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ESSAYS IN CHINESE SECURITY ISSUANCE AND PRIVATIZATION

A DISSERTATION APPROVED FOR THE
MICHAEL F. PRICE COLLEGE OF BUSINESS

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For my mom. Thank you for everything.

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Abstract

This dissertation is a collection of three essays which study the impacts of different types of government ownership on a firm's post-privatization performance, the underlying cause for the change in Chinese share-issue privatization listing strategies, and the equity flotation method selection mechanism of Chinese listed companies.

In Chapter 1, I compare central government ownership with local government ownership in a privatization framework and investigate whether and how the two types of government ownership affect a firm's post-privatization performance differently. With 757 partial privatizations through private placements in China over the period of 2006 to 2015, I find that firms owned by the central government experience greater increases in real net profits, while firms owned by local governments have slightly better profitability improvements after private placement privatizations. However, firms owned by the two types of government experience similar post-privatization changes in capital investments, operating efficiency, and leverage. In addition, the market shows roughly the same level of positive reactions to privatization plan announcements of firms with either central government or local government ownership. My findings indicate that central and local government ownerships only have limited differences in their impacts on firm profitability and net profits. Overall, they have similar net effects on firm operations and performance although they have different advantages and disadvantages.

During the early years of China's share-issue privatization program, most large state-owned enterprises (SOEs) were initially listed on overseas stock markets. This pattern changed dramatically after 2007, when Chinese domestic stock markets became

significantly more attractive to SOEs and most SIPs went public on the Shanghai or Shenzhen stock exchanges. In Chapter 2, we posit two explanations for this change in listing strategy. First, increasing Chinese stock market absorptive capacity might have given SOEs more incentive to list domestically because their financing needs could then be better satisfied in markets with higher absorptive capacity. Alternatively, the shift could result from the Chinese government's enactment of new laws, regulations, and policies around 2007 encouraged (or forced) Chinese SOEs to list in Shanghai. Using a sample of 1,494 Chinese SIPs that raised $566 billion between 1990 and 2014, we find empirical support for both predictions.

Chapter 3 compares three major equity flotation methods frequently employed by listed firms in Chinese markets. Rights offering was the dominant flotation method prior to 2005. However, there was an apparent preference shift from rights offerings to private placements after 2005. We check the valuation effects of the three methods before and after 2005 and use a multinomial logit test to identify the determinants in the flotation method selection mechanism. Our results support the information asymmetry hypothesis by showing that firms with high level of information asymmetry tend to choose private placements and avoid public offerings. Ownership structure doesn't seem to be an important factor determining the selection of flotation methods. Profitability requirements for refinancing prevent a lot of listed firms from raising additional external capital. The removal of profitability requirements for private placements in 2006 boosts the popularity of private placements and explains the shift from rights offerings to private placements to some extent.

Chapter 1: Types of Government Ownership and Post-Privatization Performance: Evidence from Chinese Private Placement Privatizations

1. Introduction

Government ownership is generally considered inferior to private ownership and usually correlates with reduced firm value. This is attributed to the non-profit maximizing political or social objectives that governments may impose on enterprises with government stockholdings. The privatization literature shows that privatized firms experience improved profitability and efficiency[1]. This evidence reflects the downside of government ownership. However, government ownership can also play a positive role in firm operations. Firms with government backing may acquire some implicit advantages in business activities. For example, State-owned enterprises (SOEs) may have better access to financial markets, obtain project or land approvals from governments more easily, or have higher chances of receiving government sponsored bailouts than do private companies. In addition, governments can provide implicit debt guarantees for SOEs and therefore lower the cost of debt and reduce the probability of bankruptcy. However, it is noteworthy that governments are not all the same. The pros and cons of government ownership may express differently in firm operations for different types of government ownership. There is little evidence in the literature addressing whether different types of government ownership have the same impact on operations. In this study, I compare central government ownership with local

[1] See Vickers and Yarrow (1991), Megginson, Nash, and Van Randenborgh (1994), Nellis (1994), Boubakri and Cosset (1998), D'Souza and Megginson (1999), La Porta and Lopez-de-Silanes (1999), Megginson and Netter (2001), Sun and Tong (2003), Wei, Varela, D'Souza, and Hassan (2003), Gupta (2005), and Li, Megginson, Shen, and Sun (2016).

government ownership and try to understand whether different types of government ownership have different impacts on firm value and performance. Focusing on Chinese private placement privatizations (PPPs), I check the market reaction difference between privatizations implemented by central government owned enterprises (CGOEs) and privatizations implemented by local government owned enterprises (LGOEs). I further compare the post-privatization performance improvements between CGOEs and LGOEs.

From the existing literature, we have limited knowledge about the impacts of different types of government ownership on firm value and performance. Holland (2016) points out that government investors are not a homogeneous group. Equity markets react differently to government investments depending on government investors' level of potential political interference. She finds positive shareholder wealth effects for investments by foreign governments or a domestic government's economic and financial arms, and negative effects for investments by domestic governments or a government's political arms. Karolyi and Liao (2015) examine cross-border acquisitions led by government controlled acquirers and corporate acquirers. Although their main purpose is to compare the investment patterns and preferences between government-controlled acquirers and corporate acquirers, they divide their government-controlled acquirers into two subsets and further compare sovereign wealth fund (SWF) acquirers with non-SWF government controlled acquirers. They find that SWF acquirers tend to target larger firms with fewer financial constraints and SWF-led acquisitions are less likely to fail. Compared with acquisitions led by other non-SWF government agencies, SWF-led acquisitions are associated with significantly smaller positive market reactions

around announcements. Oum, Adler, and Yu (2006) examine the operating profitability and efficiency of airports with multiple types of ownership structure. They find that airports with private majority ownership have higher operating efficiency and profit margin than those with government majority ownership or multi-level government ownership.

Several Chinese studies focus on different types of government ownership--including Berkman, Cole, and Fu (2014); Jiang, Lee, and Yue (2010); Cheung, Rau, Stouraitis (2010); and Chen, Firth, and Xu (2009). Berkman et al. (2014) examine the valuation effects around announcement periods of block-share transfers. They find that equity transfers from state bureaucrats to private entities are generally associated with greater positive valuation effects than transfers from state bureaucrats to market-oriented SOEs. Jiang et al. (2010) conduct research on corporate abuse through intercorporate loans in China. They show that the tunneling problem is more severe for SOEs controlled by local governments than those controlled by the central government. Cheung et al. (2010) directly compare central government ownership with local government ownership and conclude that minority shareholders are more likely to be expropriated by local government controlled firms which is consistent with the "grabbing hand" hypothesis. However, central government controlled firms benefit minority shareholders through related party transactions which is consistent with the government's "helping hand" hypothesis. Their results are echoed by Chen et al. (2009), who find that SOEs controlled by the central government show the best operating efficiency and SOEs controlled by state asset management bureaus and private firms have the worst operating efficiency. SOEs controlled by local

governments are in the middle. Both Cheung et al. (2010) and Chen et al. (2009) plausibly suggest that central government ownership is superior to local government ownership.

In this study, I compare Chinese central government ownership with local government ownership in a privatization setting. The significant post-privatization performance improvements documented in literature imply that government ownership has a negative net effect on firm performance. In other words, the disadvantages of government ownership outweigh its advantages in firm operations. When I divide government ownership into central government versus local government ownership, each type of ownership shows unique benefits and drawbacks on firm operations. Central government ownership provides a stronger certification effect and firms may have competitive advantage in business activities with national government endorsement. In order to maintain its credibility, the central government might also provide implicit guarantees of the debts issued by firms with central government ownership. Therefore, CGOEs may have lower cost of debts, preferential terms on bank loans, and easier access to financial markets.

In addition, CGOEs are subject to stricter monitoring from the central government. Their managers are more professional and less likely to sacrifice firm interests to acquire personal benefits. However, the central government has heavier political and social responsibilities than local governments. Firms with central government ownership are more likely to experience interference by the central government in pursuit of non-profit maximizing national or political objectives. The managers of CGOEs, who are appointed by the central government, will help the

government implement its policies and take this kind of opportunity to show their loyalty to the central government even if it may hurt their firms' performance. In terms of local government ownership, its certification effect is relatively weaker. Compared with the central government, local governments have fewer resources to guarantee their firms' debts and to help LGOEs gain access to financial markets more easily. The loose monitoring from local governments might also accelerate corruption problems inside LGOEs. However, LGOEs are subject to lower levels of political interference, and local government officials indeed expect LGOEs to have better performance to promote local economic development. Since central and local government ownership each has its own advantages and disadvantages, the net impact of central government ownership could be superior to, inferior to, or equivalent to the net impact of local government ownership. It is this question that I empirically test in this study.

I start with a standard event study examining the market reactions to privatization plan announcements. I select plan announcement dates instead of private placement announcement dates as my event days since these are the dates when the market receives the privatization information for the first time. Several firms have a long period of stock suspension after announcing their PPP plans. To ensure my cumulative abnormal returns (CARs) capture the market reactions to privatization plans, but not to some other new information generated in the suspension period, I exclude the PPP observations with stock suspensions for more than 30 trading days. I find that the market reacts positively to privatization plan announcements, regardless of whether the issuing firms are owned by the central government or local governments. For CGOEs, the CARs range from 1.21% in the three-day window to 2.99% in the 7-day window.

The market reactions for LGOEs range from 0.79% in the three-day window to 2.67% in the 7-day window. I realize that the observed positive reactions might reflect both privatization and private placement effects. However, my focus is to check whether central and local government ownerships may cause different market reactions in privatization processes. Therefore, I match CGOEs with LGOEs and examine the market reaction difference between my treatment group and control group. By subtracting CARs in the control group (LGOEs) from CARs in the treatment group (CGOEs), the private placement effects are cancelled out and the difference in market reactions is caused by the different types of government ownership of privatizing firms. I find that the market reaction difference between the CGOE sample and the matched LGOE sample is insignificant across all three event windows. It implies that investors do not expect firms with different types of government ownership to perform differently after privatizations.

In the next step, I investigate whether CGOEs and LGOEs have different post-privatization performance changes. I first check the pre- and post-privatization performance as well as the performance changes for both types of firms. I find significant increases in real sales, real net profits, and operating efficiency (measured by turnover) for both CGOEs and LGOEs. However, neither CGOEs nor LGOEs show significant improvements in profitability or capital investments. Firms owned by local governments tend to have a significantly lower leverage after privatizations, but the leverage change is not significant for firms owned by the central government. Except for the leverage change, my findings are roughly consistent with the results in Sun and Tong (2003). In this study, my core purpose is to figure out whether firms with different

types of government ownership have different post-privatization performance changes, and to further investigate whether different types of government ownership have different net impacts on a firm's financial and operating performance. To achieve this goal, I consider CGOEs as my treated sample and use Mahalanobis metric matching (MMM) to match the treated sample with LGOEs. Then I take a difference-in-differences (DID) approach by calculating the average difference in performance changes between my treated and control samples to compare the post-privatization performance improvements between CGOEs and LGOEs. I could have used a regression to realize the DID approach. However, a regression always assumes some kind of linear relationship between the covariates and outcome. When this relationship is non-linear, the regression gives biased estimates. In addition, regression models usually do a poor job when the treatment and control groups do not have sufficient overlap. Therefore, I employ MMM rather than a simple regression in this study because matching has no functional form and it only compares comparable units.

I find a positive difference in changes of real net profits, which implies that CGOEs experience larger increases on net profits than LGOEs after PPPs. In other words, it suggests that central government ownership has a more negative impact on a firm's net profits compared with local government ownership. In terms of profitability, I find significantly negative differences in changes of return on sales (ROS) and EBIT/sales when I use pre-privatization sales and ROS as matching variables. When I restrict my matched pairs to be selected from the same year or industry, the differences are no longer statistically significant but still remain negative. Therefore, I claim that LGOEs have relatively greater profitability improvements than CGOEs after

privatizations, and local government ownership is slightly inferior to central government ownership in terms of facilitating firm profitability. I do not find significant improvement differences in capital investments, operating efficiency, and leverage.

In summary, although central and local government ownerships each have their own benefits and drawbacks on firm financial and operating performance, there is not a huge difference between central government and local government ownerships in terms of their net impacts on firm performance. Central government ownership has a more negative net effect on a firm's net profits and CGOEs usually have larger increases on real net profits after privatizations. However, central government ownership is superior to local government ownership in terms of firm profitability. On average, CGOEs have lesser profitability improvements then LGOEs after PPPs. It indicates that central government ownership hurts a firm's profitability less before privatization. The two types of government ownership have fairly similar impacts on a firm's capital investments, operating efficiency, and leverage.

I run a series of tests to check the robustness of my results. First, I use a regression approach to examine whether CGOEs have significantly different post-privatization performance changes from LGOEs, and to control for several covariates such as sales, ROS, ROA, sales growth rate, current ratio, turnover, and leverage ratio. Second, I employ propensity score matching as an alternative matching method to match my treated sample with a new control sample, and check the differences in performance improvements between the two samples. I include sales, ROS, sales growth rate, turnover, and leverage ratio as my matching variables. The two robustness checks described above alleviate the concern that my simple matching strategy with

only two matching variables might not generate unbiased estimates. Third, I further separate CGOEs into those supervised by the State-owned Assets Supervision and Administration Committee (SASAC), SASAC CGOEs, and those which are not, designated non-SASAC CGOEs. SASAC CGOEs can better reflect the influence of central government ownership because they are subject to more direct, more professional, and more stringent supervision from the central government. I match my SASAC CGOEs with LGOEs and examine the differences in performance changes again. Last, in an unreported test, instead of checking mean differences, I use the Wilcoxon Z-test to check median differences between my treatment and control groups. The results from all robustness tests are either consistent with or stronger than my main results. Therefore, I believe my main results are robust.

This study contributes to the literature examining the effect of state ownership on firm value and performance. A firm with state ownership has advantages as well as disadvantages since the government stockholdings may either help or hinder the firm's operations. Most of the studies find that government ownership is associated with reduced firm value and is inferior to private ownership. However, government investors are not homogenous. There is little research examining whether different types of government ownership have the same impact on firm performance. In this study, I make a direct comparison between central government and local government ownership. In addition, my study also contributes to the privatization literature. Extensive empirical studies have proven that privatization works. However, I check Chinese SOEs' post-privatization performance from a new perspective. I investigate whether privatized firms with different types of government ownership have different levels of

performance improvements. My findings support Chen et al. (2009) and Jiang et al. (2010) in the sense that local government ownership has a more negative impact on firm profitability than central government ownership. Overall, however, I conclude that the two types of government ownership do not show major differences in their net effects on firm performance.

The rest of this article is organized as follows. Section 2 discusses the advantages and disadvantages of central and local government ownerships separately, and develops three testable hypotheses. Section 3 provides a brief description of my data and explains the empirical methodologies employed in this study. Section 4 presents my empirical results and Section 5 concludes the paper.

2. Hypotheses

Government ownership is a double-edged sword. On one hand, it may benefit shareholders with the superior resources controlled by governments. On the other hand, it may be detrimental to firm value due to the inconsistent objectives between for-profit enterprises and governments. As shown in the literature, government investors don't belong to a homogeneous group. The advantages and disadvantages of government ownership may show different intensities on different types of government investors. The advantages of central government ownership include stronger certification effect and better access to financing. CGOEs are backed by the central/national government which has greater credibility and more resources under control. The central government endorsement may enhance the trustworthiness of CGOEs and therefore bring stronger competitive advantage to CGOEs in business activities. It also gives CGOEs a better

chance of receiving government subsidies or bailouts [Faccio, Masulis, and McConnell (2006), Duchin and Sosyura (2012)]. In addition, with an implicit guarantee from the central government, CGOEs have lower probability of defaulting on their debts, which reduces CGOEs' cost of debt and helps them get loans from national banks on favorable terms or access financial markets more easily [Borisova and Megginson (2011), Houston, Jiang, Lin, and Ma (2014), Borisova, Fotak, Holland, and Megginson (2015)].

Besides the advantages discussed above, Cheung et al. (2010) also point out that central government shareholders don't expropriate minority shareholders, but instead add value to the holding firms through related party transactions. Chen et al. (2009) argue that CGOEs are subject to strict supervision and monitoring from several departments of the central government. The managers of CGOEs are carefully chosen and they usually have more business management skills and are less likely to encourage corruption. However, central government ownership has serious drawbacks for business operations which may hurt firm values. As Shleifer (1998) points out, governments have political and social objectives which may not be consistent with the profit maximization goals of for-profit enterprises. Because of the highly centralized political system in China, the central government is in charge of making national policies and bears more political and social responsibilities. This implies that the central government may impose a relatively higher level of political interference on CGOEs in order to achieve certain national political or social goals. This kind of interference may contradict the profit maximization goals and deteriorate the performance of CGOEs in the long run. In addition, managers of CGOEs are carefully chosen by the central government and they are evaluated by whether they can well execute orders and

earnestly implement directives from the central government. CGOEs are also subject to stronger monitoring from the central government. This indicates that the non-profit maximization policies of the central government will be implemented more thoroughly and efficiently even if they are at the expense of firm profits.

Compared with central government ownership, local government ownership has quite different advantages and disadvantages. Local governments bear relatively less political and social responsibilities. Local government officials are usually evaluated and promoted based on the level of their local economic development, and local GDP growth is an important indicator in evaluations. It gives local governments incentives to support local business, to improve the performance of LGOEs, and to develop the local economy. To some extent, it aligns the interests of local governments and LGOEs and makes them become a common interest group. Therefore, local governments should have lower levels of political interference on LGOEs. However, the disadvantages of local government ownership are also obvious. First, local governments provide relatively weaker certification effects because local governments control fewer resources, possess limited administrative powers, and have less credibility compared with the central government. Second, local governments cannot provide LGOEs the same access to financing as the central government. Last, as mentioned by Chen et al. (2009), LGOEs are subject to weaker monitoring and supervision. The choice of managers of LCOEs contains a certain arbitrariness and LGOEs face a higher level of corruption risk. Cheung et al. (2010) also find evidence showing that local governments tend to expropriate minority shareholders of their portfolio companies through related

party transactions. This is consistent with the "grabbing hand" hypothesis proposed by Frye and Shleifer (1997) and Shleifer and Vishny (2002).

In summary, central and local government ownership each has its own relative advantages and disadvantages. The advantages will improve firm performance and increase firm value. However, the disadvantages will be counterproductive. An extensive privatization literature shows significant post-privatization performance improvements including higher profitability, better operating efficiency, and increased capital investments. It implies that the net effect of government ownership is negative and the performance of SOEs can be improved by reducing the extent of state control. Since central and local government shareholdings have different strengths and weaknesses, they may or may not display different impacts on firm performance. I intend to compare the net effect of central government ownership with the net effect of local government ownership, and to examine the difference of post-privatization performance changes between CGOEs and LGOEs. Three hypotheses are proposed below:

1) *CGOEs experience greater performance improvements after privatizations.*
2) *LGOEs experience greater performance improvements after privatizations.*
3) *Both CGOEs and LGOEs experience approximately the same level of performance improvements after privatizations.*

3. Data and Methodology

I collect 757 privatizations through private placements in China over the period of 2006 to 2015 from the WIND database. I focus on PPPs because more than 90% of

seasoned equity offerings (SEOs) in China are executed through private placements starting from 2006. Among the 757 privatizations, 254 are implemented by CGOEs and 503 are implemented by LGOEs. Stock price information is acquired from the Chinese Stock Market & Accounting Research (CSMAR) database. Firm financial information is collected from the CSMAR and S&P Capital IQ databases. Table 1 shows the sample distribution over the ten years. Both CGOEs and LGOEs show similar distributions in my study period. I have the least number of observations in 2006 because the split share structure reform—examined in Calomiris, Fisman, and Wang (2010), Firth, Lin, and Zou (2010), Li, Wang, Cheung, and Jiang (2011), and Liao, Liu, Wang (2014)—just started one year before, and the revised provisions for private placements were released in 2006 which relaxed the placement requirements and encouraged the use of private placements. My sample observations are almost equally distributed from 2007 to 2012, and the number of PPPs is gradually increased in the following three years. In total, SOEs raised 1,787.8 billion RMB through PPPs in the past ten years which is equivalent to US$268.3 billion based on the current exchange rate. Among the total capital raised, CGOEs account for almost 600 billion RMB ($90 billion) and LGOEs account for 1,188 billion RMB ($178 billion).

I first examine the market reactions around the privatization plan announcement periods. A standard event study procedure is applied and the plan announcement date is set as day 0, since that is when the market receives private placement information for the first time. Market reactions are captured in three different event windows (a three-day window from day -1 to day 1, a five-day window from day -2 to 2, and a seven-day window from day -3 to 3). The market model is estimated over the period of day -270 to

day -21. A unique problem regarding the market returns arises due to the fact that there exist two stock exchanges in China: the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE). Throughout this study, I use Shanghai Composite Index to compute market returns since the market size of Shanghai Stock Exchange is far greater than that of Shenzhen Stock Exchange, and I can use a single market return as opposed to two. Nevertheless, I experiment with different market returns for the two stock exchanges, respectively, and construct a comprehensive market return which is a weighted average of the market returns in the two stock exchanges. The results are largely unchanged. If one SOE has more than two PPPs within one year, I only check the market reactions for the first one. Abnormal return is defined as the difference between the actual return and the predicted return from my estimated market model. Cumulative abnormal returns are reported as the sum of daily abnormal returns over the event windows.

My main purpose is to investigate the market reaction difference and the difference of post-privatization performance improvements between CGOEs and LGOEs, which I will show are fundamentally different. In order to reduce the bias caused by confounding variables which might affect my outcome variables at the same time, I match CGOEs with LGOEs. However, I do not use propensity score matching (PSM) here because it is not appropriate in this setting given that the nature of enterprises (central government owned versus local government owned) is predetermined and almost never changes, which violates the key assumption of PSM that the conditional probability of receiving a treatment must be greater than zero and smaller than one. Instead, Mahalanobis metric matching is employed in this study. I

consider CGOEs as my treatment group, and then construct a control group with LGOEs whose pre-privatization characteristics mimic the CGOEs in the treatment group. I also restrict the control firms to be selected from the same year and the same industry. Given X as a vector of covariates, Mahalanobis distance measures the distance between two observations X_i and X_j and is calculated as $D_{ij} = \sqrt{(X_i - X_j)' S^{-1} (X_i - X_j)}$, where S denotes the sample variance covariance matrix of X. MMM tries to match each observation in the treatment group with one or several observations in the control group. The Mahalanobis distance serves as the matching criteria and my purpose is to minimize the Mahalanobis distance between treatment group observations and corresponding control group observations. As Elizabeth Stuart suggested in her 2010 *Statistical Science* paper, it is not proper to match on a large set of variables in small samples. Therefore, following Li, Megginson, Shen, and Sun (2016), I choose sales and ROS as my matching variables and then check the balance of all related covariates after my matching. Furthermore, I also include sales growth rate as my third matching variable for a robustness check.

With the matched treatment and control groups, I examine the difference in CARs between the two groups to investigate if the market has different reactions to privatizations implemented by firms owned by different types of government. Besides that, I also examine whether there are significantly different levels of post-privatization performance improvements between the two types of firms. I specifically compare the changes in output, profitability, capital investments, operating efficiency, and leverage under a DID setting. The first difference captures the performance change before and after the privatization. I set the private placement year as year 0. The performance

change is measured as the difference between the average performance over the three years after the privatization (from year 1 to 3) and the average performance over the three years before the privatization (from year -1 to -3). SOEs are included in my sample only if their performance variables have at least one observation prior to the privatization as well as one observation after the privatization. The second difference captures the difference between CGOEs and LGOEs. After finding the post-privatization performance changes for all observations in the treatment and control groups, I check the difference in performance changes between CGOEs and matched LGOEs and test for the significance level.

4. Results

This section details the results of several comparisons between central and local government owned SOEs. First, I match CGOEs with LGOEs and study the market reactions to announcements of privatizations implemented by the two types of SOEs. Second, I examine the performance changes following privatizations and check whether there is a difference in performance improvements between privatized CGOEs and LGOEs. Third, instead of matching the two types of SOEs, I use a DID approach to study the different performance improvements in a regression setting. Last, I further decompose CGOEs into two subsamples. One includes CGOEs supervised by the State-owned Assets Supervision and Administration Commission (SASAC), the other one includes non-SASAC supervised CGOEs. Then I compare SASAC CGOEs with matched LGOEs to check the difference in performance changes. All results are reported below.

4.1. Covariates Balance Check

In order to compare central government ownership with local government ownership, I use MMM to match CGOEs with LGOEs. Due to the relatively small sample size, it is not feasible to match on a large number of variables. Therefore, following Li et al. (2016), I choose to match on size and profitability. The two selected matching variables are sales and ROS. A covariates balance check is made to ensure the validity of my matching. Table 2 shows the results of comparisons in 3-year averages prior to privatizations between treatment group and matched control groups. P-value and t-statistic are reported to show whether the difference between treatment and control groups is statistically significant. I find that all covariates are balanced, at the 10% level, indicating that CGOEs and matched LOGEs are similar in the pre-privatization period.

4.2. Comparisons of Market Reactions

In this section, I check the market reactions in the privatization plan announcement periods. In a private placement process, several days can be chosen as the candidate event day. Since I want to examine the market reactions when new information about privatizations first comes into the market, I choose plan announcement date rather than placement announcement date as my event day (day 0) because plan announcement date is when the market receives privatization information for the first time. Cumulative abnormal returns (CARs) for both CGOEs and LGOEs over three different event windows are reported in Table 3 panel A. I divide the entire sample into CGOE and LGOE groups according to their type of government ownership. Then I calculate CARs for the CGOE group and the LGOE group separately. As shown

in Panel A, the excess returns for privatizations implemented by either CGOE or LGOE are always positive and significant at the 1% level. CARs for LGOEs are larger than CARs for CGOEs by more than 2 percentage points on average, but the difference is not statistically significant.

Looking at my entire sample in details shows that a small group of SOEs experienced stock trading suspensions for relatively long periods following their PPP plan announcement dates. For those SOEs, their CARs capture not only the market reactions to privatizations, but also the reactions to some other new information generated in the suspension periods. In order to eliminate market reaction bias caused by long suspension periods, I exclude the observations with more than 30 stock suspension days after the announcements of private placement plan. With the restricted sample, I still find significantly positive market reactions for both CGOEs and LGOEs. But the average reaction magnitude is smaller compared with the full sample results. The CARs for CGOEs range from 1.21% over the 3-day window to 2.99% over the 7-day window and the CARs for LGOEs range from 0.79% over the 3-day window to 2.67% over the 7-day window. The positive market reactions are not surprising because extensive empirical studies in privatization show significant post-privatization performance improvements which explain the market's optimism when the information about potential privatizations is released. However, the CAR difference between CGOE and LGOE privatizations is not significant.

In Table 3 panel B, I consider CGOEs as my treated sample, match them with LGOEs, and show the CAR difference between my treated and control samples. For the entire sample, the CAR difference is significantly positive with all three types of

matching implying that investors have more favorable reactions to PPPs by CGOEs. However, after eliminating the observations with long trading suspension periods, the significant difference in CARs between CGOEs and LGOEs disappears. From the results in Table 3, I conclude that the market considers PPPs as good news because extensive evidence shows that privatization improves firm performance and reduces potential political interference from governments. However, investors cannot distinguish between the impact of central government ownership and the impact of local government ownership on SOEs. The market has similar reactions to PPPs by firms with either central or local government ownership.

4.3. Comparisons of Performance Improvements

In this part, I compare the post-privatization performance improvements between CGOEs and matched LGOEs. Performance is measured from five perspectives, including output, profitability, capital investments, operating efficiency, and leverage. In Table 4, I first check the performance changes of CGOEs and LGOEs separately. I report average performance of 3 years before and after privatization and also calculate the average performance changes from pre- to post-privatization periods. I include real sales and real net profits as my measures of output. Both variables are adjusted for inflation using the Consumer Price Index (CPI). With my entire sample, I find strongly significant increases in sales and net profits for both CGOEs and LGOEs. In the profitability category, the traditional measures are return on assets (ROA) and return on equity (ROE). However, PPPs in China are implemented by issuing a large block of new shares to a selected group of private investors with the purpose to dilute state

owned shares.[2] Therefore, the total assets and equity will automatically increase following PPPs and ROA and ROE will decrease mechanically even if SOEs keep the same level of profitability. So I do not consider ROA and ROE as my measures of profitability in this work. Instead, I use ROS to avoid this problem. However, ROS could be biased due to the fact that real net profits can be affected by preferential loan terms or tax rates.

I include EBIT/sales as another measure of profitability to alleviate this concern. Neither CGOEs nor LGOEs show significant profitability improvements after privatizations. To check the change in capital investments, Capital expenditures/sales is employed as the main measure. I do not consider capital expenditures/total assets as an appropriate measure for the same reason stated above. But I report the results of both ratios for reference. Capital expenditures/sales does not change significantly following privatizations for either CGOEs or LGOEs. I do find significantly negative changes in capital expenditures/total assets for both types of firms. This decrease is possibly caused by the increase in total assets in the post-privatization period. It does not necessarily imply a decrease in capital investment after privatizations. Sales per employee and net profits per employee are used to measure the operating efficiency of SOEs. Due to the limited data on number of employees, my sample shrinks to 145 observations when I use a variable including number of employees. Therefore, the insignificant changes in sales per employee and net profits per employee may be caused by missing data. Turnover is calculated as sales over total assets and it is an alternative measure of operating efficiency. Since total assets will increase after private placements, this ratio is biased downward. However, I observe significant increases in turnover, implying that

[2] The number of private placement investors is required to be equal to or less than 10 in China.

operating efficiency is improved for both CGOEs and LGOEs after privatizations. The results in this table are largely consistent with the findings in Sun and Tong (2003).

My main focus is the difference in post-privatization performance improvements between CGOEs and LGOEs. It reflects the different impacts on firm performance between central government ownership and local government ownership. I use MMM to match CGOEs with LGOEs and results are reported in Table 5. In the "No Restriction" column, the treated and control groups are matched on real sales and ROS, and I do not restrict the matched pairs to be selected from the same year or the same industry. In the "Same Year" column, matched pairs are selected from the same year. In the "Same Industry" column, matched pairs are selected from the same industry. 1:1, 2:1, and 3:1 nearest neighbor matching are employed. Performance improvements/changes are measured by subtracting 3-year averages before privatizations from 3-year averages post-privatization. All numbers reported in this table are the average differences of performance improvements/changes between the treatment group (CGOEs) and the control group (LGOEs). A positive number indicates that CGOEs on average improve more on this outcome variable after privatizations. In the output category, although there is no significant difference in the improvements on real sales, I find that CGOEs experience a greater increase on real net profits after privatizations.

On average, the post-privatization increase on real net profits for CGOEs is 80 million to 140 million RMB more than that for LGOEs. It indicates that central government ownership has a more negative influence on a firm's output before privatization, compared with local government ownership. I find a significantly

negative difference in profitability improvements when I match the two groups without restricting year or industry, which means that LGOEs experience greater profitability improvements after privatizations. When I restrict my treated and control pairs to be selected from the same year or industry, the statistical significance goes away but I can still observe the negative difference. Therefore, I conclude that central government ownership has a slight advantage over local government ownership in terms of firm profitability. In other words, local government ownership is more detrimental to firm profitability. This is consistent with the findings in Chen et al. (2009). In the next category, I compare the changes in capital investments following PPPs.

Regarding capital expenditures/sales, except for two positive differences observed in the "Same Year" column which are statistically significant at 10% level, all other results are positive with relatively smaller but insignificant values. In addition, the difference in capital expenditures/total assets changes is trivial and close to zero. Therefore, I claim that central and local government ownership have similar impacts on a firm's capital investments. In terms of operating efficiency, all results in this category are statistically insignificant regardless of the measure I use. Therefore, I conclude that the privatization effects on operating efficiency are approximately the same for both CGOEs and LGOEs. In other words, although central and local government ownerships have different advantages and disadvantages, their net effects on firm operating efficiency are similar.

Leverage is measured by debt divided by total assets. The difference in leverage changes is extremely small and insignificant no matter how I restrict my samples. It implies that central and local government ownerships have nearly the same impact on

firm's leverage ratio. Overall, I conclude from Table 5 that there is limited difference in post-privatization performance improvements between CGOEs and LGOEs. The most significant difference is between the improvements of real net profits. On average, CGOEs experience greater increase in net profits after privatizations. However, LGOEs usually have slightly better improvements in profitability than CGOEs after PPPs. The differences in changes of capital investments, operating efficiency, and leverage are statistically indistinguishable. These findings suggest that central and local government ownerships have similar net impacts on SOEs' performance, although they each have their own distinct advantages and disadvantages.

4.4. Robustness check

In my sample, the treatment and control groups are matched on real sales and ROS using MMM. In order to check the robustness of my main results and to alleviate the concern that my simple matching method may not be able to generate unbiased estimates precisely, I employ a multivariate regression analysis to control for more firm related characteristics, and also use PSM to construct a new control sample to examine the difference in performance improvements again. Related methodologies and results are reported below.

4.4.1 Regression analysis

The main purpose of this study is to check whether CGOEs experience greater or lesser performance improvements than LGOEs after PPPs. This can be tested with a DID approach. The first difference captures the difference between central government owned and local government owned firms, and the second difference captures the performance difference before and after privatizations. I use the simple multivariate

regression shown below to examine the different performance changes between the two types of SOEs after privatizations.

$$\Delta Performance = \beta_0 + \beta_1 Central + \beta_i Controls + \varepsilon \quad (1)$$

The dependent variable, *ΔPerformance*, is calculated by subtracting the 3-year performance average prior to privatizations from the 3-year performance average post to privatizations. *Central* is a dummy variable which equals 1 if a partially privatized firm is owned by the central government. I add a number of control variables to control for firm specific characteristics prior to privatizations which include the pre-privatization 3-year averages of real sales, ROS, ROA, sales growth rate, current ratio, turnover, and leverage ratio. The variable of interest is *Central*. A positive β_1 implies a greater performance improvement for CGOEs after privatizations. In other words, it also indicates that central government ownership has a greater impediment effect on that specific performance variable.

Regression results are shown in Table 6. I only report the coefficient of *Central* under different performance variables. The results are largely consistent with my main results from MMM. Compared with LGOEs, CGOEs experience larger improvements in real net profits and capital expenditure/total assets, and have smaller improvements on profitability (including both ROS and EBIT/sales) after PPPs. For other performance variables in Table 6, CGOEs and LGOEs have roughly the same level of changes after privatizations. These results strongly suggest that central government ownership has more negative influence on a firm's net profits than local government ownership. However, in terms of firm profitability, local government ownership has more severe negative impact. For other performance measures such as capital investments, operating

efficiency, and leverage, central and local government ownerships usually have similar impacts.

4.4.2 Propensity Score Matching

As stated in the methodology section, it is not appropriate to use PSM to match CGOEs with LGOEs since firms normally cannot choose to be owned by the central or local governments. However, in order to alleviate the concern about the validity of my two-variable matching and to overcome the shortcomings of MMM when a large number of matching variables are included, I employ PSM as an alternative matching method and create a new control sample based on several new matching variables. The Probit model used for PSM is shown below.

$$Central = \alpha_0 + \alpha_1 Sales + \alpha_2 ROS + \alpha_3 Growth + \alpha_4 Leverage + \alpha_5 Turnover + \varepsilon \quad (2)$$

The dependent variable, *Central*, is a dummy which equals 1 if a firm is owned by the central government. *Sales* is the real sales which is adjusted for inflation using CPI. *ROS* is return on sales. *Growth* is the sales growth rate. *Leverage* is calculated as debt over total assets. *Turnover* is defined as real sales over total assets. All independent variables are the 3-year averages prior to privatizations. I run the Probit regression with my entire sample and estimate the coefficients of all independent variables. Then I use the estimated coefficients to generate propensity scores for all CGOE and LGOE observations. Finally, I employ 1:1, 2:1, and 3:1 nearest neighbor matching to construct new control samples for my treatment group. I build three types of matched control groups. The first one has no restriction which means that the matched observations can be selected from any year and from any industry. The second one requests the CGOEs

in the treatment group and their matched LGOEs in the control group to have the same privatization year. The third one requires the matched pairs to be selected from the same industry.

Following the same DID approach used in Table 5, I check the difference in performance improvements between the treatment group and the newly constructed control groups. Results are reported in Table 7. For real net profits, I still observe significantly positive results when there is no restriction. It means that CGOEs have larger increase in real net profits after privatizations compared with LGOEs. In terms of profitability, the results are not statistically significant but are still negative no matter whether I restrict the year or industry. Quantitatively speaking, it implies that LGOEs tend to experience larger profitability improvements after privatizations. In other words, local government ownership has slightly more negative influence on firm profitability than central government ownership. The results for other performance variables are largely insignificant which indicates that CGOEs and LGOEs experience similar changes in capital investments, operating efficiency, and leverage after PPPs. This is consistent with my main results implying that central and local government ownerships have approximately the same level of influence on firm operations and performance.

4.5. SASAC supervised CGOEs versus LGOEs

In this section, I further decompose CGOEs into two groups based on whether they are under the supervision of the State-owned Assets Supervision and Administration Commission (SASAC). SASAC is a ministerial-level *ad hoc* body directly affiliated with the Chinese State Council. Compared with other firms owned by the Chinese central government, CGOEs supervised by SASAC should have stronger

certification effects, face more intense political interference, and be subject to more direct, more professional, and more stringent supervision from the central government. It implies that the advantages and disadvantages of central government ownership become more apparent on SASAC CGOEs. In other words, the influence of central government ownership is better reflected on SASAC CGOEs. Therefore, I use SASAC CGOEs as my new treated sample and compare them with the matched LGOEs to further identify the difference between central government ownership and local government ownership.

Following the same procedure in Table 5, I select real sales and ROS as my matching variables and employ MMM to match my SASAC CGOEs with LGOEs. Then I examine the difference in post-privatization performance changes between treated and control samples. Comparison results are shown in Table 8. The findings from the comparison between SASAC CGOEs and LGOEs are largely consistent with my main conclusion. Furthermore, the results in Table 8 are at a higher significance level than the results in Table 5. The differences in real net profit changes are all significantly positive regardless of whether I put restrictions on year or industry. In addition, the average size of the differences is increased with my new treated and control samples, which implies a greater post-privatization net profit improvement for SASAC CGOEs. This strongly supports my previous finding that central government ownership has a more negative impact on firm net profits than local government ownership.

Regarding profitability, the two measures, ROS and EBIT/sales, show results consistent with previous findings. Although significant results are concentrated in the

matching groups without year or industry restrictions, all results for the two profitability variables turn negative regardless of whether or not I place restrictions. This clearly shows that SASAC CGOEs experience smaller profitability improvements than LGOEs after PPPs, which supports the statement that local government ownership is inferior to central government ownership in terms of facilitating firm profitability. In this table, I also find a significantly positive difference in the improvement of capital expenditure/total assets. The results are persistent in the "No Restriction" groups and the "Same Year" groups. However, due to the reason that total assets will automatically increase after private placements, capital expenditure/total assets is not a good measure for capital investments. The results here are just for reference. Other performance variables in this table do not show significant difference between SASAC CGOEs and LGOEs. It signifies that the post-privatization performance changes in capital investment, operating efficiency, and leverage are not significantly different between SASAC CGOEs and LGOEs. Central and local government ownerships have similar degrees of influence on the performance variables listed above.

5. Conclusion

Extensive empirical studies on privatization suggest that privatized firms experience significant performance improvements including higher outputs, greater profitability, increased operating efficiency, and larger capital investments. The positive post-privatization performance changes reflect the negative impacts of government ownership on SOEs. However, government ownership is a double-edged sword. Most privatization studies consider government investors as a homogenous group and the

widely confirmed negative influence on firms is a net effect of the interaction of positive and negative impacts of government ownership. Furthermore, as I mentioned earlier in this work, government investors are not homogeneous. The central and local governments each have different advantages and disadvantages for firm operations. It is important to investigate whether central and local government ownerships have the same net impact on firm performance. In this study, I make a comparison between the impacts of central and local government ownerships by examining whether CGOEs and LGOEs have similar post-privatization performance changes. I find that CGOEs usually experience larger increases in net profits and smaller improvements in profitability compared with LGOEs from pre- to post-privatization periods. However, the two types of SOEs have similar changes in capital investments, operating efficiency, and leverage. In addition, I do not find significantly different market reactions to privatization plan announcements of firms with different types of government ownership. Overall, central and local government ownerships are similar. They only have limited differences in their net impacts on firm performance.

Chapter 2: Changing Chinese Share-Issue Privatization Listing Strategies[3]

1. Introduction

For the first fifteen years of China's massive share-issue privatization (SIP) program, most large sales of stock in state-owned enterprises (SOEs) were executed on overseas financial markets outside of mainland China, usually either Hong Kong or New York. This was especially true from 2002 through 2007, when almost two-thirds of the 281 Chinese SIPs that raised US$184 billion during that period were listed on overseas markets. This pattern changed dramatically in 2008, when 41 of 60 Chinese SIPs (raising a total of $28.2 billion) were listed in mainland Chinese markets, and almost three-quarters of the 794 Chinese SIPs executed during 2009-2014, raising a staggering $318.2 billion, were listed on either the Shanghai Stock Exchange or the Shenzhen Stock Exchange. This marked change in listing strategies has thus far attracted little attention from either the privatization or the investment banking literatures, so this study will first document and then analyze the reasons why China shifted listing strategies so radically after 2007.

Instead of analyzing why SIPs were listed in a domestic or foreign market, most existing studies either investigate the post-privatization performance of Chinese SIPs (Jia, Sun, Tong (2005), Fan, Wong, and Zhang (2007), Sun and Tong (2003), and Li, Megginson, Shen, and Sun (2016)) or assess the motivations for overseas listings of Chinese SOEs (Hung, Wong, and Zhang (2008 and 2012), Sun, Tong, and Wu (2006

[3] This chapter is based on collaborative work with William Megginson.

and 2013), and Zhang and King (2010)). Busaba, Guo, Sun, and Yu (2015) proposed the "dressing-up-for-premium" effect to explain why Chinese cross-listed firms would like to list on overseas markets first and then return back to domestic markets. However, we believe the change in Chinese SIP listing strategies described above is noteworthy, and it is critical to find convincing reasons to explain the strategy change.

We document the change in Chinese SIP listing strategies using the Securities Data Company (SDC) database. As noted above, we find that from 2002 to 2007, an average of only 38 percent of Chinese SIPs were executed on domestic financial markets, implying that overseas financial markets were the main targets for Chinese SIPs. However, starting in 2008, the ratio of domestic SIPs suddenly jumped up to more than 68 percent and remained at a relatively high level in the following six years. This huge increase in the ratio of domestic SIPs clearly illustrates that Chinese domestic markets have effectively replaced overseas markets and have become the new primary listing markets for Chinese SIPs. We also obtain statistical data about Chinese firms listing on the Hong Kong market from the China Securities Regulatory Commission's website, since the Hong Kong Stock Exchange is the largest overseas listing market for Chinese SOEs. Starting in 1998, the number of H-share listings increased monotonically, indicating that the Hong Kong market received more and more attention from Chinese mainland firms. However, this number dropped abruptly in 2008 and has remained relatively low since then, which also suggests that Chinese SOEs have shifted their attention from overseas markets to domestic markets since 2007.

It is natural to ask why Chinese SOEs changed their listing strategies after 2007. Some people may think that this shift to domestic issuance might be caused by the 2008

financial crisis in the western markets. After checking our data in details, however, we find that this shift actually happened before the start of the financial crisis. Therefore, we don't consider the financial crisis as a potential explanation for Chinese SOEs' listing strategy change. Bortolotti, Fantini, and Siniscalco (2004) and Megginson, Nash, Netter, and Poulsen (2004) suggest that SOEs' listing market choice is related to market absorptive capacity, and we investigate whether this shift to domestic issuance was caused by a rapid increase in the absorptive capacity of domestic markets. We compute the ratio of a firm's IPO issuing proceeds as a percentage of the total Chinese A-shares market value to act as a proxy for Chinese market absorptive capacity. A-shares are RMB-denominated ordinary shares in Chinese domestic companies that trade on either Shanghai or Shenzhen stock exchanges. This ratio should be negatively related to the market's absorptive capacity. Unsurprisingly, aggregate Chinese A-shares market value increases monotonically starting in 1991, immediately after China's SIP program began, and a huge jump in market value to $2.43 trillion occurs in 2006, yielding an aggregate valuation three times the 2005 value of $781 billion. In 2007, the market value jumps again to $6.23 trillion dollars, suggesting that the absorptive capacity of Chinese domestic markets was enhanced significantly in 2007 and stayed at a relatively high level in the following years.

After documenting the enhanced market absorptive capacity, we test whether the change to Chinese SOEs listing strategy is related to the change in Chinese market absorptive capacity using a Probit model with an overseas listing dummy as the dependent variable. We control for firm financial level factors that can affect listing decisions and find that when Chinese domestic market absorptive capacity is low,

Chinese SOEs have a higher probability of choosing an overseas market for SIPs. After 2007, because of the significant increase in market capacity, Chinese SOEs changed their strategy and now tend to list on domestic markets when they privatize through public share offerings. Our results are subject to potential reverse causality problems. On one hand, improved market absorptive capacity may give SOEs more incentive to list domestically, since their shares can be better absorbed by the market. On the other hand, when more firms choose to list in domestic markets, more funds will be attracted to the A-share market. Therefore, the market size will be enlarged and the market absorptive capacity will be improved. To alleviate this endogeneity concern, we use the lagged market absorptive capacity as an instrumental variable and run a Two-Stage Probit test. We still find a significant positive relationship between the probability of domestic listing and the predicted market absorptive capacity. We believe our results are robust.

Besides this enhancement in Chinese market absorptive capacity, we also note that the Chinese government has been trying to build Shanghai into an international financial center over the past 20 years. The former leader of the Chinese Communist party, Xiaoping Deng, first proposed developing Shanghai as an international financial center when he visited the city in 1991. During the 14th Chinese Communist Party Congress in 1992, the "Shanghai International Financial Center Plan" was formally presented as a national strategic decision. From the early 1990s until 2006, the Chinese government's main focus was the construction of financial infrastructure. The Shanghai Stock Exchange, China Foreign Exchange Trading Center, Shanghai Gold Exchange, and the China Financial Futures Exchange were all established in Shanghai during this

period. In November 2006, the Chinese government published the "Shanghai International Financial Center, Eleventh Five-Year (2006-2010) Plan." This new plan suggested that the Chinese government's focus had changed from the construction of financial infrastructure to deepening the development of financial markets, and emphasized the need to increase direct fund-raising and total trading volume of Shanghai's financial market and enhance the Shanghai Stock Exchange's capitalization.

During this same period, a new Chinese "Securities Law" code was implemented to better protect investors and increase the capital market's transparency. The Chinese government promulgated the "Criterion of Corporate's Internal Governance" in 2008, requiring higher corporate governance and financial disclosure standards. Chinese President Jintao Hu and Chinese Premier Jiabao Wen made important speeches emphasizing that financial development should have a more prominent strategic position, and encouraging the Chinese government to create a favorable environment for financial development and to promote the Shanghai international financial center. These actions and statements demonstrate the Chinese government's commitment to building an Asian financial center by developing the Shanghai financial market. Both Subrahmanyam and Titman (1999) and Megginson, Nash, Netter and Poulsen (2004) point out that SIPs can facilitate stock market development, and governments would like to use SIPs to develop their own domestic financial markets. It is thus reasonable to expect that the Chinese government guides SOEs to list first in Shanghai through the series of encouraging laws, regulations, and policies mentioned above.

To verify this prediction, we first use the propensity score matching (PSM) technique to generate a sample of comparator firms, thus allowing us to test for a statistically significant change in SOEs' listing strategies around 2007 and assess if this change is purely caused by exogenous factors. We set two dividing lines at 2007 and 2008, respectively. SOEs that had SIPs before the dividing year are considered a treatment group, while SOEs listed after and including the dividing year are considered the control group. The propensity score is the probability that one SOE may list their shares before the dividing year. We use six different matching algorithms to match the treatment group with the control group. Then we compare the outcome (probability of overseas listing) for Chinese SOEs before and after the dividing year and find a significant difference between the treatment and control groups. After verifying the listing strategy change, we collect the Shanghai Stock Exchange's total market value, number of annual total transactions, annual total trading volume, and annual total turnover from 1999 to 2012 and find that all four of these factors experienced a huge jump around 2007. These large enhancements to the Shanghai financial market appear to coincide with—and perhaps were at least partly caused by—the Chinese government's encouraging policies, and the clear change of Chinese SOEs listing strategy after 2007 reinforces the belief that SOEs were encouraged to list first on the Shanghai market through a series of changes in the Chinese government's policy.

We further identify the channel through which the Chinese government encourages/forces SOEs to choose domestic markets to issue new shares. We hypothesize two channels. The first one is a policy channel. The Chinese government can implicitly encourage SOEs to list domestically by implementing a series of new

encouraging policies. In this case, both SOEs and private firms will be affected and we expect to see similar shift to domestic issuance patterns for both types of firms. The second channel is through administrative instructions. The Chinese government can implicitly force SOEs to issue new shares in domestic markets by giving administrative instructions to the managers of SOEs who are appointed by the government. Managers have incentive to execute the instructions to please the government and to expect potential promotion in the future. In this scenario, we should only observe the shift on SOEs but not on private firms. We compare the listing strategy patterns of both SOEs and private firms and find evidence supporting the policy channel.

We believe our paper significantly contributes to the Chinese privatization and capital market development literature. To our knowledge, we will be the first to document and analyze the discontinuity in the pattern of Chinese SOE share issuance that occurred after 2007. Besides describing this pattern discontinuity in foreign-versus-domestic issuance, we also provide two reasonable explanations. First, we show that the percentage of domestic issuance is closely related to the domestic market absorptive capacity. We believe that the shift from overseas to domestic issuance was caused by a rapid increase in the absorptive capacity of Chinese domestic financial markets. Second, the Chinese government intentionally encourages/forces Chinese SOEs to list on domestic markets to deepen the development of Chinese financial markets.

The remainder of this paper is structured as follows. Section 2 describes the sample employed and presents preliminary results on the changes in SIP listing strategies. Section 3 describes three hypotheses that might explain these changes.

Section 4 describes the models and methods used to test these hypotheses. Section 5 presents test results and section 6 concludes the paper.

2. Data and Observations

We download all Chinese Share-Issue Privatization (SIP) transaction data for the years 1990-2014 from the Securities Data Company (SDC) database. We also acquire firm level financial data from Compustat, CSMAR (China Security Market and Accounting Research), and WIND databases. Shanghai stock exchange market data are acquired from the official website of Shanghai stock exchange. From the transaction data, we can identify the listing market of each SIP transaction. In our dataset, Chinese SOEs' major listing markets include the two Chinese domestic markets (Shanghai Stock Exchange and Shenzhen Stock Exchange), as well as the Hong Kong Stock Exchange, the New York Stock Exchange, and NASDAQ. At least a few SIPs are also listed on other markets, including the Australian Securities Exchange, the Singapore Exchange, and the Toronto Stock Exchange. We also record whether a particular share sale is an initial public offering (IPO) or a seasoned equity offering (SEO). Additionally, a rights offering flag shows whether a specific share offering is sold only to existing shareholders or to the public. These screens yield 1,494 SIP transactions from 1990 to 2014, and this sample is summarized in Table 9.

Table 9 shows that 793 of the 1,494 SIP listings (53.1%) are IPOs. The total number of SIP listings and total capital raised increased dramatically during 2002-2007—from 27 SIPs raising $5.1 billion in 2002 to 87 sales raising $73.2 billion during 2007. This was followed by a sharp fall in 2008 (60 offerings raising $28.2 billion), a

resurgence in 2009 (80 SIPs worth $45.0 billion), and then strong annual sale numbers and capital-raising totals (averaging 155 offerings raising $63 billion each year) from 2010 through 2013. Both the number (94) and aggregate value of capital raised ($21.2 billion) fell sharply in 2014. In 2002, there were only 21 SIP listings with total capital raised of $5.07 billion. Focusing on the "percentage of domestic SIP" column reveals an apparent discontinuity in the pattern of domestic issues after 2007. In the period from 2002 to 2007, most Chinese SIPs were accomplished in overseas stock markets, and the percentage of domestic SIP listings was always below 48%. From 2008 onwards, however, there was a sudden change in this pattern with 68.3% of SIPs being sold on Chinese domestic markets (Shanghai and Shenzhen) in 2008 and 65.0% in 2009. In subsequent years, the rate of Chinese domestic SIP listings stayed above 71%. These data clearly show that Chinese domestic stock markets became much more attractive to Chinese SOEs in their SIP process after 2007. Over the entire 1990-2014 study period, there are 997 domestic offerings, accounting for 66.7% of the 1,494 total SIPs.

The SDC database reveals that the Hong Kong Stock Exchange has the largest number of Chinese SIP listings and is the main overseas listing market for Chinese SOEs. The China Securities Regulatory Commission's website provides a summary table about Chinese H-share listings (Chinese domestic firms listed on the Hong Kong Stock Exchange). We download the original table from their website and corrected a currency conversion error. The revised version is shown in Table 10. The data include both government owned and privately owned companies listed on the Hong Kong market. The column "Total Capital Raised" in Table 10 shows that the amount of capital raised by Chinese firms (both SOEs and private firms) on the Hong Kong market

increased continuously from $569 million in 1999 to $39.4 billion in 2006, implying that Chinese firms significantly increased their dependence on overseas markets for fund raising during that period. The total amount of capital raised dropped sharply in the following two years, to $12.7 billion in 2007 and a mere $4.6 billion in 2008. Total capital raised in Hong Kong rebounded in 2009 and subsequent years, but only exceeded $18 billion once ($35.4 billion in 2010) and never again reached the 2006 level. Turning to the number of new listings, an increasing number of Chinese firms chose to list in the Hong Kong between 2000 and 2006, again indicating that overseas markets became more attractive to Chinese listing corporations in that period. However, the number of new listings dropped sharply from 23 in 2006 to 7 in 2007, and remained at single-digit levels from 2008 to 2013. Table 10 clearly shows that the Hong Kong market has lost its attraction as a listing venue for both government owned and privately owned Chinese enterprises since 2007. This is consistent with the observations based on SDC data showing that Chinese SOEs shifted their attention from overseas markets to domestic markets starting in 2007.

3. Hypotheses

Subrahmanyam and Titman (1999) argue that SIPs can facilitate stock market development, and Megginson, et al. (2004) show that SIPs are more likely to happen in countries with less developed capital markets because their governments intend to use SIPs to develop their domestic financial markets' liquidity and absorptive capacity. Following this logic, the Chinese government should choose to list their SOEs in domestic markets through an IPO first and then consider cross-listing overseas later.

Interestingly, the process in China was reversed. The reasons for Chinese SOEs' foreign primary listing has been widely investigated. Sun, Wu, and Tong (2008 and 2013) explain that the positive effect of SIPs on the development of the domestic market may have a limit, especially when the domestic market is not well developed and cannot absorb rapid and large-scale SIPs. In this case, it may be optimal to carry out a SIP on overseas markets to maintain order in the domestic market. However, in recent years, especially after 2007, Chinese capital markets have developed significantly. A new Chinese "Security Law" was published in 2006 and this new law lowers the barriers for IPOs and mitigates the issue that Chinese firms' listing demand is much higher than the quota that was given by the Chinese government. Domestic capital markets have become more integrated, and we believe Chinese market absorptive capacity has improved much in recent years. This leads to our first hypothesis: *The discontinuous pattern of percentage domestic issuance (shift to domestic issuance) in China after 2007 was caused by a rapid increase in absorptive capacity in the Shanghai and Shenzhen markets.* This enhanced market absorption allowed larger individual and aggregate SIPs in China and gave Chinese SOEs greater incentives to change their listing strategies and choose domestic markets, thus facilitating Chinese capital markets development.

Our second hypothesis is: *The shift to domestic issuance in China after 2007 was caused by a major change in government policy strongly encouraging/forcing Chinese SOEs to list first in Shanghai.* As we have previously stated, the Chinese government has been trying to build Shanghai into an international financial center over the past 20 years. As noted above, the former leader of the Chinese Communist party,

Xiaoping Deng, first proposed the idea to develop Shanghai as an international financial center when he visited Shanghai in 1991 and the 14th Chinese Communist Party congress in 1992 formally presented the "Shanghai International Financial Center Plan" as a national strategic decision. In 2006 the Chinese government published a new plan, changing the policy focus from construction of financial infrastructure to deepening the development of financial markets. A Chinese securities law designed to better protect investors and increase capital market transparency was also published that year, while the Chinese government promulgated the "Criterion of Corporate's Internal Governance" requiring higher corporate governance and financial disclosure standards in 2008. Chinese leaders made important speeches emphasizing financial development, encouraging creation of a favorable environment for financial development, and promoting the construction of the Shanghai international financial center. From the Chinese government's actions mentioned above, we can see the commitment from the Chinese government to build an Asian financial center through the development of the Shanghai financial market.

As an extension to our second hypothesis, we also explore the channels through which the Chinese government implicitly/explicitly encourages/forces SOEs to list in domestic markets first. There are usually two ways used by the Chinese government to change a SOE's listing strategy. They can either implicitly encourage Chinese SOEs to choose domestic markets through a series of encouraging policy changes or explicitly force Chinese SOEs to list domestically through administrative instructions. To differentiate the two channels, we compare Chinese SOEs with Chinese private firms and ask whether SOEs and private firms have the same shift to domestic issuance

pattern. If it is through the policy channel, both SOEs and private firms will be affected by the encouraging policy changes. Therefore, we should observe the shift to domestic issuance pattern for both types of firms. Furthermore, since private firms operate more efficiently and are more sensitive to policy changes, their shift to domestic issuance pattern could be more pronounced comparing to the pattern of SOEs. If this shift is through the administrative instruction channel, only SOEs will be affected. The managers of SOEs are appointed by the Chinese government and they have incentive to obey and execute the administrative instructions from the government to exchange for potential promotions in the future. However, the government has relatively weaker control/impact on private firms. They rarely affect a private firm's decision through this kind of informal administrative instructions. Therefore, we should observe the shift to domestic issuance pattern on SOEs, but not on private firms. We list our two mutually exclusive testable hypotheses below:

Hypothesis 3a: A similar or more significant shift to domestic issuance pattern is observed on private firms;

Hypothesis 3b: No similar shift to domestic issuance pattern is observed on private firms.

4. Methodology

We begin with a preliminary test to check the enhancement of Chinese capital market absorptive capacity in recent years. We use the ratio of a firm's issuing proceeds over the total Chinese A-shares market value (referred as "AC ratio" in what follows) to act as a proxy for Chinese market absorptive capacity. If this absorptive capacity is

enhanced, the AC ratio would be expected to decrease significantly, and vice versa. All Chinese SOEs that listed in overseas and domestic markets from 1991 to 2012 are included to calculate the AC ratio. First, we compute the AC ratio for each individual firm, then we group firms based on their listing years. Finally, we compute the average AC ratio for each year in our study period and call this the annual AC ratio. After performing the above three steps, we check whether there is a discontinuity in the AC ratio after 2007 that potentially could be related to the shift to domestic issuance. We also compute the means and variances of AC ratios before 2007 and after 2007 and run a t-test to see whether the two average AC ratios are significantly different. This preliminary test shows whether Chinese capital market absorptive capacity has improved in recent years.

Following the preliminary test, we use a Probit test to rigorously investigate whether the change in the Chinese capital market absorptive capacity contributed to the discontinuity in the percentage domestic issuance. We hypothesize that Chinese SOEs switched their listing strategies after 2007 due to the enhancement of Chinese market absorptive capacity and use the following Probit model to test our first hypothesis:

$$OL = \beta_0 + \beta_1 * AC\ ratio + \beta_2 * Size + \beta_3 * ROA + \beta_4 * LEV + \beta_5 * LIQ + \Sigma\alpha_i * IND_i + \Sigma\gamma_j * YR_j + \varepsilon \quad (3)$$

The dependent variable, *OL* (Overseas Listing), is a dummy variable equaling 1 if the SOE is listed on overseas markets and 0 if listed on domestic markets. The independent variable of greatest interest is the *AC ratio*. Based on our hypothesis, higher domestic market absorptive capacity (lower *AC ratio*) should be related to more domestic issuances (lower probability of an overseas listing), so the coefficient, β_1, is

expected to be positive. *Size* is the variable firm size, measured as the natural logarithm of a SOE's total assets. ROA stands for return on asset (net income / total assets), which is a proxy of a SOE's profitability. *LEV* is the leverage ratio, equal to total debt divided by total shareholder's equity. *LIQ* denotes liquidity, measured here as the quick ratio ((current assets – inventories) / current liabilities) as a proxy for a SOE's liquidity. IND_i is an industry dummy variable, equaling 1 if a SOE is in industry i and 0 otherwise. YR_j is a year dummy variable, equal to 1 if a SIP is occurred in year j and 0 otherwise.

Hypothesis 2 is difficult to test directly. From the data, we can clearly observe the discontinuous pattern in the percentage domestic issuance after 2007, but it may be too early to conclude that the Chinese SOEs' shift to domestic issuance after 2007 is caused by a major change in government policy. SOEs that had SIPs before 2007 may not be directly comparable with SOEs that had SIPs after 2007 because the privatization time was not randomly chosen. The SOEs with SIPs after 2007 may systematically differ from the SOEs with SIPs before 2007 due to the difference of some firm related confounding variables. This concern motivates us to use a propensity score matching (PSM) technique to make the SOEs before and after 2007 comparable. In this way, we can tell if the Chinese SOEs' strategy change is statistically significant and thus caused by some exogenous factors changing around 2007.

In the first test, we set Chinese SOEs that had SIPs before 2007 as a treatment group. SOEs that had SIPs in or after 2007 were set as the control group. Baseline variables (confounders) include firm size, return on asset, liquidity, and leverage ratio. The propensity score is the probability that one SOE may have listed its shares before

2007. We include six matching algorithms: Kernel Matching (Normal), One Nearest Neighbor Matching with replacement, One Nearest Neighbor Matching without replacement, Three Nearest Neighbor Matching with replacement, Radius Matching, and Kernel Matching (Epan). After the PSM, we compare the outcome (probability of overseas listing) for Chinese SOEs before and after 2007. Taking into consideration the policy lag effect, we also perform a second propensity score matching, setting the SOEs with SIPs before 2008 as the treatment group, and the SOEs with SIPs in or after 2008 as the control group. After the two PSMs above, we check the Shanghai Stock Exchange's total market value, number of annual total transactions, annual total trading volume, and the annual total turnover from 1999 to 2012 (the last year for which SSE data are available). The improvement in the Shanghai financial market can illustrate our second hypothesis that the Chinese government uses policies to encourage/force SOEs to list first on the Shanghai market to promote Shanghai into a center of international finance in Asia.

To test the third hypothesis, we first employ a standard Probit model to check whether private firms have lower probability to list overseas after 2007. The model is described below:

$$OL = \beta_0 + \beta_1 * After2007 + \beta_2 * AC\ ratio + \beta_3 * Size + \beta_4 * ROA + \beta_5 * LEV + \beta_6 * LIQ + \Sigma\, \alpha_i * IND_i + \varepsilon \quad (4)$$

After2007 is a dummy variable which is equal to 1 if an equity offering happens in 2007 or later. Other variables are defined in the same way as the ones in equation (3). Due to the possible policy lag effect, we also change the dividing year from 2007 to 2008 and run the same Probit test again. In order compare the SOE pattern with the

pattern of private firms, we use a difference in differences (DID) setting to examine whether SOEs are more likely or less likely to choose overseas markets after 2007 comparing to private firms. The model is shown below:

$$OL = \beta_0 + \beta_1 * SOE + \beta_2 * After2007 + \beta_3 * SOE * After2007 + \beta_4 * AC\ ratio + \beta_5 * Size + \beta_6 * ROA + \beta_7 * LEV + \beta_8 * LIQ + \Sigma\alpha_i * IND_i + \varepsilon \quad (5)$$

SOE is a dummy variable which is equal to 1 if the issuing firm is a SOE. All other variables are defined in the same way with the ones in equation (4). We interact SOE with After2007. This term catches how the SOE pattern is different from the pattern of private firms and is of our interest. We also change our dividing year from 2007 to 2008 to alleviate the concern about policy lag effect.

5. Results

Table 11 presents our preliminary test results. The annual average AC ratio column indicates that this ratio maintained a relatively high level from 2000 to 2005, but then dropped about 59% from $9.33*10^{-4}$ in 2005 to $3.88*10^{-4}$ in 2006. The AC ratio decreased again to $1.36*10^{-4}$ in 2007, and stayed around that level during subsequent years. Since a lower AC ratio means a higher market absorptive capacity, this suggests that the Chinese capital market's absorptive capacity has been significantly enhanced in recent years, particularly since 2007. It is reasonable to believe that this discontinuity in the annual AC ratio and improvement in market absorptive capacity may have some connection with Chinese SOEs' shift to domestic issuance.

Table 12 reports results from using a Probit test to check if the discontinuous pattern of the percentage domestic issuance was contributed by the rapid increase in the capital market absorptive capacity in China. Model 1 is a univariate test with AC ratio as the only independent variable. Model 2 includes control variables, but these do not control for the time fixed effect. Model 3 is the complete model presented in equation (3), and includes year dummies to control for the time fixed effect. As expected, the coefficients of the AC ratio are positive and statistically significant in all three models. This means Chinese SOEs are more likely to list in overseas markets when the Chinese domestic market absorptive capacity is lower (higher AC ratio), but higher market absorptive capacity will in turn give Chinese SOEs more incentive to list domestically to facilitate the development of domestic capital markets when they have SIPs. Since the market's absorptive capacity has improved sharply since 2007, it is reasonable to believe that the shift to domestic issuance after 2007 can be explained by enhanced capital market absorptive capacity in China.

In order to alleviate the reverse causality concern, we use lagged AC ratio as an instrumental variable (IV). Lagged AC ratio is calculated as a firm's issuing proceeds in year t over the total Chinese A-share market value in the previous year (t-1). It measures the market absorptive capacity assuming the firm had issued the same amount of shares one year earlier. Table 13 shows the results of our Two-Stage Probit model. In the first stage, we regress the endogenous variable, AC ratio, on lagged AC ratio and other exogenous variables. The correlation between our endogenous variable and IV is confirmed. In the second stage, we regress overseas listing dummy on the estimated AC ratio and other control variables. The results indicate that when the domestic market

absorptive capacity is lower, Chinese SOEs are more likely to list their shares on overseas markets. This is consistent with our previous findings and our results are robust.

Table 14 displays the results of propensity score matching. The "Unmatched" column shows the results without performing PSM for treatment and control groups. In this test, we use the six different matching algorithms introduced in section 3, and results are shown in the table labeled with the names of the matching algorithms. Results suggest that if there is no PSM, there is a significant difference in propensities for overseas listing between the groups before and after 2007. Using the PSM technique with the dividing line in 2007, and comparing the probabilities of overseas listing for Chinese SOEs that had SIPs before 2007 and after 2007 (including 2007), yields insignificant results. In other words, if we control for key baseline variables for both the treatment and control groups, the difference between them disappears. This result seemingly contradicts our predictions. However, as discussed in section 2, most of the influential policies aimed at developing the capital market and establishing an international financial center in Shanghai were published at the end of 2006 or in 2007. There is always a lag between the time a policy is published and the point when people can see the effect of the policy. If we take the policy lag effect into consideration, and put the dividing line in 2008, the results of PSM show high statistical significance. This result suggests that controlling for the baseline variables for both groups with SIPs before and after 2008 (including 2008), we can still observe significantly different probabilities of overseas listing between treatment and control groups. This difference

appears to be caused purely by exogenous factors that are specific to the treatment (in this case, the treatment is the year change).

As a supplement to our matching technique, we also run a Probit test to check for listing strategy change after 2007 (or 2008). The Probit model being used is the same as equation (4). Since we have already known that the market absorptive capacity may affect a SOE's listing decision, we include AC ratio in this Probit model along with some other confounding variables and check whether there are some other exogenous factors besides the market absorptive capacity affecting the listing strategy of SOEs. Our results are shown in Table 15 and are largely consistent with the ones in Table 14. Chinese SOEs are still more likely to choose Chinese domestic markets to issue new shares since 2008 after controlling for the impact of market absorptive capacity. It indicates some other exogenous factors such as policy changes around the same period may affect the listing decision of Chinese SOEs.

As hypothesized in section 2, policy changes around 2007 could be the outside factors that caused SOEs to change their listing strategies. The Chinese government promulgated a series of policies to facilitate the development of a capital market and establish an international financial center in Shanghai around 2007. In order to verify whether the financial market in Shanghai was improved by the development-related policies, we collect from the Shanghai Stock Exchange's website the market cap, number of annual total transactions, annual total trading volume, and annual total turnover in the period from 1991 to 2012. These are shown in Figure 1.

In all of the four panels, we can see that the curves are initially (from 1991 to 2005) at a relative low level. The markets accelerate development from 2005 to 2006,

and then there is a huge jump for all four curves from 2006 to 2007. The development variables have remained at a relatively high level after 2006, especially compared to the pre-2006 period. The shapes of the four curves consistently indicate the significant development/improvement of the Shanghai Stock Exchange after 2007, which itself reflects the benefits of the new published policies, and shows the commitment of the Chinese government to build Shanghai into an international financial center. That said, it is reasonable to believe that the Chinese government encouraged/forced SOEs to list domestically to facilitate the development of the Shanghai market through some policy, law, or other special means so that they can achieve their goal of positioning Shanghai as a major international financial center.

To test our third hypothesis, we collect the share issuance data for Chinese private-owned firms which listed on domestic and overseas markets during 1991 to 2014 and compare their listing strategy pattern with the pattern of Chinese SOEs. We first identify the listing markets of the firms in our sample in each year. Then, we calculate the percentage of domestic issuance for private-owned firms based on the total numbers of domestic and overseas listings in each year. The statistical description of our private-owned firm sample is shown in Table 16. We compare the two patterns of percentage of domestic issuance for both Chinese SOEs and private firms and the results are shown in Figure 2.

Figure 2 Panel A shows the percentage of domestic SIPs for Chinese SOEs. During the five years before 2007, less than 50 percent of Chinese SOEs listed on domestic markets in the process of their privatizations. Especially in 2004 and 2005, this ratio was only 23.81% and 29.27%, respectively. A highly significant jump

happened after 2007. The percentage of domestic issuance increased from 42.53% in 2007 to 68.33% in 2008. Then it remained high in the following six years. The "shift to domestic issuance" pattern is evident and clear among Chinese SOEs. Figure 2 Panel B shows the corresponding pattern for Chinese private-owned firms. We observe an obvious jump around 2006 and the ratio was relatively stable from 2006 to 2009. It requires more rigorous statistical tests to answer whether this shift to domestic issuance is the same as the one we observe for SOEs. We first follow equation (4) to test whether private firms still show higher probability of domestic listing after controlling for the impact of market absorptive capacity and other confounding variables. As displayed in Table 17, the results are significant no matter we use 2007 or 2008 as the dividing year. The probability to list in an overseas market is significantly reduced after 2007.

We then use the DID technique to examine whether the shift was different for SOEs and private firms and what the differences are. The Probit model is described in equation (5). Our variable of interest is the interaction term. Table 18 shows the results. With 2007 as the dividing year, the interaction term has a significantly positive coefficient. It means that, after 2007, Chinese SOEs have relatively higher probability to choose overseas markets to issue new shares comparing to Chinese private firms. In other words, Chinese private firms have a more apparent shift to domestic issuance than SOEs since 2007. However, if we change the dividing year to 2008, the coefficient of the interaction term becomes insignificant. This indicates that Chinese SOEs and private firms have similar shift to domestic issuance patterns after 2008. Therefore, we believe the pattern difference is mainly concentrated in 2007 which is consistent with the curves shown in Figure 2. This result also supports our hypothesis 3a. Since private firms

operate more efficiently than SOEs and are more sensitive to policy changes, it explains why the shift appears earlier for private firms.

6. Conclusion

We study Chinese SIPs from 1990 to 2013 and show that the pattern of percentage domestic issuance for Chinese SOEs experiences the discontinuity after 2007. Overseas markets were the primary listing markets for Chinese SOEs if they had SIP before 2007, but this pattern has changed and Chinese domestic markets became attractive to SOEs when they needed to privatize in public markets after 2007. The reason for the discontinuity is complicated. We create a variable (AC ratio) to proxy the market absorptive capacity and, using a Probit test, find that the rapid increase in absorptive capacity of Chinese financial markets is an important reason for the shift to domestic issuance after 2007. By using the propensity score matching, and showing that the Shanghai stock market's development was affected by the policies, we reasonably illustrate the point that the shift to domestic issuance was caused by the policies which were promulgated by the Chinese government around 2007 to facilitate the development of capital markets and establish an international financial center in Shanghai. By comparing the SOE listing strategy with the private firm listing strategy, and employing the DID technique, we confirm that the Chinese government encourages SOEs to list domestically using policy tools, not administrative instructions. To summarize, we believe the discontinuity was caused by some combination of both improved market absorptive capacity and major policy initiatives.

Future researchers should investigate the relationship between changes in the Chinese political environment, and changes in SOEs' listing strategies. Political need such as showing off national power or economic strength is generally considered as a determinant of overseas listing. However, in recent years, because of the adjustment in the Chinese Communist Party leadership and the intense discussion on the reform of Chinese political system, the Chinese government has become more pragmatic and self-disciplined. The Chinese political environment has improved and this could change SOEs' listing strategies accordingly.

Chapter 3: The Choice of Flotation Methods: Evidence from Chinese Seasoned Equity Offerings[4]

1. Introduction

The choice of equity flotation methods varies across different countries. In the United States, rights offerings dominated other public offering methods from 1933 to 1955. But it was rarely used in the following two decades and almost disappeared since early 1980s. Firm commitment public offerings have replaced rights offerings and become the dominant equity flotation method in the recent years [Eckbo and Masulis (1992, 1995)]. In Britain, rights offerings were the only method for seasoned equity issuance prior to the mid-1980s. After that, placings became an alternative choice and were widely used by British firms [Slovin, Sushka, and Lai (2000)]. Our focus is Chinese market. Before 2005, there were only two flotation methods, rights offerings and public offerings. More than 90 percent of seasoned equity offerings (SEOs) in China were through rights offerings. In 2005, due to the preparation of Split Share Structure Reform, the market was almost closed down and only four public offerings were conducted in that year. After 2005, private placements were introduced as a new equity flotation method and rapidly became a popular way for Chinese companies to raise additional capital. With more than 90 percent of SEOs through private placements, it significantly dominated the other two methods in the last decade. In this study, we examine and analyze valuation effects of the three flotation methods, investigate the

[4] This chapter is based on collaborative work with Weici Yuan.

flotation method selection mechanism, and address the possible reasons for the significant shift from rights offerings to private placements.

With a sample of 3,652 SEOs through public offerings, rights offerings, and private placements by both private firms and state-owned enterprises (SOEs), we first examine the valuation effect of each issuance method under a standard event study setting and compare our results with the existing literature. In a three-day event window, we find a -1.03% average abnormal return following public offerings and this result is consistent with the extensive findings in western markets [Mikkelson and Partch (1986), Asquith and Mullins (1986), and Spiess and Affleck-Graves (1995)]. The average market reaction to rights offering announcements is much smaller but still negative (-0.38%). Although the reactions to both public and rights offerings have the same sign as the abnormal returns documented in U.S. and British markets, in terms of absolute value, the average excess returns in Chinese markets are more favorable. In terms of private placement announcements, we find a 1.33% excess return over the three-day window. This is consistent with the results documented by Abidin, Reddy, and Chen (2011) and Chen (2015). It seems that the introduction of private placement after 2005 gives Chinese firms an alternative choice to send favorable signals to the market and the shift to private placement pattern is a result of self-selection to differentiate good firms from bad ones.

We take a further step to divide each of our public and rights offering samples into two subsamples based on whether the equity issuance was announced before or after 2005 and examine how the valuation effects of the two original flotation methods change after introducing private placement as a new flotation method. We find a

significant market reaction improvement for public offering announcements after 2005. The average excess returns over three different event windows change from significantly negative to either slightly positive or insignificant. There is no apparent change in market reactions to rights offering announcements after 2005. The abnormal returns are marginal negative but significant in both pre- and post-2005 periods. Taking the positive market reactions to private placement announcements into consideration, we believe that the private placement, as an alternative equity flotation method introduced after 2005, gives Chinese firms more options to convey information and high quality firms can better distinguish themselves from low quality ones by avoiding either public or rights offerings and choosing private placements. The positive market reactions to private placements explain the shift from rights offering to private placement to some extent.

For rights offerings, we also check whether the take-up rate of existing shareholders affects the announcement period reactions. This take-up rate measures the percentage of newly issued shares purchased by existing shareholders. The median shareholder take-up rate in our sample is 54.9%. We find that the offerings with take-up rates greater than 54.9% have an average excess return which is 1% higher than the average excess return for offerings with take-up rates less than 54.9% over a three-day window. This result is consistent with the model prediction in Eckbo and Masulis (1992). For private placements, we use the blockholder take-up rate to measure the percentage of newly issued shares which are purchased by a firm's blockholders. We find that the market reaction is more positive if a firm's blockholders purchase more than 50% of the newly issued shares in a private placement. This might be explained by

the monitoring story proposed by Shleifer and Vishny (1986). In our cross-sectional test, we show that the three-day average abnormal return is negatively related to the price discount of private placements. That means the market will negatively interpret the information if a firm's issuing price for private investors is much lower than its market price.

Besides examining the valuation effects, we also investigate the driving factors for the choice of equity flotation methods in China. We test three hypotheses to discover Chinese firms' flotation method selection mechanism and attempt to explain the shift from rights offering before 2005 to private placement after 2005. We first test the information asymmetry story. Because of the asymmetric information between managers and investors, managers are considered to have information advantage to outside investors. Since managers act in the best interest of existing shareholders, they will publicly issue equity only if they believe the company is overvalued. For the undervalued firms with financial constraints, managers will choose to not issue equity and forgo positive NPV projects. This is called Myers and Majluf "underinvestment problem". Hertzel and Smith (1993) propose that private placement can mitigate the underinvestment problem. Since private placement is only for a small group of investors, an undervalued firm can alleviate the information asymmetry by better communicating private information with investors through negotiations and convincing them that the firm is undervalued and has good prospects. The willingness of private placement investors to provide funds to the firm and the firm's choice to forgo public offering release a positive signal to the market. So we hypothesize that a firm with a higher level of information asymmetry should have more incentive to choose private

placement and avoid public offering. We use the analyst coverage and stock price bid-ask spread to measure a firm's information asymmetry and employ the multinomial logistic model to estimate the marginal effect of information asymmetry on the probability of using each flotation method. Our results support the information asymmetry story. When a firm has a higher level of information asymmetry, its probability to select private placement will increase and the firm will be less likely to use public offering. The impact of information asymmetry on the marginal probability of selecting rights offering is statistically insignificant.

Our second hypothesis is the ownership structure story. Public offering lowers ownership concentration because the issuance is for all public investors. Rights offering grants existing shareholders the rights to purchase additional shares proportionally. Since most of time the take-up rate is relatively high, the issuing firm's ownership concentration is usually not changed significantly following rights offerings. By employing private placement, a firm issues a large block of shares to one or a few investors. This usually increases ownership concentration and may cause either positive or negative valuation effect. The positive market reaction can be explained by the monitoring hypothesis proposed by Shleifer and Vishny (1986) and Wruck (1989). Since the placement is taken by a small number of active investors and there is usually a lock-up period for the new share purchasers, the investors have incentive to monitor management more efficiently which lowers the agency cost addressed in Jensen and Meckling (1976) and the probability of value-increasing takeovers is increased. In contrast, the managerial entrenchment story noted by Dann and DeAngelo (1988) and Wruck (1989) reveals the possible downside of private placement. Since private

placement is only for a small group of investors, managers have stronger influence on the issuing firm's ownership structure. In order to entrench their control of the firm, managers may choose to issue shares to passive investors or the investors who have good relationships with the managers. In this case, private placement hurts firm value because it may aggravate possible agency problems and lower the possibility of favorable takeovers. This entrenchment story is empirically supported by both Wu (2004) and Barclay, Holderness, and Sheehan (2007).

We first test whether managers choose private placement to improve the monitoring from outside investors. We check whether firms with low ownership concentration are more likely to employ private placement. Both the percentage ownership of top five blockholders and the percentage ownership of institutional investors are used as measures of ownership concentration. The results from our multinomial logit mode show that the ownership concentration is not a decisive factor in a firm's flotation method selection mechanism. To test the managerial entrenchment story, we examine whether firms with low insider ownership have greater incentive to use private placement. We embed insider ownership into our multinomial logit model and the results show that insider ownership is not an important factor affecting the selection of equity flotation methods. In addition, we follow the method used by Wruck (1989) and Hertzel and Smith (1993) and run a cross-sectional regression to check the relationship between Cumulative Abnormal Returns (CARs) and the change in ownership concentration. When we pool all of our private placement observations together, this relationship is not statistically significant. However, when we divide our entire sample into three groups based on their post-placement insider ownership, we

find that the relationship between CARs and ownership concentration change is negative in the group with small (below 5%) post-placement insider ownership and is positive in the groups with middle (5% to 25%) and high (above 25%) post-placement insider ownership. These results contradict the managerial entrenchment hypothesis but indicate that markets react positively to insider ownership increase when this ownership change leads managerial ownership to a dominant level which reduces the agency costs between managers and outside investors. Overall, our findings suggest that a firm's ownership structure does not play an important role in the firm's flotation method selection process.

In the last hypothesis, we test the listing requirement story. In China, all equity issuing matters are governed by China Securities Regulatory Commission (CSRC) and CSRC has strict listing requirements for different types of equity flotation methods. Among all miscellaneous provisions, we believe the variation of profitability requirements affects a firm's choice of flotation methods. To implement rights offering or public offering, CSRC requires the issuing firm's average Return on Equity (ROE) over the recent three fiscal years to be at least 6%. For private placements, there was a requirement of 10% minimum average ROE from 2002 to 2005. In that period, almost no private placement was employed. CSRC promulgated new 'Regulations for the Issuance of Securities of Listed Companies' and 'Regulations of refinancing' in 2006 to facilitate the Split Share Structure Reform (SSSR) and the previous minimum ROE requirement was repealed at the same period. We believe the preference for private placement after 2005 is partially caused by the low profitability requirement of private placement. The removal of ROE requirement gives the firms which don't satisfy the

profitability requirements an alternative choice to raise external capital. To test our story, we use Return on Asset (ROA) and ROE as measures of firm profitability and add them into our multinomial logistic regression. We find that when a firm's profitability is increased, the chance of using private placement will significantly decrease and the firm has greater probability to use public offerings. The marginal probability of picking rights offering is insignificantly different from zero. In addition, we check the profitability difference between the firms issuing equity before and after 2005. Firms issuing equity after 2005 on average have significantly lower profitability than firms with equity issuance before 2005. This supports our story that private placement provides a chance for the firms with lower profitability to raise additional funds and also serves as a piece of evidence explaining the shift from rights offering to private placement.

There is a large variation among the choices of equity flotation methods over different countries. Doidge, Karolyi, and Stulz (2013, 2017) and Gao, Ritter, and Zhu (2013) focus on the IPO activity in the U.S. They find that the number of IPOs by U.S. firms is significantly reduced after 2000 while non-U.S. firms increase their IPO activity in the same period. The choice of SEO method in different countries is also receiving more attention in the literature [Wu (2004) focus on the U.S., Cronqvist and Nilsson (2005) focus on Sweden, Ginglinger, Matsoukis, and Riva (2013) focus on France, Slovin et al. (2000), Barnes and Walker (2006), Armitage (2010), and Capstaff and Fletcher (2011) focus on the U.K.]. In this study, we focus on China which is the second largest economy and has the most important emerging market in the world. This paper gives comprehensive description and analysis for seasoned equity offering

methods used in Chinese markets. We check valuation effects for different equity flotation methods and examine whether the market price reactions are consistent with finance theories and with the empirical findings in the U.S. and other western countries. More importantly, we study the determinants affecting flotation method choice in China. We test the traditional information asymmetry, monitoring, and managerial entrenchment stories with a new comprehensive Chinese dataset. Besides that, due to the strict equity issuance approval process in China, we propose a listing requirement story to explain Chinese firms' flotation method choices and provide positive evidence supporting our hypothesis. In previous literature, the flotation method choice has only been studied between two methods [public offering vs. private placement by Wu (2004) and Abidin et al. (2012); rights offering vs. public placing by Slovin et al. (2000), Barnes and Walker (2006), Capstaff and Fletcher (2011), Dang and Yang (2013), and Ginglinger et al. (2013); rights offering vs. private placement by Cronqvist and Nilsson (2005)] with a probit model. In our paper, we use a multinomial logit model to assess how the change of each factor may affect the choice of three alternative equity flotation methods simultaneously. This allows us to evaluate the sensitivity of the each method towards different decisive factors. In the end, we give an attempt to explain the issuance method shift from rights offering to private equity placement around 2005.

The rest of the article is organized as follows. Section 2 introduces the equity flotation methods used in Chinese markets and presents the usage frequency of each method over the past 24 years. Section 3 states the testable hypotheses. Section 4 describes the data sample and explain the empirical methodologies. Section 5 shows the results and Section 6 concludes the paper.

2. Introduction of Equity Flotation Methods in China

Rights offering, public offering, and private placement are the three most commonly used equity flotation methods in China nowadays. Chinese listed companies have raised almost five trillion Chinese yuan (RMB) through the three types of seasoned equity offerings by the end of 2015. However, the three methods did not emerge at the same time and the preference for each method changes over time. Table 19 provides a comparison of the usage of three flotation methods. As shown in Panel A, rights offering is the first seasoned equity issuance method used in China. It grants a firm's existing shareholders a priority to subscribe the firm's newly issued shares proportionally at a discounted price. Over the past 24 years, 1,004 rights offerings have been accomplished which brought 535.54 billion RMB to Chinese listed firms. Public offering seems like the most unpopular SEO method in China. In a public offering process, the issuing company issues new shares to non-specific public investors including both existing and new shareholders. Usually the new share purchasers are relatively small and diverse and the issuing firm manager has little influence on their firm's post-issuance ownership structure. The first public offering in our sample was conducted in 1998 and since then there were only 186 public offerings being carried through and a total of 325.80 billion RMB had been raised by 2015. Private placement is a type of non-public offering and is only for a few of specific investors (the maximum number of investors in one private placement is ten). The issuing firm manager might affect the composition of potential private placing investors and have a stronger influence on their firm's post-placement ownership structure. Private placement has looser profitability requirements than either public or rights offering. Although the first

private placement in our sample was in 1999, we only observe sporadic private placements in early times (two in 1999, one in 2001, and one in 2002) and it had not been widely used until 2006. The prevalence of private placement started in 2006. From then on, Chinese firms have raised 4.05 trillion RMB through 2,458 placements which makes private placement become the most dominant equity flotation method used in China in terms of number of issuance and total capital raised.

Panel B and C of Table 19 show the percentage usage of each method. We find that the popularity of each flotation method changes over time. But the patterns are similar regardless the percentages are calculated by number of issuance or capital raised. In the ten years from 1992 to 2001, rights offering was the primary equity flotation method in China. Even after the appearance of public offering in 1998, rights offering was always in a dominant position and more than 80 percent of seasoned equity offerings were through rights offerings. The proportion of public offering had increased significantly after 2002. Although it was still behind rights offering in terms of number of issuance in the period of 2002 to 2004, more than 60 percent of total capital was raised through public offering. 2005 is a special year in our sample. Chinese government started the SSSR in that year with the purpose to eliminate the difference of circulation system between tradable and non-tradable shares. To prepare for this reform, the equity market was almost shut down. We only observe four seasoned equity offerings in 2005 and all of them were through public offerings. The private placement age started in 2006 when CSRC promulgated new 'Regulations for the Issuance of Securities of Listed Companies' and 'Regulations of refinancing' removing the minimum profitability requirements for non-public offering which were continuously

enforced from 2002 to 2005. The usage of private placement increased dramatically to almost 85 percent counted by number of issuance and to 89 percent counted by capital raised in 2006. And in the following years till 2015, private placement significantly dominated the other two equity flotation methods with more than 80 percent usage on average no matter which method we use to calculate the percentages. These popularity patterns can also be observed in Figure 3. Overall, private placement is the most frequently used equity flotation method in China while public offering is the most reluctantly used. The usage of rights offering is somewhere in the middle. However, when we check the preference of each method over time, we find that rights offering was the leading flotation method in Chinese equity market before 2005 and there was an apparent shift from rights offering to private placement after 2005. Since then, private placement became the new primary flotation method and was pervasively used by Chinese listed firms.

3. Hypotheses

Besides examining valuation effects of the three equity flotation methods, another important purpose of this study is to explain why a firm's manager chooses one flotation method over the others and then address the underlying causes for the shift from rights offering to private placement. In this section, we describe some potential factors which could possibly affect a manager's decision about flotation method choice.

3.1. Information Asymmetry Hypothesis

Myers and Majluf (1984) point out an "underinvestment problem" for the firms with undervalued outstanding shares. Due to the information asymmetry between

managers and outside investors, managers have information advantage comparing to investors and investors learn new information from the signals sent by managers. In their model, managers act in the best interest of existing shareholders and they will choose to issue new equity only if they believe their firm's stock is overvalued because this decision can help existing shareholders take advantage of new investors. Therefore, whenever a firm issues new shares, the market will read it as a negative signal because investors believe the firm is overvalued. For undervalued firms with financial constraints, to avoid sending negative signals to the market, they are reluctant to issue new shares and choose to forgo positive NPV projects. Hertzel and Smith (1993) propose that private placement is a solution to the Myers and Majluf underinvestment problem. Since private placement is only for a small number of investors, firm managers can better communicate information with private placement investors and convince them that their firm is undervalued and has good prospects. Managers' decision to relinquish public offering and investors' decision to provide fund through private placing both send a positive signal to the market and cause positive valuation effect. Therefore, private placement plays a role to reduce information asymmetry and mitigate the underinvestment problem. Chemmanur and Fulghieri (1999) develop a model to explain a firm's going-public decision. In their model, there is a trade-off between information production costs and bargaining power against entrepreneur. When the information asymmetry is high between managers and outside investors, information production costs for outsiders are relatively high. If the firm chooses to go public and issue shares to a large number of outside investors, the higher information production costs will be duplicated and borne by the issuing firm. Therefore, in this

situation, the firm should choose private placement to lower the aggregated information production costs. Empirically, Wu (2004) study the choice between public offering and private placement with US public firms. Cronqvist and Nilsson (2005) study the choice between rights offering and private placement with Swedish public firms. Both articles show that a high information asymmetry level motivates firms to choose private placement. Based on the previous literature, we hypothesize that with higher information asymmetry, Chinese firms have more incentive (larger probability) to choose private placements and less incentive (smaller probability) to choose either public offerings or rights offerings. Since existing shareholders might have better knowledge about their firm's true value than outside new investors, the information production costs for existing shareholders are reasonably smaller than the costs for new investors. We believe when the information asymmetry level is increased, the marginal probability decrease for rights offerings should be lower than the marginal probability decrease for public offerings. Or in other words, rights offering is more preferable than public offering.

3.2. Ownership Structure Hypothesis

Three equity flotation methods may cause different ownership structure changes following the issuance. Public offering usually decreases ownership concentration since the issuance is for small public investors. Rights offering gives existing shareholders a privilege to purchase additional shares and normally has trivial influence on post-issuance ownership structure. Private placement increases ownership concentration by placing a large portion of equity to one single or a small group of investors. We believe the different influences on ownership structure may affect the choice of different

flotation methods. Shleifer and Vishny (1986) and Wruck (1989) propose a monitoring story. Private placement in China is limited to no more than ten investors and each investor holds a large block of stock with a 12 to 36-month lock-up period. Since the private placement investors' proportion of equity is relatively high and they cannot trade the purchased shares within the lock-up period, they have incentive to monitor the management with expectation to lower agency cost and increase firm value [Karpoff, Lee, and Masulis (2013)]. Therefore, we hypothesize that private placement leads to an increase in ownership concentration and Chinese listed firms with low ownership concentration have larger probability to use private placement in order to attract outside institutional investors to enhance the monitoring effect. Nevertheless, we also consider the managerial entrenchment story noted by Dann and DeAngelo (1988) and Wruck (1989). Private placement investors are not randomly selected. Managers may have significant influence in the selection process. Due to the selfishness of managers, they have incentive to entrench and strengthen their control of the company. Therefore, they are motivated to select passive investors or the investors who are willing to stand on the same side with the managers in voting events. These private placement investors will not increase monitoring to management. On the contrary, the firm value will be hurt due to the potential aggravated agency problems and the decreased possibility of favorable takeovers. Furthermore, Wu (2004) suggests a managerial self-dealing story stating that managers have propensity to expropriate shareholders by purchasing new shares at large discounted prices through private placements to transfer wealth from existing shareholders to managers. Their incentive is particularly strong if managers have small initial stakes. Thus, we hypothesize that private placement may be motivated by

managerial self-dealing incentive. Listed firms with low managerial ownership tend to have a higher probability to use private placement.

3.3. Listing Requirement Hypothesis

In China, the issuance of new shares of listed firms is regulated by CSRC. To be qualified to issue new shares, listed firms are required to satisfy a series of stringent conditions. Before 2006, seasoned equity offerings were mainly in the forms of public offerings and rights offerings. Among all kinds of legal, operational, and listing requirements, profitability condition was a critical factor affecting the approval of a firm's new share issuance request. CSRC required the issuing firms to show a minimum of 6% weighted average ROE over the last three years before the offerings. This profitability requirement applied to all of the three flotation methods although private placement was rarely used in that period. In 2002, CSRC even made the equity issuance requirements more stringent and increased the profitability bar from 6% to 10% weighted average ROE. This requirement limited low profitability firms' ability to raise funds from capital markets. However, in 2006, CSRC promulgated new 'Regulations for the Issuance of Securities of Listed Companies' and 'Regulations of refinancing' to facilitate the SSSR which started in 2005. In the new regulations, for non-public offerings (private placements), the maximum number of private placement investors is ten, the offering price should not be less than 90% of the average market value, and there is a 12 to 36-month lock-up period for the new share purchasers. However, the profitability requirement was abolished and firms could apply for private placements even if they experienced a loss in the past years. These new regulations reduced the difficulty of refinancing and made private placement an alternative option to raise funds

for the firms which did not meet the profitability requirements to offer publicly. Therefore, we hypothesize that listed firms with lower profitability tend to choose private placement to raise capital since there is no profitability requirement and the issuing procedure is simpler and quicker.

4. Data and Methodologies

We collect equity flotation data for Chinese listed firms from the WIND database. In total, we have 3,652 issuances covering all three flotation methods over the period of 1992 to 2015. Among them, 186 issuances are public offerings, 1,004 issuances are rights offerings, and the rest 2,462 belong to private placements. Our issuers include both private firms and SOEs. Relevant stock price information and firm financial data are collected from the Chinese Stock Market & Accounting Research (CSMAR) database. Ownership information is collected from S&P Capital IQ database.

We employ a standard event study procedure to check the valuation effects of three flotation methods over the announcement period. The announcement day is set as day 0. We construct a three-day event window from day -1 to day 1, a five-day event window from day -2 to day 2, and a seven-day event window from day -3 to day 3. We obtain daily stock return data for each firm from the CSMAR and estimate our market model over the period of day -270 to day -21. In our market model estimation process, a unique problem regarding the market return arises due to a special feature of China's stock markets that there exist two stock exchanges: Shanghai Stock Exchange and Shenzhen Stock Exchange. Throughout this work, we use the index for the former (Shanghai Composite Index) to compute the market returns in that the market size of

Shanghai Stock Exchange is by far greater than that of Shenzhen Stock Exchange and that we can use a single market return as opposed to two. Nevertheless, we have experimented with two market returns for the two stock exchanges respectively and constructed a comprehensive market return which is a weighted average of the market returns in the two stock exchanges. The results are largely unchanged. Abnormal return is defined as the difference between the actual return and the predicted return from our estimated market model. We report cumulative abnormal returns which are the sum of daily abnormal returns over the event windows.

In determining the driving factors of the choice of flotation methods, we apply a multinomial logit model. Multinomial Logit, also known as multinomial logistic regression, generalizes the Logit model to problems with more than two choices that cannot be ordered in a meaningful way. In our model setup with three flotation methods, the probabilities of firm *i* choosing alternatives *j* = 1, 2, 3 can be defined as:

$$p_{i1} = \frac{\exp(x_i'\beta_1)}{\exp(x_i'\beta_1)+\exp(x_i'\beta_2)+\exp(x_i'\beta_3)}, \quad j=1 \qquad (6)$$

$$p_{i2} = \frac{\exp(x_i'\beta_2)}{\exp(x_i'\beta_1)+\exp(x_i'\beta_2)+\exp(x_i'\beta_3)}, \quad j=2 \qquad (7)$$

$$p_{i3} = \frac{\exp(x_i'\beta_3)}{\exp(x_i'\beta_1)+\exp(x_i'\beta_2)+\exp(x_i'\beta_3)}, \quad j=3 \qquad (8)$$

However, in order for the entire model to be identifiable, one of the outcomes has to be treated as the baseline category and the parameters specific to this category are set to zero. This exercise also guarantees the sum of the probabilities of the three outcomes to be 1, for any individual *i*. Without loss of generality, we let the first category be the baseline outcome. Setting $\beta_j = \mathbf{0}$ leads to the following equations, which can be estimated by maximum likelihood:

$$p_{i1} = \frac{1}{1+\exp(x_i'\beta_2)+\exp(x_i'\beta_3)}, \quad j=1 \qquad (9)$$

$$p_{i2} = \frac{\exp(x_i'\beta_2)}{1+\exp(x_i'\beta_2)+\exp(x_i'\beta_3)}, \quad j=2 \qquad (10)$$

$$p_{i3} = \frac{\exp(x_i'\beta_3)}{1+\exp(x_i'\beta_2)+\exp(x_i'\beta_3)}, \quad j=3 \qquad (11)$$

There are two commonly used ways of calculating marginal effects. The traditional practice is to compute marginal effects while setting all variables to their means. It represents the response of an average individual to a change in a predictor, holding everything else constant. An alternative approach, which has been gaining popularity recently, is to take the average of the marginal effects evaluated at each sample data point. It shows the mean response of all individuals in the sample. In most cases, the results based on these two methods are quantitatively similar and we will only show the latter in the results table.

We consider a variety of firm-specific characteristics in our analysis including firms' size, ROA, growth rate of sales revenue, current ratio, number of analysts, percentage shares owned by institutions, percentage shares held by top five blockholders, bid-ask spread, price discount, and the size of refinancing. All variables pertaining to firm characteristics are lagged by one year to avoid contemporaneous endogeneity and to take care of the fact that a decision to refinance was made before it was actually implemented. Given that China's SSSR in 2005 strongly affected a firm's refinancing choice, we also include a dummy variable in the regression indicating whether a SEO took place before or after 2005 to control for the policy changes.

As a general rule, the marginal effects of any covariate on the three flotation methods sum to zero. This is inherent in the fact that the probability that at least one of

the outcomes occurs is always 100%. Any violation of this zero sum rule in our result table is purely due to rounding errors.

5. Results

Table 20 shows the definitions of all variables in this study. Table 21 presents the descriptive statistics of relevant variables.

5.1. Valuation effects of three equity flotation methods

Stock price reactions around issuance announcement periods are presented in Table 22. We report excess returns in 3-day, 5-day, and 7-day window. From Panel A, we find market reaction for public offering is significantly negative. The 3 to 7-day average cumulative abnormal returns (CARs) are from -1.09% to -2.15%. The average CARs for rights offering are also significantly negative but smaller in terms of absolute value. The 3 to 7-day average CARs are from -0.39% to -1.55%. It indicates that public offering is more unfavorable than rights offering. This pattern is similar to the one observed in the U.S. markets although the degree of negative market reaction is apparently lower in China. The less negative wealth effect of rights offering explains its dominant position before the SSSR. When we check the market reactions to private placement announcements, we exclude the observations with more than 30 days of trading suspension after the announcements of private placement. These observations may bias our results since CAR catches not only the effect of private placement, but also the influence of some other information generated in the suspension period. We find significantly positive market reactions for private placement announcements in all of the three event windows. The 3 to 7-day average CARs are from 1.33% to 3.24%

which are largely consistent with the findings in most of the empirical studies conducted in western markets [Wruck (1989), Hertzel and Smith (1993), and Hertzel, Lemmon, Linck, and Rees (2002)]. It indicates that the introduction of private placement after 2005 gives Chinese firms an alternative choice to send favorable signals to the market and the shift to private placement pattern is a result of self-selection to differentiate good firms from bad ones. Since private placement is widely used after 2005, in Panel B, we check whether the market reactions for both public and rights offerings are changed from pre-2005 to post-2005 period due to the increased popularity of private placement. We find that there is no apparent market reaction change for rights offering. It is still slightly but significantly negative after 2005. However, the market reaction for public offering is changed from largely negative to insignificantly different from zero or even significantly positive. In the pre-2005 period, public offerings were highly unfavorable with average CARs more than -3.25% in all event windows. After 2005, public offering has a significantly positive average CAR (0.88%) over the 3-day event window and the average CARs are insignificantly different from zero over the 5 or 7-day window. Our results before 2005 are similar to the pattern observed in the U.S. markets. Public offering is more unfavorable than rights offering in terms of valuation effects. However, the pattern we find after 2005 is reversed. Rights offering becomes the most unfavorable one among the three methods. A more favorable market reaction is generated by avoiding rights offering and selecting private placement. In addition, we also check whether the shareholder take-up rate affects the market reactions to rights offering announcements. Results are shown in Panel C. The take-up rate measures the proportion of newly issued shares purchased by existing shareholders. The median take-

up rate in our sample is 54.9%. We find that the market reaction is significantly negative when the existing shareholder take-up rate is below our sample median. When the take-up rate is higher than the median and most of the new shares are purchased by existing shareholders, the market reaction is more favorable (insignificantly different from zero). In Panel D, we show the impact of blockholder take-up rate on the market reaction to private placement announcements. We find that the market reaction is more positive if a firm's existing blockholders purchase more than 50% of the total private placement shares.

5.2. Cross-sectional regression results

In our cross-sectional tests, we regress CARs of each flotation method on firm and issuance characteristics in order to examine what factors are relevant to the valuation effects. All cross-sectional tests are over the period of 2005 to 2015 in which the three flotation methods were all available on Chinese markets. Due to the limited observations for public and rights offerings, the results are less conclusive and not reported. However, we can still tell that the rights offering take-up rate is positively related to stock price reaction which is consistent with the event study results. The high take-up rate mitigates the adverse selection problem described by Eckbo and Masulis and is positively valued by the market. Table 23 shows the cross-sectional results for private placement only. We find that there is a significantly negative relationship between price discount and CARs. This result indicates that private placements with large price discounts send a negative signal to the market. There are two possible explanations for the market's negative interpretation. 1) Investors consider a large price discount as a sign that the manager expects stock price to decrease after the placement.

2) A large price discount indicates potential managerial self-dealing problem in which wealth is transferred from existing shareholders to managers by privately placing a large portion of shares to managers at a large discount. In addition, we check whether the change of ownership concentration affects market reactions following Wruck (1989) in order to verify the managerial entrenchment hypothesis. We partition our whole sample into three groups based on the post-placement insider percentage ownership. Our results are largely different from the ones reported in Wruck (1989). In the group with low level of post-placement insider ownership (0 to 5%), CARs are negatively related to changes in ownership concentration. However, in the groups with middle (5% to 25%) or high (above 25%) level of insider ownership, CARs are positively related to changes in ownership concentration. Therefore, the managerial entrenchment story cannot be justified by our data from Chinese markets. Contrarily, our results precisely suggest that investors believe that the increase of insider ownership aligns interests between managers and outside investors which mitigates the agency costs noted by Jensen and Meckling (1976).

5.3. Multinomial logistic regression results

In this section, we identify the factors which affect a manager's choice of flotation methods. Table 24 presents the marginal effects of the explanatory variables on the probability of choosing each of the three flotation methods. The results are in percentage terms and indicate the changes in probability associated with one unit change in the corresponding predictor. We do not report the coefficients of the original multinomial logistic regression in that they represent the logarithm of the relative probability of one outcome over the baseline outcome, which is difficult to

interpret, and that the results depend on the choice of the baseline outcome. By contrast, marginal effects are available for all categories of the dependent variable and are independent of the choice of the baseline outcome.

In order to test our first hypothesis, we use number of analysts and average bid-ask spread over the last five trading days prior to the announcement date to measure information asymmetry between managers and outside investors. The marginal effects of number of analysts on the probabilities of private placement and public offering are reported as -0.72% and 0.83% respectively. It means that when a firm is followed by one more analyst, its probability of choosing private placement is decreased by 0.72% and its probability of choosing public offering is increased by 0.83%. The marginal effect on rights offering is insignificantly different from zero. When a firm is followed by more analysts, the information asymmetry level is lower. This result implies that firms with higher level of information asymmetry tend to select private placements and avoid public offerings. The probability of using rights offering might still increase, but this increase is not statistically significant. Bid-ask spread is positively related to information asymmetry. Our result shows that when the spread is increased by one percent, the probability of choosing private placement is increased by 0.2% at 1% significance level, the probability of choosing public offering is decreased by 0.16%, and the probability of choosing rights offering is decreased by 0.04%. The marginal probabilities on both public offering and rights offering are not statistically significant. Our findings support our first hypothesis by showing that Chinese firms are incentivized to select private placement and avoid public offering when they have relatively high information asymmetry level. The probability of using rights offering can go either way,

but is not statistically significant. It suggests that rights offering is better than public offering, but worse than private placement when information asymmetry level is high.

In our second hypothesis, we try to investigate whether the ownership concentration or the level of managerial ownership may have impacts on a manager's choice of equity flotation methods. We use the total percentage ownership of top 5 shareholders and the percentage ownership of insiders to measure ownership concentration and managerial ownership respectively. We find that the marginal effects on all of the three flotation methods are insignificantly different from zero. This indicates that ownership structure is not a crucial determinant in the mechanism of flotation methods selection. As a supplementary test for the monitoring hypothesis, we check the changes of ownership concentration for all of the three methods and results are reported in Table 25. We first use the ownership of top 5 blockholders to represent ownership concentration. There is no significant change of ownership concentration following either public or rights offerings. However, the mean and median ownership concentration show significant increase following private placements which is consistent with our monitoring hypothesis. Since institutional investors are considered to be the group with strong monitoring incentive and power, we further check the changes of institutional ownership following the three types of equity issuance. The results are similar to what we find with top 5 blockholder ownership. The institutional ownership change following public or rights offerings are still insignificant. We consistently find positive post-private placement institutional ownership change and the magnitude of ownership increase is larger when we use institutional ownership instead of ownership of top 5 blockholders. These results indicate that private placements

indeed increase firms' ownership concentration and enhance the monitoring effects by placing large blocks of shares to institutional investors.

In the last part, we examine the impact of profitability prior to an equity issuance on a firm's choice of flotation methods. As we stated in our third hypothesis, firms have tendency to choose private placement since it doesn't have profitability requirement and is more flexible. In our multinomial logit model, we use ROE as a proxy of profitability and find negative marginal effect (-0.21%) on private placement and positive marginal effect (0.17%) on public offering. Both are statistically significant at 5% level. This result implies that when a firm's ROE is reduced by 1%, this firm's probability to choose private placement will be 0.21% higher and its probability to choose public offering will decrease by 0.17%. The marginal effect on rights offering is not significant which means that profitability is not an important factor affecting the choice of rights offering. Our results are robust when we replace ROE with Return on Asset (ROA) or Return on Sales (ROS). We consider our results as the evidence supporting our third hypothesis.

6. Conclusion

In this study, we compare three major equity flotation methods commonly used by listed firms in China and document a preference shift from rights offering to private placement. We find negative valuation effects for both public and rights offerings although public offering is more unfavorable. These negative valuation effects are statistically significant but smaller than the effects documented in western markets in terms of absolute value. The valuation effect of private placement in China is

significantly positive which is consistent with the evidence found in western markets. This positive market reaction to private placement announcement suggests a signaling story to explain the switch from rights offering to private placement after 2005. We further investigate the flotation method selection mechanism and identify the determinants affecting a manager's flotation method choice. We confirm the information asymmetry hypothesis by claiming that the chance of choosing private placement will be higher and the probability of choosing public offering will decrease if firms have higher level of information asymmetry. We do not find solid evidence indicating an impact of ownership structure on a manager's choice of flotation methods. We find that a firm's pre-issuance profitability is negatively related to the probability of choosing private placement but positively related to the probability of using public offering. The removal of profitability requirement for private placement in 2006 provides a flexible and convenient option for Chinese listed firms to raise external capital and boosts the shift from rights offering to private placement.

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Appendix A: Tables and Figures

Table 1. Sample Distribution by Year

This table shows my sample distribution over the period of 2006 to 2015. Firms owned by the central government are reported separately from firms owned by local governments. I include the number of private placement privatizations and the total amount of raised capital in each year.

	Central Government Owned		*Local Government Owned*	
Year	No. of PPPs	Capital Raised (bil RMB)	No. of PPPs	Capital Raised (bil RMB)
2006	7	11.9	15	14.9
2007	21	30.5	51	106.7
2008	10	17.8	31	47.7
2009	22	45.8	31	85.3
2010	23	38.5	47	123.6
2011	17	41.0	49	133.1
2012	27	81.2	36	83.8
2013	43	68.3	60	128.8
2014	37	81.5	74	153.0
2015	47	182.9	109	311.1
Total	254	599.5	503	1188.3

Table 2. Covariates Balance Check

This table makes a comparison of pre-privatization performance between treated sample and control sample. Under each performance variable, the mean of 3-year averages immediately before privatizations is reported. The control group is generated using Mahalanobis metric matching with sales and ROS as matching variables. P-value and t-statistic are reported to show whether the treated and matched control samples are significantly different before privatizations.

Covariate	Treated	Control	t-statistic	P-value
Real Sales (bil RMB)	2.6	2.6	0.08	0.94
Firm size (log (bil RMB))	0.28	0.23	0.39	0.70
Growth of sales (%)	79.41	52.01	0.80	0.42
ROA	3.41	3.65	0.23	0.82
ROE	3.82	2.19	0.64	0.53
ROS	5.34	5.20	0.13	0.90
Capital Expenditure (mm RMB)	539.12	609.82	0.42	0.67
Turnover	0.65	0.74	1.59	0.11

Table 3. Comparison of Market Reactions to Private Placement Privatizations

This table shows market reactions to the privatization plan announcements of firms with central and local government ownerships. Market reaction is measured by the cumulative abnormal return (CAR). "Whole sample" means that CARs are calculated based on the entire sample. "<30 days" means that CARs are calculated based on the entire sample excluding PPPs with stock suspensions for more than 30 trading days. In panel A, CGOEs and LGOEs are not matched. Difference column shows the simple market reaction difference between the two types of firms. In panel B, CGOEs and LGOEs are matched using Mahalanobis metric matching. 1:1, 2:1, and 3:1 nearest neighbor matching are employed and Sales and ROS are the matching variables. The numbers reported in this panel represent the differences in cumulative abnormal returns (%) between CGOEs and LGOEs. Being owned by the central government is regarded the "treatment" and a positive result represents a higher average cumulative abnormal return for firms owned by the central government, and vice versa. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Panel A	Cumulative Abnormal Return (%)			
Sample (Unmatched)	Central government	Local government	Difference	P-value
-1 to 1 whole sample	2.01***	4.74***	-2.72	0.43
-2 to 2 whole sample	4.53***	7.10***	-2.56	0.46
-3 to 3 whole sample	5.85***	8.17***	-2.33	0.50
-1 to 1 <30 days	1.21***	0.79**	0.42	0.43
-2 to 2 <30 days	2.56***	2.09***	0.47	0.51
-3 to 3 <30 days	2.99***	2.67***	0.32	0.69

Panel B	Difference in Cumulative Abnormal Returns (%)		
Sample (Matched)	1 Nearest Neighbor	2 Nearest Neighbors	3 Nearest Neighbors
-1 to 1 whole sample	1.37	1.61	1.84*
-2 to 2 whole sample	2.30*	2.40*	2.53**
-3 to 3 whole sample	2.82*	2.92**	2.88**
-1 to 1 < 30 days	0.47	0.48	0.34
-2 to 2 < 30 days	0.55	0.57	0.32
-3 to 3 < 30 days	0.26	0.10	-0.12

Table 4. Post-Privatization Performance Changes

This table shows the pre- and post-privatization performance for CGOEs and LGOEs separately. The first column includes all performance variables. "Before" columns show the mean of pre-privatization 3-year averages of each performance variable. "After" columns show the mean of post-privatization 3-year averages of each performance variable. "Difference" columns capture the post-privatization performance changes. Only the significance level of performance changes is reported. *** represents significance at the 1% level.

	Central Government Owned			*Local Government Owned*		
Performance Variable	Before	After	Difference	Before	After	Difference
Output						
Real Sales (bil RMB)	2.65	4.99	2.34***	2.06	4.48	2.42***
Real Net Profits (bil RMB)	0.17	0.44	0.27***	0.13	0.34	0.23***
Profitability						
ROS	5.34	5.32	-0.02	4.57	6.53	1.96
EBIT/Sales	5.41	5.32	-0.09	4.82	7.14	2.32
Capital Investment						
Capital Expenditures/Sales	0.18	0.14	-0.04	0.21	0.17	-0.04
Capital Expenditures/Assets	0.08	0.05	-0.03***	0.11	0.06	-0.05***
Operating Efficiency						
Sales per Employee (mm RMB)	2.02	1.86	-0.16	2.86	2.97	0.11
Net Profit per Employee (mm RMB)	0.17	0.13	-0.04	0.33	0.27	-0.06
Turnover	0.65	0.74	0.09***	0.68	0.76	0.08***
Leverage						
Debt to Assets	0.55	0.53	-0.02	0.57	0.54	-0.03***

Table 5. Comparison of Post-Privatization Performance Changes

This table shows the comparison results of post-privatization performance changes between CGOEs and LGOEs. The first column shows all performance variables compared in this test. Mahalanobis metric matching is employed. "No Restriction" means that CGOEs and LGOEs are matched on sales and ROS only. "Same Year" means that CGOEs and LGOEs are matched on sales, ROS, and year. "Same Industry" means that CGOEs and LGOEs are matched on sales, ROS, and industry. In each column, the numbers represent the results from 1:1, 2:1, and 3:1 matching, respectively. Being owned by the central government is regarded the "treatment" and a positive result indicates a higher value for the firms owned by the central government, and vice versa. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Performance Variable	No Restriction	Same Year	Same Industry
Output			
Real Sales (bil RMB)	0.71|0.21|0.45	0.93|1.13*|0.80	-0.16|0.07|0.40
Real Net Profits (bil RMB)	0.08*|0.10**|0.12***	0.14**|0.13**|0.10	0.08*|0.08**|0.08**
Profitability			
ROS	-3.04*|-2.70*|-2.15	-1.36|0.05|0.25	-0.29|0.11|0.26
EBIT/Sales	-3.73**|-3.33*|-2.57	-2.05|-0.34|-0.04	-0.64|-0.10|0.10
Capital Investment			
Capital Expenditures/Sales	0.03|0.04|0.02	0.11*|0.13|0.13*	0.11|0.06|0.04
Capital Expenditures/Assets	0.01|0.02|0.02	0.02|0.02|0.03	0.00|0.00|0.00
Operating Efficiency			
Sales per Employee (mm RMB)	0.18|-0.20|-0.21	-0.28|0.17|0.39	-0.29|-0.22|-0.07
Net Profits per Employee (mm RMB)	0.03|0.05|0.05	-0.01|-0.03|-0.02	0.16|0.07|0.08
Turnover	0.03|-0.01|0.01	-0.01|0.04|0.04	-0.02|-0.01|0.00
Leverage			
Debt to Assets	0.02|0.01|0.01	0.00|0.01|0.01	0.01|0.02|0.02

Table 6. Regression Analysis on the Different Impacts between Central and Local Government Ownerships

This table shows the results of regressions. The dependent variables are the changes in 3-year averages of performance variables before and after privatizations. The variable of interest is *Central*. It is a dummy variable and equals 1 if a firm is owned by the central government. Control variables include pre-privatization 3-year average real sales, ROS, ROA, sales growth rate, current ratio, turnover, and leverage. I only report the coefficients of *Central* in this table. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Performance Variable	Coefficient of *Central*	Standard Deviation
Output		
Real Sales (bil RMB)	0.47	0.50
Real Net Profits (bil RMB)	0.10**	0.04
Profitability		
ROS	-3.87**	1.62
EBIT/Sales	-4.27**	1.79
Capital Investment		
Capital Expenditures/Sales	0.04	0.03
Capital Expenditures/Assets	0.03**	0.01
Operating Efficiency		
Sales per Employee (mm RMB)	0.06	0.30
Net Profit per Employee (mm RMB)	0.11	0.11
Turnover	0.01	0.04
Leverage		
Debt to Assets	0.00	0.01

Table 7. Comparison of Post-Privatization Performance Changes by Propensity Score Matching

This table shows the comparison results of post-privatization performance changes between CGOEs and LGOEs. The first column shows all performance variables compared in this test. Propensity score matching is employed. "No Restriction" means that CGOEs and LGOEs are matched on sales, ROS, sales growth rate, leverage, and turnover. "Same Year" means that CGOEs and LGOEs are matched on sales, ROS, sales growth rate, leverage, turnover, and year. "Same Industry" means that CGOEs and LGOEs are matched on sales, ROS, sales growth rate, leverage, turnover, and industry. In each column, the numbers represent the results from 1:1, 2:1, and 3:1 matching, respectively. Being owned by the central government is regarded the "treatment" and a positive result indicates a higher value for the firms owned by the central government, and vice versa. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Outcome Variable	No Restriction	Same Year	Same Industry
Output			
Real Sales (bil RMB)	0.57|0.65|0.42	0.46|0.75|0.38	0.86*|0.20|0.35
Real Net Profits (bil RMB)	0.12***|0.11*|0.11*	0.07|0.10|0.07	0.07|0.07*|0.08*
Profitability			
ROS	-3.50|-1.92|-2.29	-1.99|-1.42|0.12	-1.00|0.08|-0.41
EBIT/Sales	-3.06|-2.22|-1.87	-2.60|-1.95|-0.41	-0.69|-1.25|-1.38
Capital Investment			
Capital Expenditures/Sales	0.04|0.08|0.07	0.03|0.13*|0.16**	-0.01|0.01|0.02
Capital Expenditures/Assets	0.02|0.02|0.02	0.00|0.01|0.02	0.00|-0.01|-0.01
Operating Efficiency			
Sales per Employee (mm RMB)	-0.02|0.20|-0.32	-0.88|0.23|-0.10	-0.46|-1.24|-0.81
Net Profit per Employee (mm RMB)	0.09|0.06|0.09	-0.01|0.10|0.09	0.02|-0.05|0.01
Turnover	0.06|0.05|0.04	0.10**|0.08**|0.08*	-0.03|0.00|0.00
Leverage			
Debt to Assets	-0.02|-0.01|-0.01	0.03|0.01|0.01	0.02|0.02|0.01

Table 8. Comparison of Post-Privatization Performance Changes between SASAC Supervised CGOEs and LGOEs

This table shows the comparison results of post-privatization performance changes between SASAC CGOEs and LGOEs. The first column shows all performance variables compared in this test. Mahalanobis metric matching is employed. "No Restriction" means that SASAC CGOEs and LGOEs are matched on sales and ROS only. "Same Year" means that SASAC CGOEs and LGOEs are matched on sales, ROS, and year. "Same Industry" means that SASAC CGOEs and LGOEs are matched on sales, ROS, and industry. In each column, the numbers represent the results from 1:1, 2:1, and 3:1 matching, respectively. Being owned by the central government is regarded the "treatment" and a positive result indicates a higher value for the firms owned by the central government, and vice versa. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Outcome Variable	No Restriction	Same Year	Same Industry
Output			
Real Sales (bil RMB)	0.93|0.49|0.81	0.45|0.99|0.64	0.23|0.36|0.75
Real Net Profits (bil RMB)	0.10*|0.13**|0.14***	0.14**|0.13**|0.10	0.10*|0.10**|0.10**
Profitability			
ROS	-3.79**|-3.39**|-2.85*	-2.15|-1.41|-1.26	-1.65|-0.91|-0.81
EBIT/Sales	-4.62**|-3.92**|-3.03*	-2.92*|-1.88|-1.80	-1.87|-1.02|-0.91
Capital Investment			
Capital Expenditures/Sales	0.06|0.04|0.02	0.09|0.08|0.07	0.13|0.07|0.04
Capital Expenditures/Assets	0.03*|0.03**|0.02**	0.02*|0.03|0.04*	0.01|0.01|0.01
Operating Efficiency			
Sales per Employee (mm RMB)	0.33|-0.41|-0.26	-1.09|-0.19|-0.30	-0.53|-0.48|1.87|
Net Profit per Employee (mm RMB)	0.04|0.03|0.05 0.04|0.00|0.03	0.03|-0.03|-0.01 -0.03|0.03|0.01	0.19|0.10|0.10 0.01|0.00|0.02
Turnover			
Leverage			
Debt to Assets	0.03|0.02|0.02	0.01|0.01|0.01	0.01|0.01|0.02

Table 9. Statistical Description of the Whole Share-Issue Privatization Sample

This table shows the statistical description of our Chinese SIP sample. In the second column, we report the total number of Chinese SIPs in each year from 1990 to 2014. In columns 3 and 4, we divide the total number of SIPs into two groups based on whether the privatization is occurred in domestic or overseas markets. Column 5 shows the number of IPOs among all SIPs. The number of rights offerings among SIPs are displayed in column 6. Percentage of domestic SIP in column 7 is calculated as number of domestic SIPs divided by the total number of SIPs. The capital raised from SIP is provided in column 8.

Year	Total number of SIPs	Domestic SIP	Overseas SIP	IPO	Rights offering	Percentage of domestic SIP	Capital raised (US$ bil)
1990	3	1	2	1	0	33.33%	0.0916
1991	2	2	0	2	0	100.00%	0.0790
1992	14	14	0	12	0	100.00%	0.8005
1993	25	22	3	24	0	88.00%	1.8006
1994	24	12	12	21	0	50.00%	1.6577
1995	10	5	5	8	0	50.00%	0.4249
1996	36	28	8	33	0	77.78%	1.9358
1997	88	56	32	79	1	63.64%	6.8866
1998	43	32	11	34	2	74.42%	2.2901
1999	29	22	7	26	0	75.86%	2.1959
2000	48	35	13	46	0	72.92%	10.8817
2001	37	22	15	35	0	59.46%	6.2671
2002	21	10	11	16	2	47.62%	5.0704
2003	36	16	20	30	0	44.44%	10.2651
2004	42	10	32	31	1	23.81%	13.7578
2005	41	12	29	28	1	29.27%	30.6041
2006	54	22	32	38	1	40.74%	52.6264
2007	87	37	50	49	2	42.53%	72.2061
2008	60	41	19	23	4	68.33%	28.1535
2009	80	52	28	33	3	65.00%	44.9951
2010	143	113	30	56	11	79.02%	67.0328
2011	119	85	34	39	15	71.43%	74.2395
2012	142	108	34	64	6	76.06%	59.3877
2013	216	165	51	33	16	76.39%	51.4409
2014	94	75	19	32	1	79.79%	21.1889
Total	1494	997	497	793	66	66.73%	566.2798

Table 10. Capital Raised by H-share Companies

This table is downloaded from China Securities Regulatory Commission's website. We corrected a currency conversion error in the original table. This table shows the capital raised in Hong Kong market by Chinese private owned and government owned companies from 1993 to 2013. It also reports the number of different types of listing and the number of delisting in the same time period.

Year	New listing	Follow-up offering	Convertible Bond	Delisting	Capital raised from new listing (US$ bil)	Capital raised from follow-up offering (US$ bil)	Total Capital Raised (US$ bil)
1993	6						1.049
1994	11						2.234
1995	2	1					0.379
1996	6	1	1				1.212
1997	17	2	2				4.685
1998	1	2					0.457
1999	3						0.569
2000	6						6.790
2001	8	1		1			0.882
2002	16	1			2.310	0.015	2.325
2003	18	3	2		6.119	0.372	6.491
2004	18	8	1		5.237	2.589	7.826
2005	12	12		1	17.611	3.037	20.648
2006	23	11		2	37.463	1.887	39.350
2007	7	15	1	2	9.601	3.096	12.697
2008	5	6			3.803	0.753	4.556
2009	6	8			14.711	1.003	15.714
2010	7	15			17.750	17.628	35.378
2011	6	6		1	6.782	4.536	11.318
2012	9	6		1	8.250	7.714	15.964
2013	4	10		2	11.317	5.951	17.268
Total	191	108	7	10			207.792

Note: *As of the end of 2013

Table 11. Chinese A-Share Market Values and Annual Average AC Ratios

This table shows that Chinese A-share market value and annual average AC ratio from 1991 to 2013. AC ratio is calculated as a SOE's listing proceeds divided by the total Chinese A-share market value. It is a proxy for Chinese stock market absorptive capacity. We average the AC ratios of SOEs which had SIPs in the same year and show the results in the third column labeled as "Annual Average AC Ratio". This variable can be considered as a measurement of the overall market absorptive capacity in one specific year. In addition, we divide the whole sample into two groups, before 2007 and after 2007. We run t-test to check if the market absorptive capacity is statistically different among the two sub-sample. The results are shown below.

Year	Chinese A-share market Value (US$ bil)	Annual average AC ratio
1991	2.3	0.017173913
1992	18.3	0.003124512
1993	40.6	0.001773990
1994	43.5	0.001587835
1995	42.1	0.001010344
1996	113.8	0.000472702
1997	206.4	0.000379214
1998	231.3	0.000230234
1999	330.7	0.000228969
2000	581.0	0.000390199
2001	524.0	0.000341749
2002	463.1	0.000576279
2003	681.2	0.000443207
2004	639.8	0.000524499
2005	780.8	0.000933278
2006	2,430	0.000386731
2007	6,230	0.000136354
2008	2,790	0.000190394
2009	5,010	0.000126494
2010	4,760	0.000107500
2011	3,390	0.000190431
2012	3,700	0.000127387
2013	3,945	0.000062093
t-stat		8.005
p-value		0.000

Table 12. Probability of Overseas Listing Determined From Probit Models

In this table, we employ a Probit model to discover the relationship between market absorptive capacity and firm's overseas listing decision. The dependent variable in all 3 models is a dummy with value of 1 for overseas listing and 0 for domestic listing. AC ratio is defined as a firm's issuing proceeds divided by the Chinese A-share total market value in the issuing year. Size is the logarithm of a firm's total assets. ROA is return on assets. We use quick ratio to measure a firm's liquidity. Leverage is calculated as total debt divided by shareholder's equity. The standard errors are reported in the parentheses and ***, **, * denote for significance of 1%, 5%, and 10%, respectively.

Variables	Model 1	Model 2	Model 3
AC Ratio(*1000)	0.410***	0.558***	0.602***
	(0.087)	(0.143)	(0.153)
Size		-0.221***	-0.241***
		(0.050)	(0.061)
ROA		9.052***	7.394***
		(2.192)	(2.209)
Liquidity		-0.063*	-0.050
		(0.034)	(0.031)
Leverage		0.297***	0.269***
		(0.082)	(0.089)
Constant	-0.722***	3.027***	-2.081*
	(0.055)	(1.014)	(1.238)
Year fixed effects	No	No	Yes
Industry fixed effects	No	No	Yes
Pseudo R2	0.0341	0.1587	0.226
N	733	666	665

Table 13. Probit Model with Instrumental Variable

In this table, we show the results of a Two-Stage Probit model. The endogenous variable in this model is AC Ratio, which is defined as a firm's issuing proceeds divided by the Chinese A-share total market value in the issuing year. The instrumental variable is AC Lag, which is defined as a firm's issuing proceeds divided by the Chinese A-share total market value one year ahead of the issuing year. In the first stage, the dependent variable is AC Ratio and we run a regular OLS regression. In the second stage, we employ a Probit model and the dependent variable is Overseas dummy with value of 1 for overseas listing and 0 for domestic listing. Size is the logarithm of a firm's total assets. ROA is return on assets. We use quick ratio to measure a firm's liquidity. Leverage is calculated as total debt divided by shareholder's equity. The standard errors are reported in the parentheses and ***, **, * denote for significance of 1%, 5%, and 10%, respectively.

	First-stage			Second-stage	
	AC Ratio	AC Ratio		Overseas = 1	Overseas = 1
AC Lag	0.640***	0.627***	AC Ratio	0.603***	0.609***
	(0.040)	(0.035)		(0.185)	(0.158)
Size	0.021***	0.030***	Size	-0.226***	-0.242***
	(0.005)	(0.006)		(0.052)	(0.062)
ROA	0.021	0.097	ROA	8.970***	7.394***
	(0.090)	(0.080)		(2.219)	(2.210)
Liquidity	0.000	0.001**	Liquidity	-0.062*	-0.050
	(0.001)	(0.001)		(0.034)	(0.031)
Leverage	-0.003	-0.003*	Leverage	0.297***	0.270***
	(0.002)	(0.001)		(0.083)	(0.089)
Constant	-0.402***	-0.632***	Constant	3.116***	-3.379***
	(0.103)	(0.127)		(1.056)	(1.278)
Year	No	Yes	Year	No	Yes
Industry	No	Yes	Industry	No	Yes
N	683	683	N	666	665

Table 14. Comparison of Overseas Listing Probabilities Using Propensity Score Matching Technique

In this table, we use propensity score matching method to compare the overseas listing probabilities for Chinese SOEs with privatizations before and after 2007 (2008). The SOEs that had SIPs before 2007 (2008) are set as treatment group and the SOEs that had SIPs after 2007 (2008) are set as control group. The results in the second column show the difference in overseas listing probability between the treatment group and the control group without matching. In columns 3 to 8, we use six matching algorithms including Kernel Matching (Normal), One Nearest Neighbor Matching with replacement, One Nearest Neighbor Matching without replacement, Three Nearest Neighbor Matching with replacement, Radius Matching, and Kernel Matching (Epan) and the results are shown in the table labeling by their matching algorithms. Significance levels of 1%, 5%, and 10% are denoted by ***, **, * respectively.

Year	Not matched	Kernel, normal	One nearest neighbor	One nearest neighbor no replacement	Three nearest neighbors	Radius, 0.1	Kernel, epan
2007	0.159***	0.081*	0.060	0.072	0.068	0.072	0.067
2008	0.224***	0.140***	0.147***	0.198***	0.124**	0.108**	0.126***

Table 15. Test the Overseas Listing Probability Change of Chinese SOEs with Probit Models

This table shows the results of two Probit tests with share issuance data of Chinese private firms. The dependent variable in both models is a dummy with value of 1 for overseas listing and 0 for domestic listing. After2007 is a dummy with value of 1 if a share issuance happens in or after 2007. After2008 is a dummy with value of 1 if a share issuance happens in or after 2008. AC ratio is defined as a firm's issuing proceeds divided by the Chinese A-share total market value in the issuing year. Size is the logarithm of a firm's total assets. ROA is return on assets. We use quick ratio to measure a firm's liquidity. Leverage is calculated as total debt divided by shareholder's equity. The standard errors are reported in the parentheses and ***, **, * denote for significance of 1%, 5%, and 10%, respectively.

Variables	Overseas = 1	Variables	Overseas = 1
After2007	-1.717***	After2008	-1.425***
	(0.152)		(0.113)
AC Ratio	-0.396**	AC Ratio	-0.334*
	(0.194)		(0.175)
Size	0.611***	Size	0.588***
	(0.056)		(0.054)
ROA	1.029	ROA	0.789
	(0.886)		(0.848)
Liquidity	0.048***	Liquidity	0.050***
	(0.017)		(0.018)
Leverage	-0.042	Leverage	-0.041
	(0.033)		(0.033)
Constant	-10.735***	Constant	-10.840***
	(1.041)		(1.046)
Industry fixed effect	Yes	Industry fixed effect	Yes
Pseudo R2	0.3696	Pseudo R2	0.3821
N	1187	N	1187

Table 16. Statistical Description of the Chinese Private-Owned Firm Sample

This table shows the statistical description of our Chinese private-owned firm sample. In the second column, we report the total number of share issuances accomplished by Chinese private firms in each year from 1991 to 2014. In columns 3 and 4, we divide the total number of listings into two groups based on whether the share issuance is occurred in domestic or overseas markets. Percentage of domestic issuance in column 5 is calculated as number of domestic listings divided by the total number of listings. The capital raised from share issuance is provided in column 6.

Year	Total number of listing	Domestic listing	Overseas listing	Percentage of domestic issuance	Capital raised (US$ bil)
1991	15	14	1	93.33%	0.4772
1992	76	75	1	98.68%	1.6419
1993	124	117	7	94.35%	8.7334
1994	49	42	7	85.71%	4.0527
1995	31	29	2	93.55%	1.1318
1996	158	152	6	96.20%	7.9109
1997	169	156	13	92.31%	10.9911
1998	81	79	2	97.53%	4.0129
1999	58	49	9	84.48%	4.1019
2000	111	99	12	89.19%	6.7151
2001	53	38	15	71.70%	3.5928
2002	81	61	20	75.31%	3.9695
2003	87	60	27	68.97%	4.8357
2004	150	91	59	60.67%	10.2824
2005	71	12	59	16.90%	4.8954
2006	181	86	95	47.51%	18.744
2007	323	156	167	48.30%	65.7676
2008	189	112	77	59.26%	22.2948
2009	338	168	170	49.70%	68.8135
2010	694	445	249	64.12%	132.3481
2011	524	378	146	72.14%	77.4975
2012	324	214	110	66.05%	41.854
2013	350	175	175	50.00%	52.0367
2014	562	362	200	64.41%	81.2043
Total	4799	3170	1629	66.06%	637.9052

Table 17. Test the Overseas Listing Probability Change of Chinese Private Firms with Probit Models

This table shows the results of two Probit tests with share issuance data of Chinese private firms. The dependent variable in both models is a dummy with value of 1 for overseas listing and 0 for domestic listing. After2007 is a dummy with value of 1 if a share issuance happens in or after 2007. After2008 is a dummy with value of 1 if a share issuance happens in or after 2008. AC ratio is defined as a firm's issuing proceeds divided by the Chinese A-share total market value in the issuing year. Size is the logarithm of a firm's total assets. ROA is return on assets. We use quick ratio to measure a firm's liquidity. Leverage is calculated as total debt divided by shareholder's equity. The standard errors are reported in the parentheses and ***, **, * denote for significance of 1%, 5%, and 10%, respectively.

Variables	Overseas = 1	Variables	Overseas = 1
After2007	-1.717***	After2008	-1.425***
	(0.152)		(0.113)
AC Ratio	-0.396**	AC Ratio	-0.334*
	(0.194)		(0.175)
Size	0.611***	Size	0.588***
	(0.056)		(0.054)
ROA	1.029	ROA	0.789
	(0.886)		(0.848)
Liquidity	0.048***	Liquidity	0.050***
	(0.017)		(0.018)
Leverage	-0.042	Leverage	-0.041
	(0.033)		(0.033)
Constant	-10.735***	Constant	-10.840***
	(1.041)		(1.046)
Industry fixed effect	Yes	Industry fixed effect	Yes
Pseudo R2	0.3696	Pseudo R2	0.3821
N	1187	N	1187

Table 18. Listing strategy patterns between Chinese SOEs and private firms

This table shows the results of two Probit tests with share issuance data of Chinese SOEs and private firms. The dependent variable in both models is a dummy with value of 1 for overseas listing and 0 for domestic listing. SOE is a dummy with value of 1 for SOEs and 0 for private firms. After2007 is a dummy with value of 1 if a share issuance happens in or after 2007. After2008 is a dummy with value of 1 if a share issuance happens in or after 2008. AC ratio is defined as a firm's issuing proceeds divided by the Chinese A-share total market value in the issuing year. Size is the logarithm of a firm's total assets. ROA is return on assets. We use quick ratio to measure a firm's liquidity. Leverage is calculated as total debt divided by shareholder's equity. The standard errors are reported in the parentheses and ***, **, * denote for significance of 1%, 5%, and 10%, respectively.

Variables	Overseas = 1	Variables	Overseas = 1
SOE	-1.261***	SOE	-0.953***
	(0.163)		(0.131)
After2007	-1.380***	After2008	-1.200***
	(0.120)		(0.091)
SOE*After2007	0.550***	SOE*After2008	0.241
	(0.178)		(0.158)
AC ratio	-0.131*	AC ratio	-0.109
	(0.073)		(0.071)
Size	0.284***	Size	0.282***
	(0.029)		(0.029)
ROA	2.138**	ROA	1.746*
	(1.017)		(0.947)
Liquidity	0.022**	Liquidity	0.024**
	(0.009)		(0.010)
Leverage	-0.027	Leverage	-0.025
	(0.022)		(0.022)
Constant	-5.359***	Constant	-5.686***
	(0.600)		(0.617)
Industry fixed effect	Yes	Industry fixed effect	Yes
Pseudo R2	0.1978	Pseudo R2	0.2206
N	1852	N	1852

Table 19. Comparison of Three Flotation Methods in China

Panel A shows the yearly number of issuance and capital raised (in billion RMB) for each one of the three flotation methods which are frequently used in China. Panel B and C show the usage frequency (in percentage) of each flotation method. Percentages in Panel B are calculated by number of issuance. Percentages in Panel C are calculated by capital raised. The sample period is from 1992 to 2015.

Panel A

			Private Placement		Rights offering		Public offering	
Year	Total # of issuance	Total Capital raised (bil RMB)	# of issuance	Capital raised (bil RMB)	# of issuance	Capital raised (bil RMB)	# of issuance	Capital raised (bil RMB)
1992	2	0.31			2	0.305		
1993	61	7.07			61	7.074		
1994	58	4.68			58	4.68		
1995	62	5.03			62	5.033		
1996	41	7.54			41	7.535		
1997	108	25.18			108	25.181		
1998	145	36.73			143	35.368	2	1.36
1999	115	28.56	2	0.92	112	26.22	1	1.416
2000	186	66.87			174	55.889	12	10.985
2001	95	45.50	1	0.22	78	28.922	16	16.354
2002	39	17.25	1	0.20	19	4.978	19	12.068
2003	38	16.73			23	5.899	15	10.829
2004	34	26.26			23	10.429	11	15.835
2005	4	26.98					4	26.98
2006	58	102.44	49	91.06	3	1.152	6	10.23
2007	180	350.83	144	261.15	7	23.255	29	66.425
2008	141	223.17	107	164.61	8	13.95	26	44.606
2009	139	299.01	116	265.22	10	10.597	13	23.191
2010	184	496.51	153	307.92	21	150.875	10	37.714
2011	197	416.99	175	352.97	12	35.143	10	28.879
2012	166	346.48	153	327.89	7	7.042	6	11.547
2013	284	405.39	266	352.16	13	46.21	5	7.016
2014	488	678.72	473	664.32	14	14.039	1	0.365
2015	827	1279.86	822	1264.10	5	15.762		
Total	3652	4914.086	2462	4052.75	1004	535.54	186	325.80

Panel B

	Percentage usage of each method (by number)		
Year	Private placement	Rights offering	public offering
1992	0.00%	100.00%	0.00%
1993	0.00%	100.00%	0.00%
1994	0.00%	100.00%	0.00%
1995	0.00%	100.00%	0.00%
1996	0.00%	100.00%	0.00%
1997	0.00%	100.00%	0.00%
1998	0.00%	98.62%	1.38%
1999	1.74%	97.39%	0.87%
2000	0.00%	93.55%	6.45%
2001	1.05%	82.11%	16.84%
2002	2.56%	48.72%	48.72%
2003	0.00%	60.53%	39.47%
2004	0.00%	67.65%	32.35%
2005	0.00%	0.00%	100.00%
2006	84.48%	5.17%	10.34%
2007	80.00%	3.89%	16.11%
2008	75.89%	5.67%	18.44%
2009	83.45%	7.19%	9.35%
2010	83.15%	11.41%	5.43%
2011	88.83%	6.09%	5.08%
2012	92.17%	4.22%	3.61%
2013	93.66%	4.58%	1.76%
2014	96.93%	2.87%	0.20%
2015	99.40%	0.60%	0.00%
Total	67.42%	27.49%	5.09%

Panel C

	Percentage usage of each method (by number)		
Year	Private placement	Rights offering	public offering
1992	0.00%	100.00%	0.00%
1993	0.00%	100.00%	0.00%
1994	0.00%	100.00%	0.00%
1995	0.00%	100.00%	0.00%
1996	0.00%	100.00%	0.00%
1997	0.00%	100.00%	0.00%
1998	0.00%	96.30%	3.70%
1999	3.23%	91.81%	4.96%
2000	0.00%	83.57%	16.43%
2001	0.49%	63.57%	35.94%
2002	1.18%	28.86%	69.96%
2003	0.00%	35.26%	64.74%
2004	0.00%	39.71%	60.29%
2005	0.00%	0.00%	100.00%
2006	88.89%	1.12%	9.99%
2007	74.44%	6.63%	18.93%
2008	73.76%	6.25%	19.99%
2009	88.70%	3.54%	7.76%
2010	62.02%	30.39%	7.60%
2011	84.65%	8.43%	6.93%
2012	94.63%	2.03%	3.33%
2013	86.87%	11.40%	1.73%
2014	97.88%	2.07%	0.05%
2015	98.77%	1.23%	0.00%
Total	82.47%	10.90%	6.63%

Table 20. Descriptions of Major Variables

Variables	Description/Proxy
Firm Characteristics	
Firm Size	Natural logarithm of total assets
Real Sales	Total revenue adjusted for inflation using the Consumer Price Indices
Real Net Profit	Net profit adjusted for inflation using the Consumer Price Indices
Growth rate	Growth rate of total revenue
ROA	Net profit/Total assets
ROE	Net profit/Equity
ROS	Net profit/Total revenue
Capital Expenditures	Capital expenditures
EBIT	Operating profit
Turnover	Total revenue/Total assets
Current Ratio	Current assets/Current liabilities
Employees	Number of employees
Number of Analysts	Number of analysts following a stock
Top-five	Stock shares held by top-five shareholders (%)
Institutional Ownership	Stock shares held by institutions (%)
Insiders	Stock shares held by insiders of a firm (%)
Seasonal Equity Offering	
SEO Type	Public offering or Rights offering or Private placement
SEO size	Capital raised in seasoned equity offering
Bid-ask Spread (%)	100(1 - bid/ask)
Price Discount	Percentage by which the offer-price of new shares is lower than the closing price on the day before the issue
Take-up Rate	(In Rights offering) Percentage of newly issued shares purchased by the existing shareholders
Blockholder Take-up Rate	(In Private placement) Percentage of newly issued shares purchased by the blockholders

Table 21. Descriptive Statistics of Relevant Variables

This table shows the number of observations, mean, standard deviation, and median of each relevant variable.

	Observations	Mean	Std. Dev.	Median
Panel A: Firm characteristics				
size (log(total asset))	3020	0.34	1.32	0.15
Lagged top-five shares (%)	2145	9.23	10.74	6.37
Lagged inst. ownership (%)	1755	13.90	13.35	9.89
Ln(market value)	2056	2.54	1.02	2.44
ROA	2959	4.77	5.64	4.43
Current ratio	2961	2.94	41.23	1.55
Revenue growth rate (%)	2973	63.50	204.58	21.22
Lagged analyst	2858	1.39	2.36	0.00
Lagged insider (%)	1213	18.83	23.52	4.10
Block holder (%)	3219	15.48	31.64	0.00
Panel B: SOE characteristics				
Price discount (%)	3109	29.70	27.98	28.24
SEO size (% of market value)	1996	11.40	14.39	7.70
Take-up rate	984	62.33	28.21	54.91
Bid-ask spread	2970	0.02	0.72	0.01

Table 22. Valuation Effects of Three Flotation Methods

This table shows the valuation effects of all three equity flotation methods. CARs from our event studies over the 3-, 5-, and 7-day windows are reported. Our market model is estimated over the period of day -270 to day -21. Market returns are calculated with the Shanghai Composite Index. For private placement, we always exclude the observations with more than one month stock suspension following the placing announcements. Panel A shows the valuation effects for our entire sample from 1992 to 2015. In panel B, PO_pre (RO_pre) shows the valuation effects of public offerings (rights offerings) from 1992 to 2005 and PO_post (RO_post) shows the valuation effects of public offerings (rights offerings) from 2005 to 2015. In addition, the changes of valuation effects from pre-2005 to post-2005 period are reported. In panel C, we divide rights offering observations into two groups using the median take-up rate (54.9%). We further show the valuation effect difference between the group with high take-up rate and the group with low take-up rate. In panel D, we divide our private placement observations into two groups based on the blockholder percentage take-up and show the valuation effect difference between the two groups.

Panel A: All three flotation methods (mean effects %)

	Public Offering	Right Offering	Private Placement
T-1 to T+1	-1.09***	-0.39***	1.33***
T-2 to T+2	-1.70***	-0.44**	2.69***
T-3 to T+3	-2.15***	-1.55***	3.24***

Panel B: Pre and post-2005 (mean effects %)

	PO_pre	PO_post	Diff	RO_pre	RO_post	Diff
T-1 to T+1	-3.25***	0.88***	4.13***	-0.39***	-0.30**	0.09
T-2 to T+2	-3.42***	0.1	3.52***	-0.40**	-0.77**	-0.37
T-3 to T+3	-4.01***	-0.19	3.82***	-0.71***	-8.53***	-7.82***

Panel C: Rights offerings: by take-up rate

Right Offering	<Med	>Med	Difference
T-1 to T+1	-0.83***	0.07	0.90***
T-2 to T+2	-0.96***	0.08	1.04***
T-3 to T+3	-1.32***	-1.78***	-0.46

Panel D: Private placement: by blockholder percentage take-up

Private Placement	< 50%	≥50%	Difference
T-1 to T+1	0.84***	1.57***	0.73
T-2 to T+2	1.85***	3.76***	1.91***
T-3 to T+3	2.10***	4.48***	2.38***

Table 23. Cross-sectional Regressions for CARs for Private placements

This table shows the results from cross-sectional regressions for private placements. Dependent variables are the 3- or 5-day CARs from our event studies. In both model (1) and (2), we exclude private placements with more than 30 days of stock suspension following the announcements. Our sample is divided into three groups based on placing firm's post-placement insider ownership. Baseline group has 0 to 5% post-placement insider ownership, middle group has 5% to 25% post-placement insider ownership, and high group has more than 25% post-placement insider ownership. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

	(1) PP30 -1 to 1	(2) PP30 -2 to 2
Firm size (log(total assets))	-0.09	0.06
Change in Insider (%)	-0.59*	-0.68*
Change in Insider*middle group	0.56**	0.64*
Change in Insider*high group	0.61***	0.73**
Lagged Institutional ownership (%)	0.02	0.02
Block holder take up rate (%)	0.01	0.00
Price discount (%)	-0.03***	-0.04***
Log market value	-0.45	-0.62
SEO size	-0.04	-0.08**
Observations	714	712

Table 24. Marginal Effects on the Choice of Equity Flotation Methods

This table shows the marginal effects from our multinomial logit model. Coefficients from the original multinomial logit regression are not reported but available upon request. All standard errors are clustered at the year level. The results can be interpreted as the change in probability of choosing one specific method associated with one unit change in corresponding predictor. All variables pertaining to firm characteristics are lagged by one year. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Model: Multinomial Logit			
Explanatory Variable	Marginal Effect on Prob (Public Offering) %	Marginal Effect on Prob (Rights Offering) %	Marginal Effect on Prob (Private Placement) %
Size	-0.61	1.18*	-0.56
ROE (%)	0.17**	0.04	-0.21**
Current Ratio	-1.85*	-0.91	2.75***
Growth Rate (revenue, %)	0.01	-0.01**	0.00
Number of analysts	0.83***	-0.11	-0.72***
Bid-ask spread	-0.16	-0.04	0.20***
Top five (%)	0.03	-0.01	-0.02
Insiders (%)	-0.03	0.02	0.01
Price discount (%)	-0.09**	0.10*	-0.02
SEO size	0.21	-1.35	1.15
Observations: 1004			

Table 25. Univariate Analysis of Monitoring

This table shows the mean and median ownership percentages of issuing firms prior and post to their issuance as well as the mean and median percentage changes in ownership following their equity issuance. The three equity flotation methods that we compare in this table are private placement, public offering, and rights offering. Ownership is measured in two ways. Top 5 is the percentage shares owned by the largest five blockholders. Institutional ownership is the percentage shares owned by institutional investors. Significance levels for the changes in means and medians are: ***1%, **5%, and *10%.

	Pre-issue ownership (%)		Post-issue ownership (%)		Change in Ownership (%)		
	Mean	Median	Mean	Median	Mean	Median	Obs.
Private placement							
Top 5	9.17	6.20	10.31	7.78	1.15***	1.58***	1955
Institutional ownership	13.59	9.56	14.79	11.81	1.20***	2.25***	1693
Public offering							
Top 5	9.79	7.38	10.34	8.35	0.55	0.97	107
Institutional ownership	17.62	13.34	17.69	15.03	0.07	1.69	92
Rights offering							
Top 5	9.90	8.11	8.02	5.99	-1.88	-2.12**	115
Institutional ownership	16.24	13.27	16.50	10.98	0.26	-2.29	89

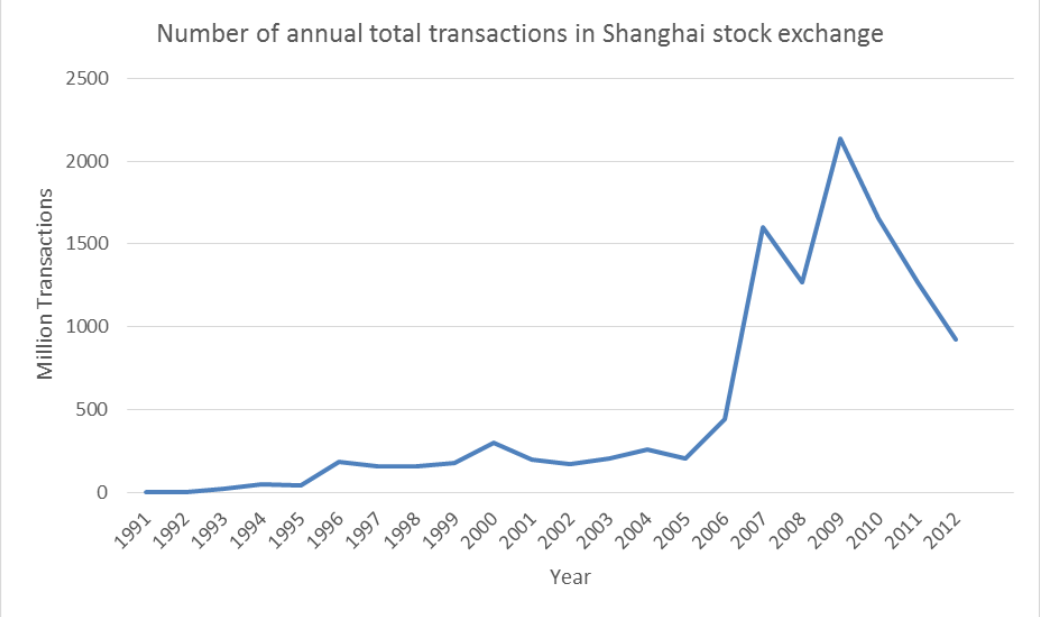
Figure 1. Shanghai Stock Exchange Market Data

This figure shows the market cap, the number of annual total transactions, the annual total trading volume, and the annual total turnover in Shanghai Stock Exchange. All data are from 1991 to 2012.

Panel A. Market cap in Shanghai stock exchange



Panel B. Number of annual total transactions in Shanghai stock exchange



Panel C. Annual total trading volume in Shanghai stock exchange



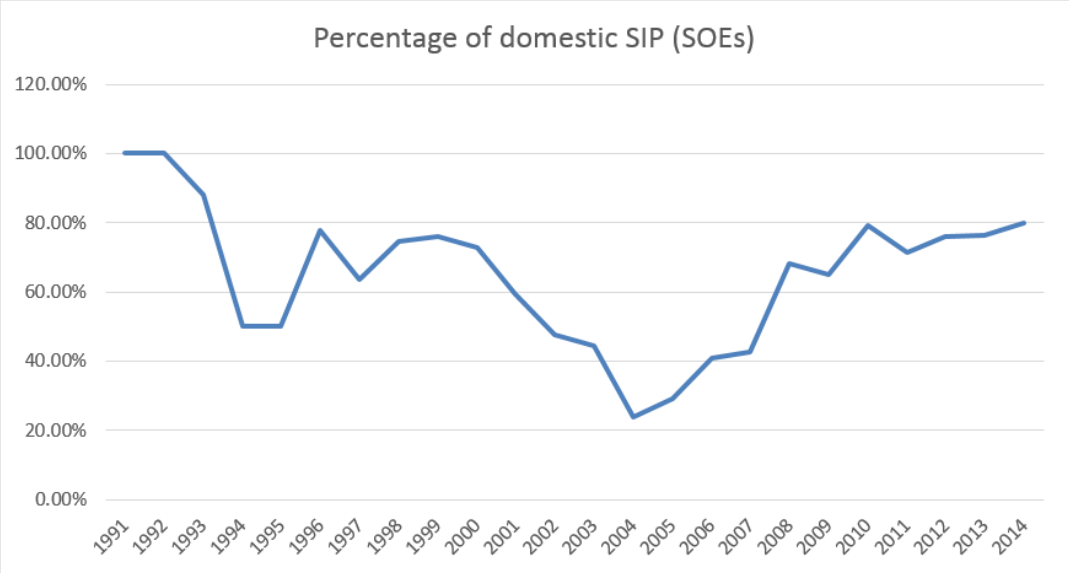
Panel D. Annual total turnover in Shanghai stock exchange



Figure 2. Percentage Domestic Issuance for State-Owned and Private-Owned Enterprises

This figure displays the time series trend of domestic issuance. Panel A shows the percentage of domestic issuance by SOEs which is calculated as the number of domestic SIPs in one year divided by the total number of SIPs in the same year. Panel B shows the percentage of domestic issuance by private-owned firms which is calculated as the number of domestic issuance by private firms in one year divided by the total number of issuance by private firms in the same year.

Panel A



Panel B

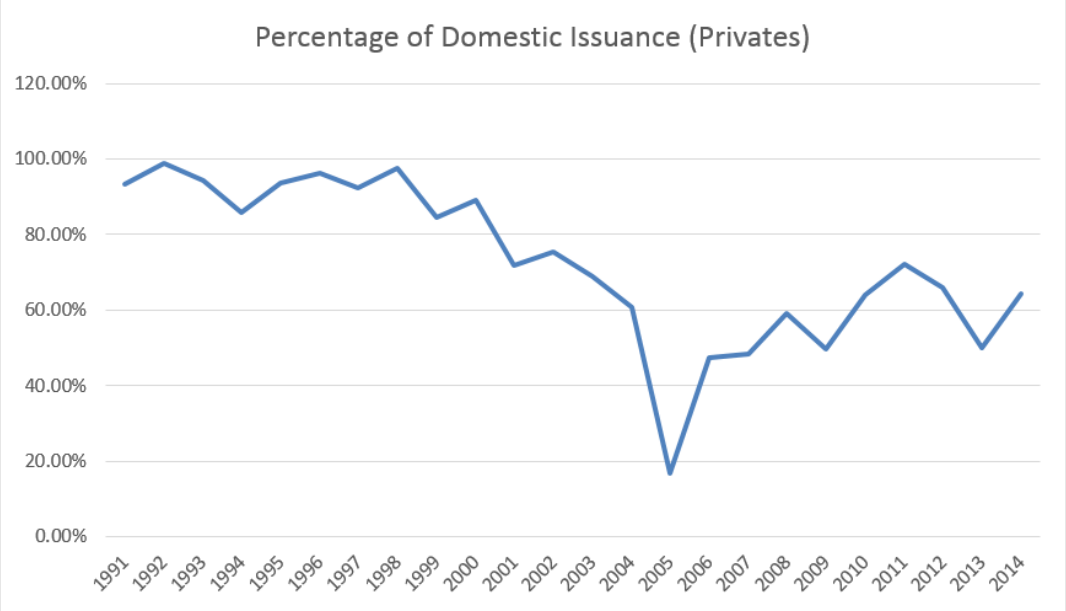
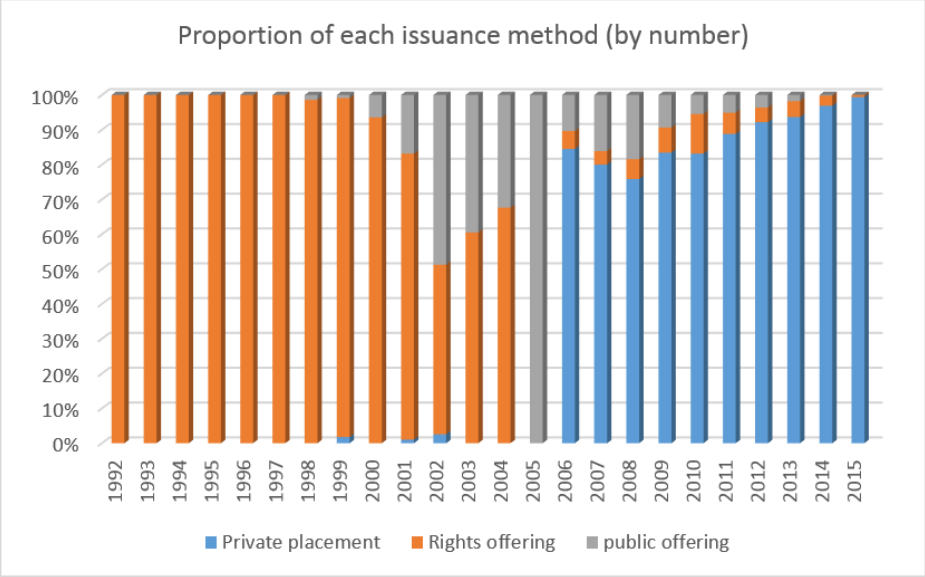


Figure 3. Comparison of Three Flotation Methods in China

This figure displays the usage proportion of each flotation method in China over the period of 1992 to 2015. Three most commonly used flotation methods are included in this figure. The orange bar shows the proportion of rights offering, the gray bar shows the proportion of public offering, and the blue bar shows the proportion of private placement. In Panel A, the proportion of one method is calculated as the number of issuance through this method in one year divided by the total number of seasoned equity issuance through all of the three methods in the same year. In Panel B, the proportion of one method is calculated as the capital raised through this method in one year divided by the total capital raised through all of the three methods in the same year.

Panel A



Panel B

