Monetary and Fiscal Stimuli, Ownership Structure and China's Housing Market

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June 7, 2010

Abstract

The recent financial crisis and thus global recession has brought renewed discussions over the effectiveness of government stimulus policy as a remedy. While developed countries like the US and EU featured only mixed evidences on the effectiveness of stimulus packages, the Chinese government's stimulus policy has achieved a quick and significant response. A year after the adoption of the 4 trillion yuan (US $586 billion) economic stimulus package, China's GDP grew by an annualized 11.9% rate in the first quarter of 2010, accelerating from 6.2%, 7.9%, 9.1% and 10.7% in the previous four quarters, respectively. Amidst this phenomenal response are record-breaking land auction prices and surge of house prices in major cities to new highs since March 2009. Allegedly, the stimulus package in China leads to overheated activities in real estate markets.

In this study, we focus on why monetary and fiscal stimulation in China seems to achieve quick results. However, the success of the Chinese stimulations can be a curse in disguise. We argue that state ownership of banks and large enterprises lead these firms to respond fast to the government stimulus. Yet, we highlight the resultant impact on China's real estate markets and question whether the resultant credit and liquidity surge creates real business opportunity.

To provide empirical evidence, we conduct a micro-level analysis of recent land auctions in Beijing and Shanghai. We are able to identify the location and physical attributes of each land sale, and then create a constant quality land price index at city level. The indices show a very sharp rise in constant quality land prices of almost 300% over the past 18-24 months in both cities. We also present evidence that the surge in Beijing's land auction prices are associated with state-owned enterprises purchases and bids.

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1. Introduction

The 2008 financial crisis that originated in the US turned into a mega scale global recession. Central banks and governments around the world reacted with monetary and fiscal policy interventions. Table 1 reports the IMF estimation of stimulus package as a percentage in GDP in the G-7 countries plus China and India. Among the leading economies, U.S. stimulus package accounts for 4.8 percent of their GDP, China accounts for 4.4 percent and Germany accounts for 3.4 percent. Researchers at the Brookings Institute estimated that after the G-20 summit in Washington DC in November 2008, the total amount of fiscal stimulus in the G-20 countries reached 692 billion US dollars in 2009, accounted for about 1.4% of their combined GDP in 2008, or about 1.1% of global GDP (Prasad and Sorkin, 2009).

===Insert Table 1 about here===

This has also brought renewed debate over the effectiveness of government stimulus package as a remedy to steer the economy out of a recession. Some economists explicitly stated that conventional monetary stimulation would be ineffective in this recession. For example, Feldstein (2009) argued that the credit market in U.S. and some other developed countries had been deeply eroded by the subprime mortgage crisis and the re-pricing of related assets, so that the financial sector would be unable (or unwilling) to provide credits or respond to interest rate changes by monetary authorities. As a result, monetary stimulations alone are not expected to work in a short-run.

On the other hand, fiscal stimulations, including both tax cut and government spending, can come to the rescue if the magnitude of Keynesian multiplier is greater than one. For example, Christine Romer, Chairwoman of Obama's Council of Economic Advisers, claims that current Obama's stimulus package has achieved a multiplier of about 1.6,[2] while others (see Barro[3] and Cochrane[4]) argue that the multiplier is less than one.

Existing literature has provided mixed theoretical and empirical evidences on the effectiveness of stimulus packages. Some of the earlier empirical works suggest a Keynesian multiplier larger than 1.0 (Rotemberg and Woodford, 1992; Blandchard and Perotti, 2002; Gali, Lopez-Salido and Valles, 2007), while other more recent works find the Keynesian multiplier to be less than, or around one, and doubt the effect of government spending in recent stimulus plans. Barro and Redlick (2009) estimate the defense-spending multiplier using long-term U.S. macroeconomic data, and conclude that the multiplier is less than one under most economic conditions and could only reach one when the unemployment rate is above 12%,[5] which supports earlier findings by Edelberg, Eichenbaum and Fisher (1999), Burnside, Eichenbaum and Fisher (2004). Ramey (2009) also suggests a government spending multiplier ranging from 0.6 to 1.1, and criticizes that the larger multipliers resulted in the earlier empirical researches suffered from misspecification of the models due to the timing of

[2] Christine Romer. "On the Advance Estimate of GDP for the Fourth Quarter of 2009", Jan 29, 2010. http://www.whitehouse.gov/blog/2010/01/29/advance-estimate-gdp-fourth-quarter-2009.
[3] Robert Barro, "The Stimulus Evidence One Year On," The Wall Street Journal, February 23, 2010.
[4] John H. Cochrane, "Fiscal Stimulus, Fiscal Inflation, or Fiscal Fallacies?" Feb 27, 2009. http://faculty.chicagobooth.edu/john.cochrane/research/Papers/fiscal2.htm
[5] The multiplier for non-defense is unclear according to their opinion, because of the close intertwining between non-defense government purchase and business cycle and the lack of good instrument variable.

government spending in the sample. The effectiveness of tax cuts is also uncertain. Barro and Redlick (2009) believe that tax cuts could boost economic growth. Their empirical analysis suggests that a one percentage point cut in the average marginal tax rate could raise the following year's GDP growth by about 0.6% per year. But Feldstein (2009) shows that consumer spending only responded to tax rebate very weakly, with the estimated marginal propensity to consume out of tax cut about 0.13.

Results of some other analyses are more complicated. Michael Woodfood (2010) argues that the fiscal multiplier is very non-linear, and it is much larger when the interest rate is close to zero. Freedman *et. al.* (2009) show a wide range of short-run (two years) multiplier from 0.2 to 2.2, which means that the stimulus would at least work under some economic conditions. But they also point out that the government spending always leads to fiscal deficits, and a 0.5 percentage point increase in the U.S. deficit to GDP ratio would reduce U.S. output by 0.3-0.6 in the long run. Davig and Leeper (2009) believe that the monetary policy and fiscal policy jointly determine the ultimate effect of stimulus package. The multiplier is smaller in the combination of active monetary policy and passive fiscal policy, and bigger with the combination of passive monetary policy and active fiscal policy.

Empirical evidences around the globe observed from the current recession echo the debate in the existing literature. Figure 1 reports while developed countries like the US and EU featured only mixed evidences on the effectiveness of stimulus packages, the Chinese government's stimulus policy has achieved a quick and significant response.

===Insert Figure 1 about here===

As shown in Figure 1, after the Chinese government's economic stimulation package issued in the 4th quarter in 2008, the annualized growth rate of Chin's GDP reached 6.2%, 7.9%, 9.1% and 10.7% in the four quarters in 2009, respectively, and then 11.9% in the first quarter of 2010. A further investigation could show that the two major stimulus measures adopted by the Chinese government, the monetary policy and government spending,[6] have both achieved a quick and significant response. After the Chinese government announced a shift of monetary policies from "moderately tight" to "moderately loose" in the 4th quarter of 2008, the annualized growth rate of money supply volume (M2) sharply jumped from 17.75% in 2008 Q4 to 25.43% in 2009 Q1 and 28.38% in 2009 Q2, while the annualized growth rate of total loan balance increased from 15.95% to 27.11% and 31.88% during the same period (Figure 2). In comparison, the average annual growth rate of M2 and loan balance in China from 2000 to 2008 was only 16.74% and 14.08%, respectively. At the same time, with the government spending package of 4 trillion yuan RMB (or about 586 billion U.S. dollars)[7] started from November 2008, the

[6] According to the definition of Chinese government, tax cut is also included in the stimulus package, and the Ministry of Finance in China estimated that the volume of tax cut in 2009 could reach 300 billion yuan RMB. But among which 200 billion was contributed by the reform of enterprise income tax and value added tax, which was planned before the crisis and stimulus package. So most researchers in China suggest that these tax cuts should not be calculated in the stimulus package. The report by Brookings Institute also holds such opinion (Prasad and Sorkin, 2009).

[7] It is widely accepted that the size of government spending really performed by Chinese government would be significantly smaller than this announce figure. For example, the Brookings Institute estimate a total volume of about 204.3 billion U.S. dollars, while 90.1 billion of which was spent in 2009 (Prasad and Sorkin, 2009). And according to the official number published by Chinese government, the spending by central government in 2009 was about 924.3 billion yuan RMB, or about 135.4 billion U.S. dollars (speech by Premier Wen Jiabao in the National Peoples' Congress in March 2010).

annualized growth rate of investment for fixed assets increased from 23.31% in 2008 Q4 to 28.64% in 2009 Q1 and 35.94% in 2009 Q2 (Figure 3). Finally the gross capital formation contributed for over 90% (historic peak) in China's GDP growth in 2009, which greatly offset the negative impacts of decrease in net exports (Table 2).

===Insert Figure 2 about here===

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Comparing to the widely range of responses to the economic stimulus packages across countries during this recession, the extraordinary speed and significant response of the Chinese economy to government stimulus policies is not only a very interesting question from an academic perspective, but would also have important policy implications.

One hypothesis focuses on the size – the stimulus package in China must be huge. The fact, however, is that China's stimulus package is not significantly larger than other countries'. For the monetary policies, the lowest benchmark interest rate in China during the recession was 2.25%, which was not lower than most other countries. As for the fiscal stimulus package, according to the calculation of Brookings Institute (Prasad and Sorkin, 2009), China is only one of the four countries in G-20 with a "large stimulus plan," – the other three are U.S., Saudi Arabia and

South Africa (Figure 4). Their estimation suggested that fiscal stimulus package in U.S was in fact much larger than Chinese one in absolute amount (841.2 billion U.S. dollars in U.S. and 204.3 billion in China) and as a ratio to GDP (5.9% in U.S. and 4.8% in China).

===Insert Figure 4 about here===

Others hypothesize that the Chinese government tried to boost its economy during the recession by keeping the RMB value low. However, despite of the debate over the Chinese government's exchange rate policy and whether a low RMB value helps to increase export[8], Table 2 indicates that at least China did not benefit from the net exports during the recovery.

In this study, we offer a new insight in explaining the effectiveness of China's economic stimulus package with a focus on the ownership structure and corporate behavior of Chinese banks and major state-owned enterprises. We find that both state-owned banks and state-owned non-financial enterprises in China rendered an extraordinarily fast and large response to the government's stimulus policies. More precisely, the state-owned banks started to issue huge amount of loans immediately after the government's announcement of stimulus policies, while the state-owned non-financial enterprises started their large investment plans at exactly the same time. We argue that, such behaviors of SOEs were not necessarily economic based. Instead, they could be the outcome of direct political control by the government.

[8] Among others, please see Song, Storesletten and Zilibotti (2010) for a recent review and research.

Consequently, it will be a "policy burden" for the SOEs (Lin, Cai and Li, 1998; Lin and Tan, 1999; Lin and Li, 2008).

If the responses are not fully economic based, we have grounds to be particularly concerned about the potential drawbacks of the economic stimulus package in China. Due to the potential mismatch between real business cycle and investment directed by the government, the SOEs were hesitant to invest in their core business because of a lack of real business opportunities during the recession. Instead, they spent a large part of their funds in housing development. Indeed, the State-owned Assets Supervision and Administration Commission (SASAC) in China reported that a large number of SOEs, especially the large SOEs controlled by the central government (or "central SOEs"), entered the housing development industry since 2008. We believe that this is at least one major factor for the sharp increase of housing price and residential land price in major Chinese cities during the same period.

To provide empirical evidence, we conduct micro-level analyses of recent land auctions in two most important Chinese cities, Beijing and Shanghai. We identify the location and physical attributes of each land parcel to create a constant quality price index. The indices show a very sharp rise in constant quality land price in both cities, with a nearly three-fold increase in Beijing from the end of 2008 to the 1st quarter of 2010, and an increase of similar magnitude in Shanghai during the same period. We also present evidence that the surge in residence land price is associated with SOE developers (especially the central SOEs) purchases, at least in the city of

Beijing. In Beijing, the percentage of residential land area purchased by the central SOE developers jumped from about 20% before 2008 to over 30% in 2009 and about 50% in 2010 Q1. The empirical results also suggest that, after controlling for land parcels' attributes, quality status, and even time dummies, land parcel's transaction price had a 27% premium if it was purchased by a central SOE developer in Beijing. It is worthy to mention that the bid price offered by central SOEs in Beijing's land auctions are less sensitive to the changes in distance to CBD, distance to MRT, and floor area ratio, i.e., the hedonic factors that are expected to have negative coefficients, but are more sensitive to the hedonic factors that expect a positive coefficients, such as developed land parcel. The observation suggests that the price of raising bids by central SOEs are attributable to their strong incentive to invest, instead of lower cost of capital. The combination of such unique bidding behavior and the expanding market share of central SOE developers' purchases could account for over 20% in recent land price increase in Beijing. Similar findings also exist in Shanghai, although less significant.

The paper proceeds as follows. In the next section, we summarize background of SOEs in China and their current status. Section 3 discusses SOE's effect in government implementation of stimulus policies whereas section 4 discusses our empirical evidence of SOE's effect on real estate market through our modelling of land auctions in two major Chinese cities, Beijing and Shanghai. Concluding remarks are provided in section 5.

2. Recent Reform of SOEs and Their Current Status

2.1 Recent Reform Policies for SOEs in China

Since the founding of the People's Republic of China in 1949, or more exactly, after the completion of "Socialist Transformation" in 1956, the stated-owned enterprises dominated China's industrial sectors, which was considered as a key ingredient of Socialism. During the old command economy era, all firms were owned and directly controlled by various layers of governments (central, provincial, city and neighborhood district). Managers were appointed government officers who ran enterprises following plans or orders set by the governments.[9] At beginning of the economic reform, 1978, SOEs accounted for 78% of the nation's total industrial output and 64% of urban employment. Meanwhile, during the period of 1975-1980, the SOEs accounted for over 84% of new industrial fixed assets.

China embarked a series of reform policies since 1978, and "reform of state-owned enterprises is the major focus and problem" (Chiu and Mervyn, 2006). Note that at the beginning, most SOEs were inefficient and poorly managed producing low quality products and failing to meet consumer needs. The reforms could be divided into three phases; the first two have been discussed in detail by existing literature (see for example, Qian, 2000; Chiu and Lewis, 2006; Brandt, Rawski and Sutton, 2008). We focus on the third phase and its impact to the effectiveness of the government stimulus policy.

[9] For more details about SOEs during the planned economy era, see Chiu and Lewis (2006), Brandt, Rawski and Sutton (2008).

In the first phase, from 1978 to mid-1990s, the reform emphasized expanding the autonomies and incentives of enterprises to provide "vitality" and "energy" to the SOEs. SOEs were first allowed to produce more than what government had planned and to sell excess output at market price, although outputs stipulated by government plans were still controlled and distributed by the government – this is the well known "dual-track approach", or "*Shuang Gui Zhi*" in Chinese. Later the government introduced the "contract responsibility system" (or "*Cheng Bao Zhi*" in Chinese) to most small and medium-size SOEs. Under this system, managers of the SOEs signed contracts with the government. The contracts give the managers the autonomy to run the enterprises' according to business needs, yet the firms remained wholly owned by the State. Profits were shared between the enterprises and the State according to the contracts.

After fifteen-years of the early stage of reforms, the second phase of economic reform started in 1994; ownership reform was the key focus. With the guideline of "grasping the big, letting go the small" (or "*Zhua Da Fang Xiao*" in Chinese), ownership transformation was implemented in two major forms. Many small and medium-size state-owned enterprises were assessed for "reorganization, bankruptcy, debt write-offs, merger into partnerships, leasing, contractual operation or sales". Meanwhile, some large SOEs remained owned by the State. However, a shareholding system was introduced; some more profitable enterprises were even encouraged to list on domestic or international stock exchanges. Note that although the SOEs, especially the large ones, were given various privileged access for

resources, markets, or financing (Lin and Tan, 1999; Lin and Li, 2008), many SOEs were still performing poorly at the end of the 20th century because of poor corporate governance, underdeveloped management, and heavy "policy burdens" which means that state-owned corporations had to follow government policy agendas in their production and operations. The decade from 1993 to 2002 was billed as "the most difficult period for the SOEs" by the central government.[10] For example, during the economic downturn in 1998, over two thirds of SOEs in the industrial sector were in deficits, and the total revenues of all the industrial SOEs was 21.4 billion yuan RMB, only 42% compared with that in 1978.[11] SOEs were referred as the "Achilles heel of China's otherwise remarkable economic performance" (Broadman, 2001) and they possibly "threaten to drag down the nation's entire economy" (Steinfeld, 1998).

The third stage of reform started in 2003, after the China's Communist Party's (CCP) 16th National Congress held in November 2002 and Mr. Hu Jintao and Mr. Wen Jiabao became the new leaders of China's Communist Party and the Central Government, which is the era of focus of our paper. The Chinese government took the property rights reform and corporate governance reform as the major tasks in this period, focusing on the large SOEs. One of the key reform actions was the formation of the State-owned Assets Supervision and Administration Commissions (SASACs) in March 2003. In May 2003, the State Council issued the "Interim Provisions on Supervision and Administration of State-owned Assets of Enterprises"

[10] "Thirty Years of SOE Reform", http://www.gov.cn/ztzl/2008-10/02/content_1110911.htm.
[11] Source: Statistics Yearbook of China.

(Document 378th, 2003) to describe this new institution in detail, which was later enhanced and ratified as a law in 2008 ("Law on State-owned Assets of Enterprises").

According to these documents, the SASACs were designed to assume the legal liabilities and rights as investors of the state-owned assets in the non-financial enterprises on behalf of the State (or the people of China), and they also have the responsibilities to guide and supervise the further reform of SOEs. As shown in Figure 5, there are two levels of SASACs in this new institution, and thus two types of SOEs. The SASAC in State Council is a ministerial level institution, and acts as an investor of some designated huge SOEs. These SOEs are called "central SOEs" (or "*Yang Qi*" in Chinese), and we label them as c-SOEs henceforth. There were totally 196 such c-SOEs when SASAC was founded in 2003. Due to mergers in subsequent years the number declined to 142 at the end of 2008 and 129 at the end of 2009. The SASAC in State Council is also in charge of guiding and supervising regional-level SASACs, which control the other SOEs, or the "local SOEs" ("l-SOEs" for short henceforth).

===Insert Figure 5 about here===

The most important feature in this new system of SASAC, in our opinion, is the inclusion of SOEs in the general framework of corporate ownership structure and governance (often referred as the "modern enterprise institution" by the Chinese government), regulated by the Corporate Law and other related regulations in China. This accelerated SOE reforms in several aspects. First, the ownership structure and

the property rights of the SOEs could become better defined overtime. The state-owned shares and their holders (the SASACs) have similar liabilities and rights as other shares and share holders. A firm would be regarded as state owned or controlled only because the SASAC is the dominant shareholder. Since 2007, according to the 19th Document of the SASAC in State Council, the SASACs are also allowed to sell their shares (state owned shares) to ordinary shareholders, e.g., private citizens. Also, the SASACs and other SOEs can sell shares they hold in the publicly listed SOEs (legal entity shares) under certain circumstances. The consequence is that potentially state-owned enterprises can become completely controlled by non-state investors.

Second, the autonomy of the SOEs in their daily business is greatly enhanced. At the founding of SASACs in 2003, the role of supervision or management of non-financial SOEs from almost all the other ministries (or departments in the local governments) were transferred to the SASACs, which means that the corresponding ministries (departments) would not have any direct intervention power over the SOEs and so could not impact their operations. Premier Jiabao Wen also stated at the founding of the SASAC in State Council that the SASACs should never become the "mother-in-law" (or "*Po Po*" in Chinese) of the SOEs again.

However, this does not imply that the SASACs have no control over SOEs. The SASACs could control the enterprises in at least the following four ways. Firstly, as the largest shareholder of the companies, the SASACs could surely affect executives' decisions through the management board. Secondly, the SASACs

(especially the SASAC in State Council) issued a series of regulations or documents for the SOEs, from the aspects of development strategy, investment decision-making, budget, audit, risk management and so on.[12] A SOE's response to these mandates is set as an important part in the executive performance evaluations. Thirdly, the prime operation of the SOEs is defined and adjusted by the SASACs, and SOEs are encouraged to focus on their designated core businesses. Last but most importantly, the chief executives of the SOEs are appointed (or re-assigned, removed) by the SASACs, while appointments of the core executives in the c-SOEs would also have to be approved by the "Organization Department" in the CCP. These executives include the chairman of the board, CEO, deputy CEO, CFO, etc. Recently in the "Interim Provisions on Management of Executives in C-SOEs" issued by the Central Committee of CCP and the State Council in December, 2009, the principle of "absolute control of the executives by the Party" (or "*Dang Guan Gan Bu*" in Chinese) is re-emphasized and reflected in the detail regulations. So the SASACs (or the Party) have great influence on SOEs through their direct control of executives' careers.

The third feature is the incentives to the SOEs' executives. According to the requirement of the State Council, one main responsibility of SASACs is to "… evaluate the executives of the enterprises through legal procedures, and grant rewards or punishments according to their performance;" the SASACs consider this as one major instrument to "improve" the performance of the SOEs. After the founding of

[12] The SASAC in State Council issued 19 regulations and 104 documents from 2003 to 2008, while the local SASACs issued over 1600 documents during the same period ("Development of SASAC in the Past Five Years", the SASAC in State Council, 2008).

the central SASAC in State council in 2003, one of the first documents issued was the "Interim Provisions on Performance Evaluations for Executives of c-SOEs," which was revised twice in 2006 and 2009, respectively. According to these provisions, the performance evaluation includes both annual evaluation and tenure evaluation. The key indicators in the annual evaluation are the absolute amount of profits and economic value added (EVA), while some other secondary indicators (such as the response to SASAC's requirements) are also included, and the results directly determine the executives' salaries in this year[13]. When an executive finishes his/her three-year tenure, his/her overall performance during this period will be evaluated according to the state-owned asset's appreciation ratio, the annualized growth rate of the prime operation's revenues, and some other secondary indicators. Results of the tenure evaluation will not only determine whether an executive can be re-assigned or promoted, but also whether he/she can receive the retained part of the bonus during the past three years[14]. And since 2006, the shareholding incentives are introduced to some publicly listed c-SOEs as an experiment. Thus the executives will have enough incentives to improve the performance of the SOEs, for the purpose of their own economic interest and career path. For example, according to the report of the SASAC in State Council, the average yearly salary of c-SOEs' chief executives

[13] According to the provisions, an executive's salary includes two parts, "basic salary" (about one third of the total amount) and "performance bonus", while the latter is determined by the result of the yearly performance evaluation. For example, an executive ranked E in the evaluation would not get any bonus, but an executive ranked A could get as much as three times of the performance bonus. 60% of the bonus would be granted immediately after the evaluation, while the other 40% would be held until the end of the executive's tenure.

[14] According to the provisions, executives ranked above C in the tenure evaluation would get all of their retained bonus, while some specific tenure bonus would also be awarded for excellent performance. Instead, part or all the retained bonus would be deducted for executives got D or E.

increased from 350 thousand yuan RMB in 2004, to about 600 thousand yuan RMB in 2009, which was significantly higher than officers in the same level (ministerial level).

Thus, with the recent reform policies of SOEs, especially the formation of SASACs and related institutions, SOEs have higher autonomies and incentives to pursue a better performance. Yet, the government remains a significant directing hand in the SOEs, especially through the control of executives' appointment. This leads to dual roles for SOEs' executives: deliver profits and serve the governments' other (political) objectives. We believe that played a major role for both the quick and significant effectiveness of stimulus package in China and its potential drawbacks.

2.2 Current Status of SOEs

As a result of the continuing transformation and privatization of the small and medium-size SOEs, the total number of SOEs kept decreasing in the past decade. According to the last three economic censuses by National Bureau of Statistics in China (see Table 3), the number of SOEs (including both non-financial and financial) decreased from 369 thousand (12.19% in the total volume) in 2001 to 192 thousand (5.91%) in 2004, and 156 thousand (3.15%) in 2008. During the same period, the number of private enterprises nearly tripled, and the number of joint-stock enterprises not controlled by the State also increased by over 110%. The statistics provided by the SASAC in State Council also shows that the number of non-financial SOEs

owned or held by SASACs at or above the provincial level decreased from 150,000 at the end of 2003 to 113,700 at the end of 2008.

===Insert Table 3 about here===

But the shrinking number does not necessarily lead to a less important role. According to the Chinese government's guideline in the SOE reforms, the SOEs remained after the reforms would mainly include monopolies in the natural resources and infrastructure sectors (such as electricity, telecom, petroleum industry, etc.), and leading companies in some other important industries (such as real estate, construction, car manufacturing, etc.). [15] Most of these companies were extraordinary huge and play important roles in the industries, or even in the whole economy. According to the economic census in 2008, although the number of SOEs only accounted for 3.15% in all the enterprises, their share in total assets reached 30.53% (see Table 4). Although the share of profits by the state-owned industrial enterprises in all industrial enterprises kept decreasing since 2000, it still accounted for 23.52% in 2009 (see Figure 6). Meanwhile, share of profits by the state-owned industrial enterprises in GDP kept growing before the recent recession, and reached the peak of 4.16% in 2007. The statistics provided by the SASAC in State Council also shows that profits from all the non-financial SOEs accounted for about 4% in GDP in 2009 (see Figure 7).

[15] State Council. "Guidelines of State-Owned Enterprises Reform" (the 97th Document in 2006), Dec. 5, 2006.

===Insert Table 4 about here===

===Insert Figure 6 about here===

===Insert Figure 7 about here===

There is another way to appreciate the power of the SOEs. Chinese companies are now developing into "groups," much like the Korean Chaebols. A group is a collection of companies with inter-lock controls. Within each group, it is usually possible to identify an ultimate supreme controlling interest, the pinnacle company that holds controlling interest of a second layer of firms which hold controlling interest of the third layer of firms, etc. Groups represent, therefore, a very concentrated form of control with the controlling rights often far exceeding the equity rights (Morck, Wolfenzon and Yeung, 2005). Thus the power of SOEs could be further expanded. Essentially, a company is a SOE if the government is the dominant controlling shareholder. SOE groups can control non-SOE companies. A company is a non-SOE because the government is not the dominant shareholder. Yet, it can be controlled by a group because companies in the group together own a dominant controlling share of the company's voting stocks. These shareholdings are referred to as "legal entities" shares. According to the economic census in 2004 and 2008 (see Table 5), in all the enterprises (including both financial and non-financial) the State share accounted for 37.4% in 2004, and 33.5% in 2008. For the companies

publicly listed in Shanghai and Shenzhen (see Figure 8), the State share accounted for 24.49% in the total amount at the end of 2009.

===Insert Table 5 about here===

===Insert Figure 8 about here===

The c-SOEs are especially important, although their amount is very limited. As mentioned earlier, there were totally 196 c-SOEs in 2003, and the number decreased to 142 in 2008 and 129 in 2009 because of mergence. But in 2008, these 142 enterprises (groups) together controlled 19250 companies, of which 8524 companies were state-owned and 9534 companies were state-controlled. Meanwhile, 235 of these 19250 companies were listed in Mainland China, and 71 companies listed in Hong Kong.[16] As shown in Figure 9, these c-SOEs accounted for about 40% of the assets of all non-financial SOEs, and contributed for over 60% in the sales and over 70% in the profits.

===Insert Figure 9 about here===

2.3 State-Owned Banks in the Financial Sector

The state-owned banks dominated China's financial sector since 1949 (Allen, Qian and Qian, 2005, 2008), and the situation has not changed after the recent reforms. The recent reform policies for the state-owned banks were quite similar to those for

[16] Source: the SASAC in State Council.

the non-financial SOEs introduced above. In 2003, as the SASACs were founded, the China Banking Regulatory Commission (CBRC) was founded to direct and supervise the operation of the banking institutions in China (including the state-owned banks). But, unlike the SASACs, the CBRC does not hold shares in the state-owned banks. Instead, the Ministry of Finance and the Central Huijin Investment Ltd., a state-owned company authorized by the State Council and established in 2003, exercise rights and obligations as an investor in major state-owned financial enterprises on behalf of the State. Based on this new institution, the CBRC and the Ministry of Finance also issued a series of reform policies on governance, similar to the policies by the SASAC. For example, according to the "Interim Provisions on Performance Evaluation of State-owned and State-Controlled Financial Enterprises" issued by the Ministry of Finance, performance on profitability, asset appreciation, asset quality and solvency ability of the state-owned banks would be regularly evaluated, and the results would be critical inputs determining salaries and appointments of the executives. Meanwhile, core executives of state-owned banks are still appointed, removed and re-assigned by the "Organization Department" which is a unit of the Communist Party. Accordingly, the dual roles discussed earlier would also apply to the state-owned banks.

According to the People's Bank of China (China's central bank), banks in China can be classified according to ownership structure as follows: state-owned policy banks, state-owned commercial banks, joint-stock commercial banks and others which include rural credit cooperation associations, city commercial banks,

foreign banks, etc. The State directly controls all three policy banks[17] and four state-owned commercial banks,[18] and the State (or SOEs) is also the largest shareholder (or one of the largest shareholders) for 11 of the 13 joint-stock commercial banks at the end of 2009.[19] In other words, the State directly or indirectly controls the behaviour of 18 largest banks in China. By the end of 2008, the total asset of these 18 banks reached 53.18 trillions yuan RMB, accounted for 72.01% in all the banking institutions (Table 6).

===Insert Table 6 about here===

3. SOEs' Effect in the Stimulus Package

3.1 SOEs' Response to the Stimulus Package

Both state-owned banks and non-financial enterprises in China responded expediently and significantly to government's economic stimulus package.

Immediately after the Chinese government announced the shift of monetary policy, the 4 state-owned commercial banks and the 13 joint-stock commercial banks (which are also controlled by the government) initiated huge volume of loans in the 1st quarter of 2009 (Figure 10). The 4 state-owned commercial banks' total loan

[17] Namely, China Development Bank, the Export-Import Bank of China, and the Agriculture Development Bank of China.
[18] Namely, Industrial and Commercial Bank of China, China Construction Bank, Agricultural Bank of China, and Bank of China.
[19] Among which, 5 banks are controlled by central Government or c-SOEs (Bank Of Communications, China Citic Bank, China Everbright Bank, Huaxia Bank and China Merchants Bank), while 6 are controlled by local governments (Industrial Bank, Guangdong Development Bank, Shanghai Pudong Development Bank, Evergrowing Bank, China Zheshang Bank and China Bohai Bank).

balance in 2009 Q1 increased by 2.31 trillion yuan RMB, which is greater than the total amount of loans in 2008 (1.80 trillion). The increase in their loan balance in 2009 summed to 4.10 trillion yuan RMB, which raised their percentage in the total loan volume from 36.78% in 2008 to 42.73% in 2009 (Figure 11). (As a benchmark, the market share of these 4 banks had kept decreasing before 2008 because of the rapid development of the urban commercial banks and foreign banks.) Loan balance outstanding in the joint-stock commercial banks also increased by 1.18 trillion yuan in the 1st quarter and 2.23 trillion yuan in the whole year in 2009, with their market share almost unchanged (23.28% in 2008 and 23.21% in 2009).

===Insert Figure 10 about here===

===Insert Figure 11 about here===

Similar phenomenon also existed in the non-financial sector. Before 2008 the annualized growth rate of fixed asset investment by the SOEs were always about 10 percentage point lower than that by the non-SOEs (Figure 12). But such growth rate sharply increased from 24.15% in 2008 Q4 to 37.66% in 2009 Q1. And during all the four quarters in 2009 the growth rate kept significantly higher than its usual level. On the contrary, the annualized growth rate of fixed asset investment by the non-SOEs was no higher than its usual level in all the four quarters in 2009.

===Insert Figure 12 about here===

3.2 Determinants of SOEs' Response

Our question is why the state-owned banks and enterprises had such a quick and large response to the economic stimulus package.

Such behavior is unlikely to be supported by the SOEs' performance during or before that period. According to the statistics published by the SASAC in State Council, in 2008 non-financial SOEs' profits decreased by 24.5% at the national level, with 45.5% of the SOEs suffering from losses. As shown in Table 7, the ROS (return on sales) for all the non-financial SOEs was only 5.8% in 2008, 3.0 percentage points lower than in 2007. The ROA (return on assets) and ROE (return on equity) were also 1.9 and 3.4 percentage points lower than 2007, respectively. The situation did not turn better until 2009 Q3 (Figure 13).

===Insert Table 7 about here===

===Insert Figure 13 about here===

The quick response is also unlikely to be explained by the enterprises' own outlook for the future. Similar to most other countries, entrepreneurs' confidence in China dropped to the bottom during the recession, and such low confidence did not change immediately after the government's announcement of economic stimulus package. As shown in Figure 10, bankers' confidence index[20] sharply decreased in 2008 Q4, and then touched the bottom in 2009 Q1. But during the same period, the

[20] In each quarter the People's Bank of China sends questionnaires to managers of all branches of banks at or above city level, with a total volume of about 3000.

banks, especially the state-owned banks and joint-stock commercial banks, started to issue huge volume of loans in the 1st quarter in 2009. Similar pattern also applied to the non-financial sector. The enterprises, especially the SOEs, started their large investment plan in 2009 Q1, while the entrepreneurs' confidence index[21] was almost at the historic lowest level (Figure 12).

It is difficult to conceive how a rational banker or entrepreneur could decide to greatly expand the business under a combination of bad current performance and low confidence for the future. A reasonable explanation is, the state-owned banks and enterprises did not "choose" to do so, but were "coerced" to do so. Or, simply put they chose to do so because of political, instead of economic, consideration. As explained earlier, the state-owned banks and enterprises aim to deliver corporate performance and also to serve the government's policy agenda because the government, e.g., the SASACs, rather than shareholders, determines senior managers' career paths. SASACs made "contribution in the Stimulus Plan" a mandated corporate performance objective, as was highlighted in SASAC's 2009 annual report. Similar statements appeared in most state-owned banks' and enterprises' annual reports or similar statements. Also, speeches by several core officers in Chinese government called upon the SOEs to "serve the country's interest". In other words, a quick and large response to government's economic stimulus policies is a kind of "policy burden" or stipulated management goal for the SOEs, besides the traditional

[21] In each quarter about 20 thousand enterprises all around the country are sampled (using PPS method) by the National Bureau of Statistics in China, and questionnaires are send to the managers of the enterprises sampled.

task like providing employment opportunity or supplying some products or service at low price (Lin, Cai and Li, 1998; Lin and Tan, 1999; Lin and Li, 2008).

3.3 Potential Drawbacks of the Stimulus Package

3.3.1 Dual Objectives of SOEs and Their Choice

As re-iterated repeatedly, managers in state-owned banks and enterprises play dual roles of both serving government's political objectives and attaining profit maximization. This has important implications. For the state-owned banks, while obliged to issue huge volume of loans, they seek out the safest type of borrowers. The state-owned enterprises, especially the huge c-SOEs, were their natural choice. First, these c-SOEs are believed to be "too big to fail," which means that the State will save them whenever they are in trouble. Second, issuing loan to the huge SOEs would be "politically correct". Unlike lending to others, especially private corporations, bankers in state controlled banks are unlikely to be criticized for issuing loans to the SOEs, especially c-SOEs, even if these loans finally default. Taking the listed non-financial companies as the example, as shown in Figure 14, the listed c-SOEs started to get huge volume of loans since the 4th quarter in 2008, and during the four quarters in 2009 their loan volume always grew faster than the local SOEs and non-SOEs. Meanwhile, data in Table 8 provide a summary of credit limits over 10 billion yuan RMB awarded to c-SOEs, which from another aspect clearly indicate that during 2009 the state-owned banks, as well as the joint-stock commercial banks controlled by the State, issued large number of credit to the c-SOEs.

===Insert Figure 14 about here===

===Insert Table 8 about here===

The state-owned enterprises also have to select the most profitable investment opportunities. However, because of the mismatch between real business cycle and implementation of stimulus package, the state-owned enterprises hesitated to invest in their core businesses. According to the statistics by National Bureau of Statistics, in 2008, 23 of the 38 sub-industries in the industrial sector had an average ROA less than the loan interest rate (5.31%). Instead, the state-owned enterprises have to search for other more profitable opportunities, among which housing development was a suitable one. Because of the continuing booming of housing price in the major cities during the recent years (Figure 15), housing investment has become one of the most profitable industries in China. According to the results of two latest economic censuses, the rate of ROS of real estate industry increased from 8.31% in 2004 to 12.62% in 2008, faster than most other industries (Table 9). In some major cities with hot housing markets, the profitability of housing development could be even higher. For example, the rate of ROS of real estate development industry in 2008 was 14.99% in Beijing, and 17.90% in Shanghai. In addition, the housing development industry is much easier to enter, compared with most of other profitable industries. For example, while “mining” is the most profitable industry in China at present, available mining resources have already been controlled by some monopolies, most of which are huge SOEs. The same applies to “transportation” and

"telecommunications." On the contrary, the only key resource required for the housing developers at this certain period was fund, which was the advantage of the huge SOEs.

===Insert Figure 15 about here===

===Insert Table 9 about here===

3.3.2 Expanding Role of SOEs in Housing Development

Accordingly, more and more c-SOEs entered the housing development industry in recent years. Supposedly, according to the SASAC guidelines, only 16 c-SOEs can be involved in real estate development. However, by the end of 2009, 78 other c-SOEs also owned or controlled real estate developers. As reported by the SASAC in State Council, in 2009 the total market share of these 94 c-SOEs in the country level was about 5%, most of which was due to the 16 "professional" developers (Table 10).

===Insert Table 10 about here===

The central SOE developers' real estate activities are concentrated in few core cities. Hence, although at the country level their market shares are limited, their influence on the core cities is very significant – their bids could push up the prices of land parcels. This is a public sentiment that SOEs' real estate activities are a major

driver of housing price surge during the recovery, and we will test this in the following section.

4. Empirical Analysis of Land Auctions in Beijing and Shanghai

4.1 A Brief Introduction of Land Market in China

Urban land in the People's Republic of China (PRC) was nationalized and owned by the State at the founding of the PRC in 1949. But according to the 1988 Constitutional Amendment, while the government still retained ultimate ownership of urban lands, individuals were permitted to purchase the rights of land usage for a certain number of years: 70 years for residential uses, 50 years for industrial or mix uses, and 40 years for commercial uses. A typical private housing project development process involves first a local government leases land parcels to developers who build housing units on the parcels and sell those units to households. Households have the rights to live in, rent out, or sell their housing units during the leasehold period. Precisely what will happen regarding ownership of the land and attached housing units after the leasehold expires is unclear at present.

The first land auction was held in Shenzhen in 1987. But in subsequent years, most land parcels were not sold publicly via auctions or biddings. Instead, a developer would contact the local government about a land parcel in which it was interested, and then they would negotiate the price. Many such deals were publicly criticized for resulting in artificially low prices and corruption was embedded in the

opaque process. Consequently, in 2004 the State required that all urban land for residential and commercial use must go through a public auction or bidding process. Currently, in most cases, the developer offering the highest price gets the land parcel.

4.2 Data Description

We collect the land auction data in two most important Chinese cities, Beijing, the capital of China, and Shanghai, the coastal city with the most advanced economic development in China. These two cities are also featured in recent housing market booming. With only slight downturn during the recession, the constant quality price of newly-built housing units grew by 74.22% and 68.09% in Beijing and Shanghai, respectively, from the end of 2008 to the 1st quarter of 2010 (Figure 16).

===Insert Figure 16 about here===

As required by the Ministry of Land Resources in China, information on all land parcels transacted is published in local land resources authorities' websites. From 2003 Q1 through 2010 Q1, there were a total of 815 parcels transacted by bidding or auction in Beijing and 2052 parcels transacted in Shanghai, of which 309 and 407 parcels were for residential use, respectively.

The address, physical characteristics, degree of development of each parcel, as well as its transaction price and buyer are included in the dataset. We also use the GIS system to identify other local traits including distance to the city center (*D_CENTER*) and distance to the nearest MRT station in use (*D_MRT*). For the

purpose of analyzing the impact of various types of land parcel buyers, we also import information on the buyers (that is, the housing developers) from the database of the municipal real estate authorities in these cities. Developers are classified into three groups (Table 11): central SOE developers (*c-SOE*), local SOE developers (*l-SOE*), and non-SOE developers. Within developer category, each entity also can be characterized along quality dimensions. We do so in two ways. One is by whether the developer is listed (*LISTED*) or not; the other is by the degree of qualification according to a government ranking system (*GRADE1* to *GRADE5*)[22].

===Insert Table 11 about here===

Variable definitions and descriptive statistics are listed in Table 12.

===Insert Table 12 about here===

4.3 A Hedonic Model of Constant Quality Price Index

Firstly we control for land parcels' location and physical attributes in a simple hedonic model which is estimated via ordinary least squares (OLS). The dependant variable is transaction price for each parcel in the logarithmic form.[23] Local traits controlled for include distance to the city center (*D_CENTER*), distance to the nearest functioning MRT stations (*D_MRT*), the quality of how well the site is prepared upon

[22] Each developer is rated by the real estate authorities, largely based on the company's scale and experience. A grade of 1 is the highest, with a 5 being the lowest.

[23] Note that in China, land parcels of residential use are always priced in the floor area of housing permitted to be built on the parcel, instead of being priced in terms of the land area.

delivery (*LANDLEVEL*), the quality of the nearby infrastructure (*FULLINFRA*), and the density permitted on the site when built (*FAR*). In Beijing, we also control for whether the site is encumbered with requirements to provide public rental housing units (*SHARE_PR*) or have some fraction of its units subject to price ceilings (*SHARE_PC*). Finally the parcel's transaction form (transacted by auction or bidding) is also considered (*AUCTION*) in Beijing.

The first columns in Table 13 and Table 14 report the results of a specification that includes these variables and yearly dummies. In general, the results are consistent with prior expectations. Land parcels closer to the city center or a MRT station are worth more. Better prepared parcels in terms of the site and local infrastructure also are worth more. Lower density also is associated with higher price. The point estimates on the public and price controlled housing variables are negative as expected, but they are not statistically significantly different from zero. Land parcels transacted via auction tend to achieve in a higher price, compared with parcels transacted in bidding, but such effect is also insignificant.

===Insert Table 13 about here===

===Insert Table 14 about here===

The yearly dummies are significant both in economic and statistical terms. We use the coefficients on the yearly dummies as a proxy for a constant quality residential land price index for these cities. They are common annual effects after

controlling for differential location and physical quality of land parcels. The upper lines in Figure 17 and Figure 18 plot the effects and show a dramatic recent rise in constant quality land prices in both cities. In Beijing, the land price index increased from 100 in 2003 to 465 in 2009, and then doubled in the past year. And in Shanghai, the land price increased from 100 in 2003 to over 300 in 2005, and fluctuated in the following 3 years, but then more than doubled in 2009 (from 269 to 620) and increased by a further 60% in the first quarter in 2010 (from 620 to 982).

===Insert Figure 17 about here===

===Insert Figure 18 about here===

A ten-fold increase of land price during 8 years, especially a tripling within about 5 quarters, is extraordinary according to any reasonable standards. While in some wild way one may be able to explain the observation based on economic fundamentals, e.g., change in expectations based on the political and development outlook and also dramatic change in demands based on change in regulations and accumulation of savings, one cannot help but to ask whether some non-fundamental factors drive such sharp price increase. In particular, we are most interested in the dramatic price boom in 2009 and 2010 Q1 as depicted in Figures 17 and 18. The question is whether the involvement of the SOE developers played an important role in the latest price boom.

4.4 Expanding Proportion of SOE Developers

Figure 19 depicts the shares of floor area newly purchased by different groups of developers from 2003 to 2010 Q1. SOE developers have always been active in both cities, but their share of activity has been growing in recent years, especially in Beijing. The combined share of local and c-SOEs purchases has expanded from about 37% in 2003 to nearly 71% in 2010 Q1 in Beijing. The percentage of central SOE developers' purchases expanded especially largely, from about 22% in 2008, to over 32% in 2009, and then jumped to 51% in 2010 Q1. In Shanghai, the combined share of SOEs also expanded from 40% in 2003 to nearly 70% in 2010 Q1. But most of the proportion was contributed by the local SOEs, which purchased nearly half (49%) of the parcels in 2010 Q1, while the percentage of c-SOEs kept around 20% since 2007. These provide clear evidences about the expanding role of SOEs in the housing development industry, at least in these two major cities.

===Insert Figure 19 about here===

Another important phenomenon is that, in recent years most of the land parcels with highest prices were purchased by the SOE developers (Figure 20). In 2009, 5 of the "Top 10" land parcels in Beijing were purchased by the central SOE developers, and 2 by the local SOE developers. In the 1st quarter of 2010, the central SOE developers bought 6 of the most expensive residential land parcels in Beijing. Things were similar in Shanghai. In the 1st quarter of 2010, the local SOEs purchased 4 of the most expensive parcels, while the c-SOEs purchased another 3 parcels.

===Insert Figure 20 about here===

4.5 Price Effect of SOE Developers

The second columns of Table 13 and Table 14 add controls to our baseline specification for the type of SOE developer, as well as quality attributes of the developer.

The coefficient on the central SOE developer control is statistically significant and economically important in Beijing. All else constant, the coefficient implies that the transactions price is 27.3% higher ($e^{0.214}-1=0.273$, since the dependent variable is in log form) if the parcel is purchased by a c-SOE developer in Beijing. This price effect, combined with the expanding proportion of c-SOE developers in Beijing land purchases, can partly account for the rapid growth of residential land prices. The bottom line of Figure 17 plots the yearly effects after controlling for developer type and quality. Land prices would be over 20% lower in 2009 if central SOE developers did not bid differently from other buyers.

The price effect of buyers' type was less important in Shanghai. The coefficient on the c-SOE developer control is still positive, but such effect is far from significant, and the coefficient of the l-SOE developer control is insignificant either. However, the variable reflecting listed status is significant to the degree of 95%, indicating that a listed developer would offer 17.4% higher for a land parcel compared with the other developers. But such effect in land price growth was very limited. As shown in Figure 18, the price path is only slightly different after controlling for the

buyers' type. We speculate that the much more limited impact of c-SOEs in Shanghai, compared to Beijing, is possibility due to that c-SOEs participate less in Shanghai.

The question reminds whether the positive price effect of c-SOEs bids reflects non-fundamental consideration or that the bids are driven by extremely low cost of capital? To further investigate, we introduce into the bidding price regressions several cross terms between the major hedonic variables and the central SOE dummy. If the price effect is due to that c-SOEs have an extraordinarily low cost of capital, the impact of the hedonic variables on the bid will be exacerbated. The results are reported in Table 15. In general, compared with other groups, the c-SOE developers are less sensitive to the attributes which have negative effects on land price, and value more for the positive attributes, which means that the c-SOEs emphasize the positive and de-emphasize the negative factors that affect land prices. These results are inconsistent with a lower cost of capital effect, which magnifies both the impact of the positive and negative factors, but is consistent with that c-SOEs are under a strong incentive (or even requirement) to invest.

===Insert Table 15 about here===

5. Conclusions

This paper examines the extraordinarily large and quick responses to stimulation packages in China. These responses reflect that the Chinese central government still has a lot of direct controls of the economy. Its SOEs maintain

critical control of the financial sectors and important industries. Via its direct ownership and control of SOE managers' careers development, the government can order up these SOEs to issue new credits and create new investment, thus new aggregate demand.

The lessons are two folded. First, China is still fundamentally has a command and control economy, albeit its rapid marketization. Second, the effectiveness of macro fiscal and monetary policies lies in the micro details.

The success of the Chinese stimulations can be a curse in disguise. The effective responses to the stimulation package violate economics commonsense. The idea of a monetary stimulation is that when credits are limited to the firms that need them, loosening government monetary policy can stimulate supply of credit and alleviate the credit constraint. The Chinese stimulation, however, leads to the expanding of credit to the already cash rich and non-credit constrained c-SOEs.

Some of the "ordered up" credits and resultant investment have channeled towards real estates. We show that in Beijing central state-owned enterprises' bids elevate land price. Moreover, we show that these c-SOEs bids reflect an eagerness to win in land auctions rather than just a lower cost of capital. We speculate that as a consequence China may now have a housing bubble in some major cities. Abnormally high house prices naturally mean much distortion for sure.

One question is whether a significant drop in house price in China will trigger a financial crisis like in the US. That is unlikely. First, SOEs who use bank credits to purchase land parcels are still very cash rich. Second, there will not be a large

scale mortgage default by borrowers. Down payment requirements in China for home purchases are at the 30% or 40% level. Also, most Chinese are unlikely to abandon their housing properties and default on their mortgages even if they become net liabilities rather than net assets (i.e., mortgage loan to value ratio is greater than one). The reason is that in China people's access to education and some other social benefits are tied to their "hukou" – residing location registration. For those without an urban "hukou," they can get the same benefits if they own a dwelling. For them, giving up an apartment they own in a city means losing an urban "hukou" in the city with many forgone rights (e.g., education for children).

However, the decline in house price will mean a significant loss in wealth to many Chinese people. Chinese only have very limited types of instruments to store wealth: mostly just bank accounts and real estate. Having stored much of their wealth in real estate properties, especially the higher end of the middle class, many Chinese households are becoming house price dependent. A collapse in house prices can mean great losses in wealth with the expected impact in aggregate demand, possibly worse than in the US.

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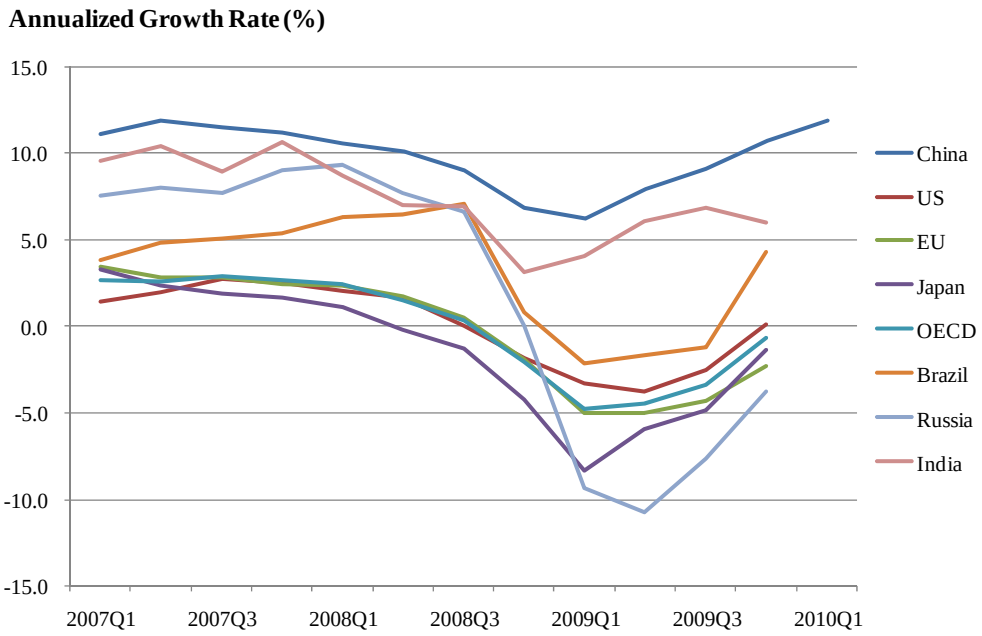
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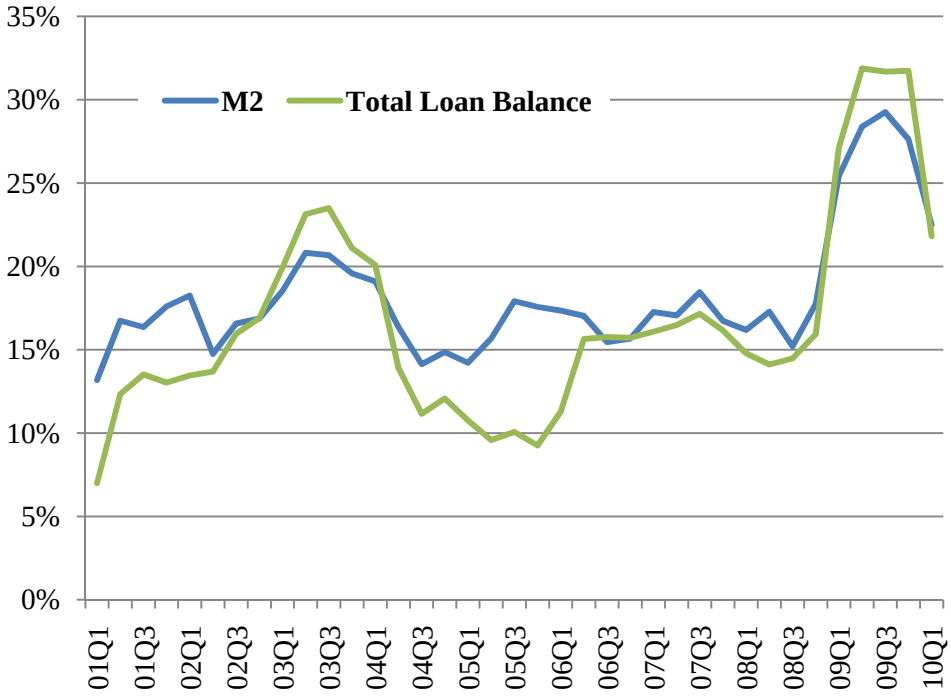
Figure 1: Quarterly GDP Growth Rate in the Major Countries



Source: National Bureau of Statistics, China; OECD; Department of Finance, Brazil; Federal State Statistics Service, Russia; Ministry of Statistics and Programme Implementing, India.

Figure 2: Annualized Growth Rate of M2 and Loan Balance

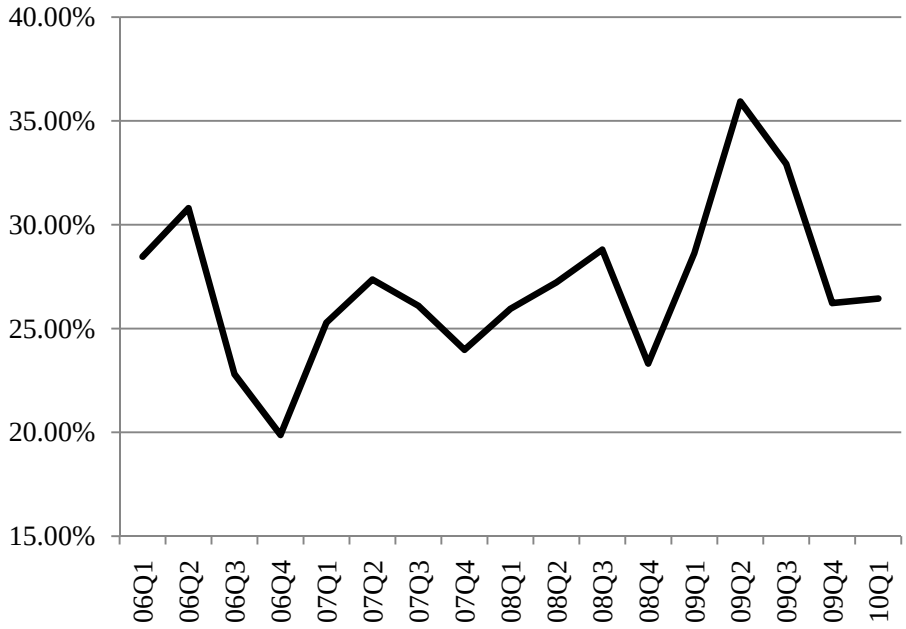
(Compared with Same Period in Preceding Year)



Source: People's Bank of China (the central bank).

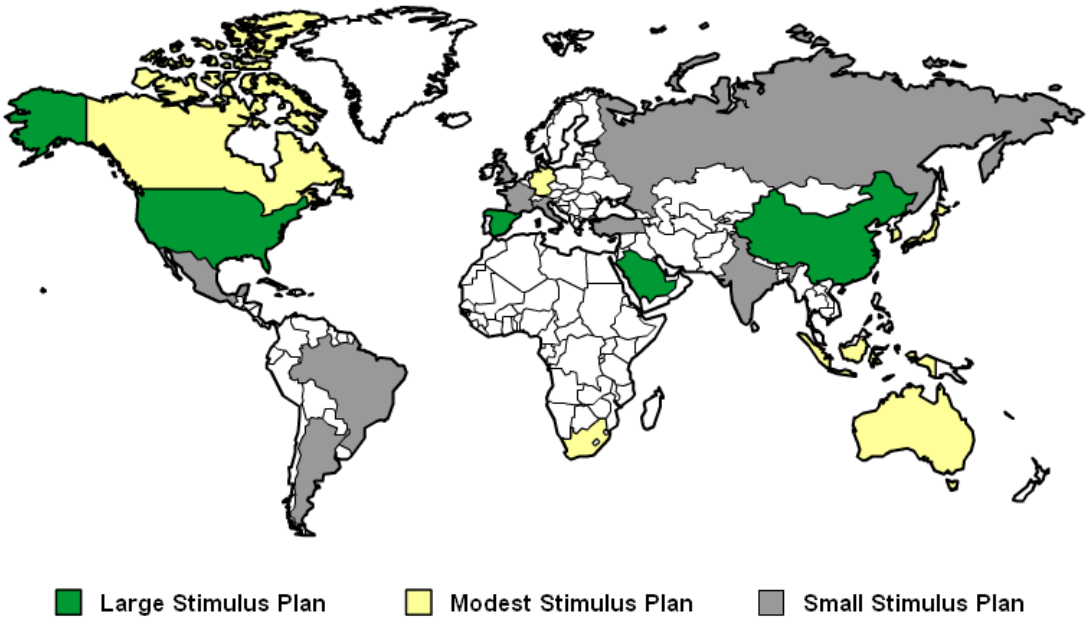
Figure 3: Annualized Growth Rate of Investment for Fixed Assets

(Compared with Same Period in Preceding Year)



Source: National Bureau of Statistics, China.

Figure 4: Assessment of Fiscal Stimulus Package in G-20 Countries



Source: Brookings Institute.
http://www.brookings.edu/reports/2009/03_g20_stimulus_prasad.aspx?slideshow=1&slide=0.

Figure 5: Structure of SASAC Institutions

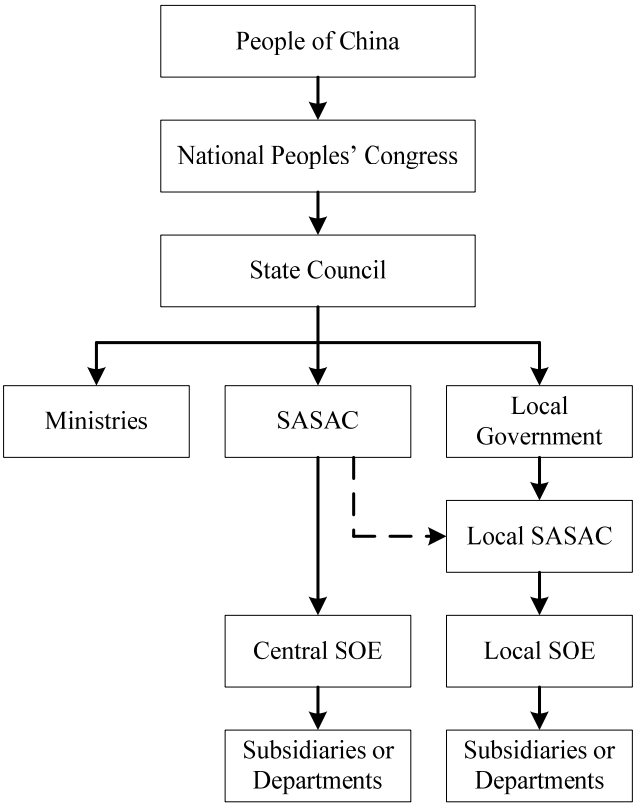
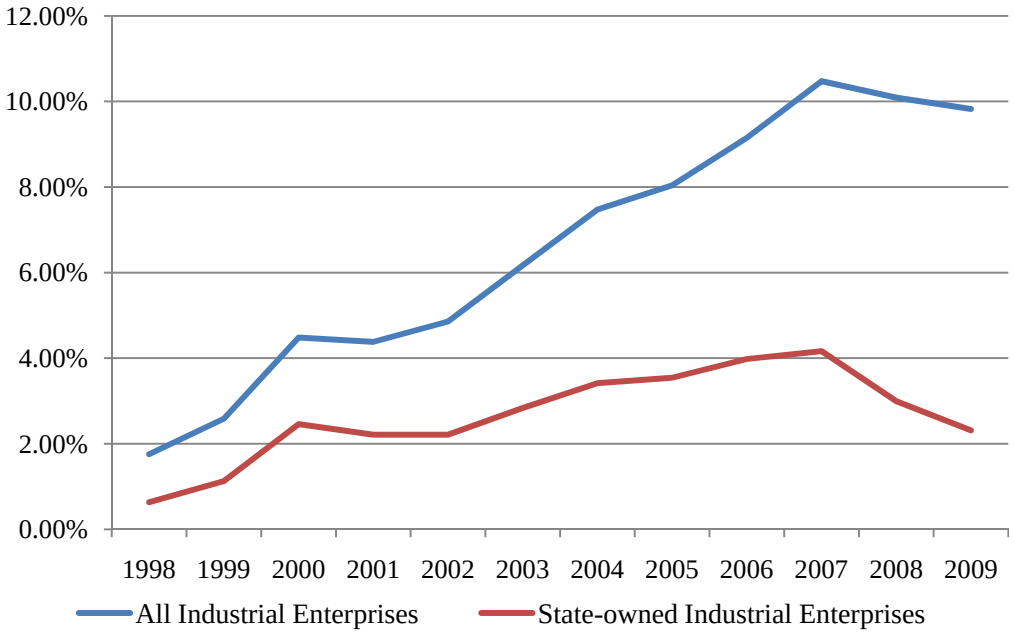
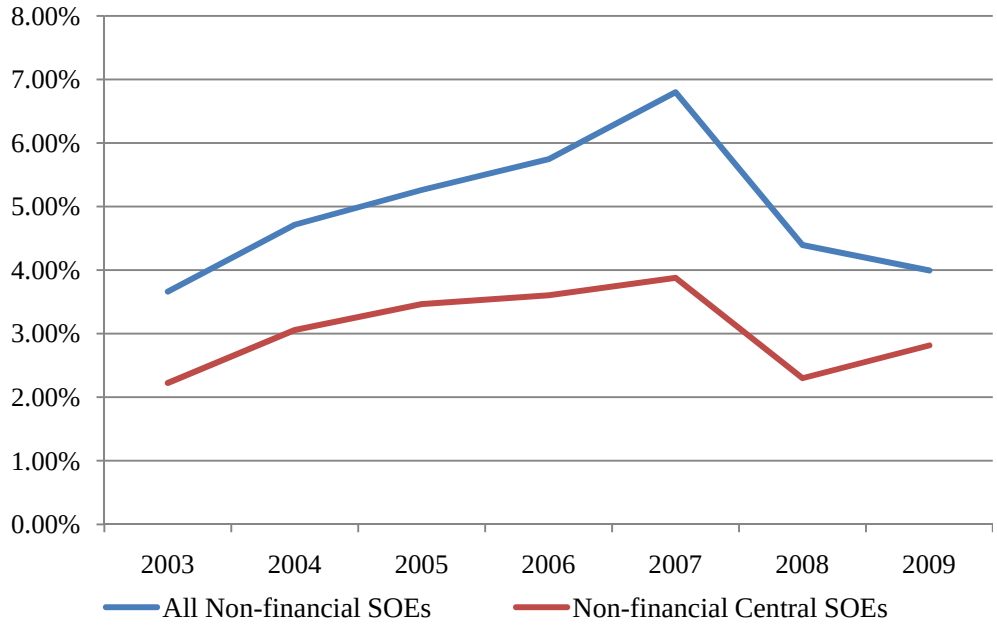


Figure 6: Industry Profits as Percentage of GDP



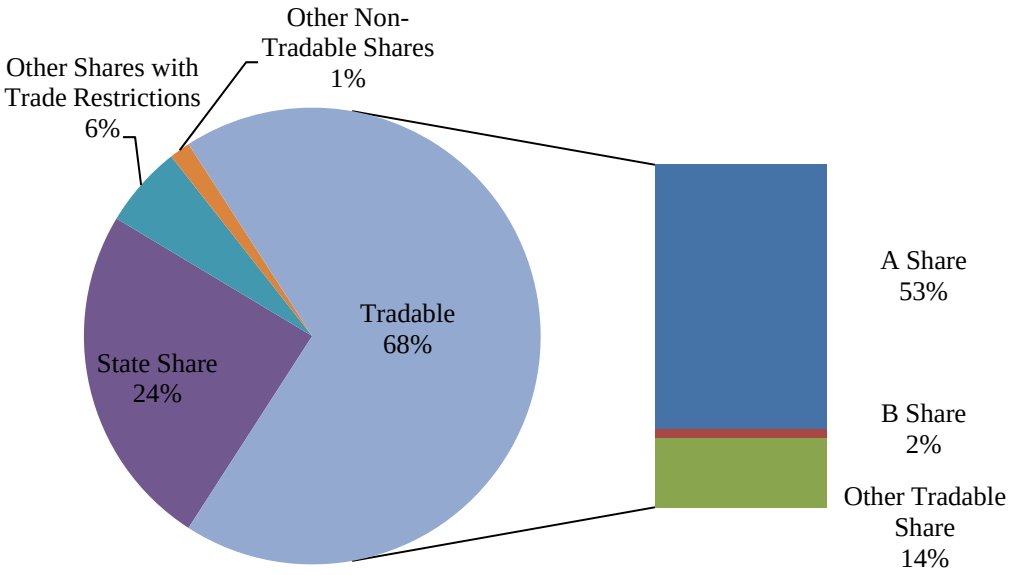
Source: National Bureau of Statistics, China.

Figure 7: SOE Profits as Percentage of GDP



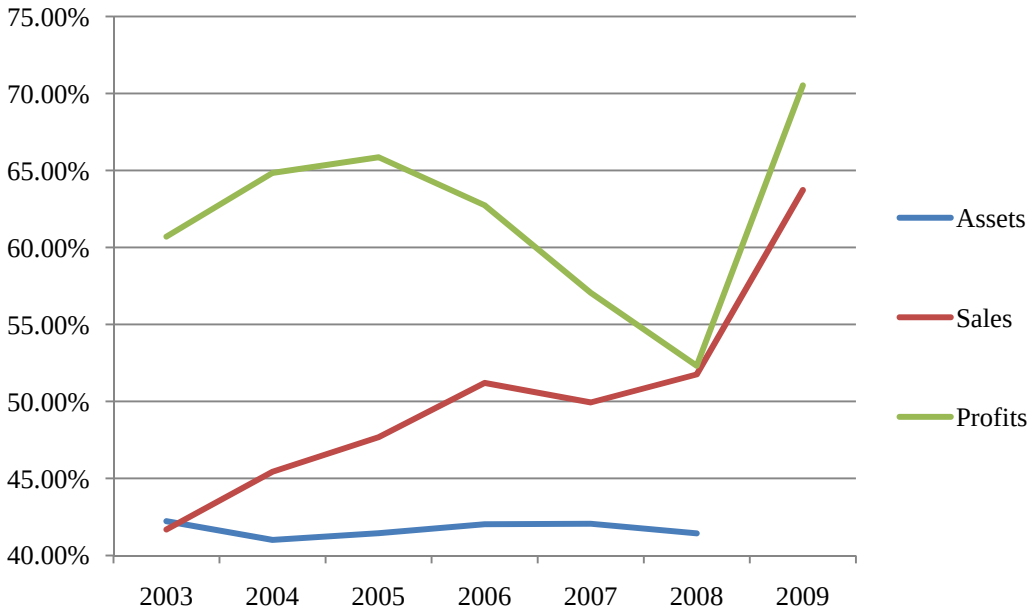
Source: SASAC in State Council, China.

Figure 8: Ownership Structure of China's Listed Companies (2009)



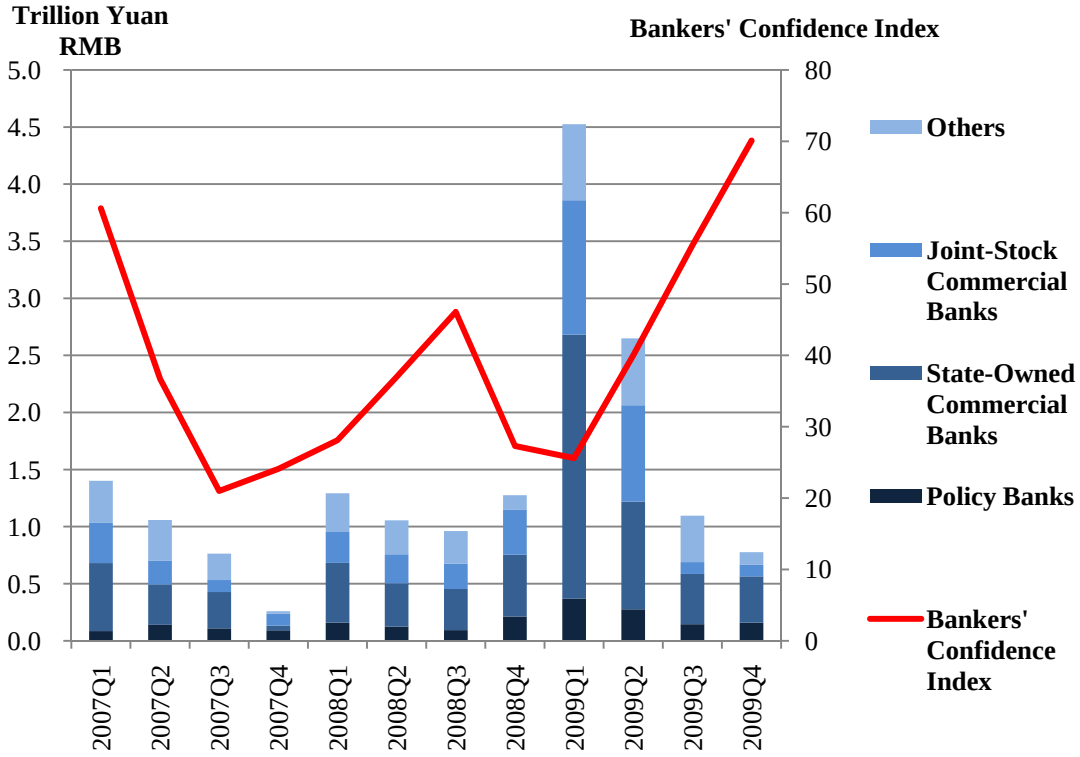
Source: Genius Finance Database, http://www.genius.com.cn/.

Figure 9: Share of C-SOEs in All the SOEs



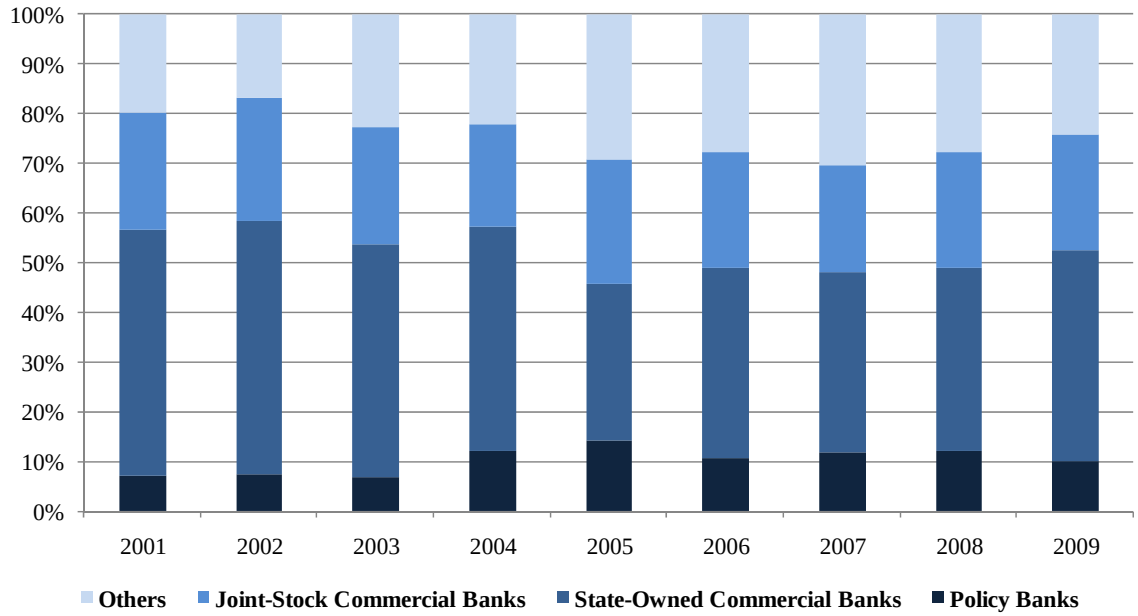
Source: SASAC in State Council, China.

Figure 10: Loan Balance Increment and Bankers' Confidence



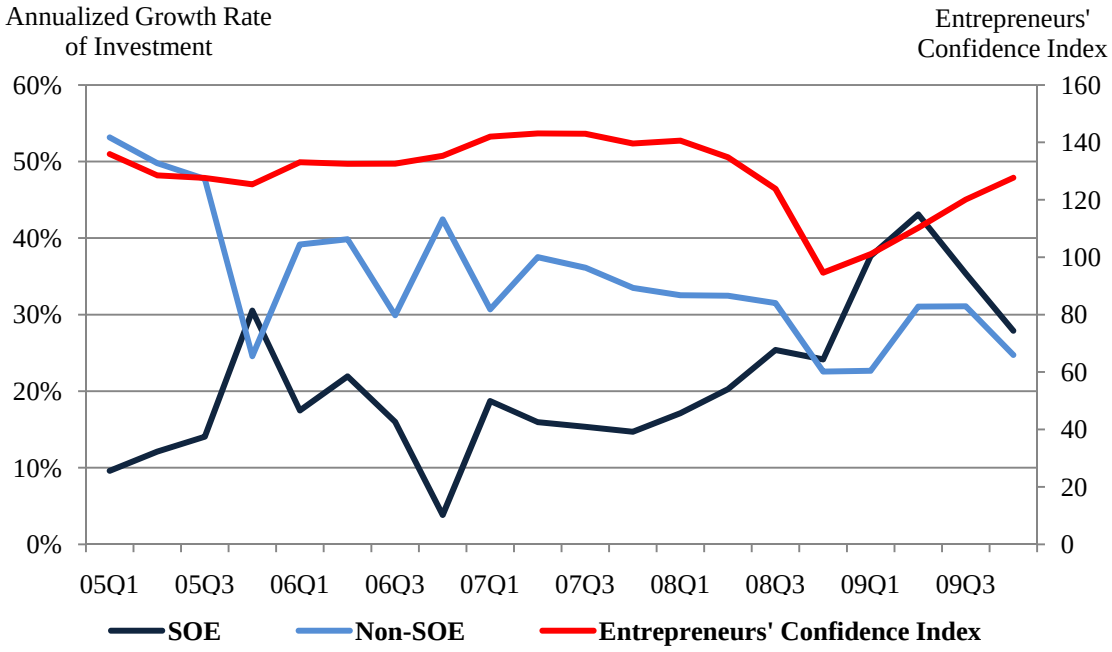
Source: People's Bank of China (the central bank in China).

Figure 11: Source of Loan Balance Increment



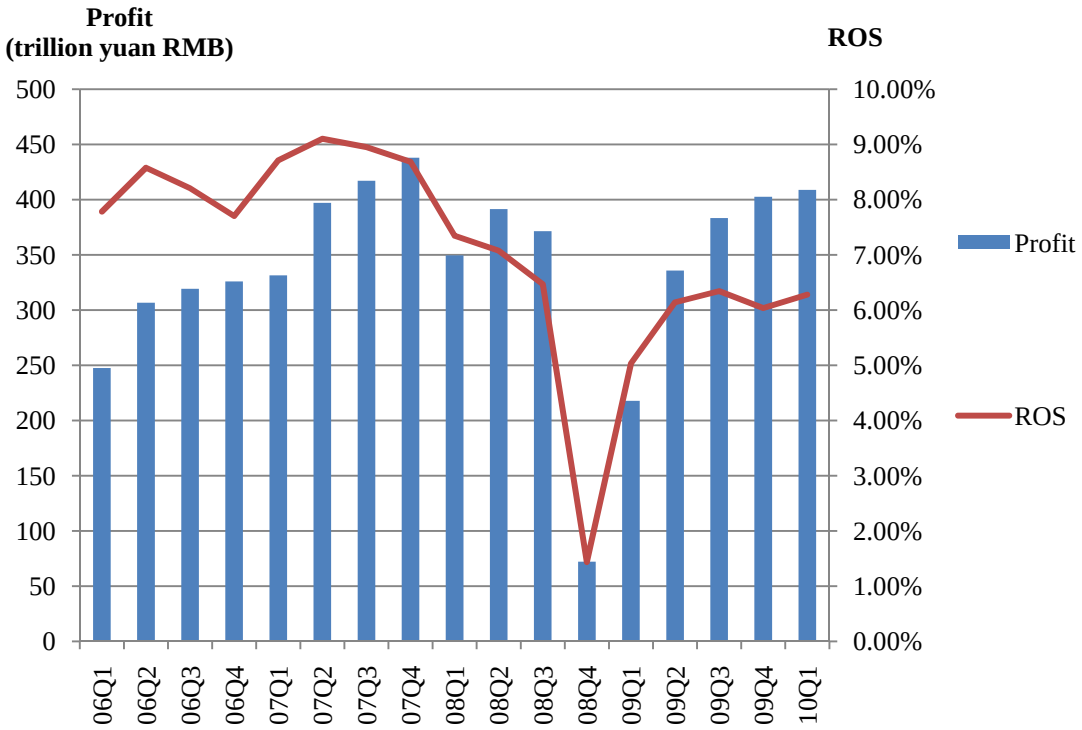
Source: People's Bank of China (the central bank in China).

Figure 12: Annualized Growth Rate of Fixed Asset Investment and Entrepreneurs' Confidence



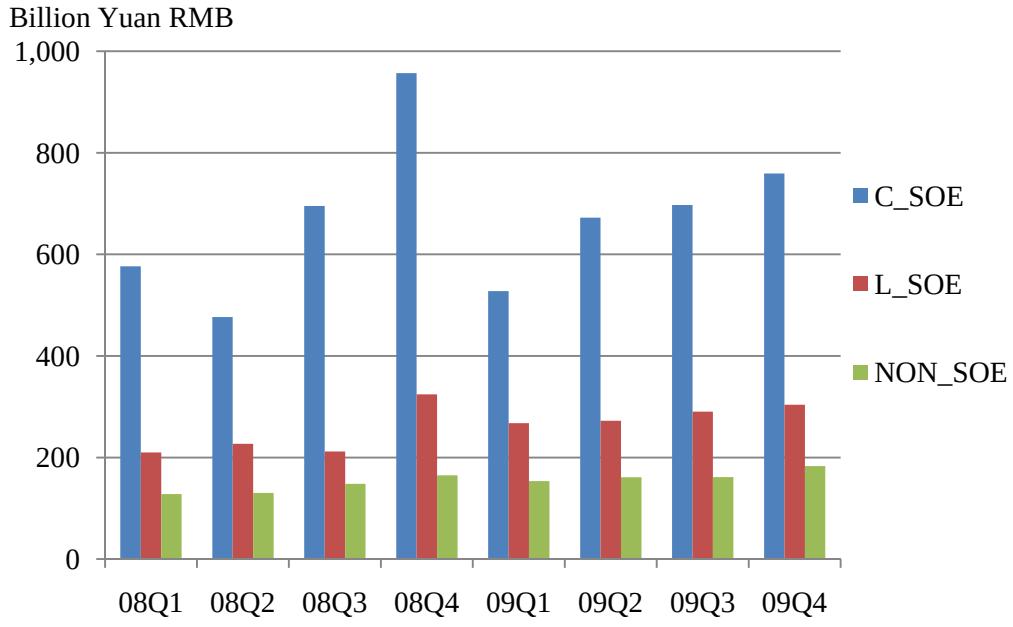
Source: National Bureau of Statistics, China.

Figure 13: Quarterly Performance of SOEs



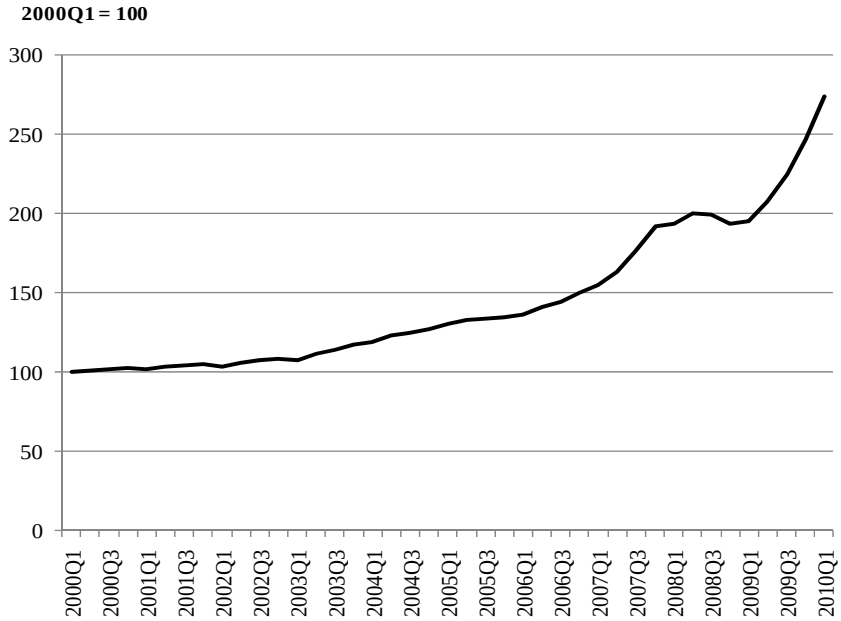
Source: Ministry of Finance, China.

Figure 14: Volume of Loan Issued to Listed Companies



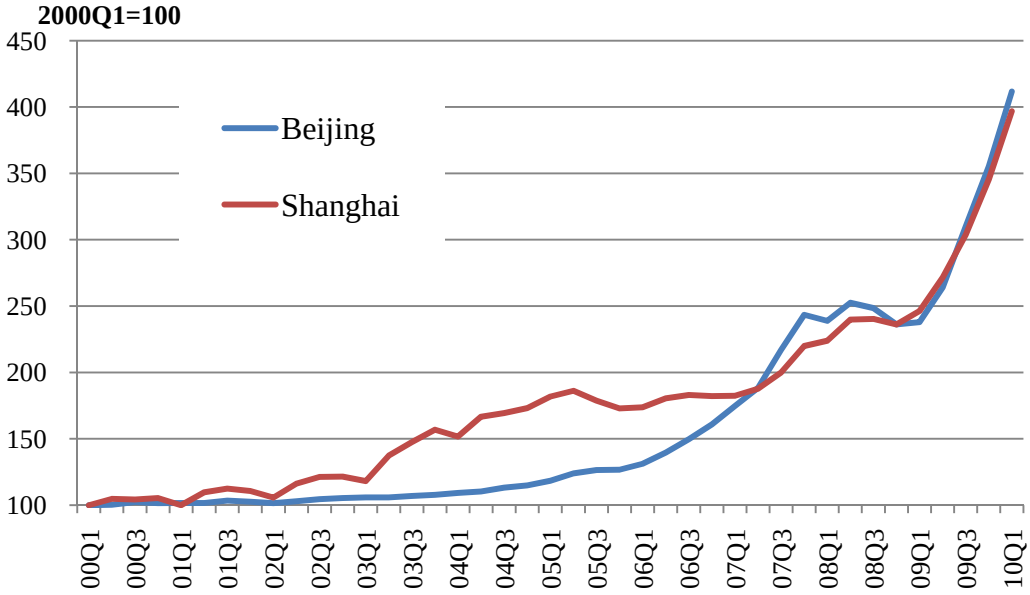
Source: Genius Finance Database, http://www.genius.com.cn/.

Figure 15: Constant-Quality Price Index for Newly-Built Private Housing in 35 major cities, China



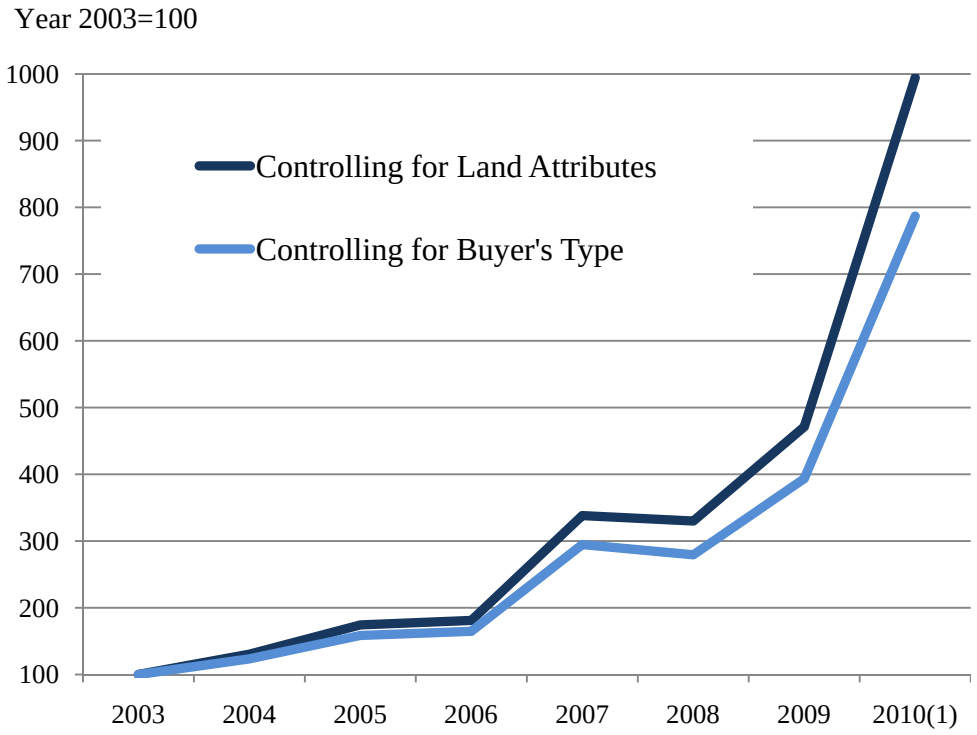
Sources: Institute of Real Estate Studies, Tsinghua University.

Figure 16: Constant Quality Price Index for Newly-Built Housing in Beijing and Shanghai



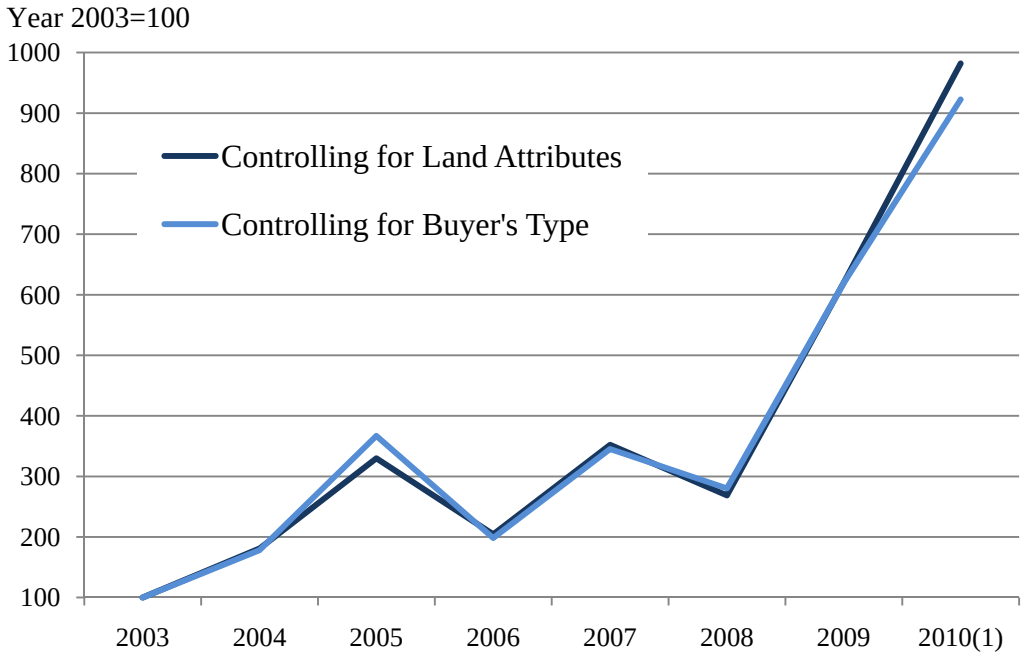
Source: Institute of Real Estate Studies, Tsinghua University, China.

Figure 17: Constant-Quality Price Index for Residential Use Land in Beijing



Sources: Authors' calculations.

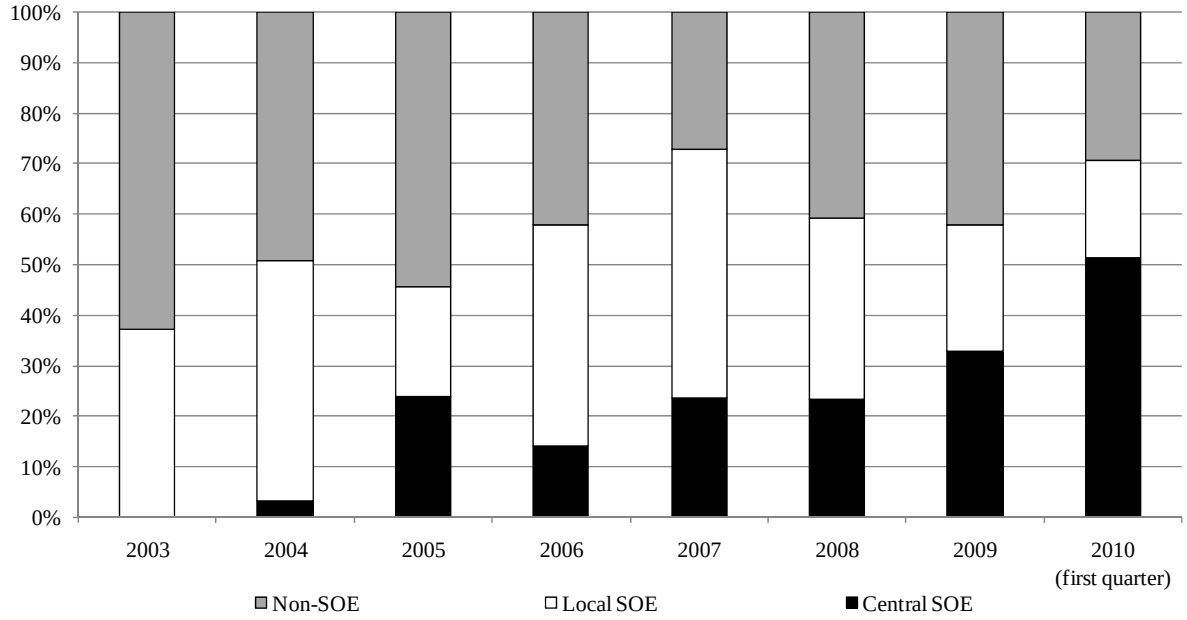
Figure 18: Constant-Quality Price Index for Residential Use Land in Shanghai



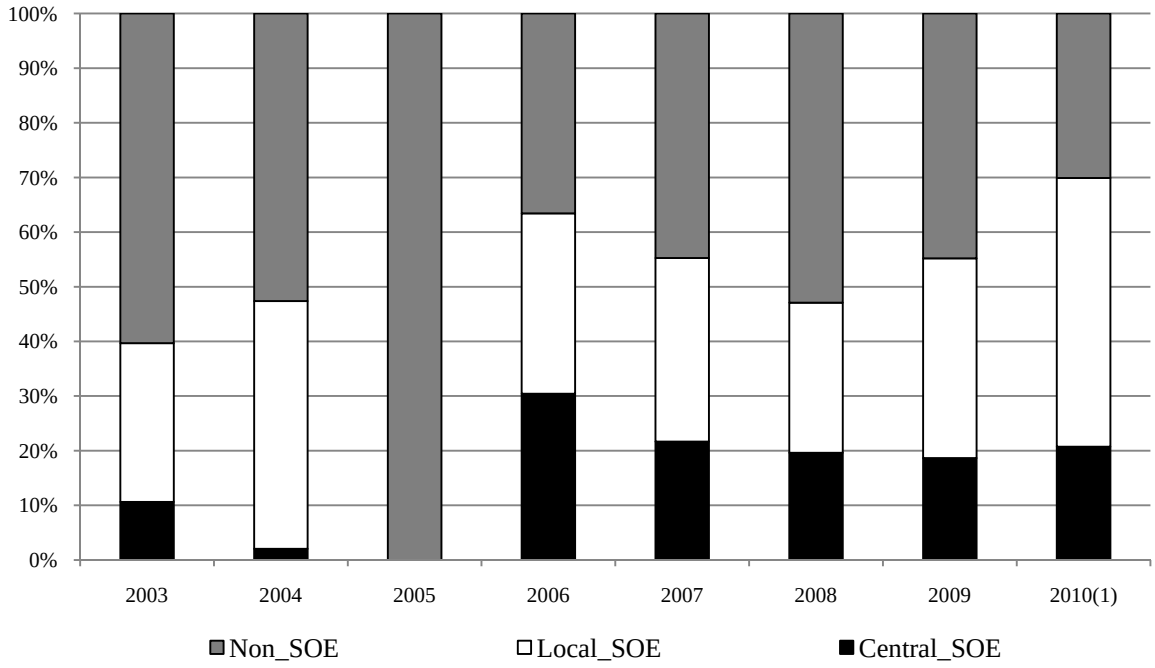
Sources: Authors' calculations.

Figure 19: Share of Floor Area Purchased by Various Group of Developers

(A) Beijing



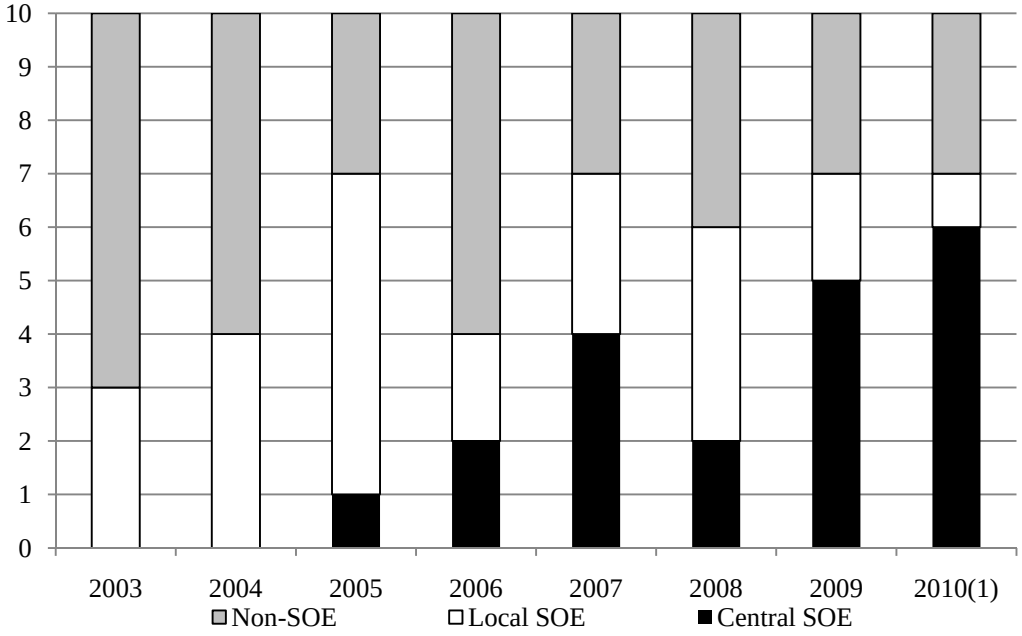
(B) Shanghai



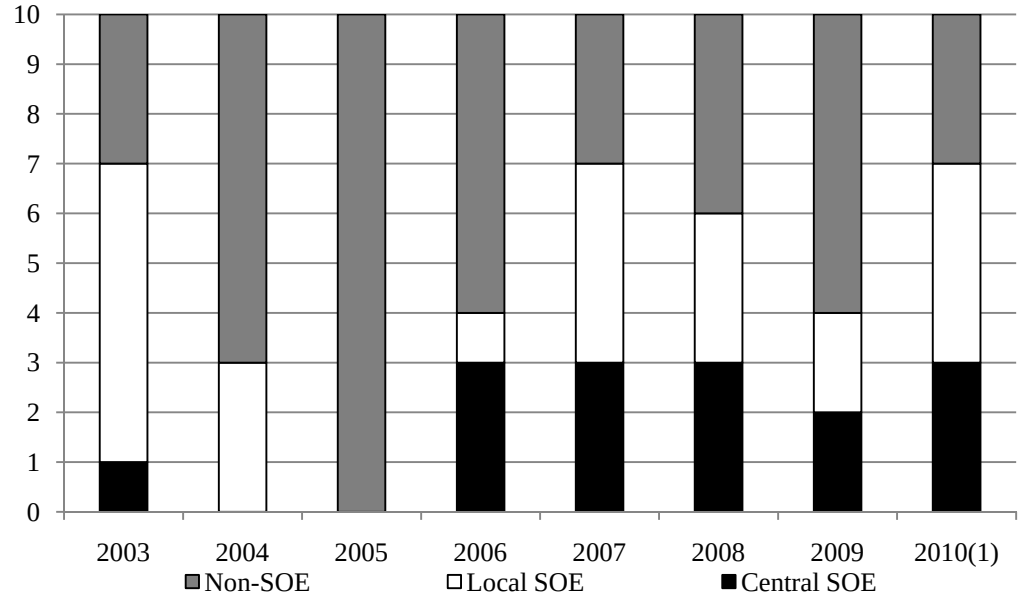
Sources: Authors' calculations.

Figure 20: "Top 10" Parcels Purchased by Various Group of Developers

(A) Beijing



(B) Shanghai



Sources: Authors' calculations.

Table 1: IMF Estimated Stimulus Packages in Large Countries

(in percent of GDP)

	2008	2009	2010	Total
Canada	0.0	1.5	1.3	2.7
China	0.4	2.0	2.0	4.4
France	0.0	0.7	0.7	1.3
Germany	0.0	1.5	2.0	3.4
India	0.0	0.5	-	0.5
Italy	0.0	0.2	0.1	0.3
Japan	0.4	1.4	0.4	2.2
U.K.	0.2	1.4	-0.1	1.5
U.S.	1.1	2.0	1.8	4.8

Sources: IMF

Table 2: Shares of Three Components in GDP, China

	Final Consumption Expenditure		Gross Capital Formation		Net Exports		GDP Growth Rate
	Share	GDP Growth Contributed	Share	GDP Growth Contributed	Share	GDP Growth Contributed	
2000	65.1	5.5	22.4	1.9	12.5	1.0	8.4
2001	50.0	4.1	50.1	4.2	-0.1	0.0	8.3
2002	43.6	4.0	48.8	4.4	7.6	0.7	9.1
2003	35.3	3.5	63.7	6.4	1.0	0.1	10.0
2004	38.7	3.9	55.3	5.6	6.0	0.6	10.1
2005	38.2	4.0	37.7	3.9	24.1	2.5	10.4
2006	38.7	4.5	42.0	4.9	19.3	2.2	11.6
2007	40.6	5.3	39.7	5.1	19.7	2.6	13.0
2008	45.7	4.1	45.1	4.1	9.2	0.8	9.0
2009	52.5	4.6	92.3	8.0	-44.8	-3.9	8.7

Source: National Bureau of Statistics, China.

Table 3: Composition of Enterprises by Owner Structure (unit: thousand)

	2001	2004	2008
Domestic- Funded Enterprises			
State Owned Enterprises	369	192	156
Collective Enterprises	858	456	260
Other Joint-Stock Enterprises	300	406	638
Private Enterprises	1324	1982	3596
Other Types	37	62	124
Foreign-Funded Enterprise	139	152	186
Total	3027	3250	4960

Source: National Bureau of Statistics, China.

Table 4: Asset Shares of Various Enterprises in 2008

	Asset (trillion yuan RMB)	Proportion in Total Volume
Domestic- Funded Enterprises		
State Owned Enterprises	63.5	30.53%
Collective Enterprises	9.0	4.33%
Other Joint-Stock Enterprises	86.9	41.78%
Private Enterprises	25.7	12.36%
Other Types	1.4	0.67%
Foreign-Funded Enterprise	139	21.5
Total	3027	208.0

Source: National Bureau of Statistics, China.

Table 5: Ownership Structure of All Enterprises in the Economic Census

	2004		2008	
	Amount (Trillion Yuan RMB)	Percentage	Amount (Trillion Yuan RMB)	Percentage
State Share	6.8	37.4%	11.4	33.5%
Collective Share	1.0	5.5%	1.0	2.9%
Corporate Share	4.6	25.3%	8.7	25.6%
Personal Share	3.3	18.1%	7.8	22.9%
Foreign Share	2.5	13.7%	5.2	15.3%
Total	18.2		34.0	

Source: National Bureau of Statistics, China.

Table 6: Banking Financial Institutions at the End of 2008

	Number	**Asset (trillion yuan RMB)**
Policy Banks	3	56454
State-Owned Commercial Banks	4	291575
Joint-Stock Commercial Banks		
State as Largest Share Holder	11	101247
Others	2	13628
Others		
Urban Commercial Banks and Credit Union	158	42123
Rural Commercial Banks and Credit Union	5241	71436
Postal Savings Bank	1	22163
Foreign Banks	32	13448
Non-Bank Institutions	182	11802
Total	5634	623876

Source: People's Bank of China; China Banking Regulatory Commission.

Table 7: Key Performance Indicators of Non-Financial SOEs

	All SOEs			C-SOEs		
	ROS	ROA	ROE	ROS	ROA	ROE
2003	4.9%	3.9%	3.2%	6.9%	-	6.0%
2004	6.1%	4.7%	4.9%	8.5%	-	8.9%
2005	6.8%	5.1%	6.0%	9.4%	-	10.0%
2006	7.6%	5.6%	6.6%	9.3%	-	-
2007	9.8%	6.5%	9.5%	10.1%	8.6%	12.3%
2008	5.8%	4.6%	6.1%	5.9%	5.6%	7.2%
2009	6.0%	-	8.2%	6.6%	-	9.2%

Source: the SASAC in State Council, China.

Table 8: Credit Limit Awarded to the C-SOEs Since 2009

SOE	Total Assets in 2008 (billion yuan RMB)	Bank	Total Credit Limit (billion yuan RMB)
China National Nuclear Corp.	166.0	China Development Bank	100
Aviation Industry Corp. of China	329.0	Combination of 10 Banks	176
		BC	60
		Export-Import Bank of China	100
China Aerospace Science and Technology Corp.	138.3	Bank of Communications	10
China State Shipbuilding Corp.	153.1	BC	80
		Export-Import Bank of China	100
China Shipbuilding Industry Corp.	222.1	Export-Import Bank of China	60
China Ordnance Equipment Group Corp.	179.0	BC	50
China Huadian Corp.	290.0	China Everbright Bank	10
China Three Gorges Project Corp.	224.1	BC	50
Donefeng Motor Corp.	217.6	BC	20
Dongfang Electric Corp.	68.9	BC	30
Baosteel Group Corp.	352.5	ABC	50
Wuhan Iron and Steel Group Corp.	155.9	China Development Bank	80
Aluminum Corp. of China	346.6	Bank of Beijing	30
		China Merchants Bank	22
China Ocean Shipping (Group) Company	247.8	BC	20
China Shipping (Group) Company	112.7	China Merchants Bank	20
		Bank of Communications	30
China National Aviation Holding Company	109.6	Bank of Communications	15
China Eastern Air Holding Company	90.4	Pudong Development Bank	10
		ABC	15
		BC	20
		Bank of Communications	10
China Southern Air Holding Company	83.0	CCB	11
		CCB	20
		ICBC	50
		Bank of Communications	15
China Sinochem Group	135.5	BC	20
China General Technology (Group) Holding Ltd.	36.3	Bank of Communications	20
China State Construction Engineering Corp.	214.7	China Merchants Bank	20
		Bank of Beijing	10

China Resource Group	274.5	BC	70
		ABC	100
China National Travel Service (HK) Group Corp.	45.3	ABC	15
Commercial Aircraft Corp. of China, Ltd.	23.2	Export-Import Bank of China	50
China National Coal Group Corp.	123.0	Pudong Development Bank	15
China National Materials Group Corp. Ltd.	50.7	Huaxia Bank	10
		China Everbright Bank	10
		China Everbright Bank	10
China National Building Material Group Corp.	91.8	ABC	60
		BC	12
		CCB	10.8
China CNR Corp. Ltd.	48.0	BC	30
China Railway Engineering Corp.	255.0	CCB	110
		Pudong Development Bank	10
		Bank of Beijing	10
China Communications Construction Corp. Ltd.	225.5	CCB	20
		ICBC	20
China Poly Group Corp.	85.8	BC	10
China National Aviation Fuel Group Corp.	23.9	Bank of Communications	10.7
Sinohydro Corp.	76.4	ABC	50
		CCB	29.1
		BC	40
		Bank of Communications	30
Pangang Group Company Ltd.	-	BC	25
China Gezhouba Group Corp.	-	ABC	20
China Railway Materials Commercial Corp.	26.8	ABC	10
		Pudong Development Bank	10

Note: Only credit limits awarded above 10 billion yuan RMB are collected.

Source: Announcements of related enterprises or banks.

Table 9: Rate of ROS for Various Industries

	2004	2008
Mining	20.74%	23.16%
Manufacturing	5.04%	5.27%
Production and Supply of Electric Power, Water and Gas	5.79%	2.25%
Construction	2.81%	3.69%
Transportation, Storage and Post	8.77%	10.49%
Real Estate	8.31%	12.62%
Wholesale and Retail Trade	1.94%	-
Accommodation and Catering	1.67%	-
Other Service Industries	10.23%	15.33%

Source: National Bureau of Statistics, China.

Table 10: Share of the C-SOEs in Real Estate Market in 2009

	16 "Professional" C-SOEs	**78 "Unprofessional" C-SOEs**	**All 94 C-SOEs**
Sales income (billion yuan RMB)	189.9	31.0	220.9
Market Share	4.3%	0.7%	5.0%
Floor Area Sold (million sq.m.)	-	-	28.1
Market Share	-	-	3.0%

Source: SASAC in State Council, China.

Table 11: Groups of Developers

	Type	Central SOE Developers	Local SOE Developers	Non-SOE Developers
Beijing	Number of Developers	14	52	133
	Number of Parcels Purchased	43	100	166
	Total Floor Area of Land Purchased (million sq.m.)	10.11	15.94	18.25
	Average Price of Land Purchased (Yuan RMB per sq.m. floor area)	8353.58	3610.66	3082.78
Shanghai	Number of Developers	17	71	169
	Number of Parcels Purchased	54	120	233
	Total Floor Area of Land Purchased (million sq.m.)	8.01	16.8	23.99
	Average Price of Land Purchased (Yuan RMB per sq.m. floor area)	6363.18	3954.94	3390.84

Sources: Authors' calculations.

Table 12: Definition and Descriptive Statistics of Variables

Variable	Definition	Beijing		Shanghai	
		Mean	Std dev.	Mean	Std dev.
LP	Transaction price of the parcel; in Yuan RMB per square meter of floor area.	2543.69	17330.68	3951.54	5182.67
D_CENTER	Distance to the city center (Tian An Men Square in Beijing and Renmin Square in Shanghai); in kilometers.	28.56	19.62	27.03	14.54
D_MRT	Distance to the nearest MRT station in use; in kilometers.	14.40	15.93	9.35	10.95
FAR	Ratio between the floor area and the land area.	2.08	0.94	1.49	0.69
LANDLEVEL	The parcel is levied when delivered to the buyer or not; 1=yes, 0=o/w.	0.89	0.31	-	-
FULLINFRA	The parcel has full infrastructure when delivered to the buyer or not; 1=yes, 0=o/w.	0.51	0.50	-	-
SHARE_PR	Share of public rental housing required in the total floor area of the parcel.	0.002	0.02	-	-
SHARE_PC	Share of price-controlled housing required in the total floor area of the parcel.	0.02	0.16	-	-
AUCTION	The parcel is transacted by auction or not; 1=auction, 0=bidding.	0.77	0.42	-	-
GRADE1-GRADE5	The parcel is purchased by a developer with qualification of first (second…fifth) grade or not, 1=yes, 0=o/w	-	-	-	-
C-SOE	The parcel is purchased by a SOE owned by central government or not; 1=yes, 0=o/w.	0.14	0.35	0.13	0.34
L-SOE	The parcel is purchased by a SOE owned by local government or not; 1=yes, 0=o/w.	0.33	0.47	0.29	0.46
LISTED	The parcel is purchased by a listed company or not; 1=yes, 0=o/w.	0.32	0.47	0.26	0.44
T2003 – T2010	The parcel is transacted in the year or not; 1=yes, 0=o/w.	-	-	-	-

Table 13: Results of the Land Price Model in Beijing

Dependants: log (LP)

	(1)		(2)	
Constant	8.633	(33.27)***	8.219	(29.98)***
log (D_CENTER)	-0.555	(-7.73)***	-0.474	(-6.59)***
log (D_MRT)	-0.138	(-4.18)***	-0.138	(-4.29)***
FAR	-0.103	(-2.89)***	-0.0832	(-2.34)**
LANDLEVY	0.274	(2.55)**	0.278	(2.66)***
FULLINFRA	0.274	(4.38)***	0.204	(3.26)***
SHARE_PR	-2.500	(-1.37)	-2.954	(-1.66)*
SHARE_PC	-0.184	(-0.95)	-0.239	(-1.25)
AUCTION	0.0638	(0.78)	0.136	(1.64)
C-SOE			0.241	(2.26)**
L-SOE			-0.00544	(-0.08)
GRADE1			0.0859	(0.62)
GRADE2			0.358	(3.42)***
GRADE3			0.203	(1.93)*
GRADE4			0.131	(1.31)
LISTED			-0.0284	(-0.36)
T2004	0.266	(1.73)*	0.210	(1.41)
T2005	0.556	(3.44)***	0.460	(2.90)***
T2006	0.594	(3.86)***	0.499	(3.31)***
T2007	1.218	(7.67)***	1.081	(6.91)***
T2008	1.194	(7.60)***	1.027	(6.59)***
T2009	1.550	(10.44)***	1.370	(9.07)***
T2010	2.297	(12.34)***	2.063	(10.99)***
Obs	309		309	
Adjusted R^2	0.720		0.738	

Notes: (1) t statistics are reported in parenthesis.

(2) ***: significant at the 1% level; **: significant at the 1% level;*: significant at the 10% level.

Table 14: Results of the Land Price Model in Shanghai

Dependants: log (LP)

	(1)		(2)	
Constant	9.470	(34.40)***	8.085	(32.29)***
log (D_CENTER)	-0.699	(-8.56)***	-0.690	(-8.62)***
log (D_MRT)	-0.061	(-1.84)*	-0.044	(-1.34)
FAR	-0.260	(-4.43)***	-0.234	(-4.08)***
C_SOE			0.050	(0.48)
L_SOE			-0.021	(-0.28)
GRADE1			0.364	(3.56)***
GRADE2			0.367	(3.83)***
GRADE3			0.140	(1.29)
LISTED			0.161	(2.03)**
T2004	0.593	(5.24)***	0.577	(5.20)***
T2005	1.194	(2.38)**	1.300	(2.65)***
T2006	0.715	(4.65)***	0.684	(4.48)***
T2007	1.259	(11.68)***	1.239	(11.70)***
T2008	0.988	(8.15)***	1.030	(8.61)***
T2009	1.825	(18.78)***	1.824	(19.06)***
T2010	2.284	(16.93)***	2.222	(16.50)***
Obs	407		407	
Adjusted R^2	0.637		0.647	

Notes: (1) t statistics are reported in parenthesis.

(2) ***: significant at the 1% level; **: significant at the 1% level;*: significant at the 10% level.

Table 15: Results of the Land Price Model in Beijing(II)

Dependants: log (LP)

	(1)		(2)		(3)		(4)		(5)	
Constant	8.624	(33.84***)	8.557	(33.66***)	8.626	(33.72***)	8.620	(33.75***)	8.621	(33.32***)
log (D_CENTER)	-0.544	(-7.70***)	-0.507	(-7.12***)	-0.544	(-7.68***)	-0.542	(-7.65***)	-0.544	(-7.56***)
log (D_CENTER)*C-SOE	0.110	(3.44***)								
log (D_MRT)	-0.134	(-4.14***)	-0.163	(-4.97***)	-0.131	(-4.03***)	-0.134	(-4.12***)	-0.139	(-4.25***)
log (D_MRT) *C-SOE			0.194	(3.88***)						
FAR	-0.105	(-3.01***)	-0.0987	(-2.84***)	-0.112	(-3.19***)	-0.106	(-3.03***)	-0.106	(-2.98***)
FAR*C-SOE					0.120	(3.09***)				
LANDLEVY	0.275	(2.60***)	0.264	(2.51**)	0.286	(2.69***)	0.269	(2.54**)	0.279	(2.60***)
LANDLEVY*C-SOE							0.301	(3.26***)		
FULLINFRA	0.241	(3.87***)	0.239	(3.87***)	0.245	(3.93***)	0.240	(3.84***)	0.236	(3.56***)
FULLINFRA*C-SOE									0.194	(1.75*)
SHARE_PR	-2.527	(-1.41)	-2.748	(-1.54)	-2.685	(-1.49)	-2.657	(-1.48)	-2.644	(-1.45)
SHARE_PC	-0.272	(-1.43)	-0.212	(-1.13)	-0.244	(-1.28)	-0.267	(-1.40)	-0.244	(-1.25)
AUCTION	0.0542	(0.67)	0.0390	(0.49)	0.0597	(0.74)	0.0574	(0.71)	0.0630	(0.77)
T2004	0.249	(1.65)	0.259	(1.73*)	0.248	(1.63)	0.249	(1.64)	0.256	(1.67*)
T2005	0.542	(3.41***)	0.556	(3.52***)	0.536	(3.36***)	0.548	(3.44***)	0.561	(3.48***)
T2006	0.569	(3.77***)	0.595	(3.97***)	0.557	(3.67***)	0.570	(3.76***)	0.587	(3.83***)
T2007	1.156	(7.37***)	1.186	(7.64***)	1.156	(7.33***)	1.160	(7.38***)	1.191	(7.50***)
T2008	1.134	(7.30***)	1.183	(7.71***)	1.137	(7.29***)	1.141	(7.34***)	1.170	(7.44***)
T2009	1.486	(10.11***)	1.499	(10.30***)	1.484	(10.04***)	1.493	(10.16***)	1.528	(10.30***)
T2010	2.185	(11.77***)	2.225	(12.17***)	2.173	(11.56***)	2.177	(11.65***)	2.233	(11.81***)
Obs	309		309		309		309		309	
adj. R^2	0.730		0.732		0.728		0.729		0.722	

Notes: (1) t statistics are reported in parenthesis.

(2) ***: significant at the 1% level; **: significant at the 1% level;*: significant at the 10% level.