on average the total market land value is 39% of the total market capitalizations of those land holders. The relatively large scale of the land size ensures that the land title granting scheme will have a significant impact over those land holders. At the same time, the cross sectional variation of the relative land size to the company value is also substantial, with the standard deviation of the land-to-firms market value being 22%.

In order to explore the impact of the land size over the subsequent investment, we firstly create a dummy variable, large land dummy. We assign the value of 1 to those land holding firms with land area larger than 3.1 Hectares, the median level of all allocated land. The rest are assigned with the value of 0. The land area dummy captures the effect that the larger the land area extend, the more investment it will be able accommodate. We add that land area dummy into the baseline regression setting and the result is illustrated in Column (1) of Table 3. Firstly, the coefficient of the land holding dummy is still positive and significant. On top of that, the land size dummy is also positive and significant. Its economic scale is also too large to be ignored, with those firms with larger-than-median land investing almost 16% compared with the rest of firms.

The investigation of the pure land area may ignore the impact of the supply elasticity of investment to the land price. With the land area being equal, those firms with a piece of land located in a more expensive area, say central business district, is more likely to investment more to fully explore the location advantage of the land compared with a firm with land located in less ideal area. As result, one would expect the sensitivity of investments to the value of the land could be larger compared with the sensitivity of investments to the area of the land.

We construct the large land dummy measured by the land value instead of the land area. In order to do that, we assign the value of 1 to those firms with land value higher than 1.20 Billion RMB, the median level of the market price of all those allocated land. We obtain the information of the value of those allocated land using the "land usage fee" that those land holders have to hand to the government in exchange to the land title before any constructions on the land starts[20]. Considering Shenzhen government is aiming at extracting the same amount of land usage fee from those land holder and other companies that purchase land from the government, that land usage fee is quite close to the market price.

The regression with the large land dummy measured by land value is implemented and the result is reported in Column (2) of Table 3. Similar to the previous result, the coefficient of the land holding dummy is still positive and significant. At the same time, the coefficient of the large land dummy measured by its value, is also positive and significant, statistically and economically. Notice that the scale of the coefficient of the land size measured by its value is higher than the land size measured by its land, which is in line with the hypothesis that firms are responding to the locality by increasing investment in those high value area.

C. Different Components of Investment

The very fact that there is an increase in the total investment does not necessarily lead to the conclusion that the firm will use the land and build construction on it due to the improvement of property rights protection. The collateral channel could be an alternative channel. It is likely that whose land holders, after obtaining the land titles, can provide the land as collateral and thus are facing a relaxed financial constraint and lower cost of capital. Therefore, they can raise capital externally and make an investment in other places rather than on the land where the title are newly granted.

In order to exclude the possibility that the investment is made in other places or in other lines of business, we decompose the total investment into several part and

[20] For those land users who have not yet disclose their land usage fee, we use the price of land with similar size in the neighborhood.

investigate whether the investment in the specific area is increasing for those land holding firms or not. In specific, we look at two important part of the investment. Firstly, we check whether the total R&D investment will increase for those land holders. Secondly, we look at whether the investment of speculative real estate item will increase for those land holders.

The expenditure of R&D that contributes to the improvement of technology and thus productivity will bring benign impact to the company in the long run. In the Chinese context, those SOEs firms, which account for the majority of our land holders' sample, are in general lower in R&D expenditure and in overall productivity. One may expect that the extra increase in investment of those firms in the treatment group may come from the increment in the R&D expenditure, which benefits SOE to a large extent.

We use the prior/post-event difference in annual R&D expenditure of all listed companies as the dependent variable and regress it over the land holding dummy variable and all other control and fixed effect variables. The result is reported in Column (1) of Table 4. In contrary to our previous suspicion, the coefficient is negative and economic scale is rather small. It suggests that those land holders actually experience a LESS increase in R&D rather than a MORE increase. This helps us to exclude the possibility that the investment is made in other lines of business and confirmed our hypothesis that property right protection will increase the on-spot investment over the land that receive titles.

The second type of investment those firms with extra collateral and more relaxed financial constraint may consider is the real estate. As the housing price in Shenzhen soaring, one may suspect that those firms, with better access to external finance, will make an investment by purchasing other real estate property rather than making construction on their own land. Compared with a construction project, real estate property transaction is much quicker with less administrative/political risks[21]. That may help those land holders to secure capital gain from the increment in the local housing market. Therefore, the increment in the overall investment could be driven by those extra purchases of speculative real estate property.

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[21] The interference of the government in the real estate market is quite common in China. It is usually the case that the construction projects are halted by the government due to various approval problem.

In order to investigate the validity of that argument, we construct the prior/post-event difference in annual speculative real estate property. The speculative real estate properties are those properties that are purchased by those firms for rent or for other non-core business usage. The overall share of speculative real estate property is small for those land holding companies. On average, it only takes up 1.7% of the total asset, probably due to the legal and administration constrictions[22]. The result of the regression of the speculative real estate property on the land holding dummy and all other control and fixed effect variables are demonstrated in Column (2) of Table 4. The coefficient of the land holding dummy is negative and insignificant. This result suggests that the increase in the speculative real estate properties is not a key driver of the increase in the investment overall for those land holding firms.

D. Other Corporate Policies: Leverage and Cash

The natural question after that we established that the land holders are associated with larger increases in investments is how they finance those investments. The resource of finance could be either internal, namely the cash accumulated from previous operations, or external, namely the short-term or long-term borrowing from banks or financial markets.

We use three variables to detect the resource of finance that was used to support the new investment and they are the short-term borrowing, long-term borrowing and cash. We firstly calculate the prior-/post-event difference for a period between year 2005 and 2014. We then regress that difference over the land holding dummy, the control variable and fixed effect variables. The result is illustrated in columns (1) – (3) of Table 5. Firstly, the result suggests that those land holders are exploring both internal and external finance to support their new investment. The cash level of those land holders experiences a significant decrease while the borrowing level, either short term or long term borrowing, are both associated with increases. Secondly, the majority of the borrowings used to finance the investment are short-termed, with the short-term borrowing increased by 15.8% while the long-term borrowing increased by merely

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[22] This is much lower than the US's level of 19%, reported by Chaney,Sraer,and Thesmar (2012)

4.63%. This is consistent with the general finance pattern in China and in emerging market. As Demirguc-Kunt and Maksimovic (1999) suggested, firms in developing countries are in general have poorer corporate governance. Financial intermediations, with higher pressure of debt monitoring, are forced to shorten the maturity in order to overcome the excessive information asymmetry problem.

E. Investment Efficiency and Profitability

In this section we ask the normative question, or whether the increment of investment an improvement of social welfare. Chinese SOEs, with their poor corporate governance, are haunted by the over-investment problem. In a recent paper, Ding, Guariglia and Knight (2010) suggest that the absence of the screening and monitoring from banks are reasons of overinvestment of all Chinese listed firms, especially those SOEs. If the over-investment phenomenon is pervasive among Chinese SOEs, then our result of the extra investment of those land holders could be interpreted as that the more relaxed financial constraint leads to more rampant over-investment behaviors, which is wasting the resource and decreasing social welfare.

We make attempts to answer this question from two perspectives. Firstly, we created a direct measure of investment efficiency to explore whether those land holding firms are over- or under-investment. Moreover, we investigate whether that over- or under-investment behavior is at least partially corrected by the endowment of the land titles. Secondly we look at the total revenue and the profitability of those land holders and check it they are associated with additional improvements in those two dimensions.

In order to construct a measure of investment efficiency, we use the measured proposed by Chen, Hope, Li and Wang (2011). A measure of investment efficiency is created by adopting the residual item of the regression that regresses the annual investment level to its previous firm-level or industry-level revenue. That is,

$$\Delta \text{Investment}_t = \alpha + \beta_1 \text{revenue(firm)}_{t-1} + \beta_2 \text{revenue(industry)}_{t-1} + \varepsilon_t$$

The rationale behind this method is that the investment should react positively to any investment opportunities occurring in that industry, assuming that the investment adjustment cost is ignorable, and the investment opportunity is persistent. The residual term, positive or negative, suggests the firm is reacting excessively or insufficiently to the investment opportunities. That is an indication of over- or under-investment.

As we are primarily concerned with the investment efficiency, rather than the direction in which those deviate from the optimal investment level by over- or under-investment, we take the absolute value of the residual item and take that as the investment INEFFICIENCY measures. A large value in a specific year means that the firm is deviating dramatically from its optimal value, predicted by the regression model and thus the investment level is inefficiency. We then take the prior-/post- event difference of that investment inefficient measure and treat that as the firms' changes in inefficiency measure. The results of that measure over the land holding dummy, the control variable and the fixed effect variables are reported in columns (1)-(2) in Table 8. The coefficient of the land holding dummy is negative and significant for whether or not the control and fixed effect variables are included in the regression. The economic scales of those decreases in investment inefficiency are also substantial. The coefficient suggests that the increment of the investment efficiency amounts to almost 5.7% of the annual total investment, a substantial improvement.

Besides the fact that title granting scheme is associated with an improvement in investment efficiency, we are also interested in how the investment inefficiency problem is solved. That is, whether there is an increase of investment when those land holding firms underinvested beforehand, or there is a decrease of investment for those over-invested land holders. In order to investigate this question, we checked the direction of the change in the residual term in the investment. We did not take the absolute value, as we did in previous regression. Rather we take the prior-/post-event difference of the investment residual term, and we regress it over the land holding dummy and all control/fixed effect variables. The result is reported in the column (3) – (4) in Table 8. The coefficient of the land holding dummy is positive, no matter whether the control and fixed effect variables are included. The coefficient is both statistically and economically significant. The positive sign suggests that there was an underinvestment

for those land holders and this under-investment problem was corrected by the increase of the investment level.

The indirect measure of investment efficiency is the change of revenue and profitability. An improvement in the total revenue or profits in the same period with the increased investment suggests that the investment is efficient. In that sense, a study of revenue and profitability is in line with the event study of stock market reaction. A jump in the total market value in an indication of not only investment, but also efficient investment will be carried out, as extra profit have to be generated to support a higher level of stock market price.

We construct the prior-/post-event difference for both revenue and profit variables and regress them on the land holding dummy and control/fixed effect variables. The results are reported in column (1) and (2) of Table 9. The coefficients for land holding dummy for both regressions are positive and significant, suggesting that those land holders are associated with extra improvement in total revenue and profit after the title granting scheme compared their prior-event level. These results are in line with our previous result, suggesting that those investments carried out after the titles are granted are efficient.

5. Understanding the Channels and Mechanisms

In order to better understand the mechanism through which the land titles affect the investment and investment efficiency, we explore the heterogeneity among those land holders. We focus our attentions to two questions. Firstly, which channel is the impact of land titles over investment mainly transmitted, the protection channel or the collateral channel? Secondly, if the self-invest motivations of managers have an impact in the increases of investment after the land titles are granted?

A. Protection Channel: Shenzhen SOEs vs Others

In this section we investigate the specific channel through which the investment are promoted by the land titles. There are two competitive channels, the protection channel and the collateral channel and each can impose the observed impact. We are going to test the validity of each of them in the following discussion.

The protection channel suggests that the land title promote investment because the titles by providing protection over the land holders. Those land holders, before they make the investment, would be concerned that the land without titles will be expropriated by the government, with all investment over it sunk. This risk of being expropriated by government disincentive them from making the amount of investment and leads to a less than optimal investment level compared with the scenario in which there were no such risk.

We explore the heterogeneity of prior-event protection of property rights across firms to see if those firms that are less protected before react more aggressively to the title-granting scheme. We use two different measures for the property rights protection. In column (3) we use a dummy variable indicating if the 30-year tenure of the allocated land held by that firm has expired or not. The dummy variable is assigned a value 1 if the tenure has not expired and 0 if it has expired. We then include this tenure unexpired dummy into our baseline regression. The result is reported in Column (1) of Table 6. The coefficient is tenure unexpired dummy is negative and it is statistically significant. This suggests that firms that are under stronger protection as their tenures have not expired are associated with less post-event investment enhancement because they already internalized the partial benefit of title protection. This is consistent with our hypothesis that the protection provided by the land is the reason for promoted investment.

We then use the connection with the Shenzhen government as a measure of the extent to which property rights are protected. Other things being equal, those firms that are affiliated to the Shenzhen government are less likely to experience land expropriation, simply because the majority of land expropriation comes from the Shenzhen government. We put a dummy variable that assigns 1 to Shenzhen-affiliated firms and 0 to other firms. We incorporate the Shenzhen connected dummy and its interactive term with the land dummy into our baseline regression. The result is reported in Column (2) of Table 6. The coefficient of the interactive term is negative and statistically significant. The negative sign means that those more politically connected

and thus well-protected firms are associated with relatively smaller increase of investment.

There are two points that worth emphasizing. Firstly, the scale of the coefficient of the interactive term is -1.70, which is smaller compared with the scale of the coefficient of the land holding dummy, which is 1.97. This suggest that even for the most secured and politically connected firms, namely those firms affiliated to Shenzhen government, the risk of being expropriated is still quite substantial, leading to a less-than optimal investment level. Secondly, there exists a conflict of interest between the different levels of governments, such as between Shenzhen government and central government. This is illuminated as those land holders who are not affiliated to Shenzhen Government, mostly firms belongs to central government, are associated with a dramatic increases in investment, suggesting a poor property rights protection beforehand. This is in contrary with the mainstream impression, that China is structured in a pyramid power structure and subordinate governments have no authorities but to comply with its superior government. Our result suggests that this superior-subordination domination is quite weak, with the subordinate government being able to expropriate the asset belonging to the superior government.

B. Collateral Channel: Financial constraints and Asset tangibility

Our previous discussion establishes the fact that there are additional increases for those land holders after the title-granting scheme and that extra investment is taking place because the resolution of the hold-up problem. That is, there is a decrease in the perceived risk of being expropriated by the government and that decreases in risk promote incentive to investment. However, there is an alternative channel through which the same result could be achieved. This alternative channel is the collateral channel. (Jie, 2005, Chaney,Sraer,and Thesmar, 2012).

In the collateral channel, the increase in the investment is resulted from that the relaxation of financial constraint, which, in our case, come from the endowment of land titles. As Chinese commercial banks never recognize the allocated land, or any unentitled land, as qualified collateral, those allocated land holders may facing

difficulties in obtaining bank loans, no matter whether they are concerned with that their land will be expropriated after they make the investment. In another word, the collateral channel could be an independent channel through which the investment is depressed.

In order to test whether the increases in the investment of those land holding firms are caused by the financial constraints, we explore the cross-sectional difference among those land holders. If firms are financially constrained before the title-granting scheme, then the more constrained firms should react more aggressively to the event compared with those less financially constrained. We hypothesize that those firms with higher degree of prior-event financial constraints should be associated with higher level of post-event increases in the investment level.

We use two different proxies for the extent to which those firms are financially constrained. Firstly, we investigate the supply side of the external finance. We use the SA measure following Hadlock and Pierce (2010) as the measure of financial constraint[23]. The SA measure is constructed considering only two factors of financial constraints, the size and age of the firms. The assumption here is that those firms of larger scale and those firms that have been existent for a longer period of time, have more financial resources and thus less likely to be financial constrained. Hadlock and Pierce illustrate that this seemingly primitive measures works better than most other financial constraint measures when measured against baseline measure constructed by qualitative information. We constructed the SA measure of financial constraint and put this term and its interaction with the land dummy variable in the baseline regression. The result is demonstrated in the Column (1) of table 7. Firstly notice that the sign and scale of the land holding dummy is almost unchanged, mitigating the concern that the equally excessive financial constraint of those land holders is the driver of our previous result. Secondly, the interactive term between the land holding dummy and the financial constraint measure is negative and insignificant. This denies the role of collateral channel in driving the additional investment after the land titles are granted. Those firms that are supposed to face larger extent of financial constraint are not associated with higher level of post-event investments.

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[23] Notice that our result does not rely on the financial constraint measure we use. We turned to the financial constraint measure of Kaplan and Zingales (1997) and the result is unchanged.

In the second measures of financial constraint we explore the demand of external finance. Consider the external finance conditions are the same, those firms within the sector that command a higher portion of tangible assets are usually experience a higher level of financial constraint. We adopted the measure of industry-level tangibility of US firms by Braun (2003) and apply that measure to Chinese listed firms. We hypothesize that those firms in those industries whose US counterparts are associated with a higher level of tangible assets are facing a higher level of financial constraint, and thus should experience a more significant jump in investment after the title granting scheme. The result is reported in Column (2) of Table 7. Similar with the result of our previous test, the coefficient of the land holding dummy is almost unchanged. However the interaction between the financial constraint measure and the land dummy is insignificant. This suggests that the collateral channel is not the mechanism through which the land titles affect the investment.

Our result is in line with the literature which suggests that collateral channel does not work in China. Deng, Gyourko and Wu (2012) summarized, after their test over 453 non-real estate firms, that collateral channel concept does not apply to Chinese firms. As for those SOEs, which account for the majority of our treatment sample, the reason for the muted collateral channel is that they are not financial constrained in the first place, given their favored and supported position in Chinese financial market (Lin and Tan, 1999; Allen, Qian and Qian, 2005; Poncet, Steingress and Vandenbussche, 2010). As a result, the collateral is redundant for them to raise capital externally. As for the non-SOEs, the overall shortage of loan quato and the rigidity of the commercial banks' practice restrict those firms to obtain loans when the values of their collateral appreciate.

C. Incentives to Invest: Chairs' Age

Previous discussion suggests that the extra protection brought about by land titles would promote investment. However the implicit assumption of that argument is that the CEOs of that company will work for the best interest of the shareholders and will respond actively to the investment opportunities once they appear. However this assumption may not be valid given Chinese poor corporate governance situation in

general. That is, there is an agency problem between the managers of those land holders and their shareholders.

The variable we adopt to measure the extent of agency problems among those land holders is the age of their chairs of the board. We focus on the chair of the board as in Chinese firms, SOEs or non-SOEs, chair of board are usually the decision maker, rather than the CEOs. The assumption we adopt is that those chairs are making investment decisions out of self-interest incentives rather than the notion of benefiting the shareholders. The interests that Chairs derived from making the investment may be political, such as a promotion in their conglomerate, or economical, such as the bonus and capital gain from the stocks they are holding. However all those interests, especially those political ones, will disappear when they are close to retirement, age is an extremely important factor in the promotion decisions. We thus hypothesize that for those Chairs who are old and close to retirement, they have less incentive to make an investment as a response to the land titles. Therefore, we expect to observe a smaller increase for those land holders whose chairs are old or close to retirement.

We constructed a dummy variable marking whether the chairs are too old. This dummy variable assigns value of 1 to those firms whose chairs are above or equal to 58 years old and 0 otherwise. In China, the compulsory retirement age for the public sectors is 60. Those chairs who are close to 60, even they are not at their 60s, have less incentive to make investment either, as the return from those investment may take years to mature. Therefore we take the threshold of 58. A slightly change of the threshold does not affect our result.

We include the old dummy and its interaction with the land holding dummy into our bench mark regression. The result is illustrated in Column (1) of Table 10. As the coefficient for the land holding dummy remains positive and significant. The coefficient of the interactive term is negative and statistically significant. It suggests that those firms with old Chairs experience an negative investment change with the scale of (23.6%-19.0%=) -4.6%. This negative coefficient emphasizes the impact of Chair's incentives in the investment decisions of listed firms.

As the compulsory retirement age is only applied to SOEs, it is natural to check if there is a differential impact of Chairs' age over investment across firms with different ownership. We categorized our sample into two groups, the SOEs and non-SOEs, and

perform previous regression on each group. The results are reported in columns (2) – (3) of Table 10. As we expected, the effect is concentrated on those SOEs, as the coefficient of interaction term of old dummy and landholding dummy for the SOE firms are negative and significant. Despite that the Chairs of non-SOEs are also associated with less investment, the scale is much smaller and is insignificant.

6. Summary and Conclusions

In this study we explore a natural experiment of land title granting in Shenzhen, China to identify one source of inefficiency of SOEs in China. We find that those firms that occupied lands without property rights protection increase investment and investment efficiency substantially after the land titles are granted. Even for the most political connected firm, this post-event increase in investment still exist, suggesting a pre-event absence of sufficient property rights protection. Such effects are most pronounced in those firms where managers can benefits from the new investment. This result illustrates the importance of lowered expropriate risk over the SOE investment considering that the collateral channel, an alternative mechanism through which the land titles affect investment, is muted due to the favored financial status enjoyed by those SOEs. All evidence suggests that lack of property rights protection is pervasive in China and have a significant impact over the investment efficiency in Chinese SOEs.

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Figure 1 The Average Investments Level firms in Treatment and Control Group

Figure 1 plot the average investment level for all firms in the treatment group and the control group. The solid line is the average investment level of all firms that have entitled land prior the event of land granting scheme. The hollow line is the average investment level of all firms that do not have entitled land prior the event of land granting scheme. Each value is normalized by the 2009 investment level of respective group.

Figure 2 The Cumulative Stock Market Reaction of firms in Treatment and Control Group
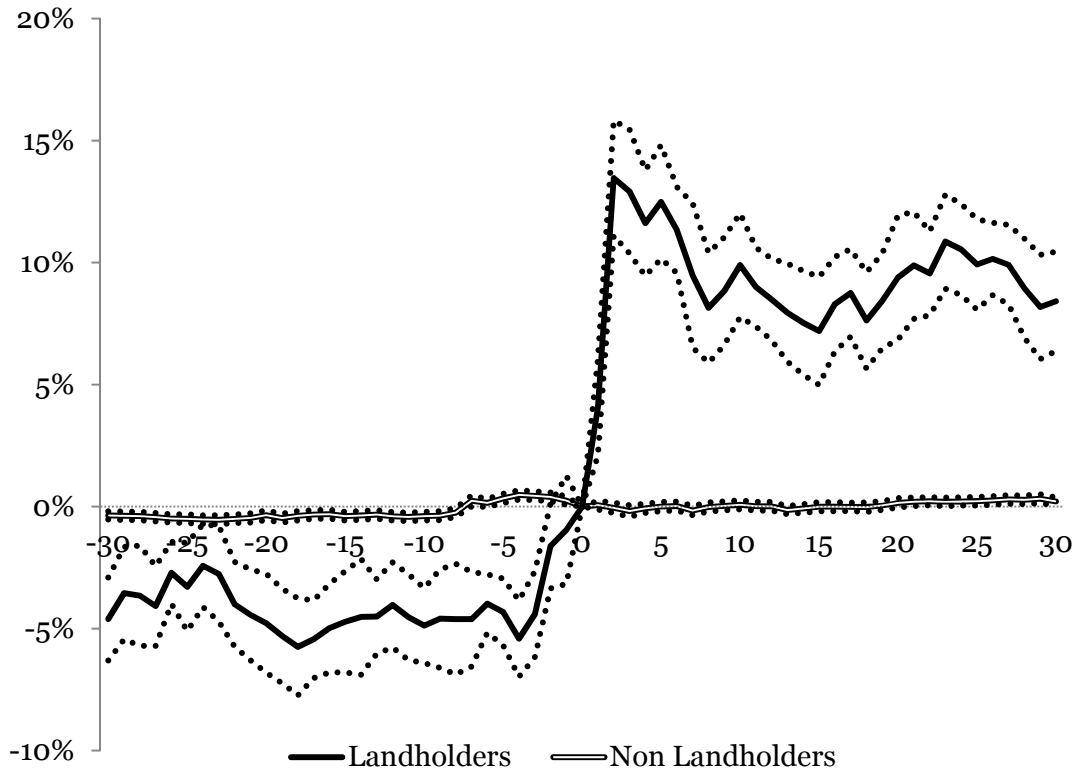
Figure 2 plot the cumulative stock market reaction for all firms in the treatment group and the control group. The solid line is the cumulative stock market reaction of all firms that have entitled land prior the event of land granting scheme. The hollow line is the cumulative stock market reaction of all firms that do not have entitled land prior the event of land granting scheme. The dash lines are the 95% confidential interval of both stock market reactions.

Table 1 The Cumulative Stock Market Reaction of firms in Treatment and Control Group

	Land-holders		Non Land-holders		Difference	
	Mean	S.D.	Mean	S.D.	Value	T-stats
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Land Information						
Land Area (Hectare)	3.82	3.42				
Land Value (Billion RMB)	1.22	0.79				
Land Value (% of Market Capitalization)	39%	22%				
Panel B: Financials						
Total Asset (Billion RMB)	4.93	6.7	4.72	20.3	0.21	0.04
Profit (Million RMB)	18.8	91.9	77.2	245	-58.4	-1.09
Tobin's Q	2.83	2.19	3.82	8.79	-0.99	-0.5
ROA	0.50%	3.30%	1.90%	8.10%	-1%	-0.81
Book Leverage Ratio	56.90%	17.90%	53.10%	39.80%	4%	0.44
Tangible Ratio	12.50%	14.60%	26.60%	17.50%	-14%	-3.63***
Cash Ratio	18.00%	10.60%	18.40%	14.50%	0%	-0.13

Table 1 provides the descriptive statistics of whole universe of landholders and non-landholder. The landholders are those listed firms that have entitled land prior the event of land granting scheme. The non land holders are those listed firms that do not have entitled land prior the event of land granting scheme. The t-statistics in column (6) are the differences of all variables between the treatment and control group. *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

Table 2 The Investment Growth for Land-holders and Non Land-holders

	Investment		
	(1)	(2)	(3)
1[Land Holding]	0.146***	0.101***	0.101**
	(3.51)	(2.59)	(2.57)
Total Asset		-0.0423***	-0.0424***
		(-8.82)	(-8.81)
Cash		-0.0426	-0.043
		(-0.87)	(-0.87)
Fixed Asset		-0.306***	-0.306***
		(-9.22)	(-9.19)
Leverage		0.00197	0.00195
		(0.41)	(0.41)
ROA		0.0480*	0.0476
		(1.66)	(1.64)
Fixed Effect			Industry
R-squared	0.011	0.138	0.139
N	1147	1147	1147

This table presents the result of regression analysis of the investment growth for both land-holder and non land-holders. *The 1[Land Holding]* is a dummy variable that is assigned with value 1 if the firm has allocated land prior the land title scheme in 2009 and 0 if otherwise. Control Variables include: total asset, cash ratio, fixed Asset ratio, book leverage ratio and ROA. The industry of the firm and its trading exchange are also controlled. T-statistics is in the parentheses. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

Table 3 The Impact of the Land Area on Land Holders' Investment Growth

	Investment	
	By Size	By Value
	(1)	(2)
1[Land Holding]	0.162***	0.173***
	(3.20)	(3.31)
Large Land Area	0.148*	0.161**
	(1.90)	(2.08)
Total Asset	-0.0426***	-0.0426***
	(-8.87)	(-8.87)
Cash	-0.0401	-0.0378
	(-0.81)	(-0.77)
Fixed Asset	-0.307***	-0.307***
	(-9.22)	(-9.24)
Leverage	0.00173	0.00169
	(0.36)	(0.35)
ROA	0.0466	0.0463
	(1.61)	(1.60)
Fixed Effect	Industry	Industry
R-squared	0.142	0.142
N	1147	1147

This table presents the result of regression analysis of the impact of the land area on the investment growth rate of land holders. The *1[Large Land]* is a dummy variable that is assign with value 1 is the land under the listed firms is large than median level, either measured by Size (Column 1) or by Value (Column 2). *The 1[Land Holding]* is a dummy variable that is assigned with value 1 if the firm has allocated land prior the land title scheme in 2009 and 0 if otherwise. Control Variables include: total asset, cash ratio, fixed Asset ratio, book leverage ratio and ROA. The industry of the firm and its trading exchange are also controlled. T-statistics is in the parentheses. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

Table 4 The Growth of Other Investment for Land-holders and Non Land-holders

	R&D Expenditure	Real Estate Purchase
	(1)	(2)
1[Land Holding]	-0.000609*	-0.00822
	(-1.67)	(-0.76)
Total Asset	-0.0000542	-0.00276**
	(-1.61)	(-2.51)
Cash	0.0000799	-0.00863
	(0.21)	(-0.81)
Fixed Asset	-0.000838***	-0.00821
	(-3.13)	(-1.07)
Leverage	-0.0000162	0.00107
	(-0.98)	(0.77)
ROA	-0.0000318	0.00234
	(-0.25)	(0.37)
Fixed Effect	Industry	Industry
R-squared	0.011	0.012
N	1433	1273

This table presents the result of regression analysis of the growth rate of R&D expenditure and speculative real estate purchase for both land-holder and non land-holders. *The 1[Land Holding]* is a dummy variable that is assigned with value 1 if the firm has allocated land prior the land title scheme in 2009 and 0 if otherwise. Control Variables include: total asset, cash ratio, fixed Asset ratio, book leverage ratio and ROA. The industry of the firm and its trading exchange are also controlled. T-statistics is in the parentheses. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

Table 5 The Growth of Internal and External Financing for Land-holders and Non Land-holders

	Short-term borrowing	Long-term borrowing	Cash
	(1)	(2)	(4)
1[Land Holding]	0.158**	0.0463	-0.218**
	(2.14)	(1.03)	(-2.33)
Total Asset	-0.0452***	-0.0210***	-0.0686***
	(-4.97)	(-4.10)	(-5.88)
Cash	-0.0275	-0.0414	0.0258
	(-0.31)	(-0.83)	(0.23)
Fixed Asset	-0.483***	-0.141***	0.233***
	(-7.96)	(-4.07)	(3.06)
Leverage	0.0547*	0.00309	0.0296***
	(1.74)	(0.25)	(2.72)
ROA	-0.0685	0.0179	0.0702
	(-1.37)	(0.61)	(1.07)
Fixed Effect	Industry	Industry	Industry
R-squared	0.093	0.05	0.066
N	1140	1112	1142

This table presents the result of regression analysis of the internal and external finance for both land-holder and non land-holders. *The 1[Land Holding]* is a dummy variable that is assigned with value 1 if the firm has allocated land prior the land title scheme in 2009 and 0 if otherwise. Control Variables include: total asset, cash ratio, fixed Asset ratio, book leverage ratio and ROA. The industry of the firm and its trading exchange are also controlled. T-statistics is in the parentheses. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

Table 6 The Impact of Tenure Expiration and Political Connection on Land Holders' Investment Growth

	Investment	
	(1)	(2)
1[Land Holding]	0.190***	0.197***
	(3.84)	(3.27)
1[Tenure Unexpired]	-0.233***	
	(-2.93)	
1[Political Connection to Shenzhen]		0.00612
		(0.13)
*1 [Land Holding]		-0.170*
		(-1.85)
Total Asset	-0.0423***	-0.0427***
	(-8.83)	(-8.86)
Cash	-0.039	-0.0415
	(-0.79)	(-0.84)
Fixed Asset	-0.303***	-0.308***
	(-9.11)	(-9.24)
Leverage	0.00164	0.00158
	(0.34)	(0.33)
ROA	0.0459	0.0459
	(1.59)	(1.58)
Fixed Effect	Industry	Industry
R-squared	0.146	0.142
N	1147	1147

This table presents the result of regression analysis of the impact of tenure and political connection to Shenzhen government on the growth rate of investment. The *1[Tenure Unexpired]* is a dummy variable that is assigned with value 1 if the tenure of land controlled by the firm has not expired and 0 if otherwise. The *1[Political Connection to Shenzhen]* is a dummy variable that is assign value of 1 if the firm is affiliated to Shenzhen government and 0 if otherwise. *The 1[Land Holding]* is a dummy variable that is assigned with value 1 if the firm has allocated land prior the land title scheme in 2009 and 0 if otherwise. Control Variables include: total asset, cash ratio, fixed Asset ratio, book leverage ratio and ROA. The industry of the firm and its trading exchange are also controlled. T-statistics is in the parentheses. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

Table 7 The Impact of Tenure Expiration and Political Connection on Land Holders' Investment

	Investment	
	(1)	(2)
1[Land Holding]	0.116*	0.101*
	(1.72)	(1.70)
Financial Constraint (SA Measure)	0.00935	
	(0.34)	
* 1[Land Holding]	-0.0426	
	(-0.29)	
Industry Tangitability		-0.0798
		(-1.51)
* 1[Land Holding]		0.00184
		(0.01)
Total Asset	-0.0423***	-0.0422***
	(-8.78)	(-8.77)
Cash	-0.043	-0.0404
	(-0.87)	(-0.82)
Fixed Asset	-0.305***	-0.304***
	(-9.14)	(-9.11)
Leverage	0.00204	0.00238
	(0.43)	(0.50)
ROA	0.0482*	0.0498*
	(1.66)	(1.72)
Fixed Effect	Industry	Industry
R-squared	0.139	0.141
N	1147	1147

This table presents the result of regression analysis of the impact of reliance on external finance on the growth rate of investment. The *Financial Constraint (SA Measure)* is an firm-level measure of financial constraint constructed following Hadlock and Pierce (2010). The *Industry Tangibility* is an industry-level measure of the sector's average tangible ratio compared with total asset. *The 1[Land Holding]* is a dummy variable that is assigned with value 1 if the firm has allocated land prior the land title scheme in 2009 and 0 if otherwise. Control Variables include: total asset, cash ratio, fixed Asset ratio, book leverage ratio and ROA. The industry of the firm and its trading exchange are also controlled. T-statistics is in the parentheses. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

Table 8 The Improvement of Investment Efficiency for Land-holders and Non Land-holders

	|InvestResidual|		InvestResidual	
	(1)	(2)	(3)	(4)
1[Land Holding]	-0.0820***	-0.0569***	0.0989***	0.0727***
	(-3.85)	(-2.75)	(3.71)	(2.97)
Total Asset		0.00399		-0.0303***
		(1.62)		(-10.83)
Cash		-0.0117		-0.0383
		(-0.45)		(-1.40)
Fixed Asset		0.164***		-0.203***
		(9.73)		(-10.92)
Leverage		0.00233		0.00198
		(1.17)		(0.92)
ROA		0.0135		0.0257**
		(1.13)		(1.97)
Fixed Effect	No	Industry	No	Industry
R-squared	0.012	0.09	0.012	0.188
N	1158	1158	1158	1158

This table presents the result of regression analysis of the improvement of investment efficiency for both land-holder and non land-holders. For each year, the *Investment Residual* is the residual term from the cross-sectional regression with investment growth as dependent variable and sector revenue growth rate (interacted with positive revenue growth dummy) as independent variable. *The 1[Land Holding]* is a dummy variable that is assigned with value 1 if the firm has allocated land prior the land title scheme in 2009 and 0 if otherwise. Control Variables include: total asset, cash ratio, fixed Asset ratio, book leverage ratio and ROA. The industry of the firm and its trading exchange are also controlled. T-statistics is in the parentheses. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

Table 9 The Growth Rate of Profitability and Revenue for Land-holders and Non Land-holders

	Profitability	Revenue
	(2)	(1)
1[Land Holding]	0.940*	0.0844***
	(1.76)	(2.68)
Total Asset	0.187***	-0.0346***
	(3.11)	(-9.03)
Cash	-1.329**	-0.033
	(-2.12)	(-0.88)
Fixed Asset	0.555	-0.0517**
	(1.33)	(-1.99)
Leverage	0.0436	-0.00718
	(0.78)	(-0.64)
ROA	-0.0192	0.0295
	(-0.06)	(1.10)
Fixed Effect	Industry	Industry
R-squared	0.02	0.088
N	1165	1135

This table presents the result of regression analysis of the profitability and revenue for both land-holder and non land-holders. *The 1[Land Holding]* is a dummy variable that is assigned with value 1 if the firm has allocated land prior the land title scheme in 2009 and 0 if otherwise. Control Variables include: total asset, cash ratio, fixed Asset ratio, book leverage ratio and ROA. The industry of the firm and its trading exchange are also controlled. T-statistics is in the parentheses. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

Table 10 The Impact of Incentive of Chairman on the Investment Growth Rate

	Investment		
	Whole Sample	SOEs	Non SOEs
	(1)	(2)	(3)
1[Land Holding]	0.190***	0.226***	0.0887
	(3.82)	(4.16)	(0.81)
1[Old Chair]	-0.00814	-0.00318	-0.0155
	(-0.65)	(-0.23)	(-0.58)
* 1[Land Holding]	-0.236***	-0.283***	-0.134
	(-2.95)	(-2.98)	(-0.85)
Total Asset	-0.0414***	-0.0372***	-0.0543***
	(-8.53)	(-6.39)	(-5.29)
Cash	-0.0448	-0.0194	-0.116
	(-0.91)	(-0.35)	(-1.13)
Fixed Asset	-0.303***	-0.292***	-0.366***
	(-9.13)	(-8.02)	(-4.74)
Leverage	0.00173	-0.0132	-0.0095
	(0.36)	(-0.40)	(-1.13)
ROA	0.0463	0.0946***	-0.0271
	(1.60)	(2.78)	(-0.49)
Fixed Effect	Industry	Industry	Industry
R-sq	0.147	0.169	0.129
N	1147	797	350

This table presents the result of regression analysis of the age of firms' chairmen on firms' investment growth rates. The *1[Old Chair]* is a dummy variable that is assigned with value 1 if the chairman of that firm is older than 58 and 0 if otherwise. *The 1[Land Holding]* is a dummy variable that is assigned with value 1 if the firm has allocated land prior the land title scheme in 2009 and 0 if otherwise. Control Variables include: total asset, cash ratio, fixed Asset ratio, book leverage ratio and ROA. The industry of the firm and its trading exchange are also controlled. T-statistics is in the parentheses. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

Appendix IA1 The Robust Test: Long and Short Term Effects

	Investment		
	[-4,4]	[-3,3]	[-2,2]
	(2)	(3)	(4)
1[Land Holding]	0.0752*	0.0799*	0.00441
	(1.79)	(1.79)	(0.10)
Total Asset	-0.0422***	-0.0297***	-0.0122***
	(-8.40)	(-6.19)	(-3.28)
Cash	-0.037	-0.0498	-0.0637
	(-0.72)	(-0.96)	(-1.53)
Fixed Asset	-0.372***	-0.308***	-0.107***
	(-10.68)	(-8.67)	(-3.63)
Leverage	-0.00178	0.00286	0.00387
	(-0.36)	(0.56)	(0.96)
ROA	0.018	0.0624**	0.0503*
	(0.61)	(1.99)	(1.94)
Fixed Effect	Industry	Industry	Industry
R-squared	0.146	0.097	0.025
N	1160	1244	1359

This table presents the result of regression analysis of the investment growth rate for both land-holder and non land-holders in variant estimation window length. *The 1[Land Holding]* is a dummy variable that is assigned with value 1 if the firm has allocated land prior the land title scheme in 2009 and 0 if otherwise. Control Variables include: total asset, cash ratio, fixed Asset ratio, book leverage ratio and ROA. The industry of the firm and its trading exchange are also controlled. T-statistics is in the parentheses. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.