Insider Takes All!
Value of Political Connections in a Property Rights Reform*

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Abstract

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JEL Codes: G32, G38, H13, O43

1. Introduction

It is widely recognized that many reforms aiming to change fundamental institutions and improve their efficiency have ended in failure (see, e.g., North (1993), Boycko, Shleifer and Vishny (1994, 1997), Acemoglu (2006, 2008)). One prominent example involves the evolution of property rights protection. Despite the consensus that enforcing property rights can alleviate concerns regarding expropriation and encourage investment (Williamson (1999)), there are numerous historical examples of failed reforms involving property rights (see, e.g., Besley (1998)).[1] This failure of institutional progress is frequently attributed to the counteraction of the powerful elite or "interest groups" who attempt to capture reforms by either blocking, neutralizing or reversing their effects to maintain their economic-political dominance (Rajan and Zingales (2003), Acemoglu, Ticchi and Vindigni (2010) and Puga and Trefler (2014)). However, identifying interest groups and their attempts to capture reforms is a daunting challenge for empirical analysis.

In this study, we provide evidence supporting this "interest group" theory by examining how a specific reform is captured by politically connected parties who reap all of its benefit. The reform under study involves a 2009 *Urban Renewal Program* implemented in Shenzhen, a special economic zone and the most economically developed city in China. At the core of the reform is a land title-granting scheme. In particular, all firms occupying "allocated land", a type of untitled land with weak property rights protection, are allowed to obtain land title to such land to strengthen the protection of their property rights – at least on paper.[2] We illustrate a clear case of "regulatory capture" (Stigler (1971)), in that firms with political connections benefit greatly from the reform with significant increases in investment. On the contrary, those unconnected private firms are associated with no investment increment at all. It suggests that this reform, with the intention of improving efficiency of all firms, are putting unconnected firms in a disadvantaged situation than their connected competitors.

[1] The ineffectiveness of property rights reform extends to intellectual property rights. For instance, Duggan, Garthwaite, and Goyal (2016) find minimal reaction in medicine prices after an exogenous strengthening in the protection of intellectual property rights via reform in India.

[2] See Jacoby, Li, and Rozelle (2002), among others, for references on China's land policies and property rights.

Two features of this Shenzhen *Urban Renewal Program* make the program suitable to study the impact of interest groups on the economic consequences of institutional reform. First, the policy experiment, including a predetermined allocation of treatment and control groups, mitigates concerns regarding endogeneity problems and allows us to identify the impact of exogenously strengthened property rights. The involvement of the interest groups in this reform was determined many years previous to the reform and is not driven by investment opportunities.[3] Second, from its legacy as a planned economy, China provides an institutional setting with clearly identified interest groups based on political connections. Notably, state-owned enterprises (SOEs) and other connected firms in China receive substantially more favorable treatment from the government in various forms than privately owned firms.[4]

From the entire sample of publicly listed firms on the Chinese stock market, we identify the list of "title grantees" that occupied allocated land and that were qualified to receive land title under the *Urban Renewal Program*. We focus on the role of property rights in promoting investment. Our first empirical finding is that these title grantees experience 10% higher investment than similarly situated companies during the five-year period following the announcement of the *Urban Renewal Program*. This result is consistent with the conventional wisdom that strengthening property rights protection leads to more corporate investment. Furthermore, the capital expenditure accumulation is mainly financed by cash and short-term borrowing and mostly occurs two years following the inception of the title-granting scheme.

Although the reform applies to all firms with allocated land in Shenzhen, we find that only politically connected firms, or those "insiders", are able to benefit from the reform. Those "outsiders" are excluded from sharing the gains. Using various measures of political connections of the firms, including their ownership and previous experience of their executives, we find that increased investment after the reform is notably concentrated in those with political connections. Unconnected

[3] Further evidence from the stock market suggests that people do not anticipate that political connected firms benefit more from reforms than other firms.

[4] See Lin, Cai and Li (1998); Song, Storesletten and Zilibotti (2011); and Guariglia and Mateut (2013).

firms do not experience increase in investment even four years after implementation of the scheme although they face the same opportunity under the scheme to apply to obtain land title as their connected peers.

Further investigation reveals institutional and practical obstacles that prohibit unconnected firms from effectively participating in and benefiting from the land-titling scheme. We find that unconnected title grantees encounter various types of resistance during the application and title-granting process. For example, unconnected firms often dragged into disputes on the land use rights that require arbitration. Moreover, their applications for new construction are routinely returned for revisions, prolonging the process.[5] Other firm characteristics, such as their land holdings, cost of capital and the extent of their financial constraints, are unimportant in explaining the investment difference between connected and unconnected firms.

Given that those politically connected firms, especially SOEs, often invest less efficiently than those unconnected ones, our findings suggest an exacerbated distortion of resource allocation associated with the title-granting scheme. We calculate the productivity of connected and unconnected title grantees and find that connected grantees are 30%-50% less efficient than unconnected grantees, which is in line with the general perception and prior evidence that there is substantial resource misallocation in China (Hsieh and Klenow (2009), Liu and Siu (2013)). Therefore, by only granting approval and allowing investment for those firms with political connections, the title-granting scheme introduces additional new distortions in favor of connected but inefficient firms.

It is worth mentioning that although the institutional background for our study could be unique, the implications of our findings are not China-specific. The disadvantage of politically unconnected firms is ubiquitous, as self-interest motivated officials and the absence of rule of law and accountable media supervision exist in many parts of the world.[6] The findings from our study suggest that under ill-structured institution, reforms could have unintended consequences

[5] Those are not unusual practices in China, see, e.g., Li, Meng, Wang, and Zhou (2008). Lu, Pan, and Zhang (2015) show that SOEs in China have higher chances of winning lawsuits than non-SOEs.

[6] See in Shleifer and Vishny (2002) and Acemoglu and Johnson(2005) for the role of the governments.

to hurt those weak and unconnected, causing greater social inequality and more significant inefficiency.

Our study presents a new perspective on how property rights changes affect investment and economic development. China enacted its first property rights law in 2007, which was embraced by the stock market (Berkowitz, Lin, and Ma, 2015). However, according to an international index, actual property rights protection has improved very little.[7] We emphasize that how laws are enforced in practice plays a more important role than the enactment of law on paper. Since the land-titling scheme in 2009 occurred after enactment of the property law, adopting ownership as a proxy of *de facto* property rights protection can isolate the effects of enforcement from the effects of the property law. Cull and Xu (2005) also analyze legal enforcement in China against the backdrop of the country's economic growth and institutional updating. However, our study on the enforcement of legal property rights is distinct from their study on contract enforcement.

This paper also contributes to the literature examining distortions faced by firms in developing countries. Allen, Qian and Qian (2005) suggest that the sector that grew the fastest in China received the least amount of credit. Bailey, Huang, and Yang (2011) show that underperforming Chinese firms often receive subsidized loans from state-owned banks. Young (2000) presented arguments and evidence that "distortions beget distortions" in China's reforms. Johnson and Mitton (2003) provide an example from Malaysia. Hsieh and Klenow (2009) illustrate that Chinese firms with political connections have lower productivity than those without connections. However, these authors do not find evidence that the government subsidizes unprofitable SOEs, allowing them to continue their operations rather than being forced to exit the market. Our findings from China contrast the results from India, in which secure property rights lead to increased productivity (see Banerjee, Gertler, and Ghatak (2002)). The heterogeneous findings between China and India may result from differences in the composition of the SOEs in the economy and from government favoritism. Our paper contributes to this literature by showing that in the presence of other institutional imperfections, such as

[7] See the data from http://internationalpropertyrightsindex.org/country?c=CHINA

government favoritism, seemingly beneficial policy reforms may yield further distortions instead of equalizing firms' access to credit and improving resource allocation and marginal productivity.

The remainder of this paper proceeds as follows. We describe the land title-granting scheme and firm-level political connections in Section 2. The sample of treated and control firms is presented in Section 3. Section 4 illustrates our findings regarding the effects of land title granting on investment. Evidence of ownership-related investment differences are presented and discussed in Section 5. Section 6 concludes.

2. Institutional Background and Hypothesis Development

In this section, we provide relevant institutional background the analysis of impact of property rights strengthening on corporate investment. In Section 2.A we discuss the institutional background regarding property rights protection in China with an emphasis on the impact of SOEs' political connections. In Section 2.B we describe the 2009 *Urban Renewal Program* in Shenzhen, through which the municipal government gave firms the opportunity to apply for land title and formal property rights. Finally, in Section 2.C we discuss several factors that may distort the relationship between property enforcement and investment in our setting.

2.A Property Rights and Political Connections in China

Two prominent features of the Chinese economy – an economy that is in transition from a centrally planned, authoritative system to a market system – are the absence of property rights and the existence of a dominant SOE sector. Although many Chinese recognize the importance of property rights protection in encouraging corporate investment and spurring economic growth (Cull and Xu (2005)), China has a notorious track record regarding property expropriation. One example of a significant violation of property law was the land reform movement and the formation of collective units or "the People's Commune" in the 1950s, during which privately owned land was massively expropriated in the form of nationalization (Xu (2012)).

Efforts have been – and continue to be made – to overcome the adverse consequence of weak property protections, notably including passage of China's first property law in 2007 (Berkowitz, Lin and Ma (2015)). However, violations of property rights and the expropriation of private assets remain common occurrences in China, and there is little sign of improvement. According to the International Property Rights Association, China ranked 55th out of 128 surveyed countries in terms of property rights protection, and it has experienced no major improvements in its physical property rights in recent years. The lack of property enforcement also introduced a serious problem. National statistics show that more than 60% of grassroots protests against the central government for administrative and legal assistance were related to property expropriation without fair compensation.[8]

Frequent violations of property rights might be largely attributed to the ambiguity of the outdated legal status of property and particularly of land. For instance, users of *allocated land*, a form of land that was allocated to a land user during the central planning regime, do not have sufficient property rights in terms of being entitled to own, sell or use the land as collateral.[9] Compared to fully entitled land, allocated land is exposed to a higher level of risk of being expropriated by the government mainly because allocated land is designed as state-owned land that is provided for temporary, free-of-charge usage for firms via an administrative order in which the government retains the legal right and discretion to reclaim the allocated land without compensation to the current users.[10] The fact that there is no systematic solution to negotiate and to extend tenure with regard to allocated land also aggravates the problem.

The other legacy from the centrally planned economy in China is the dominant SOE sector, which comprised the entire economy before the "reform and opening up" movement began in 1978. SOEs remain powerful and influential even after several

[8] See http://news.163.com/13/1014/10/9B50LSFJ00014AEE.html.

[9] These allocated lands are a legacy of the centrally planned economic system that dominated China prior to the 1990s. In the centrally planned economy – in which all market-based land transactions were forbidden – the 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 protections remained mainly unchanged during the period of progressive land system reform from the 1990s to the 2000s.

[10] Article 47 of the "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 Urban Areas" stipulates that the government has the authority to reclaim allocated land without providing any compensation.

rounds of reforms.[11] The main distinction between SOEs and non-SOEs is their political connections. Each SOE has an administrative ranking (*Xingzheng Jibie*) similar to governments to indicate its importance in the political hierarchy. More prominent or strategically important SOEs are powerful entities in the economic and political system. For example, the CITIC Group is a ministerial-level organization founded by a former vice president of China.

Two features associated with the administrative rankings of SOEs play important roles in political connections. First, there is a "revolving door" for high-level management between SOEs and the government. In other words, the appointment of government officials and SOE executives of the same administrative rankings are frequently decided by the same committee. Many government officials are subsequently appointed as executives of SOEs, and top managers of SOEs are also often appointed as government officials.[12] The influence of political connections would thus be reflected in the connection between the shifting roles of SOE executives and government officials. Second, top executives of SOEs are frequently representatives of the People's Congress and hold meetings with government officials of the same administrative rankings. Their direct communications provide opportunities and advantages in terms of information and policy support for SOEs.[13]

SOEs' political connection leads to preferential treatment, including tax treatment, access to finance by state-controlled banks, licenses and government procurements (see, e.g., Calomiris, Fisman and Wang (2010)). From the perspective of property enforcement, SOEs at times act as accomplices in the process of expropriating private assets. In a recent wave of mergers and acquisitions encouraged by the government in Shanxi province, the private owners of small coal

[11] SOE reform in China has fluctuated and is a current issue of international interest; see "China rows back on state sector reforms," *Financial Times*, June 15, 2016.

[12] For instance, Lu Hao, former CEO of Beijing Textile and Apparel Company, is the governor of the Heilongjiang province. Su Shulin, former CEO of Sinopec, one of the largest SOEs in China, was appointed as the governor of Fujian province. Li Xiaopeng, former CEO of the China Huaneng Group, is the governor of Shanxi province. Jiang Chaoliang was the CEO of several large banks before becoming the governor of Jilin province. Ge Honglin, Chairman of Aluminum Corporation of China, was the mayor of Chengdu. In many cases, the position of CEO in central SOEs is merely a transitional role for politicians climbing the ladder since they tend to return to government roles after several years as CEO.

[13] For instance, during the 18th CPC National Congress, five chairmen from the most powerful central SOEs (and none from non-SOEs) were listed as members of the central committee of the Communist Party of China.

mines are being forced to sell their control rights to SOEs at prices that are much lower than the market would bear.[14]

2.B The 2009 Shenzhen Urban Renewal Program

Our study exploits a unique policy change in the city of Shenzhen, which is the youngest metropolis with the highest GDP per capita in China.[15] Shenzhen was largely a piece of agricultural land in 1979 and, because it has geographic advantages in that it borders Hong Kong, it was converted into a city as China's first special economic zone for experimenting with various market-oriented reform measures. Its subsequent rapid growth and unique transition from a rural area to a city introduced problems related to property rights enforcement. A large amount of land in Shenzhen has no proper title attached to it. By the end of 2009, more than twenty percent of Shenzhen's non-agricultural land (220 square kilometers) was allocated land, mostly used by SOEs or privatized SOEs.

Whether a firm was granted allocated land was determined entirely by its original business classification in the 1980s. However, following this period, many rounds of industry upgrades, privatization and restructuring changed the industrial landscape in Shenzhen, and there is low correlation between firms' current and past specialties. As a result, the distribution of allocated land in Shenzhen has little connection with the current business and land requirements of SOEs and privatized SOEs.

The users of allocated land in China are subject to greater risk of expropriation than owners of titled land. Although the Shenzhen government stipulated a 30-year original tenure for all allocated land when the city was established, these tenures had either expired or were approaching their expiration date by 2009. No systematic and effective mechanism for users to negotiate an extension of their land tenure was specified in the 1981 "Provisional Regulations of Land Management for the Shenzhen Special Economic Zone". Thus, there is no institutional protection against government expropriation. In fact, cases in which the government expropriates allocated land are common. For instance, the Shenzhen government

[14] See http://www.chinastakes.com/2009/9/shanxis-nationalizing-of-coal-mines-riles-zhejiang-investors-government.html
[15] Shenzhen is one of four tier 1 cities in China (the other three are Beijing, Shanghai, and Guangzhou) and one of the five "individually planned cities".

reclaimed 12 plots of allocated land without compensation to current land users in one campaign aimed at improving land-use efficiency during 2012.[16] Due to policy rigidity and the government's own profit-maximization motivation, converting allocated land to titled land was extremely difficult prior to 2009.

This lack of property protection could create an under-investment problem for firms that are concerned with future expropriations. To address the issue of land resource allocation and investment (in)efficiency, on November 13, 2009, the Shenzhen government initiated the *Urban Renewal Plan*. The core of this program allows all current users of untitled land who have been operating on their land for many years to obtain title to the land after paying a fee based on the land appraisal value.[17] The primary target of the program was farm property, which accounts for the majority of untitled land and which was being used extremely inefficiently. However, allocated land was also included in the title-granting program due to its resemblance to farmland in terms of its basic nature.

The creation of newly titled land is facilitated by a newly established registration system that ensures the exclusive rights of its user. A new file with user rights and a history of transactions, leasing and collateralization records were created by the registration bureau to ensure exclusivity and to avoid future disputes with other rights claimants. The new 30-year tenure is endorsed by a legal contract between the government and land user rather than by a fiat order in the case of the allocated land. By virtue of the contract, it is more difficult to expropriate the land before the tenure expires, and a large amount of compensation, calculated by the market price of the land and above-ground construction, is required. These measures greatly alleviated land users' concerns regarding expropriation, although they do not completely prevent other possible forms of government expropriation.

However, the procedure for the firms to apply for land titles and associated property rights protection is not as straightforward as might be imagined. The applicants are required to submit their land development proposals to several

[16] See *Huaxia News*, March 16, 2013, http://sh.house.sina.com.cn/news/2013-03-16/08552392170.shtml.

[17] Some requirements must be met by the land user to obtain the approval of the government. These requirements include the following: 1) the land owner must submit a proposal for the renovation of the buildings above ground, which must be approved by the government; and 2) approximately 15% of the total area of the land should be given to the government for public use.

government departments, including the Urban Planning, Land and Resources Commission (UPLRC), the Construction Commission, environmental agencies, and even the local fire station for economic and environmental evaluation and their separate approvals. A third-party evaluation agency is also involved in assessing the value of land before the corresponding transfer fees are paid to the government in exchange for land title. Public opinions are also solicited to ensure fairness among all stakeholders. The approval of the UPLRC normally requires one year, and the entire procedure of approvals can easily take more than two years, after which it may be further prolonged by disputes over the original ownership of the land. The first batch of applicants submitted their proposals in early 2010, and there are several batches of applicants every year.

2.C Testable Predictions on Property Right Enforcement

The land titling scheme provides an opportunity for corporations with allocated land in Shenzhen. It is tempting to assume that all firms apply for land title because the cost of doing so is low, and the benefits can be extremely high. Indeed, the market was enthusiastic about this reform, and stock prices reacted positively for most firms, as we show below. However, in practice, many complicating factors may weaken the linkage between property rights protection and corporate investments.

First, there is policy uncertainty associated with property rights reform. Major institutional reforms, such as enhancing property rights protections, typically require an extended period of time and are interspersed with policy annulments and institutional reversals. Indeed, many policies instituted by the Chinese government (and other governments worldwide) – and, in particular, policies with substantial economic implications – have proven to be impossible to implement or simply unenforceable. For instance, during an ambitious plan of privatization intended to sell some fractions of the government's remaining SOE share to ordinary investors in 2001, the Chinese government cancelled and reversed the majority of transactions of state share sales after witnessing the negative reaction of the stock market, and after criticisms of selling state ownership too cheaply were leveled against the government (see Calomiris, Fisman and Wang (2010)). Faced with

policy annulment and reversals, those with the most conservative attitudes toward the prospect of the reforms may be less likely to react to these reforms.[18]

Second, factors other than property rights protections can also give rise to heterogeneous reactions by firms. For instance, larger firms with multiple lines of businesses may be more experienced in real estate development such that they are better at capturing the opportunity to obtain land title. On the other hand, small and focused firms may lack the resources and expertise in the optimal use of the land. Indeed, we observe cases in which the focused firms gave the opportunity of obtaining title and development to other larger and more diversified firms. For instance, HL Corp (Shenzhen), a manufacturer of bicycle parts, transferred the opportunity to the government-backed Central Con (Zhongzhou) for a fee. Although weak property rights protection can dampen investment, the heterogeneity in reacting to the land titling program can result from other reasons.

Moreover, the prolonged and complicated procedure of title application provides a role for political connection in the title-granting program. It is unsurprising that those with closer political connections, such as certain SOEs, may have advantages over unconnected firms in terms of priority in the process of administrative handling and approvals of their applications by the government. However, the relationship between *ex ante* property rights protection and political connection may not be monolithic. Although it is generally reasonable to assume that politically connected firms enjoy higher levels of property protection before and after the title-granting opportunities, it is difficult to apply this to the analysis of individual firms. For instance, these politically unconnected firms may be strongly motivated to build up political connections with government officials and require a longer tenure for land titles. Therefore, in equilibrium, certain non-SOEs may have better political connections and realize more efficient investment before the land titling program and accordingly are less significantly affected when land title is granted. Hence, more careful identification of the extent of *ex ante* property rights protections is required.

[18] This is related to the point made by Glaeser, Ponzetto, and Shleifer (2016) that injunctions or other forms of property rules may work better than compensation for liability rules, particularly when parties can invest in power.

3. Data and Sample Description

In this section we provide statistical description with regards to the relationship between the title granting scheme and the increment in firm-level investment. In Section 3.A we discuss how the sample is constructed and segmented into two groups – title grantees and non-title grantees – based on the information on their land holding status. In Section 3.B, we first compare these title grantees with the other firms in terms of various pre-event characteristics, and title grantees are not performing better, if not worse, than other firms. In Section 3.C, we show that there was a significant difference in the post-event investment between those who obtained title and those who did not. Importantly, the effect was mainly concentrated within the group of SOE title grantees who displayed a significantly higher long-term investment, one indication of the role played by political connection in the procedure of property rights establishment.

3.A Sample and Title Grantees

The key task in this study is to identify whether listed firms have allocated land that is eligible for the title under the title-reform scheme. To do so, we employ two measures. We firstly checked the information contained in the self-disclosure report of title grantees around the announcement day of the title granting scheme. If the title granting scheme has a major impact over the future investment behavior of firms, the consequential stock market fluctuation could force the firm to issue self-disclosure report releasing relevant information[19]. We manually checked all self-disclosure reports that were released within the window of 15 trading days before and after the announcement of the title granting scheme in search of disclosure of landholding status. We find 17 disclosed their land holdings status via special disclosure reports.

Although the regulatory authority did not require a particular format or specific information about firms' landholding status, most firms did provide

[19] Chinese financial regulations require that any listed company whose share price experiences more than 20% fluctuation within 3 trading days is obligated to issue a disclosure report clarifying the reason of the price fluctuation. See Regulations on Stock Listings on the Shenzhen Stock Exchange.

sufficient detail. Indeed, we managed to find key details about the land belonging to these firms: their locations, areas, and current usages and whether it was shared with other users. For example, Shenzhen Seg (000058.SZ) disclosed that their firm had two pieces of land[20]:

> *"… The first piece is located in Bagua Industry Park. It is now a three-floor factory with a construction area of 1,593 square meters. The tenure is from 1985 to 2015. Currently it is leased out with an annual rent of 600,000 RMB… The second piece is controlled by our subsidiary Sege Baohua. 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…"*

However, the assumption that title grantees should always be associated with a violate share price fluctuation may not be satisfied either because that the market lacked the relevant landholding information of the listed firm, or because that the impact of the title grantee scheme was regarded too small to bring about the fluctuation strong enough for disclosure. As a complementary measure, we check all post-2009 annual reports of list companies who either is headquartered in Shenzhen or have branches located in Shenzhen. The underlying assumption is that the economic impact of the title granting scheme would force the firms' managements to disclose the information of the landholding status to the investor. Considering the size and the value of these lands are considerable in compared with the value of its holding company, this assumption is viable. We find another 28 firms that mentioned their participation in the title grantee scheme, making the total number of treatment firms 45.

We consider the pool of all domestics listed companies in China as the whole sample. We exclude those firm operate in financial industry for their complete

[20] To ensure the accuracy of the title-granting information, we also cross-checked our information with other resources on the land-holding situations. For instance, HuaChuang Securities, one of the top investment banks in China, released a special report on this title-granting scheme in Shenzhen and listed all the potential beneficiaries. Most firms on our list overlap with HuaChuang Securities' list of beneficiaries of the title-granting scheme.

different business nature. We obtain financial data, including stock prices and financial statement information, from China Securities Market and Accounting Research (CSMAR) database, which is the largest and most comprehensive database of its type and contains all trading prices and financial statement data for listed firms trading on both the Shanghai and Shenzhen exchanges. We also use land-price information in Shenzhen to estimate the value of title when allocated land was converted 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 source of land information in China.

3.B Pre-event Characteristics of Title Grantees and Non-Title Grantees

One main concern about the natural experiment is the upward biased selection of the treatment firms. That is, the higher performance of those title grantees may not be resulted from the treatment, in this case the title granting scheme, but comes from the momentum effect, or the sustained out-performance of these treatment firms that happen to be associated with better track records of growth.

We illustrate the various aspects of observable characteristics between title grantees and non-title grantees in Table I. It is apparent that firms with land perform no better, and perhaps worse, than other firms also listed on Chinese exchanges. Under two important measures of profitability and productivity, ROA and Tobin's Q, the title grantees' numbers are both lower than those of the other firms, although the difference could be only marginal. The title grantees are also more leveraged and have less cash and fewer tangible assets than the average listed firm. The pronounced difference in tangibility between the title grantees and non-title grantees can be interpreted as the consequences of under-investment problems due to the lack of titled land. In summary, Table I provides strong evidence that the title grantees do not perform better than the non-title grantees before land titles are granted, mitigating the concern that the potential out-performance of the title grantees is merely a momentum effect.

3.C Difference in Performance after the Event

To relate the changes of investment pattern of firms in treatment and control group to the occurrence of the title granting scheme, we provide the time-series chart to observe the long term difference in investment. Figure 1 illustrates the changes in investment patterns of title grantees and non-title grantees between 2004 and 2014, an 11-year period surrounding the event year of 2009. For each year, the average investment level as a percentage of total capital accumulation is plotted after being normalized to 2009 levels. The figure shows that the investment of the title grantees (the grey bar) are historically lower than that of the non-title grantees (the white bar) before 2009, a confirming evidence that momentum effect does not exist. However there is a major trend of reverse and boost-up in the investment of these title grantees right after 2012[21], before it surpass that of these non-title grantees in 2013. This pattern could be interpreted as that before the title granting, controlling the allocated land had a depressing effect on firm investment because of the absence of sufficient property rights enforcement while this trend was reversed, and the title grantees experienced a substantial jump in investment after title was granted.

Further decomposition of the sample of title grantees reveals stark differences in post-event investment between SOEs and non-SOEs. Figure 2 illustrates the average investment levels as a percentage of total capital accumulation across firms of various ownership types for the period between 2004 and 2014. Clearly, the investment increases made by SOEs were much more pronounced than those made by non-SOEs, despite the fact that SOEs' prior-scheme investment level was much lower. The sharpest increase occurred after 2012, 2 years after the title-granting scheme was launched.

Other evidence of the real effect of the title-granting scheme includes its impact on stock market prices. Because land titles induce investment – and presumably these investments are efficient in terms of generating positive NPV – the stock value of these title grantees should jump immediately in response to the announcement of the title-granting scheme. Figure 2 shows the Cumulative Abnormal Returns (CARs) of SOE and non-SOE title grantees for the 60 trading

[21] The delay in investment is mainly caused by the absence of implementation details of the policy, which was released after 2012.

days around the announcement of the policy. The CAR is estimated using the Fama-French (1992) three-factor model with a beta estimation window of between 250 to 40 trading days prior to the event. Note that all title grantees, regardless of SOE ownership, experienced sharp increases in their stock market value that were as high as 10%. The increases in the market values of SOEs was slightly stronger than those of non-SOEs, but the difference in the reactions was quite small, particularly if a shorter window, e.g., two trading days prior to the event, is considered. This finding suggests that the market predicted that the title-granting scheme would definitely benefit all firms with allocated land, and that the benefit would accrue regardless of the ownership status of firms. The effect was also long-lasting: the market value appreciation of title grantees remained high, even 30 days after the event. One potential question is why the market failed to predict the differential effect of title granting between SOE and non-SOE firms. We will explore in depth of this question in section 5.C.

4. Property Rights Changes and Firm Investments

In this section we provide primary evident of the impact of the title granting schemes on these title grantees, regardless of their ownership. In section 4.A, we show that there is a significant difference in the title grantees and non-title grantees in their investment before and after 2009, when the title granting scheme was initiated. To establish a causal relationship we provide evidence in section 4.B that these firms with higher exposure of expropriation and uncertain of user rights are associated with more pronounced reactions. The causality is also confirmed by our investigation of the dynamics of investment in section 4.C, which suggests that major increment of investment of title grantees occurred after 2012 when the more detailed and implementable rules are issued. In section 4.D we explore the external financial method firms employ to finance their investments.

4.A Baseline Regression Results

Following Bertrand et al (2004), we collapse the time dimension into two period to overcome the serial correlation in the error terms. One period includes

years before 2009 (2005-2009) and one period includes years after 2009 (2010-2014). To explore the impact of the land title grant on investment, we estimate the following base-line cross-sectional regression:

$$\Delta Investment_i = \alpha + \beta\ (Title\ Grantees)_i + \gamma X_i + \varepsilon_i \quad (1)$$

The dependent variable is the difference in the average increase of investment before and after the title-granting scheme. This variable is calculated using the average value of the investment growth in post-event years, 2010-2014, after netting off the average value of the investment growth in prior event years, 2005-2009. To put formally, it is defined as:

$$\Delta Investment_i = \frac{1}{5}\sum_{t=2010}^{2014} Investment_{it} - \frac{1}{5}\sum_{t=2005}^{2009} Investment_{it}$$

The parameter of interest in this study is the dummy variable of title grantees, and a value of 1 is assigned to firms that obtained land titles in the *Urban Renewal Program* and 0 for the other firms. The control variables consist of the prior-event characteristics of these firms, including total assets, book leverage ratio, ROA, tangible asset ratio, cash holding ratio and Tobin's Q. As the firm-level investment could be affected by the varied industry life-cycle in China and the industry distribution could make this impact more pronounced, we control for the industry fixed effect. We also control for the fixed effect of the location of the exchange in which the firm's stock are traded to exclude the potential impact from any isolated changes of regulation of the specific exchange.

The results of both unsaturated and fixed effect regressions are illustrated in Table II. In Column (1), the coefficients for regression without controlling for industry and the exchange fixed effect are displayed. The coefficient is positive and statistically significant. It suggests that, on average, title grantees, compared to other firms, are associated with a 10% additional increase in investment for the 5 years after the title is granted. This is a considerable increase as it is 0.45 standard deviation increment of investment, which was 22%. Apparently, this effect is not caused by the selection effect of the industry and the choice of exchange to float the share; in Column (2), the scale of the coefficient remains the same when we control for the industry and exchange fixed effects.

One concern is that our dependent variable, the prior-/post-event difference in investment growth, is too sensitive to the choice of the benchmark prior-event investment growth rate (against which the additional investment level is calculated) to yield a reliable estimate. Indeed, the firm level investment from the period between 2004 and 2009 might have been affected by regulatory changes in the Chinese stock market, such as the share-splitting reform, [22] or innovations associated with legal infrastructures, such as the passage of property rights. Because these reforms may not affect the investment level of our treatment and control groups evenly, an excessively large estimate window may expose our estimate to the risk of the unintended impacts of these regulation changes.

To mitigate this concern, we adopt multiple time window lengths as the benchmark prior-event investment growth rate. In columns (3) and (4), we apply a median length period window to measure the growth of the investment – namely, a three-year period of 2007-2009. In columns (5) and (6), we adopt a short-period investment growth window for the year 2009. The results yielded from the median and short estimation window is similar to that generated from the 5-year estimation window despite the fact that there is a slight increase in the economic scale of the coefficient of the title-granting dummy. These results indicate that our baseline regression is not subject to the alternative interpretation that the increases in the investment are caused by other policy or regulation changes during the 2004-2009 period.

4.B Heterogeneity in the Original Property Rights Protection

Although we exclude the possibility that the increment in investment does not originate from any pre-2009 regulation change, it remains possible that the increment of investment comes from another event occurring during the same period, between 2010 and 2014, when the impact of the title-granting scheme is felt. To eliminate the possibility that our results are driven by other events occurring at the same time and to establish causality between title granting scheme and investments, we exploit two distinctive features of land that is going to receive title, namely, 1) whether the previous title to the land has expired and 2) whether the

[22] The split-share reform began in April 2005. See Li, Wang, Cheung, and Jiang (2011) for more details.

previous rights to use the land is in uncontested. These two features are closely linked to prior-event property rights protection. If the increment of investment is brought by the land titles, then it is intuitive that firms with worse property rights protections, i.e., those with expired titles or contested land usage situations, would experience a sharper increase after the event, an effect that is less likely to be caused by other factors. Therefore, by exploring the cross-firm variation in the prior-event protection, we can verify whether the increment of investment results from the grant of title.

We first use a dummy variable to represent whether previous land tenures have expired.[23] Lands facing expired land tenures are associated with poorer property rights protection and therefore would benefit more from the granting of new land titles. In columns (1) and (2) of Table III, we report the regression, including the dummy variable indicating that the tenure has expired. The positive coefficient of the tenure's expired variable is a strong indicator that the increase in investment resulted from the new property rights protections. The scale of the estimate suggests that firms associated with land characterized by expired land title experience an extra increase of investment that is 22% higher than those with unexpired land titles.

The second variable we include in the regression is whether the usage rights of the land are uncontested. The contested usage rights refers to land users who sold[24] or rented their allocated land to seek short-term profits. In terms of applying for land titles, any transfer of usage status would bring about significant negotiation costs between the original land grantees and the current land user with regard to the compensation price for the current user to vacate. Lands with uncontested use rights are thus expected to be associated with higher post-event increases in investment. We obtained the relevant information from an annual and disclosure report of the land users and include the "Rights Uncontested" dummy variable, which indicates whether the land use rights are contested. The sign of the coefficient is positive, and the scale of the coefficient suggests that uncontested land

[23] In 1981, the Shenzhen government allowed tenures of 20 or 30 years to the allocated land users. Many expired or were approaching expiration in 2009.
[24] The normal way to sell allocated land is to sign a rent contract that has a length equal to the tenure length of the land.

experiences higher investment increases – as high as 24% after the titles are granted.

In sum, the above evidence supports the interpretation that the additional investments made by title grantees are caused by the land title that is conferred to them rather than because of other alternative factors.

4.C The Dynamics of Investments

In this section, we investigate the time series dynamics of the investments. We will illustrate that implementation and adoption of a new land policy does not occur overnight. On the contrary, it takes years for firms to gradually adapt to the policy and change their investment behavior. To do so, we partition our post-scheme sample period into three sub-periods: 2010-2011, 2012-2013, and 2014. The partition helps us identify the period of time in which the impact of property rights on investment is exerted. Is the impact effective immediately after the announcement, or are a few years required to have any influence over the total investments of these grantees?

The results in Table IV exhibit a noticeable trend of increased investment as time passes. In the first 2 years after the announcement of the scheme, there is almost no reaction in the title grantees, which is evidenced by the insignificant coefficient of the title grantee dummy. There is a significant increase of investment after 2 years, and this trend is further strengthened during 2014, which is evidenced by an even larger coefficient for the title grantee dummy when the 2014 increment of investment is considered. The reason for this acceleration of investment momentum might be two-fold. First, it will take some time for the title grantees to apply for and implement the project. Second, because they are concerned by the uncertainty and ambiguity of the newly released policy, most firms – although they are ready to implement the investment – are hesitant and tend to wait for more policy details to be released. As new details regarding the implementation of the policy are released[25], the investment level of the title grantees experience a major increase that finally differentiates them from the non-title grantee companies. This

[25] An implementation detail about the city renewal program was released in 2012, and this is widely considered to be the de facto start of the title-granting scheme.

trend of the increased investment further confirms a causal relationship between land title and the investment behaviors of the title grantees.

4.D Financing Sources for Corporate Investments

After verifying that the title grantees experience a higher level of investment increments due to granting of title, we explore the method that the firms adopt to finance their projects. Specifically, we explore whether the type of financing – internal financing or short-term or long-term external financing – plays an important role in supporting projects implemented on land for which title was granted.

For each type of financing, we first calculate the difference between the annual average level for the 2005-2009 period and the difference for the 2010-2014 period. The difference is then regressed over the title-granting dummy to capture the differentiated effect across firms with various land holding statuses. In column (1) of Table V, the dependent variable is the average cash level. The results from the regression of the short-term borrowing and long-term borrowing are reported in columns (2) to (3), respectively.

The results suggest that these title grantees used both internal and external financing to support their new investment. The cash levels of the title grantees experience significant decreases, whereas their external borrowing positions, both short-term and long-term, are increased. It is apparent the title grantees rely more on short-term external borrowing than on long-term borrowing to finance their projects. The title grantees are, on average, associated with a 9% less cash-on-hand and 12% more short-term borrowing than non-title grantees, while the increase of the title grantee is strictly limited to a small boundary near zero, which is likely because access to long-term bank credit is difficult to obtain, given the strict restrictions, as prolonged approval is a must.[26] As Demirguc-Kunt and Maksimovic (1999) suggested, firms in developing countries in general have poorer corporate governance. Financial intermediations, with higher pressure of debt monitoring, are

[26] Long-term borrowing in China is also called project borrowing, which typically requires approval from the government to constitute a legitimate loan purpose for the banks to issue the loan.

forced to shorten the maturity to overcome the excessive information asymmetry problem.

5. Political Connections and the Differential Impact of the Reform

In this section, we separate firms based on their ownership types and compare the responses of the SOEs and private firms to the title-granting scheme. In Section 5.A we illustrate that the ownership status of title grantees has a major impact on investment: SOEs are associated with significantly higher levels of investment and positive investment efficiencies than non-SOEs. In Section 5.B and 5.C we show that the difference in investment cannot be attributed to the characteristic difference between SOEs and non-SOEs in terms of land size, extent of financial constraint or variation in the cost of capital but are instead related to obstacles that the private firms face when navigating the government and legal system due to the absence of political connection. Further analysis in Section 5.D we suggest that the impact of political connections on investment causes additional distortion in the Chinese economy: political connections further widen the difference in productivity between SOEs and non-SOEs. In Section 5.E we discuss the potential impact in the stock market reaction.

5.A The Impact of Ownership on Investment

The focus of this section is to explore whether there is any impact of ownership on the sensitivity of increased investment to title granting. We categorize our sample into two groups, SOEs that are affiliated with the government and non-SOEs that are owned by private individuals, to capture the respective impact of each group. We apply an OLS regression expressed by equation (1) into both groups.

The results are presented in Table VI. In columns (1) and (2), only SOEs are included in the regression. It is suggested that these SOEs are associated with a rather pronounced reaction when land title is granted. The scales of the coefficients are much larger and statistically more significant than those obtained from the OLS regression for all title grantees, regardless of whether the industry and exchange fixed effects are considered. In columns (3) and (4), only non-SOEs are considered.

The coefficient of the title grantee dummy becomes insignificant, and the economic scale is much closer to 0. It appears that the overall investment levels of private firms are not affected by whether they obtain the land title at all.

This conclusion is further verified by the OLS regression with interactive terms. In follow-up regression we include the SOE dummy, which is assigned with value 1 if the firm is affiliated to government or government agency. We also include the interaction between the SOE dummy and the title grantee dummy. The interactive term captures the extent to which the SOEs react in a more pronounced manner to the same land title-granting opportunities. More formally, the specification of the regression is:

$$\Delta Investment_i = \alpha + \beta_1 \, (Title\ Grantees)_i + \beta_2 \, (SOE)_i + \beta_3 \, (Title\ Grantees \cdot SOE)_i + \gamma X_i + \varepsilon_i \qquad (2)$$

The results of OLS regression specification (2) are displayed in Table VI. First note that the coefficient of the title granting dummy no longer positive. Apparently it is crowded out by the positive and highly significant coefficient associated with the coefficient of the interactive term. To consider its economic scale, note that now the coefficient at the level of 24%, more than double the size of previous title grantee point coefficient from specification (1) or 1.1 times of the standard error of the increment of the investment before and after the title granting scheme. It emphasizes the role of the political connection over the firms' reaction to the title granting scheme. It supports our hypothesis that there is a distinct difference between SOEs and non-SOEs when title is granted and when the impacts of the land title on additional investment are strictly limited to SOEs.[27] One alternative hypothesis, namely the increases in investment is merely caused by political connection, is also excluded, as the positive but insignificant coefficient of the SOE dummy.

One concern is that our results for the SOE/non-SOE difference in investment increments may be subject to a bias that is caused by uneven property rights protection prior to the title-granting scheme. We argue that if there is any bias, its

[27] Ang, Cheng, and Wu (2014, 2015) show that intellectual property rights protection is an important concern in China. Fang, Lerner, and Wu (2016) find that private firms are more sensitive to intellectual property rights protection than SOEs for corporate innovation in China.

attenuation effect would work against our estimation and thus potentially strengthen our argument. As Berkowitz, Lin, and Ma (2015) suggested, firms with weaker property rights protection are more likely to experience a sharper shock when property rights are enforced. Therefore, the impact of the land title-granting scheme should be more significant for non-SOEs because they were less likely to be protected previously. Our results suggest that this effect, even if it does exist, is dominated by the discriminated enforcement of property rights protection AFTER titles are granted. Namely, SOEs are associated with superior property rights protection to more than completely offset the advantages of their better protection position before the event. In other words, the property rights enforcement enjoyed by SOEs should be disproportionally better than non-SOEs. Considering the potential impact of the prior-event property rights protection, our results should be regarded as a lower bound for estimating the difference in investment enhancement across firms of various ownerships.

5.B Comparing SOEs and non-SOEs

Admittedly, SOEs have advantages over non-SOEs in many aspects, so it is difficult to identify the channel through which the higher level of investment of SOEs is caused by the discrimination enforcement. However, it is relatively easy to exclude the possibility of certain channels by simply investigating differences in the characteristics. Specifically, we compared the size of the land, the cost of the capital of equity and the financial constraints faced by the land user. For all aspects we explored, the overall difference between the SOE title grantees and their non-SOE counterparts are insignificantly differentiated.

The larger the size of the firms, the higher the profit is that the firms are likely to generate from the investment. We first investigate whether there is a significant difference in the scale of the land held by SOEs and non-SOEs. We first look at the total area of the land. The information we obtained was released by the Urban Planning, Land and Resource Commission of Shenzhen, the regulatory body of the government in charge of the title-granting applications. A comparison is reported in the first row of Table VII, which shows that the size of the land held by SOE title grantees is almost identical to that held by non-SOE title grantees, suggesting that

the additional investment is not a driving factor in the extra investment. Second, the question may be raised as to whether the value of the land promotes the additional investment. We thus look at the absolute and relative value of the land. We calculate the relative value of the land as a percentage of the value of its occupier firm. We find that both the absolute and the relative value of lands held by title SOE and non-SOEs title grantees are almost identical. Third, the potential benefit of the land could be affected by location because lands located near the city center are more likely to be associated with higher value once developed. Figure 4 provides evidence for the geographic distribution of all lands of title grantees. Lands from SOEs and non-SOEs are evenly distributed across the districts of Shenzhen, suggesting that the difference in the potential of the lands held by SOEs and non-SOEs is not a dominating factor influencing the investment behaviors between those two types of firms.

Another possibility for the extra investment made by the SOE title grantees is that they have relatively lower costs of capital, so they are more likely to make the investment because they would obtain more profit even if the total return of the projects are the same across firms. Therefore, we look at the cost of equity of all title grantees, SOEs or non-SOEs, to check whether SOE title grantees are associated with a lower cost of capital. We obtained the relevant information and calculated the average annual stock market return from 2004 to 2008 as the historical cost of equity. We also calculate the changes in the cost of equity for a period of 2010-2014 compared to the benchmark period of 2004-2008. The result does not support the hypothesis that the SOE title grantees are associated with a lower cost of capital. There is no significant difference between the SOEs and non-SOEs. The higher investments of SOEs do not seem to be driven by the expected decrease of the cost of capital either because there is no difference in the change of the cost of capital after the title-granting scheme was initiated in 2009.

The major concern is that the SOEs are subject to fewer financial constraints because they have better financial resources to fund their projects. Cull and Xu (2005) suggest that financial constraints, along with the property rights protection, constitute an important determinant of the investment made by Chinese firms. However, because our sample is different from theirs, it is not necessarily the case

that their conclusion is applicable to our scenario. To make a convincing comparison between SOEs and non-SOEs title grantees in terms of their financial constraints, we survey the literature and create four commonly cited measures of financial constraint. These measures are dividend measure (Fazzari, Hubbard and Petersen, 1988), cash flow-investment sensitivity measures (Cummins, Hasset and Oliner, 2006), size-age measure (Hadlock and Pierce, 2010), and external finance reliance measure (Rajan and Zingales, 1998). They measure the degree to which firms are financially constrained from different perspectives and apply to various theoretical motivations. However, after applying various financial constraint measures, we did not find any differences between SOEs and non-SOEs as evidenced by the insignificant *t*-test results.

In summary, the above result suggests that the usual suspects – the size of the land, the cost of equity and the financial constraints – are not the root of the extra investment of SOEs.

5.C The Impact of Political Connections

The previous discussion has established that many factors that differentiate SOEs from non-SOEs, including land size and financial capacities, are not involved in the additional investment enhancement of SOE grantees. In this part, we will illustrate that the difference is mainly from the political connection with the government and the associated favorable treatment.

To confirm that it is political connection that determines the investment-title sensitivity, we use two measures to identify the political connections of title grantees.[28] The first measure we adopt is the number of board members who have working experience in the city or in higher-level government roles. According to Fan, Wong and Zhang (2007), having retired government officials on the board is a strong indicator that a firm is politically connected because all the political ties of these officials would be available to the firm to lobby the local government. Moreover, the fact that one retired official is working for one firm alone is an indication that the firm has a special political connection with the officials such that cooperation between the two can be extended after the official retires. Note that this

[28] See Appendix Table IA2 for the impact of the land size on the investment made by title grantees.

measure may not be correlated with the SOE status of firms. It could be the case that officials work for a private firm when they retire from their positions in the government.

The results from the OLS regression reported in Table VIII suggest a positive relationship between investment and political connection. Firms with retired bureaucrats on the board are generally associated with an extra 36% increment of investment compared to those without political connections. This finding indicates that the difference between SOE and non-SOEs is mainly driven by their various levels of connection with the government. This result is not surprising because the government, even after the title-granting scheme is implemented, still retains significant power over the firms, who must rely on government to approve their applications and enforce the property law. Our results could thus be interpreted as the discrimination of the government in property rights enforcement being the key to explaining the difference in the investment increment level between the SOEs and non-SOEs.

Our second measure of political connection is the ratio of communist party members as a percentage of the total number of employees. Fan, Wong and Zhang (2007) use the number of employees to measure the extent to which the communist party can exert control rights over the firms. It is admitted that this measure can be correlated with the SOE measure because those SOEs are typically those with higher ratios of communist party branch members and communist party workers, whereas in private firms, the ratio is significantly smaller. However, the advantage of this measure lies in its stability because it measures the overall employee base rather than the top level management. The turnover of the bureaucratic board may lead to under- or overrepresented political connections, whereas the ratio of communist party members of one company is relatively stable and more likely to yield a more consistent estimate. In the regressions associated with columns (4)-(6), we adopt the communist party measures of political connections. The results are robust because the investments of politically connected firms are significantly higher than those without connections.

The pronounced reaction of those connected firm raise the question, through which channel the political connections help those SOE firms to take advantage of

the title granting scheme while effectively prevent those non-connected one from doing so? Extra evidence on the roots of the lack of responses of non-SOEs is obtained from the information provided directly by those title grantees. As mentioned before, firms that participated in the title-granting schemes typically disclose their progress in applying for the title granting scheme in their annual report. We manually checked their annual report and collected information with regard to their progress, as it was shown in Table IA1. Financial constraints and investment opportunities are rarely mentioned when non-SOEs explain the slow progress of their application for titles to their investors. On the contrary, practical issues in dealing with legal and administrative barriers are frequently cited, and cases with these obstacles are seen in 76% (13 out of 17) of all non-SOE applicants. Apparently as the government and legal system are closely involved in the title granting procedure, the lack of facilitation of political connection with those in power could be extremely detrimental for the non-SOEs and non-connected.

5.D Impact of Property Rights Reform on Firm Productivity

The previous discussion suggests that the impact of land title hinges on the ownership of the firms. That is, the title-granting scheme has an exclusively positive impact on SOE title grantees, whereas it almost has no effect on firms without political connections. In this part, we are going to explore the welfare implications of the title-granting scheme. Specifically, we investigate whether the scheme increases or decreases the allocation distortion of China. Because Chinese SOEs are extensively regarded as not being as efficient as private firms (Song, Storesletten, and Zilibotti (2011)), the fact that more resources are allocated to SOEs could be sign that better property rights protection from the land titles actually enhances the degree of distortion rather than mitigating it.

To quantify the extent of the distortion caused by the title grantee scheme, we explore the impact of the ownership of the firms on the productivity change. We collected a panel-date sample consisting of all 45 title grantees with their annual observations from year 2004 to 2014. For each year and each company, we calculated two measures of its productivity following Caves et al. (1982). The first

measure we constructed is the total factor productivity (TFP), which is calculated according to the following equation:

$$LnTFP_{ijt} = (Ln\,VA_{ijt} - \overline{LnVA}_{ijt}) - s\left(Ln\,L_{ijt} - \overline{LnL}_{ijt}\right) - (1-s)\left(Ln\,K_{ijt} - \overline{LnK}_{ijt}\right)$$

The TFP measures the productivity of each company, after adjusting for the impact of input factors, i.e., the labor input and capital invested. VA is value added, measured by the price-adjusted sales minus the intermediate inputs. L is the employment of each firm. K represents the price-adjusted capital. S is the share of labor compensation, i.e., the average of the ratio of total wages to the value added of each firm. The subscripts *i*, *j* and *t* denote the firms, 3-digit industry and time, respectively.

For each company of all title grantees, we obtain the annual TFP using the corresponding financial information. We estimate a panel regression, and we regress the TFP from the ownership characteristics of the firms. The post-event dummy variable indicates whether the observation occurred after 2009, when the title-granting scheme began, the interaction between the two, and with other control variables. The results are presented in columns (1) and (2) of Table IX. It is apparent that the SOEs are associated with significantly lower total factor productivity, as suggested by the negative sign of the coefficient of the SOE dummy. This inferiority in productivity of SOEs became more severe because the coefficient between the SOE dummy and the post-event dummy is also negative although not significant. This suggests that the title-granting scheme, which allocates more resources to inefficient SOEs by means of discriminatory approval, brings more distortion to the economy. Additionally, note that the coefficient of the post-2009 dummy is small and insignificant, which is in line with the fact that the title-granting scheme has no impact over non-SOEs.

Our second measure is the labor productivity that is constructed in the following way:

$$LnLP_{ijt} = (Ln\,VA_{ijt} - \overline{LnVA}_{ijt}) - \left(LnL_{ijt} - \overline{LnL}_{ijt}\right)$$

The LP measures the productivity of each company, which is brought about by each unit of labor. Similar to the TFP measure, we regress the LP measure of the

ownership characteristics, the post-event dummy, the interaction and a series of control variables. The results are displayed in columns (3) and (4) of Table IX. The results are, to a large extent, similar to our previous results obtained using the TFP as the dependent variable. SOEs are generally less productive than non-SOEs, as suggested by the negative sign of the coefficient of the SOE dummy. This distortion of the ownership is aggravated because of the title-granting scheme, which directs resources to less efficient sectors, as evidenced by the fact that the coefficient of the interactive term between the SOE and the post-event dummy is negative and significant. Again, the title-granting scheme has little impact on non-SOEs because the coefficient of the post-event dummy is small and insignificant.

It is notable that the exacerbated resource misallocation and productivity gap between SOEs and non-SOEs is not contradictory to our previous result of enhanced investment efficiency of SOEs. The measure of investment efficiency only answers the *positive* question of whether the land title-granting scheme would benefit those who benefit from enforced property rights. However, the measure of the productivity gap answers the *normal* question of whether SOEs or non-SOEs should receive property rights if the total amount of titles is limited. Our results suggest that there would be a higher productivity enhancement if the land titles were more evenly distributed among firms of various ownerships.

In sum, the empirical evidence supports the perspective that the title-granting scheme, although intending to improve property rights protection and thus overall economic efficiency, actually leads to the opposite result. By directing more resources to unproductive SOEs rather than productive non-SOEs, the scheme exacerbates the problem of distortion rather than alleviating it.

5.E Stock Market Reaction

As we have established, the title grantees are associated with higher investments compared to non-grantees, and the effect is mainly concentrated in SOEs with better political connections. We now address the question with regard to stock market performance. That is, is the difference across firms, particularly the difference between SOE and non-SOE title grantees, captured by the stock market at the time when the scheme was announced? The related question is whether, in the

long run, the stock market prices would be useful in deducting the prospects of the land users when receiving the title and making investments?

To explore those two questions, we construct two variables to measure the stock market reactions of firms with various land holding status and ownership types. The first variable is the short-term stock market reaction around the date when the scheme was announced. To capture the instantaneous stock market movement when the release of the title-granting scheme affected the market, we use a 2-day window, or the abnormal returns of the 25th and 26th of November, 2009, to measure the short-term market movement. The abnormal daily stock market abnormal return is calculated using the daily stock market return net of the predicted stock market return using a Fama-French three-factor model with an estimation window of [-150,-10].

We regress the two-day stock market reaction on the title-granting scheme and SOE variables, and the results are reported in columns (1) and (2) of Table X. As before, the coefficient for the title-granting scheme is positive and significant. It is apparent that the stock market is efficient – that is, the information about the prospect of the land users who are about to receive the titles are instantaneously impounded into prices after the announcement, and the markets are efficient in differentiating firms with the allocated land and those without. However, we did not find any difference in stock market reactions between SOEs and non-SOEs. The coefficient of the interactive term between the SOEs and title grantees is close to 0 and is insignificant despite the fact that its sign is positive. This suggests that the stock market did not consider the impact of ownership between SOEs and non-SOEs in promoting the investments.

One potential reason for the reaction of stock market may be that the market showed a certain level of irrationality in predicting the behavioral differences for firms of various ownerships. As a market full of retail investors who either have the capacity or incentive to gather information on the listed firms, the Chinese market could demonstrate certain a deviation of price from the fundamental value due to the absence of the efficient mechanism in incorporating the information into the

price.[29] The failure of the market to predict the difference in investment between SOEs and non-SOEs reflects the similarity of the two in all other aspects. As we mentioned before, SOEs and non-SOEs are almost identical in land size, cost of capital and financial constraints.

However, the lack of information should be mitigated as time passes because more information is released to investors. Therefore, we predict that over the long period, the stock market reaction should be a reliable predictor of the profitability of firm investment. We therefore construct the second measure of the stock market reaction. We use the Tobin's Q to capture the extent of the market price in the information on the prospect of implementation of the title-granting scheme. The dependent variable we adopt is the average Tobin's Q from a period of 2010-2014, net of the average Tobin's Q from a period of 2008-2009. The results are reported in columns (3) and (4) of Table X, and the coefficients suggest that long-term stock market reactions are more in line with the investment and economic activities of those firms. The coefficient of the title grantee scheme is positive, suggesting that title grantees are associated with a 42% increment of Tobin' Q. Moreover, the coefficient of the interactive term between the SOE dummy and the title grantee dummy is also positive, and its economic scale is also too large to be ignored.

In sum, the evidence from the investigation of the stock market reaction suggests that the Chinese stock market price can be contaminated by various noises that makes the prices deviate from the fundamental values, causing a much smaller difference between SOE and non-SOE stock market reactions. Despite the fact that the stock market did not make a distinction between SOEs and non-SOEs during the first two days after the title-granting scheme was announced, higher-investment SOEs are associated with a large increment of Tobin's Q, which is strong evidence that the market has already priced in all factors in the long run.

6. Summary and Conclusions

In this study, we use a policy experiment of land title granting in Shenzhen, China to examine the impact of property rights protection on corporate investments. Consistent with the conventional wisdom that property rights play an important and

[29] See Xiong and Yu (2011), for example, on warrant trading in China.

fundamental role in promoting investments, we find that firms that obtain title to land are associated with higher investment than non-title grantees over the five years after the policy change. The investment growth is most pronounced two years after the inception of the scheme, after the implementation guideline was publicized.

However, we provide evidence that the economic implications of property rights protection are not uniformly positive due to associated resource misallocation. We find that state-owned enterprises (SOEs) with stronger political connections but lower productivity experience substantial increases in their investment, while non-SOEs with weaker political connections and higher productivity have almost no investment increments at all. Therefore, by only granting approval and allowing investment for firms with political connections, the title-granting scheme introduced more distortion in favor of connected but inefficient firms. Overall, our findings suggest that, despite its widely regarded positive effect of property rights enforcement, the discriminatory enforcement of property rights by the government might lead to unintended negative consequences.

Appendix: The Shenzhen Urban Renewal Program and Cases

A. Background of the Shenzhen Urban Renewal Program

Land use of Shenzhen was in a chaotic situation before 2009 with characteristics of limited area of entitled land. As China's first economic-zone and experiment lab for pro-business policies, Shenzhen experienced dramatic economic expansion in first three decades after its establishment.[30] A great need for land resource resulted from economic expansion, along with the relaxed land policy implemented by the government, led to an unregulated market for land usage. Many unentitled farmland and allocated land, were used to accommodate the fast-growing economic activities. It is estimated that by the end of the 2008, the total area of entitled lands that had proper urban entitled land,[31] was only 36% of total area of Shenzhen urban area.[32]

There are two main types of unentitled land in Shenzhen. The first type are those farmland employed by its owning rural collective for business/commerce use. Those lands are completely illegal and has no approval from the government at all. Therefore it faces great risk of being expropriate by the government. The total area of those farmlands is estimated to be 390 square kilometers, or 42% of total 917 square kilometers total construction area of Shenzhen. The second type of lands that lack property right are those allocated land that are distributed by government to those SOE firms. Before the "expropriate-auction" system was established in 1990s to supply entitled land, a great deal of land in Shenzhen was distributed for the use of SOE in the form of “allocation”. Those allocated lands are also associated with high risk of being expropriate by the government[33] and other restrictions. The total area of those lands is around 220 square kilometers.

The lack of unblemished titles over those farmland and those allocated land

[30] The GDP growth of Shenzhen was maintained at a level of above 30% each year before 1994 and it was remain on top of China until 2007.
[31] 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 (1992), article 5, and Chinese city urban planning law(1989), article 30.
[32] The figure is from Urban Planning and Resource Commission in Shenzhen.
[33] Those allocated land received Shenzhen government stipulates that all allocated land have a maximum tenure of 30 years, leading to the result that a great deal of land allocated in 1980s and 1990s are already expired and on the verge of expiration, see “Provisional Regulations of Land Management for Shenzhen Special Economic Zone, 1981”.

undermines the incentive and the financial capacity of the land users to engage in any renovation activities that could increase the use efficiency of the land. The controller of both types of lands, with the concern that their investment in renovation will not be compensated in the contingency of the land being expropriated by the government or infringed by other land users, would be conservative in any facility upgrading that is necessary for the buildings. The current situation is exacerbated by the fragmentation control right that increased the time and cost that will occur in negotiation. Moreover, the land user are also hindered by financial constraint that is result from the fact that no commercial bank in China recognize the farmland or allocated land as qualified collaterals. See in Figure IA1 for a comparison of the quality of constructions over entitled and unentitled lands.

Government made several attempts to change the chaotic situation of land use in Shenzhen. However most previous attempts remain in the framework of "expropriate-auction" system. That is, government firstly buy the land from its current land users and auction it to the market. This method, proved to be effective in other cities in China, turned out to be a failure due to the formidable large area of unentitled land and associated gigantic capital and administrative resourced needed for negotiation with current user. For example, the removal negotiation in Luohu village, one small port adjacent to Hong Kong, was started in 1993 but still in impasse after 20 years. This framework was finally abandoned in 2009, when the City Renewal Program is introduce with intention of granting land titles directly to the current land users.

Figure IA1. Different Types of Land in Shenzhen. This picture contains a view of a piece of untitled land in Shenzhen surrounded by several pieces of entitled land. The quality of the construction is much worse on those untitled land compared with entitled land.

B. The Timeline of the City Renewal Program

October 2009, The "Approaches of Shenzhen City Renewal Program" is passed by Shenzhen government. It was announced on November and put into practice on 1st December. It introduce the concept of land title granting, that is, to give the land titles to existing land user of those allocated lands. However, as a general document, no detailed specification is outlined about the measures of implementations of the title granting scheme.

December, 2010, Ever since 2010, Shenzhen government put on its website the name-list of those applicants who passed the first preliminary screening[34]. On its very first year, 113 firms passed the preliminary

[34] The name list could be found: http://www.szpl.gov.cn/xxgk/tzgg/csgxgg/201004/t20100419_55542.html

check and was allowed to join the City Renewal Program. By the end of Sep, 2016, a total of 491 applicants are listed with the total construction area of more than 31 million square meters.

January 12, 2012, The "Detailed Rules for Implementation of Shenzhen City Renewal Program" is released by Shenzhen government. It introduced a series of more detailed regulations, e.g. the minimum size of the land qualified for the City Renewal Program and qualification of the participating real estate developer. It also clarify the relevant punishment measures for those land users who violate the related regulations of City Renewal Program[35].

August 17, 2012, "Interim Measures of Improving the Work of Shenzhen City Renewal Program" is released by Shenzhen government. It further clarified several related issued, e.g, the definition of the beneficiaries of the program, the method to calculate the total transfer fee that has to be handed to the government, the portion of land handed for public use.

C. The Procedures of Implementation of City Renewal Program

Four procedures are usually regarded as necessary for one land user to go through before the constructions over one's land could be initiated. Firstly, the project must be pass the preliminary check and allowed to join the City Renewal Program by Shenzhen Government. Secondly, a special project planning must be made and it has to obtain the approval of the government. Thirdly, the identity of the controller of the project must be confirmed by the government. Lastly, the controller has to sign contract with the government and pay the transferring fees. Out of the four procedures, the second and the third one are mostly difficult, due to the delaying caused by government and potential disputes among various stakeholders of the land. It is estimated by the Aug of 2013, out of 340 project, only half of them obtains government approval for their planning and only 10%[36] of

[35] A more detailed analysis about this document is here: http://www.taodocs.com/p-62311213.html

[36] This ratio was improved to around 19% later, See http://sz.house.sina.com.cn/news/2015-01-09/084159591165762205661 44.shtml

them received confirmation of the identity of the controller[37]. SOEs, due to their political connection, is much faster in obtaining the government approval and in a much stronger bargaining position in negotiating with other stakeholders (e.g. those who lease the land).

D. Two Cases from the Urban Renewal Program

In order to illustrate the impact of the ownership over the progress of projects under City Renewal Program, we compared two projects that are approved by Shenzhen government to join the City Renewal Program as early as 2010. One project, "Baoan 27 District", is affiliated to China Union Holdings, one state owned enterprise. The other project, "Nanyou Fuhua", is affiliated to Shenzhen Fountain Corporation, one firm owned and controlled by private individuals. By the end of 2015, the new building over the former's land is almost finished and sale of the property was started as early as 2014, while for the latter, the investment was stopped by a series of legal dispute.

For the "Baoan 27 District" project, everything went smoothly. The project obtains the approval of the city planning bureau as early as Dec, 2011, only one year after it was being approved to join the City Renewal Program[38]. Even an adjustment of the original planning of the project was approved without much delay[39] on April, 2013. After the a transferring fee of 1.2 Billion RMB handed into the government, the project was started on Jan, 2014. The pre-sale of the properties of the project was started in September 2015.[40] The main building is almost completed. See Figure IA2 for pictures of constructions on the "Baoan 27 District" before and after the City Renewal Program was started in 2009.

On a sharp contrast, the progress of the "Nanyou Fuhua" project is much slower and full of obstacles. Firstly, the approval of the city planning bureau on Dec, 2013, almost two years much later than that of the "Baoan 27 District". Secondly, in order to accelerate the procedure of the government approval, the owner of "Nanyou

[37] The more detailed information can be found here:
http://news.ifeng.com/gundong/detail_2014_04/01/35338119_0.shtml
[38] http://www.szpl.gov.cn/fj/ba/tzgg/201112/t20111207_69251.html
[39] http://ba.szpl.gov.cn/tzgg/201305/t20130506_79637.html
[40] The information about the pre-sale could be found at: http://house.baidu.com/sz/detail/133462/

Fuhua" project is forced to cooperate with another company, YouRui Commerce Ltd.[41] However a dispute broke up between the two signing parties about the identity of the controller of the project. Both arbitration and legal procedures are adopted.[42] By the end of 2015, the dispute about the identity of the controller is still going on.[43]

Figure IA2. Baoan 27 District before and after the 2009 Shenzhen Urban Renewal Program. On the left is a picture of the Wellzong chemical fibre factory that was granted the use right of the Baoan 27 District land. On the right is the new "City Panoramic View" mansion located on the same slot of land.

[41] In the original contract, Yourui Commerce Ltd will sell all its shares and stay away from the daily operations of any business occurring on the land once the construction is finished.
[42] See the arbitration result : http://www.cfi.net.cn/p20141224000602.html
[43] See annual report of 2015: http://disclosure.szse.cn/finalpage/2015-07-25/1201342323.PDF

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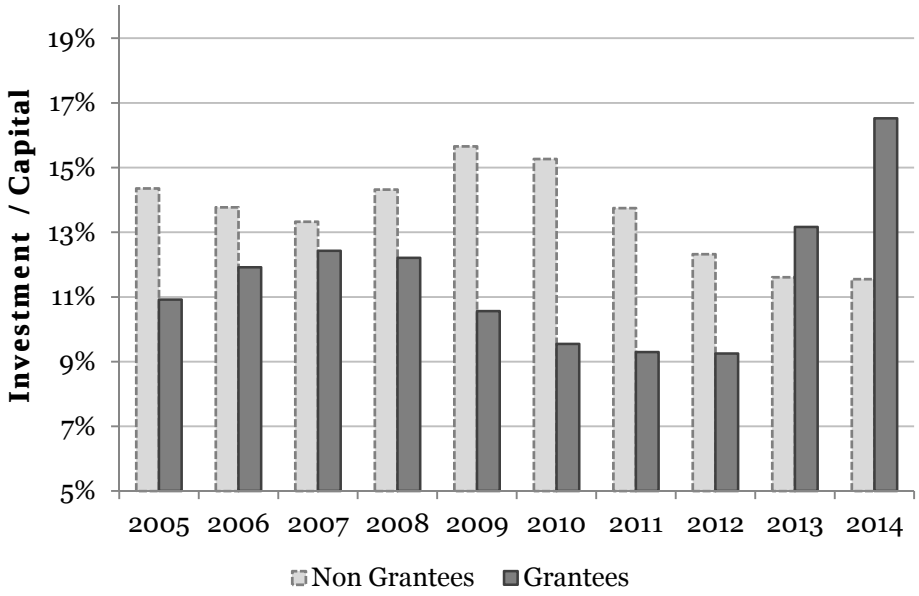

Figure 1.Investment of title grantees/non-grantees in the event time of title granting scheme. The sample of grantees (grey bars) includes all 45 listed firms that receive land titles in the title granting scheme occurred in Shenzhen in 2009. The sample of non-grantees (while bars) includes all 1102 listed companies that do not receive land titles in the title granting scheme. The figure presents average investment (annual capital expenditure divided by the start of period net physical, plant, property and equipment) in event time 4 years before and after the 2009 title granting scheme.

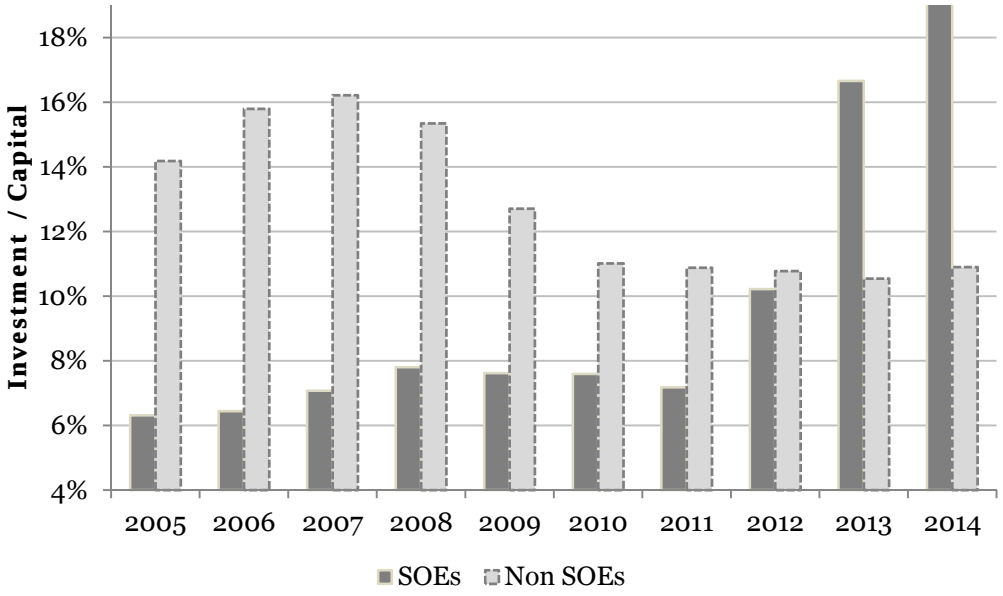

Figure 2.Investment of SOE/non SOE grantees in the event time of title granting scheme. The sample of SOE grantees (grey bars) includes 28 SOE listed firms that receive land titles in the title granting scheme occurred in Shenzhen in 2009. The sample of non SOEs (while bars) includes 17non-SOE listed firms that receive land titles in the title granting scheme occurred in Shenzhen in 2009. The figure presents average investment (annual capital expenditure divided by the start of period net physical, plant, property and equipment) in event time 4 years before and after the 2009 title granting scheme.

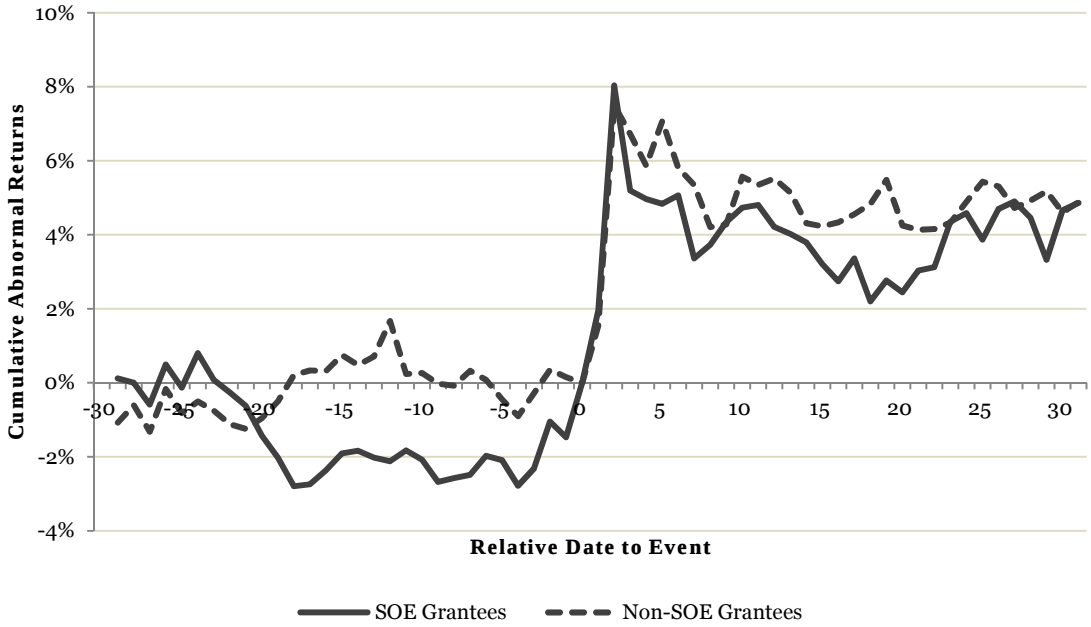

Figure 3.Stock market reactions of SOE/non SOE grantees in the event time of title granting scheme. The sample of SOE grantees (solid line) includes 28 SOE listed firms that receive land titles in the title granting scheme occurred in Shenzhen in 2009. The sample of non SOEs (dash line) includes 17 non-SOE listed firms that receive land titles in the title granting scheme occurred in Shenzhen in 2009. The figure presents the cumulative abnormal returns of SOE grantees and non SOE grantees in a period window 30 days before and after the announcement day of 2009 title granting scheme.

Figure 4.Geographic distribution of title granting projects of SOEs and non-SOEs. The sample of grantees includes all 45 listed firms that receive land titles in the title granting scheme occurred in Shenzhen in 2009. Circles are associated with title granting projects of SOEs. Stars are associated with title granting projects of non-SOEs.

Table I
Summary Statistics

The sample consists of all nonfinancial listed firms in the CSMAR database. The table presents variable average and standard deviation (in bracket below) for the entire sample, as well as subsample of firms that receive land titles in the title granting scheme in 2009 (*Grantees*) and firms that do not (*Non Grantees*). The difference between the values for Grantees and Non Grantees are presented in Column (4). The t-statistics in brackets of column (4) are associated with the significant level of T test with none hypothesis that there is no difference between *Grantees* and *Non Grantees* sample. *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

	Whole Sample (1)	Grantees (2)	Non Grantees (3)	Difference (4)
Sales (Billion RMB)	2.72	2.80	2.72	0.22
	(3.00)	(3.37)	(2.99)	(0.48)
Total Asset (Billion RMB)	4.12	4.76	4.10	0.97
	(4.16)	(4.59)	(4.15)	(1.52)
Employment(Thousand)	3.02	2.93	3.03	-0.18
	(2.74)	(3.13)	(2.73)	(-0.44)
Book Leverage Ratio	0.53	0.55	0.53	0.03
	(0.17)	(0.15)	(0.17)	(0.97)
Book to Market Ratio	0.61	0.68	0.61	0.05
	(0.33)	(0.34)	(0.33)	(0.97)
ROA	0.02	0.02	0.02	-0.00
	(0.03)	(0.02)	(0.03)	(-1.08)
Tobin's Q	3.58	3.41	3.59	-0.17
	(1.77)	(1.79)	(1.77)	(-0.61)
Cash Ratio	0.15	0.16	0.15	0.01
	(0.09)	(0.09)	(0.09)	(0.98)
Tangible Asset Ratio	0.26	0.17	0.27	-0.10***
	(0.16)	(0.15)	(0.15)	(-3.92)
Dividend (Million RMB)	2.63	1.94	2.66	-0.82
	(4.33)	(3.84)	(4.35)	(-1.26)
% of SOE	69%	62%	69%	-7%
	(0.46)	(0.50)	(0.46)	(-1.30)
# of Obs.	1289	45	1244	

Table II
The Effect of Land Title on Investment

The sample consists of all nonfinancial listed firms in the CSMAR database from 2007 to 2014.This table presents parameter estimates from OLS regression of investment on title grantee dummy variable for various specifications. The independent variable is the averaged investment (capital expenditure divided by total fixed asset) between 2010 and 2014 net of various benchmark levels. In column (1) and (2) the benchmark level is calculated using the average investment between 2005 and 2009. In column (3) and (4) the benchmark level is calculated using the average investment between 2005 and 2009. In column (5) and (6) the investment in 2009 are used as the benchmark level. *Title Grantee* 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. All variables are trimmed at the upper and lower 1-percentile. Industry Fixed Effect denotes whether the industry fixed effect (categorized according to industry categorization from CSMAR database) is considered in the specification. Exchange Fixed Effect denotes whether the effect of exchange (Shanghai or Shenzhen Exchange) in which the firms are listed is considered in the specification. *The t-statistics* are computed using standard errors adjusted for clustering (i.e., dependence) at industry level. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

	Δ(Investment/Total Fixed Asset)					
Benchmark	Long Period		Median Period		Short Period	
	(1)	(2)	(3)	(4)	(5)	(6)
Title Grantee	0.10***	0.10***	0.11***	0.11***	0.12**	0.11**
	(2.99)	(2.98)	(3.11)	(3.11)	(2.17)	(2.12)
Log (Total Asset)	-0.04***	-0.04***	-0.03***	-0.03***	-0.03***	-0.03***
	(-7.10)	(-7.11)	(-5.46)	(-5.47)	(-3.26)	(-3.21)
Cash	-0.04	-0.04	-0.03	-0.03	-0.04	-0.04
	(-0.80)	(-0.80)	(-0.66)	(-0.65)	(-0.59)	(-0.57)
Fixed Asset	-0.31***	-0.31***	-0.26***	-0.26***	-0.42***	-0.42***
	(-9.27)	(-9.21)	(-7.52)	(-7.40)	(-8.71)	(-8.63)
Leverage	0.00	0.00	0.00	0.00	0.00	0.00
	(0.40)	(0.41)	(-0.10)	(-0.11)	(-0.52)	(-0.48)
ROA	0.05*	0.05*	0.02	0.02	-0.01	-0.01
	(1.66)	(1.65)	(0.59)	(0.57)	(-0.38)	(-0.35)
Tobin's Q	0.00	0.00	0.00	0.00	0.00	0.00
	(0.46)	(0.43)	(0.97)	(1.01)	(1.03)	(1.03)
Constant	0.05***	0.03	0.04***	0.05	0.07***	0.08
	(7.30)	(0.56)	(6.63)	(0.95)	(7.07)	(1.10)
Industry Fixed Effect	No	Yes	No	Yes	No	Yes
Exchange Fixed Effect	No	Yes	No	Yes	No	Yes
Adj. R^2	0.135	0.136	0.084	0.086	0.074	0.075
# of Obs.	1149	1149	1237	1237	1242	1242

Table III
The Effect of Characteristics of Land Title on Investment

The sample consists of all nonfinancial listed firms in the CSMAR database from 2007 to 2014.This table presents parameter estimates from OLS regression of investment on title grantee dummy variable and two land title characteristics, whether the previous tenure has expired and whether the land's user rights is in contention. The independent variable is the averaged investment (capital expenditure divided by total fixed asset) between 2010 and 2014 net of investment between 2007 and 2009. *Title Grantee* 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. *Tenure Expired* is a dummy variable that is assigned with value 1 if the tenure of land controlled by the firm has expired and 0 if otherwise. *Rights Uncontended* is a dummy variable that is assigned with value 1 if the user rights of the land was fragmented in terms of land are being leased to other users or subject to rights contention from multiple claims and 0 if otherwise.All variables are trimmed at the upper and lower 1-percentile. Industry Fixed Effect denotes whether the industry fixed effect (categorized according to industry categorization from CSMAR database) is considered in the specification. Exchange Fixed Effect denotes whether the effect of exchange (Shanghai or Shenzhen Exchange) in which the firms are listed is considered in the specification. *The t-statistics* are computed using standard errors adjusted for clustering (i.e., dependence) at industry level. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

	Δ(Investment/Total Fixed Asset)			
	(1)	(2)	(3)	(4)
Title Grantee	0.15***	0.15***	0.14***	0.14***
	(3.82)	(3.84)	(3.84)	(3.85)
Tenure Unexpired	0.22**	0.23**		
	(2.39)	(2.46)		
Rights Uncontended			0.28***	0.29***
			(2.67)	(2.72)
Log (Total Asset)	-0.03***	-0.03***	-0.03***	-0.03***
	(-5.45)	(-5.46)	(-5.57)	(-5.58)
Cash	-0.04	-0.04	-0.03	-0.03
	(-0.73)	(-0.73)	(-0.66)	(-0.64)
Fixed Asset	-0.26***	-0.25***	-0.26***	-0.26***
	(-7.46)	(-7.33)	(-7.63)	(-7.50)
Leverage	0.00	0.00	0.00	0.00
	(-0.12)	(-0.12)	(-0.15)	(-0.15)
ROA	0.02	0.02	0.02	0.02
	(0.58)	(0.57)	(0.55)	(0.55)
Tobin's Q	0.00	0.00	0.00	0.00
	(0.97)	(1.01)	(0.97)	(1.02)
Constant	-0.18*	-0.18*	-0.24**	-0.24**
	(-1.92)	(-1.72)	(-2.26)	(-2.06)
Industry Fixed Effect	No	Yes	No	Yes
Exchange Fixed Effect	No	Yes	No	Yes
Adj. R^2	0.088	0.091	0.089	0.092
# of Obs.	1237	1237	1237	1237

Table IV
The Investment Dynamics

The sample consists of all nonfinancial listed firms in the CSMAR database from 2007 to 2014.This table presents parameter estimates from OLS regression of investment on title grantee dummy variable and firm ownership, i.e., whether the firms is SOE or not. The independent variable is the averaged investment (capital expenditure divided by total fixed asset) for a sub-sample period between 2010 and 2014 net of investment between 2007 and 2009. Column (1) presents parameter estimates associated with average investment between 2010 and 2011. Column (2) presents parameter estimates associated with average investment between 2012 and 2013. Column (3) presents parameter estimates associated with average investment of 2014. Title Grantee 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. SOE is a dummy variable that is assigned with value 1 if the firm is affiliated to the government and 0 if otherwise. All variables are trimmed at the upper and lower 1-percentile. Industry Fixed Effect denotes whether the industry fixed effect (categorized according to industry categorization from CSMAR database) is considered in the specification. Exchange Fixed Effect denotes whether the effect of exchange (Shanghai or Shenzhen Exchange) in which the firms are listed is considered in the specification. The t-statistics are computed using standard errors adjusted for clustering (i.e., dependence) at industry level. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

	Δ(Investment/Total Fixed Asset)		
	Year 2010/2011	Year 2012/2013	Year 2014
	(1)	(2)	(3)
Title Grantee	0.04	0.09**	0.14**
	(1.03)	(2.18)	(2.19)
Log (Total Asset)	-0.03***	-0.04***	-0.04***
	(-4.21)	(-6.45)	(-4.47)
Cash	-0.06	-0.05	-0.02
	(-1.18)	(-0.88)	(-0.22)
Fixed Asset	-0.33***	-0.31***	-0.27***
	(-8.87)	(-8.01)	(-4.68)
Leverage	0.01	0.00	0.00
	(1.07)	(0.85)	0.00
ROA	0.07**	0.04	0.02
	(2.45)	(1.11)	(0.59)
Tobin's Q	0.00	0.00	0.00
	(0.35)	(1.46)	(0.78)
Constant	0.02	0.08	0.04
	(0.45)	(1.41)	(0.51)
Industry Fixed Effect	Yes	Yes	Yes
Exchange Fixed Effect	Yes	Yes	Yes
Adj. R^2	0.092	0.104	0.041
# of Obs.	1237	1237	1237

Table V
The Effect on Internal and External Finance

The sample consists of all nonfinancial listed firms in the CSMAR database from 2007 to 2014.This table presents parameter estimates from OLS regression of short/long term borrowing and cash holding on title grantee dummy variable and firm ownership, i.e., whether the firms is SOE or not. The independent variable of column (1) is the averaged cash holding (all cash and equivalents divided by fixed asset) between 2010 and 2014 net of cash holding between 2007 and 2009. The independent variable of column (2) is the averaged short term borrowing (all debt expired within one year divided by fixed asset) between 2010 and 2014 net of short term borrowing between 2007 and 2009. The independent variable of column (3) is the averaged long term borrowing (all debt expired more than one year divided by fixed asset) between 2010 and 2014 net of long term borrowing between 2007 and 2009.*Title Grantee* 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. *SOE* is a dummy variable that is assigned with value 1 if the firm is affiliated to the government and 0 if otherwise. All variables are trimmed at the upper and lower 1-percentile. Industry Fixed Effect denotes whether the industry fixed effect (categorized according to industry categorization from CSMAR database) is considered in the specification. Exchange Fixed Effect denotes whether the effect of exchange (Shanghai or Shenzhen Exchange) in which the firms are listed is considered in the specification. *The t-statistics* are computed using standard errors adjusted for clustering (i.e., dependence) at industry level. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

	Cash	Short Term Borrowing	Long Term Borrowing
	(1)	(2)	(3)
Title Grantee	-0.09*	0.12***	0.01
	(-1.74)	(2.77)	(0.20)
Log (Total Asset)	-0.04***	-0.01	-0.01*
	(-5.17)	(-1.39)	(-1.78)
Cash	0.07	-0.1	-0.03
	(1.06)	(-1.62)	(-0.63)
Fixed Asset	0.13***	-0.11***	-0.09***
	(2.92)	(-2.69)	(-2.75)
Leverage	0.07***	-0.02	-0.01
	(2.96)	(-0.78)	(-0.63)
ROA	0.02	0.05	-0.02
	(0.37)	(1.32)	(-0.68)
Tobin's Q	0.00	0.00**	0.00
	(0.65)	(2.23)	(0.71)
Constant	0.03	0.09	0.04
	(0.44)	(1.43)	(0.84)
Industry Fixed Effect	Yes	Yes	Yes
Exchange Fixed Effect	Yes	Yes	Yes
Adj. R^2	0.049	0.029	0.046
# of Obs.	1237	1237	1237

Table VI
The Effect of Grantees' Ownership on Investment

The sample consists of all nonfinancial listed firms in the CSMAR database from 2007 to 2014.This table presents parameter estimates from OLS regression of investment on title grantee dummy variable and firm ownership, i.e., whether the firms is SOE or not. The independent variable is the averaged investment (capital expenditure divided by total fixed asset) between 2010 and 2014 net of investment between 2007 and 2009. Columns (1)-(2) and Columns (3)-(4) presents parameter estimates associated with SOE subsample and non-SOE subsample, respectively. *Title Grantee* 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. *SOE* is a dummy variable that is assigned with value 1 if the firm is affiliated to the government and 0 if otherwise. All variables are trimmed at the upper and lower 1-percentile. Industry Fixed Effect denotes whether the industry fixed effect (categorized according to industry categorization from CSMAR database) is considered in the specification. Exchange Fixed Effect denotes whether the effect of exchange (Shanghai or Shenzhen Exchange) in which the firms are listed is considered in the specification. *The t-statistics* are computed using standard errors adjusted for clustering (i.e., dependence) at industry level. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

	Δ(Investment/Total Fixed Asset)					
	SOE Subsample		Non SOE Subsample		Whole Sample	
	(1)	(2)	(3)	(4)	(5)	(6)
Title Grantee	0.15***	0.15***	0.05	0.04	0.00	0.00
	(3.52)	(3.51)	(0.85)	(0.74)	(0.03)	(0.03)
SOE					0.02	0.02
					(1.58)	(1.58)
Title Grantee * SOE					0.24***	0.24***
					(4.72)	(4.72)
Log (Total Asset)	-0.02***	-0.02***	-0.06***	-0.06***	-0.03***	-0.03***
	(-3.31)	(-3.34)	(-5.15)	(-5.35)	(-5.67)	(-5.67)
Cash	0.01	0.01	-0.14	-0.14	-0.03	-0.03
	(0.11)	(0.12)	(-1.55)	(-1.53)	(-0.67)	(-0.67)
Fixed Asset	-0.27***	-0.28***	-0.26***	-0.26***	-0.26***	-0.26***
	(-6.92)	(-6.91)	(-3.76)	(-3.80)	(-7.62)	(-7.62)
Leverage	0.00	0.00	-0.02***	-0.02***	0.00	0.00
	(0.01)	(0.07)	(-2.79)	(-2.96)	(0.01)	(0.01)
ROA	0.12***	0.12***	-0.11**	-0.12**	0.02	0.02
	(3.19)	(3.17)	(-2.40)	(-2.56)	(0.70)	(0.70)
Tobin's Q	0.00	0.00	0.00**	0.00**	0.00	0.00
	(1.60)	(1.58)	(2.32)	(2.41)	(0.99)	(0.99)
Constant	0.05***	0.04	0.02	0.02	0.03**	0.03**
	(4.06)	(0.62)	(1.60)	(0.25)	(2.52)	(2.52)
Industry Fixed Effect	No	Yes	No	Yes	No	Yes
Exchange Fixed Effect	No	Yes	No	Yes	No	Yes
Adj. R^2	0.112	0.113	0.109	0.138	0.104	0.104
# of Obs.	837	837	400	400	1237	1237

Table VII
Characteristics of Land Title Grantees

The sample consists of all nonfinancial listed firms in the CSMAR database that receive land titles in 2009. The table presents variable average and standard deviation (in bracket below) for the entire sample, as well as subsample of firms that are affiliated to the government (*SOE*) and firms that do not (*Non-SOE*). The difference between the values for *SOE* and Non *SOE* are presented in Column (4). The t-statistics in brackets of column (4) are associated with the significant level of T test with none hypothesis that there is no difference between *Grantees* and *Non Grantees* sample. *Historical Annual Stock Market Return* is the annualized average stock market return between 2004 and 2009. Δ*Historical Annual Stock Market Return* is the difference in annualized average stock market return between 2004/2009 and 2010/2014. *Cashflow-Investment Sensitivity* is calculated by taking the residual from the regression of firms' investment on its cash-flow, with investment opportunities captured by the equity analysts earning forecast. *SA Measure* is calculated using the formula of firm size and age. *External Finance Reliance* is constructed using the index of US industries' averaged reliance on external finance. *US Industry Tangibility* is constructed using the index of US industries' averaged ratio of tangible asset to the total asset. *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

	All Grantees (1)	SOE (2)	Non-SOE (3)	Difference (4)
Panel A: Land Characteristics				
Land Area (Hectare)	4.98	4.77	5.35	0.017
	(4.22)	(3.40)	(5.46)	(0.01)
Land Value (Billion RMB)	1.30	1.32	1.28	0.04
	(1.18)	(1.08)	(0.96)	(0.11)
Land Value (% of Market Capitalization)	0.57	0.57	0.58	-0.01
	(0.38)	(0.35)	(0.45)	(-0.05)
Panel B: Cost of Equity				
Historical Annual Stock Market Return	17.5%	18.4%	15.9%	-3.2%
	(0.08)	(0.07)	(0.08)	(-0.63)
Δ Historical Annual Stock Market Return	-5.6%	-6.4%	-4.3%	5.2%
	(0.05)	(0.05)	(0.05)	(0.90)
Panel C: Financial Constraints				
Dividend / Total Asset	0.20	0.06	0.46	-0.40
	(0.01)	(0.00)	(0.01)	(-1.5)
Cashflow-Investment Sensitivity	0.09	0.00	0.25	-0.24
	(0.77)	(0.50)	(1.09)	(-0.49)
Size-Age Measure	1.01	0.77	1.42	-0.65
	(3.81)	(1.70)	(6.01)	(-0.54)
External Finance Reliance	0.33	0.35	0.30	0.04
	(0.25)	(0.26)	(0.23)	(0.44)
# of Obs.	45	28	17	

Table VIII
The Effect of Grantees' Political Connections on Investment

The sample consists of all nonfinancial listed firms in the CSMAR database from 2007 to 2014.This table presents parameter estimates from OLS regression of investment on title grantee dummy variable and firms' political connections, measured by either the total number of local bureaucrats on the firms' boards or the ratio of Communist Party members as percentage of total employees. The independent variable is the averaged investment between 2010 and 2014 net of investment between 2007 and 2009. Columns (1) and (2) are associated with firms with at least one local bureaucrats on boards or not, respectively. Columns (3) and (4) are associated with firms with positive reported Communist Party representation or not, respectively. *Title Grantee* 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. *Bureaucrats on Boards* is the total number of board members of the firms with experience of serving in the government. The *Party Member Ratio* is the ratio of the total number of employees with communist party membership divided by the number of total employees. All variables are trimmed at the upper and lower 1-percentile. Industry Fixed Effect denotes whether the industry fixed effect (categorized according to industry categorization from CSMAR database) is considered in the specification. Exchange Fixed Effect denotes whether the effect of exchange (Shanghai or Shenzhen Exchange) in which the firms are listed is considered in the specification. *The t-statistics* are computed using standard errors adjusted for clustering (i.e., dependence) at industry level. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

Table VIII — *continued*

	Δ(Investment/Total Fixed Asset)					
	Bureaucrats on boards			Party Member Ratio		
	Connected Subsample (1)	Unconnected Subsample (2)	Whole Sample (3)	Connected Subsample (4)	Unconnected Subsample (5)	Whole Sample (6)
Title Grantee	0.32***	0.03	0.03	0.22***	0.02	0.09**
	(3.61)	(0.81)	(0.63)	(4.13)	(0.51)	(2.45)
Bureaucrats on boards			0.00			
			(0.15)			
Title Grantee * Bureaucrats			0.36***			
			(4.36)			
Party Member						0.00
						(0.03)
Title Grantee * Party						0.20***
						(2.73)
Log (Asset)	-0.01	-0.03***	-0.03***	-0.06***	-0.03***	-0.03***
	(-0.42)	(-5.26)	(-5.39)	(-4.22)	(-4.09)	(-5.44)
Cash	0	-0.05	-0.03	0	-0.04	-0.04
	(0.01)	(-0.87)	(-0.67)	(-0.03)	(-0.64)	(-0.75)
Fixed Asset	-0.48***	-0.23***	-0.25***	-0.29***	-0.24***	-0.25***
	(-3.80)	(-6.36)	(-7.19)	(-4.16)	(-6.11)	(-7.22)
Leverage	0.12	0.00	0.00	-0.01	0.00	0.00
	(0.86)	(-0.22)	(-0.05)	(-0.24)	(-0.27)	(-0.12)
ROA	1.29**	0.01	0.02	0.07	0.01	0.02
	(2.01)	(0.47)	(0.61)	(0.73)	(0.32)	(0.56)
Tobin's Q	0.01*	0.00	0.00	0.00**	0.00	0.00
	(1.67)	(1.07)	(0.97)	(2.33)	(1.02)	(0.99)
Constant	0.33	0.04	0.05	0.11	0.03	0.05
	(1.20)	(0.82)	(0.96)	(0.97)	(0.60)	(0.95)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Exchange Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.328	0.075	0.101	0.174	0.077	0.093
# of Obs.	115	1122	1237	347	890	1237

Table IX
Firm Productivity of Title Grantees

The sample consists of all title grantee firms in the CSMAR database from 2004 to 2014.This table presents the result of regression analysis of the firm-level total factor productivities and labor productivities of SOE and non-SOE firms. The dependent variable of columns (1) and (2) is the total factor productivity. It is calculated using the additional value adding of the firm net of the labor and capital input, with all variables adjusted by their industry averaged level. The dependent variable of columns (3) and (4) is the labor productivity. It is calculated using the additional value adding of the firm net of the labor factor input, with all variables adjusted by their industry averaged level. *Post Reform* 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. *SOE* is a dummy variable that is assigned with value 1 if the firm is affiliated to the government and 0 if otherwise. All variables are trimmed at the upper and lower 1-percentile. Industry Fixed Effect denotes whether the industry fixed effect (categorized according to industry categorization from CSMAR database) is considered in the specification. Exchange Fixed Effect denotes whether the effect of exchange (Shanghai or Shenzhen Exchange) in which the firms are listed is considered in the specification. *The t-statistics* are computed using standard errors adjusted for clustering (i.e., dependence) at industry level. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

	Total Factor Productivity		Labor Productivity	
	(1)	(2)	(3)	(4)
SOE	-0.33**	-0.37**	-0.35**	-0.52***
	(-2.04)	(-2.14)	(-2.04)	(-2.90)
Post Reform	0.14	0.13	-0.20	-0.20
	(0.82)	(0.76)	(-1.11)	(-1.09)
SOE * Post Reform	-0.29	-0.28	-0.49*	-0.51**
	(-1.18)	(-1.16)	(-1.95)	(-2.06)
Log (Total Asset)	0.30***	0.28***	0.23***	0.17**
	(5.03)	(4.42)	(3.59)	(2.52)
Cash	1.71***	1.76***	2.79***	3.00***
	(2.65)	(2.72)	(4.12)	(4.48)
Fixed Asset	-2.68***	-2.66***	-1.33***	-1.28***
	(-7.33)	(-7.16)	(-3.26)	(-3.13)
Leverage	0.16***	0.16***	0.11*	0.12**
	(2.64)	(2.62)	(1.84)	(2.00)
ROA	3.93**	4.29**	4.43**	5.80***
	(1.97)	(2.11)	(2.19)	(2.86)
Tobin's Q	0.00	0.00	0.01	0.01
	(0.19)	(0.15)	(0.62)	(0.54)
Constant	0.11	-0.21	-0.01	-0.49
	(0.86)	(-0.56)	(-0.05)	(-1.39)
Industry Fixed Effect	No	Yes	No	Yes
Exchange Fixed Effect	No	Yes	No	Yes
Adj. R^2	0.225	0.229	0.154	0.188
# of Obs.	451	451	451	451

Table X
The Short and Long Term Stock Market Reactions

The sample consists of all nonfinancial listed firms in the CSMAR database from 2007 to 2014.This table presents the result of regression analysis of the stock market reaction in the short and long run. The cumulative abnormal returns in the next two trading days are used to measure the short term stock market reaction. The increase of Tobin's Q in the next 5 years after the event net of its 2years growth before the event was used to measure the long term stock market reaction. *Title Grantee* 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. *SOE* is a dummy variable that is assigned with value 1 if the firm is affiliated to the government and 0 if otherwise. All variables are trimmed at the upper and lower 1-percentile. Industry Fixed Effect denotes whether the industry fixed effect (categorized according to industry categorization from CSMAR database) is considered in the specification. Exchange Fixed Effect denotes whether the effect of exchange (Shanghai or Shenzhen Exchange) in which the firms are listed is considered in the specification. *The t-statistics* are computed using standard errors adjusted for clustering (i.e., dependence) at industry level. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

	Stock Market Reaction [0,2]		Δ Tobin's Q [-2 Yr, 5 Yr]	
	(1)	(2)	(3)	(4)
Title Grantee	0.10***	0.10**	0.42**	0.10
	(11.48)	(9.54)	(1.85)	(0.31)
SOE		0.01		0.07
		(0.20)		(0.84)
Title Grantee * SOE		0.02		0.62*
		(0.13)		(1.76)
Log (Total Asset)	0.00***	0.00***	0.08**	0.08**
	(2.83)	(2.79)	(2.32)	(2.11)
Cash	0.00	0.00	-0.26	-0.25
	(-0.82)	(-0.83)	(-0.92)	(-0.88)
Fixed Asset	0.01*	0.01*	0.22	0.20
	(1.92)	(1.93)	(1.08)	(0.97)
Leverage	0.00	0.00	-0.24	-0.24
	(-1.01)	(-1.01)	(-1.28)	(-1.29)
ROA	-0.00*	-0.00*	-0.22	-0.21
	(-1.93)	(-1.94)	(-0.95)	(-0.91)
Tobin's Q	0.00	0.00	0.01	0.01
	(0.87)	(0.88)	(1.02)	(1.05)
Constant	-0.02***	-0.02***	0.64**	0.59*
	(-2.66)	(-2.61)	(2.10)	(1.91)
Industry Fixed Effect	Yes	Yes	Yes	Yes
Exchange Fixed Effect	Yes	Yes	Yes	Yes
Adj. R^2	0.031	0.031	0.027	0.028
# of Obs.	1343	1343	1188	1188

Internet Appendix

Table IA1
Various Reasons for the Depressed Investment of non-SOEs

The sample consists of all 17 nonfinancial Non-SOE listed firms in the CSMAR database. The table presents the reasons of their lacks of responses to the title granting scheme that is supposed to enhance investment. The information is extracted from firms' annual reports that disclose the progress in the application for land titles.

Reason of Depressed Investment	Cases	Percentage
Went to court about dispute with the land usage	5	26%
Wait for current user to be moved	2	13%
Wait for government approval	8	46%
The land is sold to SOEs	2	13%
Total	17	100%

Table IA2
The Impact of Land Size

The sample consists of all nonfinancial listed firms in the CSMAR database from 2007 to 2014.This table presents the result of regression analysis of the impact of title grantees' land size on their investments. The independent variable is the averaged investment (capital expenditure divided by total fixed asset) for a sub-sample period between 2010 and 2014 net of investment between 2007 and 2009. *Title Grantee* 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. *SOE* is a dummy variable that is assigned with value 1 if the firm is affiliated to the government and 0 if otherwise. *Large Land* is a dummy variable that is assigned with value 1 if the land is larger than median level of all land, measured either by the land area or by land value, and 0 if otherwise. All variables are trimmed at the upper and lower 1-percentile. Industry Fixed Effect denotes whether the industry fixed effect (categorized according to industry categorization from CSMAR database) is considered in the specification. Exchange Fixed Effect denotes whether the effect of exchange (Shanghai or Shenzhen Exchange) in which the firms are listed is considered in the specification. *The t-statistics* are computed using standard errors adjusted for clustering (i.e., dependence) at industry level. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

	Investment			
	By Area		By Value	
	(1)	(2)	(1)	(2)
Title Grantee	0.13***	0.00	0.13***	-0.00
	(3.47)	(0.07)	(3.40)	(-0.07)
SOE		0.01		0.014
		(1.01)		(1.00)
Title Grantee * SOE		0.26***		0.25***
		(3.98)		(3.92)
Large Land	0.12*	0.11	0.12	0.08
	(1.77)	(1.57)	(1.63)	(1.21)
Log (Total Asset)	-0.04***	-0.04***	-0.04***	-0.04***
	(-7.19)	(-7.47)	(-7.19)	(-7.45)
Cash	-0.04	-0.04	-0.03	-0.04
	(-0.72)	(-0.89)	(-0.76)	(-0.92)
Fixed Asset	-0.31***	-0.32***	-0.31***	-0.31***
	(-9.29)	(-9.45)	(-9.27)	(-9.42)
Leverage	0.00	0.00	0.00	0.00
	(0.37)	(0.45)	(0.37)	(0.46)
ROA	0.04	0.05*	0.05	0.05*
	(1.62)	(1.71)	(1.62)	(1.71)
Tobin's Q	0.00	0.00	0.00	0.00
	(-0.42)	(-0.41)	(-0.42)	(-0.41)
Constant	-0.10	-0.09	-0.08	-0.06
	(-1.15)	(-1.07)	(-1.06)	(-0.78)
Industry Fixed Effect	Yes	Yes	Yes	Yes
Exchange Fixed Effect	Yes	Yes	Yes	Yes
Adj. R^2	0.138	0.153	0.138	0.152
# of Obs.	1237	1237	1237	1237

Table IA3
The placebo Test

The sample consists of all nonfinancial listed firms in the CSMAR database from 2007 to 2014.This table presents the result of two robust tests. The independent variable in Column (1) is the averaged investment (capital expenditure divided by total fixed asset) for a sub-sample period between 2007 and 2011 net of investment between 2005 and 2006, with a hypothetical event taking place at the end of 2006.The independent variable in Column (2) is the averaged investment (capital expenditure divided by total fixed asset) for a sub-sample period between 2010 and 2014 net of investment between 2007 and 2009.*Title Grantee* 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 otherwise. *SOE* is a dummy variable that is assigned with value 1 if the firm is affiliated to the government and 0 if otherwise. *Early Grantee* is a dummy variable that is assigned with value 1 if the title grantee receives title in a month earlier than the median title granting time and 0 if otherwise. All variables are trimmed at the upper and lower 1-percentile. Industry Fixed Effect denotes whether the industry fixed effect (categorized according to industry categorization from CSMAR database) is considered in the specification. Exchange Fixed Effect denotes whether the effect of exchange (Shanghai or Shenzhen Exchange) in which the firms are listed is considered in the specification. *The t-statistics* are computed using standard errors adjusted for clustering (i.e., dependence) at industry level. The *,**,*** indicates significance at the 1%, 5% and 10% level respectively.

	Investment	
	T=Year 2006	Whole Sample
	(1)	(2)
Title Grantee	0.07	0.01
	(1.36)	(0.17)
SOE	0.04***	0.02
	(3.29)	(1.22)
Title Grantee * SOE	-0.08	0.26***
	(-1.08)	(3.39)
Early Grantees		0.03
		(0.38)
Log (Total Asset)	-0.01**	-0.04***
	(-2.44)	(-7.25)
Cash	-0.00	-0.04
	(-0.02)	(-0.85)
Fixed Asset	-0.15***	-0.30***
	(-4.66)	(-9.20)
Leverage	0.00	0.00
	(1.27)	(0.50)
ROA	0.05**	0.05*
	(2.28)	(1.73)
Tobin's Q	-0.00	-0.00
	(-1.39)	(-0.42)
Constant	-0.04	0.02
	(-0.83)	(0.38)
Industry Fixed Effect	Yes	Yes
Exchange Fixed Effect	Yes	Yes
Adj. R^2	0.14	0.151
# of Obs.	1237	1237